



Climate Change Mitigation Policy Mainstreaming **REPORT**



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

On behalf of



of the Federal Republic of Germany

Climate Change Mitigation Policy Mainstreaming

June 2014

Department of Environment Affairs (DEA)

Copyright © 2014

Design and layout by DEA

Chief Directorate Communications

Private Bag X447,

Pretoria 0001

South Africa

ISBN: 978-0-621 RP: 43257-2

Acknowledgements

The document on the Climate Change Mitigation Policy Mainstreaming was supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), on behalf of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) of the Republic of Germany.

The policy analysis was conducted by DNA Economics, in partnership with The Green House.

The project team acknowledges inputs received from various stakeholders that made contributions towards the development of this report.

CONTENTS

| | |
|--|------------|
| EXECUTIVE SUMMARY | I |
| Methodology | i |
| Agriculture, forestry and other land use (AFOLU) | v |
| Energy | ix |
| Industry | xvi |
| Transport | xxii |
| Waste | xxviii |
| Conclusion | xxxiii |
| 1 INTRODUCTION | 1 |
| 2 METHODOLOGY | 2 |
| 2.1 Policy gap assessment | 2 |
| 2.2 Policy gap assessment recommendations | 8 |
| 2.3 How to use the policy gap assessment | 8 |
| 2.4 Mitigation element effectiveness assessment | 9 |
| 2.5 Effectiveness of mitigation elements – recommendations | 11 |
| 2.6 How to use mitigation element effectiveness assessment | 12 |
| 3 AGRICULTURE, FORESTRY AND OTHER LAND USE | 13 |
| 3.1 Policy gap assessment | 13 |
| 3.2 Policy gap assessment – recommendations | 31 |
| 3.3 Effectiveness of mitigation elements | 32 |
| 3.4 Effectiveness of mitigation elements - recommendations | 37 |
| 4 ENERGY | 40 |
| 4.1 Policy gap assessment | 40 |
| 4.2 Policy gap assessment - recommendations | 82 |
| 4.3 Effectiveness of mitigation elements | 83 |
| 4.4 Effectiveness of mitigation elements – recommendations | 99 |
| 5 INDUSTRY | 101 |
| 5.1 Policy gap assessment | 101 |
| 5.2 Policy gap assessment - recommendations | 121 |

| | | |
|----------|---|------------|
| 5.3 | Effectiveness of mitigation elements | 122 |
| 5.4 | Effectiveness of mitigation elements – recommendations | 136 |
| 6 | TRANSPORT | 137 |
| 6.1 | Policy gap assessment | 137 |
| 6.2 | Policy gap assessment – recommendations | 176 |
| 6.3 | Effectiveness of mitigation elements | 177 |
| 6.4 | Effectiveness of mitigation elements – recommendations | 191 |
| 7 | WASTE | 193 |
| 7.1 | Policy gap assessment | 193 |
| 7.2 | Policy gap assessment – recommendations | 210 |
| 7.3 | Effectiveness of mitigation elements | 210 |
| 7.4 | Effectiveness of mitigation elements – recommendations | 218 |
| 8 | CONCLUSION | 219 |
| | ANNEXURE 1 POLICY GAP ASSESSMENT SCORING GUIDES | 221 |
| | Scoring guide for high level policies, frameworks and strategies | 221 |
| | Scoring guide for legislation and acts | 224 |
| | Scoring guide for regulations | 227 |
| | Scoring guide for implementation plans | 230 |
| | ANNEXURE 2 MITIGATION ELEMENT EFFECTIVENESS SCORING GUIDES | 234 |
| | Scoring guide for regulations | 234 |
| | Scoring guide for implementation plans | 237 |
| | ANNEXURE 3 STAKEHOLDER CONSULTATION REPORT | 240 |

LIST OF TABLES

| | |
|---|-------------|
| <i>Table 1 NCCRP principles to guide policy alignment assessment</i> | <i>ii</i> |
| <i>Table 2 Categories of alignment</i> | <i>ii</i> |
| <i>Table 3 Mitigation element effectiveness criteria</i> | <i>iii</i> |
| <i>Table 4 Mitigation element effectiveness criteria ratings</i> | <i>iv</i> |
| <i>Table 5 Summary of policy alignment in the AFOLU sector</i> | <i>vii</i> |
| <i>Table 6 Mitigation element effectiveness summary - AFOLU</i> | <i>viii</i> |
| <i>Table 7 Summary of policy alignment in the energy sector</i> | <i>xi</i> |
| <i>Table 8 Mitigation element effectiveness summary - Energy</i> | <i>xiii</i> |
| <i>Table 9 Summary of policy alignment in the Industry sector</i> | <i>xvii</i> |
| <i>Table 10 Mitigation element effectiveness summary - Industry</i> | <i>xxi</i> |
| <i>Table 11 Summary of policy alignment in the Transport sector</i> | <i>xxiv</i> |
| <i>Table 12 Mitigation element effectiveness summary - Transport</i> | <i>xxvi</i> |
| <i>Table 13 Summary of policy alignment in the Waste sector</i> | <i>xxix</i> |
| <i>Table 14 Mitigation element effectiveness summary - Waste</i> | <i>xxxi</i> |
| <i>Table 15 NCCRP principles to guide policy alignment assessment</i> | <i>2</i> |
| <i>Table 16 Categories of alignment</i> | <i>3</i> |
| <i>Table 17 Policy gap analysis results for individual policy document - example table</i> | <i>5</i> |
| <i>Table 18 Summary of policy alignment in a sector - example table</i> | <i>7</i> |
| <i>Table 19 Mitigation element effectiveness criteria</i> | <i>10</i> |
| <i>Table 20 Mitigation element effectiveness criteria ratings</i> | <i>10</i> |
| <i>Table 21 Summary of policy alignment in the AFOLU sector</i> | <i>15</i> |
| <i>Table 22 CCSP for Agriculture, Forestry and Fisheries policy gap assessment</i> | <i>17</i> |
| <i>Table 23 Woodlands Strategy Framework policy gap assessment</i> | <i>20</i> |
| <i>Table 24 White Paper on Sustainable Forest policy gap assessment</i> | <i>21</i> |
| <i>Table 25 National Forest Act policy gap assessment</i> | <i>25</i> |
| <i>Table 26 SPLUMA policy gap assessment</i> | <i>26</i> |
| <i>Table 27 Guidelines for SDF policy gap assessment</i> | <i>29</i> |
| <i>Table 28 Mitigation element effectiveness summary - AFOLU</i> | <i>33</i> |
| <i>Table 29 Climate Change Sector Plan for Agriculture - Minimum tillage effectiveness assessment</i> | <i>35</i> |
| <i>Table 30 Climate Change Sector Plan for Agriculture – Land use change</i> | <i>36</i> |
| <i>Table 31 Guidelines for SDFs – Off-grid services</i> | <i>38</i> |
| <i>Table 32 Guidelines for SDFs – Farming methods</i> | <i>39</i> |
| <i>Table 33 Summary of policy alignment in the energy sector</i> | <i>42</i> |
| <i>Table 34 White paper on energy policy gap assessment</i> | <i>45</i> |
| <i>Table 35 National Energy Act policy gap assessment</i> | <i>54</i> |
| <i>Table 36 Biofuel industrial strategy gap assessment</i> | <i>58</i> |
| <i>Table 37 CCPF for SOC gap assessment</i> | <i>62</i> |
| <i>Table 38 National Energy Efficiency Strategy gap assessment</i> | <i>65</i> |
| <i>Table 39 Draft Second National Energy Efficiency Strategy Review gap assessment</i> | <i>68</i> |
| <i>Table 40 National Energy Efficiency Action Plan gap assessment</i> | <i>72</i> |
| <i>Table 41 Standard Offer Programme for EEDSM gap assessment</i> | <i>74</i> |

| | |
|---|-----|
| <i>Table 42 Draft Integrated Energy Plan gap assessment</i> | 79 |
| <i>Table 43 Integrated Resource Plan Update gap assessment</i> | 81 |
| <i>Table 44 Mitigation element effectiveness summary - Energy</i> | 85 |
| <i>Table 45 Standard offer for EEDSM in public facilities effectiveness assessment</i> | 87 |
| <i>Table 46 Biofuels effectiveness assessment</i> | 88 |
| <i>Table 47 EE in industry and mining effectiveness assessment</i> | 90 |
| <i>Table 48 EE in commercial and public buildings effectiveness assessment</i> | 92 |
| <i>Table 49 EE in residential sector effectiveness assessment</i> | 93 |
| <i>Table 50 EE in transport sector effectiveness assessment</i> | 96 |
| <i>Table 51 EE in power sector effectiveness assessment</i> | 97 |
| <i>Table 52 Summary of policy alignment in the Industry sector</i> | 103 |
| <i>Table 53 NIPF policy gap assessment</i> | 105 |
| <i>Table 54 New Growth Path policy gap assessment</i> | 108 |
| <i>Table 55 IPAP policy gap assessment</i> | 111 |
| <i>Table 56 EV Roadmap and KAP policy gap assessment</i> | 114 |
| <i>Table 57 National Exporter Development Programme policy gap assessment</i> | 117 |
| <i>Table 58 SEZ Bill policy gap assessment</i> | 119 |
| <i>Table 59 Preferential Procurement Regulations policy gap assessment</i> | 120 |
| <i>Table 60 Mitigation element effectiveness summary - Industry</i> | 123 |
| <i>Table 61 Electric Vehicle Industry Road Map and Action Plan effectiveness assessment</i> | 126 |
| <i>Table 62 IPAP – Industrial upgrading effectiveness assessment</i> | 127 |
| <i>Table 63 IPAP – Support to the biofuels industry effectiveness assessment</i> | 129 |
| <i>Table 64 IPAP – Support to forestry sector effectiveness assessment</i> | 130 |
| <i>Table 65 IPAP – Localisation of renewable energy effectiveness assessment</i> | 131 |
| <i>Table 66 IPAP – Localisation of energy efficiency products and services effectiveness assessment</i> | 132 |
| <i>Table 67 IPAP – Localisation of nuclear components and services effectiveness assessment</i> | 134 |
| <i>Table 68 IPAP – Electricity Prepayment Meter Manufacturing effectiveness assessment</i> | 135 |
| <i>Table 69 Summary of policy alignment in the Transport sector</i> | 139 |
| <i>Table 70: NLTA policy gap assessment</i> | 141 |
| <i>Table 71: NLTSF policy gap assessment</i> | 143 |
| <i>Table 72: NPA policy gap assessment</i> | 146 |
| <i>Table 73: CAA policy gap assessment</i> | 149 |
| <i>Table 74: DNMTTP policy gap assessment</i> | 151 |
| <i>Table 75: WPNTTP policy gap assessment</i> | 154 |
| <i>Table 76: DSAMTP policy gap assessment</i> | 157 |
| <i>Table 77 Public Transport Strategy gap assessment</i> | 161 |
| <i>Table 78 NATMAP gap assessment</i> | 162 |
| <i>Table 79 Road Freight Strategy gap assessment</i> | 165 |
| <i>Table 80 National Land Transport Transition Act policy gap assessment</i> | 167 |
| <i>Table 81 National Freight Logistics Strategy gap assessment</i> | 169 |
| <i>Table 82 Rural Transport Strategy gap assessment</i> | 171 |
| <i>Table 83 NSDP policy gap assessment</i> | 174 |
| <i>Table 84 Mitigation element effectiveness summary - Transport</i> | 178 |

| | |
|--|------------|
| <i>Table 85 Reduction in emissions NLTsf effectiveness assessment.....</i> | <i>180</i> |
| <i>Table 86 Freight shift from road to rail NLTsf effectiveness assessment</i> | <i>182</i> |
| <i>Table 87 National Transport Master Plan – Transport Demand Management effectiveness assessment</i> | <i>185</i> |
| <i>Table 88 National Transport Master Plan – Public transport effectiveness assessment.....</i> | <i>186</i> |
| <i>Table 89 National Transport Master Plan - Promoting non-motorised transport effectiveness assessment</i> | <i>187</i> |
| <i>Table 90 National Transport Master Plan - Integrated urban management and transport planning effectiveness assessment</i> | <i>188</i> |
| <i>Table 91 National Transport Master Plan - Shift from road to rail effectiveness assessment.....</i> | <i>189</i> |
| <i>Table 92 Summary of policy alignment in the Waste sector</i> | <i>194</i> |
| <i>Table 93 National Environmental Management: Waste Act gap assessment.....</i> | <i>196</i> |
| <i>Table 94 National Waste Management Strategy gap assessment.....</i> | <i>199</i> |
| <i>Table 95 National Policy on Thermal Treatment of General and Hazardous Waste gap assessment.....</i> | <i>203</i> |
| <i>Table 96 Municipal Waste Sector Plan gap assessment.....</i> | <i>204</i> |
| <i>Table 97 Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas gap assessment</i> | <i>208</i> |
| <i>Table 98 Mitigation element effectiveness summary - Waste.....</i> | <i>212</i> |
| <i>Table 99 Municipal Waste Sector Plan - Reuse and recycling effectiveness assessment.....</i> | <i>213</i> |
| <i>Table 100 Municipal Waste Sector Plan – Composting effectiveness assessment.....</i> | <i>215</i> |
| <i>Table 101 Municipal Waste Sector Plan – Waste to energy effectiveness assessment.....</i> | <i>216</i> |
| <i>Table 102 Flaring or Recovery of Landfill Gas effectiveness assessment</i> | <i>217</i> |
| <i>Table 103 Stakeholder workshop dates</i> | <i>240</i> |
| <i>Table 104 AFOLU Workshop participants</i> | <i>242</i> |
| <i>Table 105 Waste sector workshop participants</i> | <i>244</i> |
| <i>Table 106 Energy sector workshop participants</i> | <i>245</i> |
| <i>Table 107 Industry sector workshop participants</i> | <i>247</i> |
| <i>Table 108 Transport sector workshop participants</i> | <i>248</i> |

GLOSSARY

| | |
|--------------|--|
| 2nd DRNEES | Draft Second National Energy Efficiency Strategy Review, 2012 |
| AASA | Automobile Association of South Africa |
| ADT | Animal Drawn Transport |
| AFOLU | Agriculture, forestry and other land use |
| AQA | Air Quality Act, 2004 |
| CAA | Civil Aviation Act, 2009 |
| CC | Climate Change |
| CCPF for SOC | Climate Change Policy Framework for State Owned Companies, 2012 |
| CCSP | Draft Climate change sector plan for Agriculture, Forestry and Fisheries, 2013 |
| CON | Contradictory |
| DAFF | Department of Agriculture, Forestry and Fisheries |
| DEA | Department of Environmental Affairs |
| DNMTP | Draft Non-Motorised Transport Policy, 2008 |
| DPE | Department of Public Enterprises |
| Draft IEP | Draft Integrated Energy Planning Report, 2013 |
| DSAMTP | Draft South African Maritime Transport Policy, 2008 |
| DSM | Demand-side management |
| EE | Energy efficiency |
| EEDSM | Energy efficiency and demand-side management |
| EERS | Energy efficiency resource standard |
| EFRRLG | Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas, 2013 |
| EIP | Environmental Implementation Plans |
| ESCOs | Energy Services Companies |
| EV | Electric Vehicle |
| EV Roadmap | Electric Vehicle Industry Road Map and Key Action plans, 2013 |
| FAL | Fully Aligned |
| FPA | Fire protection associations |
| GHG | Greenhouse Gas |
| INPRP | Interim National Passenger Rail Plan, 2005 |
| IPAP | Industrial Policy Action Plan 2013-2016 |
| IRP | Integrated Resource Plan, 2010 |
| IRP Update | Integrated Resource Plan Update, 2013 |
| KAPs | Key Action Plans |
| MRF | Material Recovery Facilities |
| MSA | Moving South Africa: A transport Strategy for 2020, 1998 |
| MWSP | Municipal Waste Sector Plan, 2012 |
| MYPD | Multi-Year Price Determination |
| N/A | Not Applicable |
| NAAMSA | National Association of Automobile Manufacturers of South Africa |
| NAL | Not Aligned |
| NATMAP | National Transport Master Plan, 2012 |
| NCCRP | National Climate Change Response Policy, 2010 |
| NEA | National Energy Act, 2008 |
| NEDP | National Exporter Development Programme Publication, 2013 |
| NEEAP | National Energy Efficiency Action Plan, 2014 |
| NEES | National Energy Efficiency Strategy, 2005 |

| | |
|--------------|--|
| NEM: WA | National Environmental Management: Waste Act, 2008 |
| NEMA | National Environmental Management Act, 1998 |
| NERSA | National Energy Regulator of South Africa |
| NFA | National Forestry Act, 1998 |
| NFLS | National Freight Logistics Strategy, 2005 |
| NGP | New Growth Path, 2011 |
| NIPF | National Industrial Policy Framework, 2007 |
| NLTA | National Land Transport Act, 2009 |
| NLTA | National Land Transport Act, 2009 |
| NLTSF | National Land Transport Strategic Framework, 2006 |
| NLTTA | National Land Transport Transition Act, 2009 |
| NMT | Non-motorised Transport |
| NOWCS | National Organic Waste Composting Strategy, 2013 |
| NPA | National Ports Act, 2005 |
| NSDP | National Spatial Development Perspective, 2006 |
| NVFFA | National Veld and Forest Fire Act, 1998 |
| NWMS | National Waste Management Strategy, 2011 |
| PAL | Partially Aligned |
| PP Regs | Preferential Procurement Policy Framework Act, 2000 |
| PTS | Public Transport Strategy, 2007 |
| RD&I | Research, Development and Innovation |
| RFA | Road Freight Association |
| RFS | Road Freight Strategy |
| RTSSA | Rural Transport Strategy for South Africa, 2007 |
| SANEDI | South African National Energy Development Institute |
| SANRAL | South Africa National Roads Agency Limited and National Roads Act, 1998 |
| SAWIS | South African Waste Information System |
| SD | Sustainable Development |
| SDF | Guidelines for the Formulation of Spatial Development Frameworks, 2005 |
| SEZ Bill | Special Economic Zones Policy and Bill, 2013 |
| SO | Standard Offer |
| SO for EEDSM | Standard Offer Policy - Energy Efficiency and Demand Side Management, 2010 |
| SOC | State-owned Company |
| SPLUMA | Spatial Planning and Land Use Management Act, 2013 |
| TISA | Trade and Investment South Africa |
| TTGHW | National Policy on Thermal Treatment of General and Hazardous Waste, 2009 |
| UNCL | Unclear |
| WIS | Waste Information System |
| WPNTP | White Paper on National Transport Policy, 1996 |
| WPSFD | White Paper on Sustainable Forest Development in South Africa, 1995 |
| WSF | Woodlands Strategy Framework, 2005 |

EXECUTIVE SUMMARY

This document provides a policy gap analysis of the alignment of existing legislation, policy, strategies, plans and regulatory frameworks (henceforth referred to as 'policy documents') in five key sectors with the National Climate Change Response Policy (NCCRP). The policy gap analysis shows the areas where alignment with identified NCCRP mitigation principles are lacking, and highlights priority areas to focus alignment efforts. The sectors considered are: Agriculture, forestry and other land use (AFOLU); Energy; Industry; Transport and Waste. The success of policy documents in bringing about climate change mitigation stems from both the actions that they propose, and how well these actions have been designed. Consequently, the likely effectiveness of the mitigation elements identified in relevant policy documents in reducing greenhouse gas (GHG) emissions is also considered.

For each sector, recommendations on how to align the relevant legislation, policy, strategies, plans and regulatory frameworks with the NCCRP mitigation principles are provided. The recommendations focus on identifying those policies (and associated documents) to prioritise when engaging with other departments in mainstreaming the NCCRP mitigation principles, and which areas to focus on to ensure that the mitigation elements included in these policy documents are designed in a way that is conducive to them being successfully implemented.

Methodology

In order to **assess the alignment of policy documents** with the NCCRP, the NCCRP was reviewed to identify how the policy itself envisages that mitigation action should be implemented in South Africa. A list of 15 mitigation principles were developed based on this review, and are shown in the Table 1 below. The first five (general) principles deal with the basic components required to develop a sector mitigation strategy, and can be relevant to a policy even if no mitigation elements are identified in the document. The remaining ten (mitigation element-linked) principles relate to the way that specific mitigation elements are implemented. These principles are therefore only applicable in instances where mitigation elements have been identified. They are intended to guide the development and implementation of mitigation elements and are therefore relevant even in cases where documents are only starting to consider specific mitigation activities.

For the purposes of this **policy gap analysis** five alignment categories were identified. These categories are shown in Table 2 below. In order to assist in the scoring process and provide some consistency to what is an inherently subjective process, customised scoring guides were developed to take account of the varying levels of detail expected in different types of policy documents. Scoring guides customised to address the content requirements of four types of policy documents (High-level policies, frameworks or strategies; Legislation (Bills or Acts); Regulations; and Implementation plans) are presented in **Annexure 1**.

Table 1 NCCRP principles to guide policy alignment assessment

| | | Principle | Guiding question(s) |
|--|----|---|---|
| General principles | 1 | Climate Change Mitigation awareness | Is climate change mitigation explicitly or implicitly mentioned? |
| | 2 | Consideration of emissions implications | Does the document provide sufficient information to allow the GHG emissions implications of actions proposed in the document to be assessed? Have the emissions implications of actions been taken into consideration while developing the document. |
| | 3 | Resource efficiency | Is resource efficiency required or promoted? |
| | 4 | Research, development and innovation | Is mitigation-focused research, development and innovation (RD&I) proposed or supported? RD&I is defined in the broadest sense, and includes research into policy approaches or economic instruments. |
| | 5 | Mitigation elements | Are mitigation elements explicitly or implicitly identified? Mitigation elements are broadly defined as any action, intervention, process or approach that could lead to a reduction in the GHG emissions emanating from a sector. |
| Principles applicable to identified mitigation elements | 6 | Dynamic and evidence based | Has provision been made for regular updating of mitigation-related information based on latest information? |
| | 7 | Precautionary principle | Is there sufficient evidence that identified risks associated with mitigation elements (environmental and other) have been assessed and found to be acceptable and/or manageable? |
| | 8 | Sustainable development pillars | Do mitigation elements have a significant impact on any of the three pillars (social, environmental and economic) of sustainable development (including inter and intra generational concerns), and if so, have trade-offs between the pillars been considered? |
| | 9 | Risk management, adaptation and other co-benefits | Have the risk management and adaptation impacts and/or other co-benefits (like employment or industrial development) of mitigation elements been assessed? |
| | 10 | Cost-effectiveness | Is sufficient information available to evaluate the cost effectiveness of mitigation elements? |
| | 11 | Behaviour change | Are market-based or other measures included to incentivise low carbon production or consumption? |
| | 12 | Equity | Have the equity implications of mitigation elements been assessed (income distribution and fair allocation of effort)? |
| | 13 | Special needs | Has the possible impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) been considered? |
| | 14 | Polluter pays | Has the Polluter Pays Principle been applied? |
| | 15 | Resource mobilisation | Have sources of funding for mitigation elements been considered or identified? |

Table 2 Categories of alignment

| Alignment category | Criteria |
|---------------------------|---|
| Fully aligned (FAL) | Explicit alignment with the NCCRP principle exists and no further development actions are required. Mitigation elements are explicitly identified by either being referred to as mitigation or abatement options or their GHG emissions reduction implications are quantified. |
| Partially aligned (PAL) | Only implicit alignment with the specific NCCRP principles exists and/or further information is required before the alignment can be assessed. Actions that are likely to reduce GHG emissions, but where the quantum of the expected reduction isn't specified, or which are not explicitly identified as GHG mitigation actions, for example, will denote partial alignment. |
| Not aligned (NAL) | The principle is relevant to the document in question but has not been addressed. |
| Contradictory (CON) | The outcome or intent of the specific section of the policy document is contradictory to the aims of the NCCRP |
| Unclear (UNCL) | It is not clear if the section or action refers to mitigation (as opposed to an intervention addressing a more general environmental, economic or social issue) or to the relevant mitigation element-linked principle (i.e. whether a general provision to update a document includes information related to mitigation elements). Or it is not clear if an action will have a net mitigation impact in practice. Some actions can reduce or increase emissions depending on conditions or how they are implemented. |
| Not applicable (N/A) | The principle is not applicable to the policy document being considered. |

In deciding which **policies to prioritise when aiming to mainstream the NCCRP mitigation principles into sector policy documents**, four general principles were identified as of particular importance during discussions with the DEA, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements. Moreover, in seeking to improve the alignment of these documents with the NCCRP, the relevant Policy Gap Assessment scoring guides developed in this report could be used. Specifically, these guides provide a measure of the minimum threshold required for these policy documents to be partially aligned with the NCCRP mitigation principles.

The methodology employed to **assess the likely effectiveness of identified mitigation elements** is similar to that followed with respect to the policy gap assessment. First, a number of effectiveness criteria were developed, as shown in Table 3. In this case, just three effectiveness ratings were identified (see Table 4), and customised scoring guides were again developed for the different types of policy documents (presented in [Annexure 2](#)). However, given the level of detail required to assess the likely effectiveness of mitigation elements, the effectiveness assessment was only applied to mitigation elements identified in regulations or implementation plans. Where no relevant implementation plans or regulations were identified in a sector, other types of policy documents were used to test the methodology.

Table 3 Mitigation element effectiveness criteria

| | Effectiveness criteria | Guiding question(s) |
|----|---|--|
| 1 | Logic model (theory of change) | Has the logic model (theory of change) for mitigation element been outlined (i.e. has the mechanism through which the intervention is expected to reduce GHG emissions been described)? |
| 2 | Expected emissions reductions specified | Has the expected impact of the mitigation element on GHG emissions been considered/estimated? |
| 3 | Time frame for implementation | Has the time frame for developing and/or implementation of the mitigation element been specified (or processes to determine time frames put in place)? |
| 4 | Regulatory environment | Has the state of the regulatory environment been assessed to determine if it is conducive to the successful implementation of the mitigation element (do enabling regulations/standards exist, are there any significant regulatory barriers in place, etc.)? If gaps were identified, what processes will be put in place to fill these gaps? |
| 5 | State of technology | Has the relevant technology/approach been assessed to determine if it is sufficiently developed given the envisaged state of implementation (i.e. pilot projects will have lower threshold than large-scale roll-out)? Has the local availability of the relevant technology/approaches that underpin the mitigation element been assessed (service providers, equipment suppliers etc.)? If shortcomings were identified, are processes in place to address these shortcomings? Is there societal acceptance of the technology? |
| 6 | Human capital | Has the availability of human capital to effectively implement the mitigation element been assessed (install, operate and maintain in the case of technology, or skills to implement effectively in the case of process interventions like behaviour change)? If shortcomings were identified, are processes in place to address these shortcomings? |
| 7 | Implementation incentives | Has the cost-effectiveness of the mitigation element (taking into consideration incentives and other forms of support) been considered? |
| 8 | Funding for implementation | Has the availability of funding to implement the mitigation element been considered, taking into consideration public sector support or other forms of support available? Will implementers be able to obtain financing for implementation (is it a proven technology, does it come with large risks, etc.)? If shortcomings were identified, are processes in place to address these shortcomings? |
| 9 | Supporting infrastructure | Has the availability of supporting/required physical infrastructure been assessed? Is the infrastructure in place? Are processes in place to develop infrastructure? |
| 10 | Institutions | Has the institutions required to implement or provide support for the implementation of the mitigation element been considered (training, rating/accreditation, safety, etc.)? Are these institutions in place? Are processes in place to develop these institutions? Has responsibility for the development and/or implementation of the mitigation element been assigned? |

Table 4 Mitigation element effectiveness criteria ratings

| Effectiveness rating | Description |
|----------------------|---|
| High (H) | Likelihood that mitigation element will be effective is high. The mitigation element and the environment within which it will be implemented have been analysed in detail, and conditions are conducive to the implementation of the mitigation element. |
| Medium (M) | Likelihood that mitigation element will be effective is medium. The mitigation element and the environment within which it will be implemented have been considered, and processes are in place to address factors that are likely to complicate the implementation of the mitigation, element. |
| Low (L) | Likelihood that mitigation element will be effective is low. Aspects of the mitigation element or the environment in which it is to be implemented have not been considered or information provided is not sufficient to inspire confidence that the mitigation element will be effective.. |

Mitigation element effectiveness criteria ratings were based on the likelihood that a specific criterion would increase (High rating) or reduce (Low rating) the likelihood of a mitigation action being implemented successfully. Effectiveness criteria receiving a Medium rating are not likely to reduce the likelihood that a mitigation element will be effectively implemented, provided that certain actions that are included in the relevant policy documents are undertaken to support the implementation of the mitigation elements. **The focus is thus on identifying and addressing effectiveness criteria that are likely to reduce the likelihood that mitigation elements will be implemented successfully.**

Agriculture, forestry and other land use (AFOLU)

Policy gap assessment

The following priority documents were included in the gap analysis: National Forests Act (Act 84 of 1998) (NFA); National Veld and Forest Fire Act (Act 101 of 1998) (NVFFA); White Paper on Sustainable Forest Development in South Africa (1995) (WPSFD); Woodlands Strategy Framework (2005) (WSF); Spatial Planning and Land Use Management Act (2013) (SPLUMA); Draft Climate Change Sector Plan for Agriculture, Forestry and Fisheries (2013) (CCSP); Guidelines for the Formulation of Spatial Development Frameworks (2005) (Guidelines SDF).

The documents reviewed showed large discrepancies in the levels of alignment with the NCCRP principles. Policies like the CCSP and the WSF display high levels of alignment with the mitigation principles contained in the NCCRP, whereas very little alignment exists in the case of the NVFFA; the NFA; and the SPLUMA. This is unsurprising since the NVFFA and the NFA predate the NCCRP by more than a decade, and they are all high-level acts. The lack of alignment of the more recent SPLUMA, however, is worrying.

In terms of general principles, the highest level of alignment was found for the Resource Efficiency principle; while moderate alignment was found for the Research, Development and Innovation and the Mitigation Elements principles. Consideration of the emissions implications of proposed actions was largely absent from the documents reviewed. However, it is worth noting that some of the documents, particularly those related to forestry, supported activities that are unlikely to increase GHG emissions, especially activities relating to sustainable management, conservation and protection of natural forests and woodlands. On the other hand, it is important that the carbon sequestering impact of forests is acknowledged and recorded where possible. This will enable these documents to define and quantify their contribution to the mitigation space.

With respect to the mitigation-linked principles, the assessment shows a number of principles have been neglected, specifically the Cost Effectiveness, Behavioural Change, Equity, and Special Needs principles. This is of concern as the agricultural sector supports the livelihoods of the majority of people living in rural area. Ensuring alignment with these principles will not only improve mitigation actions, but may support also rural development and food security – both of which are government priorities. The Resource Mobilisation and Co-benefit principles display some alignment, but further improvements are possible.

In terms of **prioritising documents to try and increase their alignment with the NCCRP principles, four general principles are of particular importance**, namely: the Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles. Of these four principles, it is worrying that the Mitigation Awareness and Consideration of Emissions Implication are considered least often. This can largely be attributed to the fact that most of these documents predate the NCCRP. Mitigation Awareness is only captured in the CCSP and WSF, while Considerations of Emissions implication is only reflected in the CCSP. Resource Efficiency and Mitigation Elements are considered in the majority of the documents.

SPLUMA scored poorly in terms of alignment with the four general principles, only showing alignment with the “Resource Efficiency” principle. The SDF was marginally better showing some alignment with both “Resource Efficiency” as well as “Mitigation Element” principles. Both of these documents relate to spatial planning, which in turn affects economic planning and development. Therefore, they should receive priority in trying to increase alignment. The CCSP showed the highest level of alignment with the NCCRP principles, though it does include some contradictions. As it is likely to act as the overall guide for the sector’s response to climate change, it should also be prioritised to ensure that existing contradictory statements are reconsidered. Moreover, this document is still in draft form, so there is still time to increase its alignment with the NCCRP principles.

The forestry documents also fared poorly when considered against the four principles. Both the WPSFD and NFA were not aligned with the Mitigation Awareness or Consideration of Emissions Implication principles, but were aligned with the Resource Efficiency and Mitigation Elements principles. This lack of alignment is hardly surprising given the age of these documents. However, in light of the importance of the forestry sector in economic development and limiting GHG emissions, priority attention should be given to ensuring that at least one of these documents is aligned with the NCCRP principles. Ideally, the WPSFD should be prioritised, as it covers different forest types and in essence guides the implementation of the NFA.

The policy documents to be prioritised are the CCSP, SPLUMA, SDF, and the WPSFD. The NFA may also be prioritised as the forestry documents do not consider emissions implications of proposed actions. In doing so, particular attention should be focused on ensuring that climate change mitigation awareness is introduced in AFOLU policy documents.

Effectiveness of mitigation elements

The effectiveness assessment has been undertaken for only two documents in the AFOLU sector. These are the Climate Change Sector Plan (CCSP) and the Guidelines for the Development of Spatial Development Frameworks (SDF). The SDF was categorised as a regulation and therefore included in the assessment. Although the CCSP was classified as a high level policy document, it was also included in this analysis to provide an indication of the factors that must be considered, and the level of detail required, in subsequent implementation plans to improve the likelihood of mitigation elements being implemented effectively. Its scores are likely to be artificially low as policy documents are not expected to have the same level of detail as implementation plans.

The CCSP included two mitigation elements that have been subjected to this analysis, namely the promotion of minimum tillage, and the promotion of land use changes that convert land from GHG sources to sinks. With respect to these two mitigation elements, the Logic Model, Funding for Implementation, and Institutions criteria indicated a high likelihood of the mitigation elements being effectively implemented.

Table 5 Summary of policy alignment in the AFOLU sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | Relative Alignment |
|--|------|----|------|----|-------|----|--------|----|-------|----|--------|----|----------------|----|--------------------|
| | CCSP | | WSF | | WPSFD | | NFA | | NVFFA | | SPLUMA | | Guidelines SDF | | |
| Alignment | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | |
| 1 CC Mitigation awareness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Low |
| 2 Considerations of Emissions implications | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Low |
| 3 Resource efficiency | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 4 RD&I | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 5 Mitigation elements | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 6 Dynamic and evidence based | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 7 Precautionary principle | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Low |
| 8 Sustainable development pillars | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 9 Co-benefits | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 10 Cost-effectiveness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Low |
| 11 Behaviour change | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 12 Equity | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 13 Special needs | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 14 Polluter pays | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 15 Resource mobilisation | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| Relative alignment | High | | High | | High | | Medium | | Low | | Low | | Low | | |

Supporting infrastructure is also in place for minimum tillage, but has not been considered for land use changes. However, in assessing these elements against the Expected Emissions Reductions, Time Frame for Implementation, Human Capitals and Implementation Incentives (cost-effectiveness) effectiveness criteria, it seemed less likely that they would be implemented successfully. In addition, the regulatory environment and state of technology is not considered at all for minimum tillage, whereas the availability of supporting infrastructure is not considered in the case of land use change. Failing to consider these factors is likely to reduce the likelihood of successful implementation. Hopefully this information will be included in subsequent implementation plans.

Table 6 Mitigation element effectiveness summary - AFOLU

| | | 1 | 2 | 3 | 4 | Relative Effectiveness |
|-------------------------------|---|------------------------|------------------------|-------------------------|-----------------------|------------------------|
| Effectiveness criteria | | CCSP - Minimum tillage | CCSP - Land use change | SDF - Off grid services | SDF - Farming methods | |
| 1 | Logic model (theory of change) | Green | Green | Red | Red | 50% |
| 2 | Expected emissions reductions specified | Red | Red | Red | Red | 0% |
| 3 | Time frame for implementation | Red | Red | Red | Red | 0% |
| 4 | Regulatory environment | Red | Green | Red | Red | 13% |
| 5 | State of technology | Red | Green | Red | Green | 25% |
| 6 | Human capital | Red | Red | Red | Green | 13% |
| 7 | Implementation incentives | Red | Red | Green | Red | 13% |
| 8 | Funding for implementation | Green | Green | Red | Red | 50% |
| 9 | Supporting infrastructure | Green | Red | Red | Red | 25% |
| 10 | Institutions | Green | Green | Red | Green | 63% |
| Relative effectiveness | | 40% | 40% | 5% | 15% | |

Only two mitigation elements were relevant for this analysis in the SDF. The first element focused on providing off grid services such as solar energy to rural areas; while the second element encouraged environmentally friendly farming. The design of these elements, however, casts doubt on their ability to be implemented effectively. Most effectiveness principles are not considered at all, and the few that are (three in the case of farming methods - State of Technology, Human Capital and Institutions; and one for off-grid services – Implementation Incentives) indicate that further preparatory work is required.

In summary, none of the four elements contained in the two documents assessed included sufficient detail to confirm that they are likely to be implemented. The CCSP, however, did address more of the effectiveness criteria, and it is still possible that most of the shortcomings will be addressed when the two mitigation elements contained in this policy are translated into detailed implementation plans. The two elements in the SDF do not appear to be designed for effective implementation. This is of concern since the SDF, as a regulation, is already guiding implementation. **The SDF should therefore be prioritised in efforts to increase the effectiveness of mitigation elements in the AFOLU sector.**

Energy

Policy gap assessment

The following priority documents were included in the gap analysis: White Paper on Energy Policy (1998) (White Paper); National Energy Act (2008) (NEA); Biofuels Industrial Strategy of the Republic of South Africa (2007); Petroleum Product Act (1997), Amendment of Regulation regarding Petroleum Products Specifications and Standards (2012); Regulations regarding the Mandatory Blending of Biofuels with Petrol and Diesel (2012); Climate Change Policy Framework for State Owned Companies (2012) (CCPF for SOC); National Energy Efficiency Strategy (2005) (NEES); Draft Second National Energy Efficiency Strategy Review (2012) (2nd DRNEES); National Energy Efficiency Action Plan (2014) (NEEAP); Standard Offer Policy - Policy to support the Energy Efficiency and Demand Side Management (2010) (SO for EEDSM); The Nuclear Act (1999); Draft Integrated Energy Planning Report (2013) (Draft IEP); and the Integrated Resource Plan Update (2013) (IRP Update).

The policy gap assessment of energy sector policy documents revealed varying degrees of alignment with the NCCRP mitigation principles. Overall, energy sector documents displayed a higher degree of alignment with the general principles than with the mitigation element-linked principles. In terms of the former, the highest level of alignment across documents was found for Mitigation-related RD&I, Consideration of Emission Implications and Climate Change Awareness. The latter was recognised in all documents except the National Energy Act.

An analysis of mitigation element-linked principles shows that the Resource Mobilisation principle was applied consistently across all relevant documents. Several of the identified mitigation elements are aimed at changing producer and consumer behaviour and are based on a sound fact base and applied in a way that can respond to new information (with Behaviour Change and Dynamic and Evidence-based being the next most prevalent principles). Equity considerations were, however, largely absent from most documents, with the exception of the Biofuel Industrial Strategy and the draft IEP. The documents also seem to be placing insufficient attention on the Polluter Pays principle and ensuring that groups with special needs are safeguarded. The Precautionary Principle, too, was largely neglected. Importantly, given the scale of the effort required to move to a low carbon economy and the limited resources available to fund this transition in South Africa, ascertaining whether mitigation elements are cost effective has also not received the attention it deserves, with Cost-effectiveness being clearly and consistently used as a guiding principle only in the NEES and the draft IEP.

In terms of individual documents, the draft Integrated Energy Plan shows the highest level of alignment with the NCCRP mitigation principles, followed by the Standard Offer Programme for Energy Efficiency and Demand-side Management, the Biofuels Industrial Strategy and the National Energy Efficiency Strategy. It is troubling that the main guiding document for the energy sector, the White Paper on Energy, shows very low overall alignment with the NCCRP principles. While the White Paper does contain content aligned with many of the general NCCRP principles, it also displays non-alignment, insufficient clarity on or even contradiction with most general principles, and lacks any alignment with several principles related to specific mitigation elements. That is,

however, not surprising considering this document was formulated in the mid-nineties, when climate change mitigation was not yet firmly on the agenda of developing countries. Similarly to the White Paper, the National Energy Act also shows alignment with general principles rather than the mitigation element-specific ones, however, given this is a much more recent document, there is less explanation for these gaps, especially since the principles with which alignment is missing could have easily been included. Interestingly, many of the considerations included in the National Energy Efficiency Strategy that bring it into relatively high alignment with the NCCRP are lacking in its implementation document, the National Energy Efficiency Action Plan, which is well-aligned with the general principles, but almost completely fails to meet any of the NCCRP guidance relating to the implementation of individual mitigation elements. The Integrated Resource Plan Update also seems to lack the comprehensiveness of the Integrated Energy Plan in terms of considering the desired characteristics of energy supply options (as opposed to the set of supply options, which is expected to be less comprehensive, considering the IRP only focuses in the electricity sector), so it also displays a much lower level of alignment with the NCCRP principles.

In terms of **prioritising documents to engage with the relevant line departments to try and increase their alignment with the NCCRP principles**, four general principles are of particular importance, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

Looking at the energy sector documents with a focus on these principles, it is clear that the draft Second NEES Review, the draft IEP and the IRP Update are the only documents that are fully aligned with all four of them. A number of documents display content that is both aligned and in contradiction with one or more of these core principles. The NEES and NEEAP for instance, are both fully aligned with all four, but also contain content that is in contradiction or not clear with respect to the Mitigation Element principle. The first document because it mentions low electricity costs as a driver for beneficiation, without questioning the impact this might have on the country's emissions, and the second because it is unclear about the future of a number of possible mitigation elements it describes. However, since the NEES Review is not in conflict with this principle, this shortcoming can be considered rectified for this document. For the case of the NEEAP, if the additional (i.e. those that are not already in their implementation phase) EE measures and programmes it suggests can be further elaborated on in on, it could easily be fully aligned with all four main NCCRP principles. This could reasonably be achieved with the next NEEAP update due in 2017.

Table 7 Summary of policy alignment in the energy sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | Relative Alignment |
|---|-------------|-----|------------------|--------------|------|------------|-------|--------------|-----------|------------|-----|----|-----|----|------|----|-----|----|-----|----|--------------------|
| | White Paper | NEA | Biofuel Strategy | CCPF for SOC | NEES | 2nd DRNEES | NEEAP | SO for EEDSM | Draft IEP | IRP Update | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | |
| 1 CC mitigation awareness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 2 Consideration of emissions implications | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 3 Resource efficiency | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 4 RD&I | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | | | | ● | |
| 5 Mitigation elements | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 6 Dynamic and evidence based | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 7 Precautionary principle | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 8 Sustainable development pillars | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 9 Risk management, adaptation and other co-benefits | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 10 Cost-effectiveness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 11 Behaviour change | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 12 Equity | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 13 Special needs | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 14 Polluter pays | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 15 Resource mobilisation | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | | | | ● | |
| Relative alignment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

The White Paper on Energy should be a priority in terms of mainstreaming the NCCRP mitigation principles as it contradicts itself on all but the Resource Efficiency principle. It is important that the NCCRP mitigation elements be applied consistently to any future updates of this document. Climate change should be recognised as a challenge and the role of South Africa's energy system in its mitigation should be clearly stated and remain a guiding principle throughout the document. Any aspirations for the country's energy system, be it utility-scale or small-scale, need to be put forward with due consideration of their impact on the energy system's GHG emissions. This does not necessarily mean there can be no actions that increase GHG emissions in the short-term. Such actions, however, should be recognised as leading to increased emissions and offset with additional reductions elsewhere in the energy system or their low carbon alternatives should be promoted in the medium-to-long-term.

Other documents related to the energy sector require less effort to become aligned with these principles: the NEA only needs to acknowledge climate change and the need for its mitigation, which could easily be included. The Biofuels Industrial Strategy and the Climate Change Policy Framework for SOC need to pay more attention to resource efficiency, which is currently not addressed. Considering those are both high-level policy documents, general support for resource efficiency as one of the criteria for promoting specific mitigation actions would be sufficient, as this can be elaborated on in subsequent implementation plans.

Effectiveness of mitigation elements

For the energy sector, the Standard Offer policy in support of energy efficiency (EE) and demand-side management (DSM) and the Biofuels Industrial Strategy (bioethanol and biodiesel together) was included in the mitigation element effectiveness assessment. Five measures contained in the NEEAP were also included, namely: EE measures for the mining and industry sectors; EE measures for the commercial and public buildings; EE measures for the residential sector; EE measures for the transport sector; and EE measures for the power sector.

Of the documents containing the mitigation measures assessed for their effectiveness, the NEEAP has generally been found to include measures with the highest likelihood of success. The Standard Offer Policy was found to have neglected a number of effectiveness criteria, but overall still stood a relatively good chance of being implemented successfully. Serious concerns however exist about the ability of the Biofuels Industrial Strategy to be implemented effectively.

Table 8 Mitigation element effectiveness summary - Energy

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Relative Effectiveness |
|------------------------|---|---|------------------------------|--|---|---|---|---|------------------------|
| | | Standard Offer for EEDSM in Public Facilities and Housing | Biofuels Industrial Strategy | National Energy Efficiency Action Plan - EE in industry and mining | National Energy Efficiency Action Plan - EE in commercial and public buildings sector | National Energy Efficiency Action Plan - EE in residential sector | National Energy Efficiency Action Plan - EE in transport sector | National Energy Efficiency Action Plan - EE in power sector | |
| Effectiveness criteria | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| 1 | Logic model (theory of change) | | | | | | | | 86% |
| 2 | Expected emissions reductions specified | | | | | | | | 57% |
| 3 | Time frame for implementation | | | | | | | | 71% |
| 4 | Regulatory environment | | | | | | | | 36% |
| 5 | State of technology | | | | | | | | 79% |
| 6 | Human capital | | | | | | | | 43% |
| 7 | Implementation incentives | | | | | | | | 7% |
| 8 | Funding for implementation | | | | | | | | 100% |
| 9 | Supporting infrastructure | | | | | | | | 93% |
| 10 | Institutions | | | | | | | | 100% |
| Relative effectiveness | | 60% | 30% | 80% | 75% | 75% | 75% | 75% | |

In terms of effectiveness criteria, the documents reviewed indicate that funding for implementation of the assessed mitigation elements and the institutions required to implement or provide support to them are mostly in place and likely to contribute to their effectiveness. This was the case for all mitigation elements assessed. Furthermore, the necessary supporting infrastructure seems to be in place for all mitigation elements with the exception of biofuels. For most mitigation elements the logic underlying them seem to be sound as they are based on well-known and proven technologies if designed and implemented effectively. The only exception is again biofuel production, as it seen as a means to promote agricultural development and its role as a mitigation option is completely overlooked.

While the expected emission reductions have not been specified for any of the mitigation elements listed, their implementation will yield data from which those emission reductions can be calculated, with varying levels of accuracy. Again, this makes the likelihood of these mitigation elements being effective either medium or high for all mitigation elements except biofuels.

The effectiveness criterion contributing least to the likely effectiveness of the identified mitigation elements is Implementation Incentives (cost-effectiveness), which has only been partially assessed for biofuels and not at all for the other elements.

In terms of individual mitigation elements, the EE measures for the mining and industrial sectors outlined in the NEEAP is the mitigation element most likely to be effective, as most effectiveness criteria indicate an increased chance of success. EE measures for all other sectors covered by the NEEAP are also relatively likely to be successful, their main relative shortcoming being the available of data – estimates of emission reductions will be made with varying levels of success outside of the mining and industrial sectors.

Finally, biofuels as a possible mitigation option is least likely to be effective, which is partly due to the fact that it has not been framed as a mitigation option by the Biofuel Industrial Strategy, and partly by the fact that this is a high-level document which is not expected to include details on a number of effectiveness criteria. Consequently the Biofuels Industrial Strategy has primarily been included in this assessment to flag the areas which will need to receive special focus when future implementation plans for biofuels are developed.

In terms of prioritising actions to increase effectiveness of the mitigation measures reviewed, the following is proposed for each of the documents reviewed: The next update of the **NEEAP** should explicitly include an assessment of the cost-effectiveness of the proposed mitigation elements taking into consideration the available support measures and incentives to ensure that the elements are sufficiently attractive to implement. Furthermore, attention should be paid to remove remaining regulatory barriers to EE measures already identified, and undertaking a comprehensive assessment of the human capital required to implement the proposed EE measures/programmes. Finally, all sectors apart from the industry and mining sector will need to outline the necessary mechanism/methodologies for considering the resulting avoided emissions as the data collected through the Energy Efficiency Target Monitoring System might not be sufficient. The **Standard Offer Policy** is currently lacking a clearly defined time frame for implementation, an assessments of the regulatory environment, and an assessment of the cost-

effectiveness of the proposed mitigation elements taking into consideration the available support measures and incentives. Finally, in order to take the **Biofuels Industrial Strategy forward**, an implementation plan needs to be developed that will ensure that the intervention is designed in a way that reduces emissions (based on a sound logic model) and estimates what the likely emissions reductions would be, specifies a clear time line for implementation, addresses any outstanding regulatory issues, considers the correct biofuels technologies to use, ensures sufficient human capital is available to implement the strategy, considers if biofuels production will be cost-effective when all available support and incentives are considered, and details how any required supporting infrastructure is to be put in place. Ensuring that the necessary institutions required to roll out biofuels at scale are in place, and that sufficient funds are available to start implementing the roll-out, have already been addressed in the Strategy, and can be thus be easily transposed into the implementation plan.

The focus in the energy sector should primarily be on ensuring that more detailed implementation plans are developed for mitigation elements put forward in the sector's high level policy documents. Secondly, the existing implementation plans should be updated to include the missing and fully address incomplete effectiveness criteria.

Industry

Policy gap assessment

The following priority documents were included in the gap analysis: National Industrial Policy Framework (2007) (NIPF); New Growth Path (2011) (NGP); Industrial Policy Action Plan 2013-2016 (IPAP); Electric Vehicle Industry Road Map and Key Action plans (2013) (EV Roadmap); National Exporter Development Programme Publication (2013) (NEDP); Special Economic Zones Policy and Bill (2013) (SEZ Bill); and the Preferential Procurement Regulations (2011) in terms of the Preferential Procurement Policy Framework Act (2000) (PP Regs).

There are large differences in the levels of alignment with the NCCRP principles in the documents reviewed. Documents like the Electric Vehicle Industry Road Map and Key Action Plans (2013) and the IPAP (2013) display relatively high levels of alignment with the mitigation principles contained in the NCCRP, whereas there is very little alignment in the case of the Special Economic Zones Policy and Bill (2012) and the Preferential Procurement Regulations (2011).

In terms of the general principles, the highest level of alignment across all the documents was found for the Support for Mitigation-related RD&I and Resource Efficiency criteria. Climate Change Awareness was also present in most of the documents (albeit not always implemented fully within every document), with only the Preferential Procurement Regulations (2011) showing no mitigation awareness.

Consideration of Emissions Implications was however largely absent from most documents, with it only being included in three documents (NGP, IPAP and the EV Road Map), and only fully implemented within one of these three documents (the EV Road Map). This is a concern since most of the documents included actions that could lead to increased GHG emissions over time.

An analysis of the mitigation element-linked principles shows that the Resource Mobilisation principle was applied most consistently (being included, at least in part, in all relevant documents). Mitigation elements were also mostly based on a sound fact base and applied in a way that can respond to new information (with Dynamic and Evidence-based being the next most prevalent principle). There was also a strong focus on mitigation elements with positive co-benefits (particularly in terms of employment creation) and deploying measures aimed at changing producer and consumer behaviour.

The Precautionary Principle, however, was largely neglected. This despite the fact that many of the interventions put forward had recognised risks associated with their implementation. Although there is a strong overall focus on social justice and income distribution in many of these documents, more often than not the impact of individual mitigation elements on equity, individuals with special needs, and sustainable development more broadly was not investigated. The Polluter Pays principle was also neglected. Importantly, given the scale of the effort required to move to a low carbon economy and the limited resources available to fund this transition in South Africa, ascertaining whether mitigation elements are cost effective has not received the attention it deserves.

Table 9 Summary of policy alignment in the Industry sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | Relative Alignment |
|---|----------------------------|-----|---------------------------|-----|---------------------------|-----|---------------------------|----|----------------------------|-----|----------------------------|-----|-------------------------|----------------------------|----------------------------|
| | NIPF | | NGP | | IPAP | | EV Roadmap | | NEDP | | SEZ Bill | | PP Regs | | |
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | |
| 1 CC Mitigation awareness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment: Green |
| 2 Consideration of emissions implications | No | Yes | Yes | No | Yes | No | Yes | No | No | Yes | No | Yes | No | Relative Alignment: Orange | |
| 3 Resource efficiency | Yes | No | Yes | No | Yes | No | Yes | No | No | Yes | No | Yes | No | Relative Alignment: Green | |
| 4 RD&I | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | No | | No | | Relative Alignment: Green |
| 5 Mitigation elements | Yes | No | Yes | No | Yes | No | Yes | No | No | Yes | No | Yes | No | Relative Alignment: Yellow | |
| 6 Dynamic and evidence based | Yes | No | No | Yes | Yes | No | Yes | No | No | | | | | | Relative Alignment: Green |
| 7 Precautionary principle | No | Yes | No | Yes | Yes | No | Yes | No | No | | | | | | Relative Alignment: Red |
| 8 Sustainable development pillars | No | Yes | No | Yes | Yes | No | Yes | No | No | | | | | | Relative Alignment: Yellow |
| 9 Co-benefits | No | Yes | Yes | No | Yes | No | Yes | No | No | | | | | | Relative Alignment: Green |
| 10 Cost-effectiveness | Yes | No | No | Yes | Yes | No | Yes | No | No | | | | | | Relative Alignment: Orange |
| 11 Behaviour change | Yes | No | No | Yes | Yes | No | Yes | No | No | | | | | | Relative Alignment: Green |
| 12 Equity | No | Yes | Yes | No | No | Yes | Yes | No | No | | | | | | Relative Alignment: Orange |
| 13 Special needs | No | Yes | No | Yes | No | Yes | Yes | No | No | | | | | | Relative Alignment: Orange |
| 14 Polluter pays | No | Yes | No | Yes | No | Yes | Yes | No | No | | | | | | Relative Alignment: Orange |
| 15 Resource mobilisation | Yes | No | Yes | No | Yes | No | Yes | No | No | | | | | | Relative Alignment: Green |
| Relative alignment | Relative Alignment: Yellow | | Relative Alignment: Green | | Relative Alignment: Green | | Relative Alignment: Green | | Relative Alignment: Orange | | Relative Alignment: Yellow | | Relative Alignment: Red | | |

In terms of **prioritising policy documents to engage with the relevant line departments to try and increase their alignment with the NCCRP principles, four general principles are of particular importance**, namely: the Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

The Electric Vehicle Industry Road Map is the only document that is fully aligned with all four of these principles. The NGP and the IPAP also scored well in terms of these principles, and both documents include content that demonstrate partial or full alignment with all four. **The NGP**, in fact, only includes one unclear statement with respect to these four principles (related to Climate Change Mitigation Awareness), and **thus does not warrant further attention**.

The SEZ Policy and Bill (2013) and the Preferential Procurement Regulations (2011) were both relatively poorly aligned with these four NCCRP principles, and should therefore be prioritised. Specifically, the SEZ Policy and Bill (2013) contained statements that were not aligned or contradictory with three of the four principles, excluding Resource Efficiency (with which it was fully aligned). The Preferential Procurement Regulations (2011) are not aligned with any of the four principles.

The **National Exporter Development Programme (2013) performed poorly**, but since it is narrowly focused on training interventions, a **better use of time and resources for mainstreaming purposes would probably be to use the Policy Gap Analysis Framework developed in this document to review the level of alignment of the revised National Export Strategy with the NCCRP mitigation principles when it is released for comment**.

The **NIPF** contained statements that were contradictory to three of the four relevant principles (with Resource Efficiency being the exception – here the NIPF was fully aligned, and is therefore also a candidate for prioritised attention – particularly given that it creates the broad framework governing all industrial policy interventions in South Africa. There are however **no indications at present that this document is to be reviewed**, and from a practical perspective the IPAP has a more direct influence over the implementation of industrial policy.

The **IPAP is reviewed annually**, which provides ample opportunity to try and increase its alignment with the NCCRP principles. While the IPAP contained statements that were partially (Consideration of Emissions Implications) and/or fully (Climate Change Mitigation Awareness, Resource Efficiency and Mitigation Elements) aligned with all four principles, it did also include content that was contradictory to the Consideration of Emissions Implications principle and not aligned with the Mitigation Elements principle. This stems from the possible emissions impact of a number of actions proposed in the IPAP not having been considered. It is therefore suggested that **attention is focused on ensuring that considerations of the emissions implications of all the actions proposed in the IPAP is included in the document**. This would also address the uncertainty that exists around the likely impact of some of the actions proposed in the IPAP that could have mitigation benefits.

Effectiveness of mitigation elements

Only the Electric Vehicle Industry Road Map and Action Plan met the criteria to be included in the mitigation element effectiveness assessment. The IPAP, however, included a number of mitigation elements and plays a critical role in guiding the practical implementation of industrial policy (and thus also the mitigation elements this encompasses) in South Africa. For these reasons the IPAP was included in the mitigation element effectiveness assessment.

As is expected, the Electric Vehicle Industry Road Map and Action Plan scored well in the assessment of the likely effectiveness of its proposed mitigation action (increased uptake of electric vehicles in South Africa). In fact, the only factor that casts doubt on the ability of this mitigation element to be implemented effectively (i.e. did not indicate at least a medium chance of success) was a lack of quantification of the emissions reductions expected from the successful implementation of this mitigation element. While this need not impede the effective roll out of electric vehicles, this does indicate a risk that the mitigation element may not be designed in a way to maximise emissions reductions (by, for instance focussing on other benefits like employment creation or energy security without adequately considering the trade-off with emissions reductions). It can thus be concluded that the Electric Vehicle Industry Road Map and Action Plan was designed in a way that provides it with a good chance of being successfully implemented.

This fact notwithstanding, the effectiveness assessment showed that a number of the factors likely to underpin the success of an electric vehicle roll-out are still under development. It is therefore important that the implementation of the Electric Vehicle Industry Road Map and Action Plan is carefully monitored to ensure that the planned activities are undertaken in a timely manner.

Also, as expected, there are still a number of gaps in the design of the mitigation elements contained in the IPAP. Across all mitigation elements, the assessment highlighted at least four areas where the likelihood that they would be able to be implemented effectively was at risk (as indicated by effectiveness criteria that received “Low” scores). In fact, in all but one case (Industrial Upgrading), it was not clear whether the mitigation elements would in fact lead to emissions reductions. It would therefore seem that the rationale (logic model) on which these mitigation elements are based need to be more clearly outlined (by, for instance, specifying the exact nature of the intervention or the technology to be used). Given that the IPAP is a high-level policy document, however, this should not necessarily be seen as major shortcoming, as long as these gaps are filled in the implementation plans that are developed to operationalise these mitigation elements.

Thus, while the number of mitigation elements contained in the IPAP is encouraging, the fact only one detailed implementation plan (the EV Road Map) linked to a mitigation element has flowed from it is not

The gap in the likely effectiveness of mitigation elements contained in the IPAP and the EV Road Map \ (which is an implementation plan that was developed in response to IPAP guidance), however, clearly highlights the importance of developing implementation plans to take the mitigation elements contained in the IPAP forward. While the number of mitigation elements

contained in the IPAP is thus encouraging, the fact only one detailed implementation plan linked to a mitigation element has flowed from it is not.

In summary, the only implementation plan included in the assessment of the expected effectiveness of mitigation actions, the Electric Vehicle Industry Road Map and Action Plan, was generally designed in a way that is conducive to it being successfully implemented. The only factor likely to reduce the expected effectiveness of this particular mitigation element is absence of an estimation of the potential emissions reductions – which may influence the design of actions linked to this mitigation element. Moreover, six of the factors required to underpin the success of an electric vehicle roll-out are still under development. **Provided that progress in implementing the Electric Vehicle Industry Road Map and Action Plan is carefully monitored, and that the actions included in the document are successfully undertaken, there is a high likelihood that this mitigation element will be successful and no further action is required.**

In the IPAP, the analysis identified at least four areas across all of the mitigation elements that are likely to impede implementation. In all but one case (Industrial Upgrading), the **basic premise (logic model) on which these mitigation elements are based needs to be more clearly specified. This should be a priority.** Unless this shortcoming is remedied, it is unlikely that the effort required to develop these mitigation elements to a level where they can be included in implementation plans will be worthwhile from a mitigation perspective.

In terms of Industrial Upgrading, the emphasis should be on addressing the following factors currently impeding the likely success of this mitigation element, namely: estimating expected emissions reductions, considering the state of relevant technology and the regulatory environment within which it will be deployed, and ensuring that sufficient human capital and supporting infrastructure is available to support implementation.

Overall, however, the gaps in alignment revealed in the IPAP and the Electric Vehicle Industry Road Map and Action Plan, highlight the importance of developing appropriate implementation plans to take the mitigation elements contained in the IPAP forward. **The focus in the industry sector should thus be on ensuring that more mitigation elements are based on sound logic and that detailed implementation plans for these elements are developed.**

Table 10 Mitigation element effectiveness summary - Industry

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Relative Alignment |
|---------------------------|---|--|--|--|----------------------------------|--|---|--|--|--------------------|
| | | Electric Vehicle Industry Road Map and Action Plan | IPAP: Industrial upgrading (energy efficiency) | IPAP: Support to the biofuels industry | IPAP: Support to forestry sector | IPAP: Localisation of renewable energy | IPAP: Localisation of energy efficiency products and services | IPAP: Development of local nuclear energy sector | IPAP: Electricity Prepayment Meter Manufacturing | |
| Effectiveness criteria | | | | | | | | | | |
| 1 | Logic model (theory of change) | | | | | | | | | 25% |
| 2 | Expected emissions reductions specified | | | | | | | | | 0% |
| 3 | Time frame for implementation | | | | | | | | | 100% |
| 4 | Regulatory environment | | | | | | | | | 38% |
| 5 | State of technology | | | | | | | | | 31% |
| 6 | Human capital | | | | | | | | | 25% |
| 7 | Implementation incentives | | | | | | | | | 25% |
| 8 | Funding for implementation | | | | | | | | | 25% |
| 9 | Supporting infrastructure | | | | | | | | | 19% |
| 10 | Institutions | | | | | | | | | 88% |
| Relative alignment | | 60% | 40% | 25% | 40% | 35% | 35% | 40% | 25% | |

Transport

Policy gap assessment

The following priority documents were included in the gap analysis: National Land Transport Act (Act 5 of 2009) (NLTA); National Land Transport Strategic Framework, 2006 (NLTSF); National Ports Act (Act 12 of 2005) (NPA); South Africa National Roads Agency Limited and National Roads Act (1998) (SANRAL); Civil Aviation Act (Act 13 of 2009) (CAA); Draft Non-Motorised Transport Policy (2008) (DNMTP); White Paper on National Transport Policy (1996) (WPNTP); Draft South African Maritime Transport Policy (2008) (DSAMTP); Public Transport Strategy (2007) (PTS); National Transport Master Plan (2012) (NATMAP); Moving South Africa: A transport Strategy for 2020 (1998) (MSA); Road Freight Strategy, 2011 (RFS); National Land Transport Transition Act (2000) (NLTTA); Interim National Passenger Rail Plan (2005) (INPRP); National Freight Logistics Strategy (2005) (NFLS); Rural Transport Strategy for South Africa (2007) (RTSSA); and the National Spatial Development Perspective (2006) (NSDP).

While most of the documents show partial or full alignment with the Mitigation Elements principle, fewer consider climate change aspects directly (through an explicit recognition of the sector's contribution to climate change), and very few address any of the mitigation-specific principles. In terms of the mitigation-linked principles. The Dynamic and Evidence-based, Precautionary Principle, Cost-Effectiveness, and Polluter Pays principles are least consistently applied.

The National Land Transport Act (NLTA) shows the highest level of alignment with the principles contained in the NCCRP. A number of principles, however, are not applicable to this document as it does not include any mitigation elements. The National Transport Master Plan (NATMAP) shows the highest level of alignment with the NCCRP amongst the documents that do contain mitigation elements (and to which most of the NCCRP principles apply). This is encouraging as it provides an overall masterplan for the sector, and so hopefully these provisions will filter down via its implementation. Two principles which are neglected, however, and which could be addressed are the Precautionary Principle and Behaviour Change - the latter being particularly important in the transport sector. Moreover, clearer link between actions and their emissions implications could be made in parts of the document.

The National Land Transport Strategic Framework (NLTSF), Draft Non-Motorised Transport Policy (DNMTP), and to a lesser extent the National Ports Act (NPA) are also relatively well aligned with the NCCRP mitigation principles.

The Road Freight Strategy (RFS) shows the lowest level of alignment with alignment evident for only two principles (Mitigation Elements and Resource Mobilisation). This is concerning given the high contribution of road transport to global GHG emissions. The Civil Aviation Act (CAA) displays the second-lowest level of alignment. In terms of general principles, the Climate Change Awareness and Consideration of Emissions Implications principles are either unclear or contradictory. The following mitigation-linked principles are not aligned: Sustainable Development Pillars, Risk management, Adaptation and other Co-benefits, Cost-effectiveness, Special Needs and Polluter Pays.

The Rural Transport Strategy for South Africa (RTSSA), National Spatial Development Perspective (NSDP), National Freight Logistics Strategy (NFLS) and the Public Transport Strategy (PTS) are all poorly aligned with the NCCRP principles. The relative lack of alignment of the NSDP in particular is concerning as it has far-reaching implications on the development of the sector (although it was released prior to the NCCRP).

In terms of **prioritising documents**, four general principles are of particular importance, namely: the Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

Only one document, the NATMAP, is fully aligned with three of the four principles. With respect to Consideration of Emissions Implications, the document specifically identifies GHG emissions as an issue that needs to be addressed. While there is a requirement to monitor modal share (which relates to emissions), the link is not explicit. Furthermore, quantified targets are required by mode based on technology performance metrics, including energy efficiency and "environmental performance" – again with an unclear link to emissions. It is recommended that these links be made stronger.

The National Land Transport Act, Draft Non-Motorised Transport Policy, White Paper on National Transport Policy, and Draft South African Maritime Transport Policy are all either partially or fully aligned with these principles, suggesting that these documents do not require significant attention during the engagement process. That said, however, maritime emissions (for example) are growing steadily. In order to address this it is important that all the NCCRP mitigation principles are included in policy documents and that the emissions implications of all actions are considered.

The National Ports Act does not include mitigation elements, and the National Land Transport Transition Act does not consider emissions implications, both of which may be considered appropriate given the purposes of those documents.

The remaining six documents are the priority documents for attention. The **Road Freight Strategy** shows particularly poor alignment, needing attention in all four of the important principles. The **Rural Transport Strategy for South Africa** requires the incorporation of the Climate Change Mitigation Awareness and Resource Efficiency principles. Both of these documents are important given the contribution of road transport to emissions in South Africa. The **CAA regulations** include a number of gaps – including around the Climate Change Mitigation Awareness, and Emissions Implications principles – considerations that the **National Freight Logistics Strategy** also lack. The **Public Transport Strategy** is not aligned with the Consideration of Emissions Implications and Resource Efficiency principles.

Finally, the Climate Change Mitigation Awareness principle should be included in the **National Spatial Development Perspective**. Spatial planning can play an important role in reducing emissions growth through influencing how housing is provided, how people access services, and how mobility needs are met amongst others. Early consideration of climate change can maximise such benefits.

Effectiveness of mitigation elements

In the transport sector there were no regulations or implementation plans identified or reviewed. In order to demonstrate the effectiveness assessment framework in this sector, one strategy and one policy document were analysed. These documents are the National Land Transport Strategic Framework (NLTSF) and the National Transport Master Plan.

The NLTSF contained two mitigation elements, namely a general 'reduction in emissions' strategy and a move from road to rail strategy. The following effectiveness criteria indicated factors likely to increase the probability of success: Logic Model, Funding for Implementation and Institutions. Expected Emissions Reductions Specified was neglected for both mitigation elements. The only other factor likely to reduce the probability of success is the lack of consideration of the human capital needs (e.g. skilled maintenance personnel, train drivers, scheduling personnel/soft engineers etc.) to underpin a large-scale move from road to rail. All the remaining effectiveness criteria indicated that, although there is still some work to be done, the required actions have been identified in the documents. Given that the mitigation elements were contained in a high-level strategy document, it is likely that all the remaining design shortcomings will be addressed once the mitigation elements are included in detailed implementation plans.

In terms of the National Transport Master Plan, for all of the mitigation elements considered the logic models were sound, the technologies chosen were encouraging, and time frames for implementation were stated. Furthermore, for all elements except transport demand management, the supporting infrastructure is in place. Funding is considered for all elements except Integrated urban management and transport planning. There is less alignment with the Human Capital effectiveness criteria.

Interestingly, it isn't always clear whether the regulatory environment is conducive – which might be expected given this is a master plan for transport. It is possible that the regulations are specified in other documents, but these are not explicitly referred to. For none of the mitigation elements is the link to emission reductions specified.

Of the mitigation elements in NATMAP, it appears that the shift from road to rail and public transport interventions have the greatest chances of being effective, while integrated urban management and transport planning have the lowest likelihood of success.

Table 12 Mitigation element effectiveness summary - Transport

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Relative Effectiveness |
|------------------------|---|--|---|--|---|--|---|--|------------------------|
| | | National Land Transport Strategic Framework - Reduction of emissions | National Land Transport Strategic Framework - Freight shift from road to rail | National Transport Master Plan - Transport Demand Management | National Transport Master Plan - Public Transport | National Transport Master Plan - Promoting non-motorised transport | National Transport Master Plan - Integrated urban management and transport planning | National Transport Master Plan - Shift from road to rail | |
| Effectiveness criteria | | | | | | | | | |
| 1 | Logic model (theory of change) | | | | | | | | 100% |
| 2 | Expected emissions reductions specified | | | | | | | | 0% |
| 3 | Time frame for implementation | | | | | | | | 86% |
| 4 | Regulatory environment | | | | | | | | 29% |
| 5 | State of technology | | | | | | | | 86% |
| 6 | Human capital | | | | | | | | 21% |
| 7 | Implementation incentives | | | | | | | | 14% |
| 8 | Funding for implementation | | | | | | | | 86% |
| 9 | Supporting infrastructure | | | | | | | | 79% |
| 10 | Institutions | | | | | | | | 50% |
| Relative Effectiveness | | 60% | 55% | 45% | 65% | 50% | 40% | 70% | |

In summary, no implementation plans or regulations were identified. This is a function of the fact that many of the responsibilities for implementation of transport legislation is assigned to provincial and local authorities (only certain functions are to be implemented at the national level). As such, the effectiveness of mitigation elements needs to be determined by considering the implementation plans developed by individual provincial and local governments. Even though much of the responsibility to implement is devolved, the documents reviewed still allocated some responsibilities, like coordination and putting in place conducive regulatory environments and installing supporting infrastructure, to the National Department of Transport. It is thus important that implementation plans are also developed at a national level to ensure that these responsibilities are met. At a minimum, the National Department of Transport needs to develop norms and standards to ensure that there is consistency in the way the mitigation elements are implemented across the different jurisdictions.

The NLTsf could be enhanced by ensuring that a mechanism is in place to consider the likely emissions implications of proposed actions; for example, it could require that emissions data on road and rail be determined so that a given percentage shift from road to rail would yield a given percentage reduction in overall GHG emissions. As long as the basic methodology is set out in the NLTsf, subsequent implementation plans can provide more detail. A lack of consideration of human capital availability to support a move from road to rail also reduces the likelihood that it will be effective and needs to be addressed. A number of actions have been identified that are required to create conditions conducive to the successful implementation of the mitigation elements contained in the document, and it is important that these actions are included in implementation plans.

The **National Transport Master Plan (NATMAP)** is unclear as to whether supporting infrastructure is required or in place for transport demand management, and funding for implementation has not been considered for the integrated urban management and transport planning element. The Human Capital and Institutions effectiveness criteria have also not been applied to promoting non-motorised transport or integrated urban management and transport planning, and neither is it clear whether the regulatory environment is conducive to the implementation of these two elements. None of the mitigation elements included an estimation of expected emissions reductions, or considered the Implementation Incentives (cost-effectiveness) effectiveness criteria. The latter, however, is of less importance where actions are required by law.

It is clear that although policy is in place, which does include consideration of a number of mitigation elements, effectiveness criteria should be included in regulations and implementation plans as a priority, be they at the national, provincial or local level. Some of the implementation plans required to fully implement the NATMAP may also flow from related policies or strategies like, for example, the Draft Non-Motorised Transport Policy. The links to these should be made explicit.

Waste

Policy gap assessment

The following priority documents were included in the gap analysis: National Environmental Management: Waste Act (No 59 of 2008) (NEM: WA); National Waste Management Strategy (2011) (NWMS); National Policy on Thermal Treatment of General and Hazardous Waste (2009) (TTGHW); Municipal Waste Sector Plan (2012) (MWSP); National Environmental Management Waste Act: List of Activities which have or are likely to have a detrimental effect on the environment (2013); National Organic Waste Composting Strategy (2013) (NOWCS); Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas (2013) (EFRRLG); Waste Classification and Management Regulations (2013); National Norms and Standards for the Assessment of Waste for Landfill Disposal (2013); National Norms and Standards for Disposal of waste to Landfill (2013); and National Waste Information Regulations (2012).

The principle of Resource Efficiency is extensively covered by documents in the waste sector, and since many of these have a mitigation benefit, there is good alignment with the Mitigation Elements principle. There is recognition of a climate mitigation imperative and the Precautionary Principle in three of the documents reviewed, and of sustainable development benefits in four of the documents. However only one document is rated at least “partially aligned” in terms of the Consideration of Emissions Implications principle.

In terms of individual documents, the National Waste Management Strategy (NWMS) shows very strong alignment, and the Municipal Waste Sector Plan (MWSP) and the Waste Act (NEM: WA) are also aligned in a number of areas. There is also some alignment in the National Policy on Thermal Treatment of General and Hazardous Waste (TTGHW). Given that the NWMS represents the strategy for implementation of the Waste Act, and the Municipal Waste Sector Plan a plan for implementation at the municipal level, the alignment of these two documents is encouraging. Although alignment is low for the two other documents reviewed, this is not unexpected given their focus. Opportunities for increased alignment do however exist. It is noted that five documents have been excluded from the table as described below, as few or none of the mitigation principles were applicable.

In terms of **prioritising documents, four general principles are of particular importance**, namely: the Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

Of the six documents reviewed, **only the National Policy on Thermal Treatment of General and Hazardous Waste demonstrated full alignment** with all four of these important principles. Given that the **Waste Act and the National Waste Management Strategy scored well, showing full or partial alignment with these principles, it is suggested that they do not require further attention.**

Table 13 Summary of policy alignment in the Waste sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | Relative Alignment |
|---|---------|-----|-------|-----|--------|-----|--------|-----|-------|-----|-------|-----|--------------------|
| | NEM: WA | | NWMS | | TTGHW | | MWSP | | NOWCS | | EFRLG | | |
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | |
| 1 CC Mitigation awareness | Green | | Green | | Green | | | Red | | Red | | Red | Yellow |
| 2 Consideration of emissions implications | Green | | Green | | Green | | Green | | Green | | Green | | Green |
| 3 Resource efficiency | Green | | Green | | Green | | Green | | Green | | | Red | Green |
| 4 RD&I | | Red | Green | | | Red | | Red | | Red | | Red | Red |
| 5 Mitigation elements | Green | | Green | | Green | | Green | | Green | | Green | | Green |
| 6 Dynamic and evidence based | Green | | Green | | | Red | Green | | | Red | | Red | Yellow |
| 7 Precautionary principle | | Red | Green | | Green | | | Red | | Red | Green | | Yellow |
| 8 Sustainable development pillars | Green | | Green | | Green | | Green | | | Red | | Red | Yellow |
| 9 Risk management, adaptation and other co-benefits | Green | | Green | | | Red | Green | | | Red | | Red | Yellow |
| 10 Cost-effectiveness | | Red | Green | | | Red | | Red | | Red | | Red | Red |
| 11 Behaviour change | | Red | Green | | | Red | Green | | | Red | | Red | Yellow |
| 12 Equity | | Red | Green | | | Red | Green | | | Red | | Red | Yellow |
| 13 Special needs | | Red | | Red | | Red | | Red | | Red | | Red | Red |
| 14 Polluter pays | | Red | Green | | | Red | Green | | | Red | | Red | Yellow |
| 15 Resource mobilisation | | Red | | | | Red | | | | Red | | Red | Yellow |
| Relative alignment | Yellow | | Green | | Yellow | | Yellow | | Red | | Red | | |

The Norms and Standards for Extraction, Flaring and Recovery of Landfill Gases is partially aligned with two of the principles (Consideration of Emissions Implications and Mitigation Elements), and not aligned with the other two priority principles. In further reviews, it could be proposed that Climate Change Mitigation Awareness in particular could be made explicit. **However given the nature of this document, it is suggested that significant further effort in increasing alignment is not necessarily warranted.**

The other two documents reviewed, the **Municipal Waste Sector Plan and National Organic Waste Composting Strategy** are partially or fully aligned in three of the four priority principles, with the exception of that of Climate Change Mitigation Awareness. **It is suggested that this omission be addressed** to allow for climate change considerations to be taken into account during decision making and planning processes. **An effort should also be made to increase alignment from partial to full.** Given the importance of municipalities in implementation of much of the waste legislation, **effort to increase alignment of the Municipal Waste Sector Plan is required.** The **National Organic Waste Composting Strategy is not aligned with the remainder of the principles, suggesting that it should be prioritised.**

Effectiveness of mitigation elements

In the waste sector, mitigation elements from two documents were reviewed, being the Municipal Waste Sector Plan (which had four mitigation elements) and the Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas (which had one mitigation element).

The mitigation element related to flaring or recovery of landfill gas is likely to be the most effective, given that it scores a high (indicating an increased probability of effective implementation) for all the effectiveness criteria, with the exception of Human Capital in which it scores a medium (unlikely to prevent successful implementation as long as identified actions are undertaken). Of the three mitigation elements included in the Municipal Waste Sector Plan, reuse and recycling is likely to be the most effective as it scores a medium to high for all the effectiveness criteria except two. The other two mitigation elements, however, are not as likely to be effective, unless a number of provisions are put into place or identified explicitly to support their implementation.

There a number of effectiveness criteria that are not covered sufficiently in the mitigation elements reviewed. Firstly, none of the elements consider the cost-effectiveness of suggested mitigation elements (Implementation Incentives) – which may be considered appropriate given the mandatory nature of many of these actions. Only two of the four elements are given a medium or high rating with respect to the following effectiveness criteria: Expected Emissions Reductions Specified, Funding for Implementation and Supporting Infrastructure. These issues are critical to ensuring the effectiveness of these mitigation elements.

Table 14 Mitigation element effectiveness summary - Waste

| | | 1 | 2 | 3 | 4 | Relative Effectiveness |
|------------------------|---|---|--|---|---|------------------------|
| Effectiveness Criteria | | Municipal Waste Sector Plan - Reuse and recycling | Municipal Waste Sector Plan - Composting | Municipal Waste Sector Plan - Waste to energy | Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas | |
| 1 | Logic model (theory of change) | | | | | 100% |
| 2 | Expected emissions reductions specified | | | | | 38% |
| 3 | Time frame for implementation | | | | | 75% |
| 4 | Regulatory environment | | | | | 100% |
| 5 | State of technology | | | | | 75% |
| 6 | Human capital | | | | | 38% |
| 7 | Implementation incentives | | | | | 25% |
| 8 | Funding for implementation | | | | | 38% |
| 9 | Supporting infrastructure | | | | | 38% |
| 10 | Institutions | | | | | 88% |
| Relative Effectiveness | | 65% | 45% | 40% | 95% | |

The **flaring or recovery of landfill gas** is the mitigation element most likely to be effective, given that it scores a high on nine of the ten effectiveness criteria, and a medium on the remaining criterion. As such, there is **no need to engage further with this mitigation element. Reuse and recycling also scores well in the effectiveness assessment and hence does not require significant additional attention.** While there is no provision for the Specification of Emissions Reductions for this mitigation element, it needs to be recognised that calculation of the emission reduction benefit for reuse and recycling is challenging given the need to consider life cycle emissions (and to ensure that there are no unintended consequences elsewhere in the value chain).

Waste to energy scores the worst of the mitigation elements considered, and a number of gaps need to be addressed. It was recommended in the Policy Gap Assessment Recommendations that the Municipal Waste Sector Plan containing this mitigation element should be prioritised; the effectiveness of this mitigation element should be addressed during that review.

Composting as contained in the Municipal Waste Sector Plan is not likely to be a particularly effective mitigation element. It is recognised that there is a separate National Organic Waste Composting Strategy which was reviewed in the policy gap assessment, although that document does not necessarily address the effectiveness criteria missing in the Municipal Waste Sector Plan. As such, there may be some work to do, spread across these two documents, to improve effectiveness of this mitigation element.

Conclusion

The **policy gap analysis** has shown that there are large variations in the extent to which policy documents are aligned with the NCCRP mitigation principles within sectors. For the most part it seems, unsurprisingly, that the objectives of the policy documents have a larger impact on the level of alignment than the timing of the documents (i.e. when they were actually released). Policy documents that deal with issues that overlap with mitigation (like energy production or use) are typically more closely aligned to the NCCRP mitigation principles than more general documents.

In all five sectors the general mitigation principles were much more consistently applied than the mitigation element-linked principles. The exception is Consideration of Emissions Implications principle, which was poorly implemented in all sectors apart from the energy sector. In terms of mitigation element-linked principles, Resource Mobilisation was the most consistently applied principle. The principles that were most extensively neglected were Cost-effectiveness (which received little attention in all sectors apart from Energy), and Special Needs (which only received significant attention in the Transport sector).

The mitigation element effectiveness assessment highlighted the dearth of implementation plans and regulations that contain mitigation elements in the five sectors considered. Only four relevant implementation plans and two regulations were identified across the sectors. Consequently five high-level policies or strategies were included in this analysis. With few exceptions, it was found that mitigation elements contained in implementation plans were much more likely to be designed in a way that is conducive to effective implementation, than mitigation elements contained in high-level policies or strategies.

The results for regulations were less conclusive. Although just two sets of regulations were included in the analysis, these two regulations contained mitigation elements that are likely to be implemented successfully (in the case of the Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas) as well as mitigation elements which appear to be flawed in practice (in the case of the Guidelines for the development of Spatial Development Frameworks).

Large disparities exist in the extent to which the ten mitigation element effectiveness criteria have been considered in the design of mitigation elements between sectors. Adherence to the following criteria were most likely to indicate successful implementation: consideration of the logic models underlying the mitigation elements (i.e. is there sound theory or experience indicating that an element will lead to actual emissions reductions); defining clear implementation time frames; and ensuring that the institutions required to implement mitigation elements are in place. Conversely, the absence of consideration of the following effectiveness criteria is most likely to impede the implementation of mitigation elements: consideration of the emissions reductions that are likely to materialise; sufficient human capital available to roll out an element; and cost-effectiveness (after considering all public sector incentives available to support the elements).

Given the relative lack of implementation plans, and the fact that mitigation elements contained in implementation plans are typically better designed than those in higher level policy documents or strategies, **ensuring that detailed implementation plans are developed in all sectors to guide the roll out of mitigation elements, be they at the national, provincial or local level, should be a priority.** Moreover, given the important role of regulations in guiding implementation, **it is essential that mitigation elements are included in all relevant regulations, and that such regulations are designed in a way that maximises the likelihood of success.**

1 INTRODUCTION

To achieve its mitigation objective, the National Climate Change Response Policy (NCCRP) published as a White Paper on 21 October 2011 highlighted the importance of including climate change concerns into government planning both at different levels of government and across national government departments. To support this goal, the NCCRP recommends a comprehensive review of all public sector legislation, policy, strategies, plans and regulatory frameworks. Such a review is warranted since climate change has gained prominence as a national policy priority relatively recently, and most public sector legislation, policy, strategies, plans and regulatory frameworks predate the NCCRP. Consequently, sector policies and legislation often only relate to climate change in a very narrow way, if at all, focusing on the most visible ways in which climate change may interact with the sector.

It is therefore important that a policy gap assessment be undertaken to assess to what extent existing legislation, policy, strategies, plans and regulatory frameworks conform to the spirit and intentions of the NCCRP, and to highlight areas where there is a need to include climate change considerations as a matter of priority. In addition to increased coordination within and between government departments and other stakeholders, the mainstreaming of climate change policy goals into the relevant legislation, policy, strategies, plans and regulatory frameworks will also ensure consistent climate change policy objectives are set throughout the relevant sectors.

The success of policy documents in bringing about climate change mitigation stems from both the actions that they propose and how well these actions have been designed. Consequently, it is also important to assess the likely effectiveness of mitigation elements identified during the policy gap assessment in reducing greenhouse gas emissions.

This report commences with a section outlining the methodology for undertaking both the policy gap assessment considering the alignment of existing legislation, policy, strategies, plans and regulatory frameworks (henceforth referred to as 'policy documents') with the NCCRP, and the analysis of the expected effectiveness of mitigation elements identified during this policy gap assessment. It then proceeds to implement policy gap assessments and analyse the likely effectiveness of identified mitigation elements for five sectors, namely: Agriculture, forestry and other land use (AFOLU); Energy; Industry; Transport and Waste. The policy gap analysis highlights the areas where alignment with identified NCCRP mitigation principles is lacking, and highlights priority areas to focus alignment efforts. Likewise the analysis of the effectiveness of mitigation elements identifies factors that may prevent the successful implementation of mitigation elements, and recommends where actions should be focussed to increase the likelihood that mitigation elements will be implemented successfully.

The analysis that follows is organised by sector for ease of reference, and is followed by a short conclusion to end the report.

2 METHODOLOGY

2.1 Policy gap assessment

In order to assess the alignment of policy documents with the National Climate Change Response Policy (NCCRP), the NCCRP was reviewed to identify the principles put forward in the Policy to guide mitigation action in South Africa. In consultation with the Department of Environmental Affairs (DEA) a list of 15 such principles were developed. The principles are shown in Table 15 below.

Table 15 NCCRP principles to guide policy alignment assessment

| | | Principle | Guiding question(s) |
|---|----|---|---|
| General principles | 1 | Climate Change Mitigation awareness | Is climate change mitigation explicitly or implicitly mentioned? |
| | 2 | Consideration of emissions implications | Does the document provide sufficient information to allow the GHG emissions implications of actions proposed in the document to be assessed? Have the emissions implications of actions been taken into consideration while developing the document. |
| | 3 | Resource efficiency | Is resource efficiency required or promoted? |
| | 4 | Research, development and innovation | Is mitigation-focused research, development and innovation (RD&I) proposed or supported? RD&I is defined in the broadest sense, and includes research into policy approaches or economic instruments. |
| | 5 | Mitigation elements | Are mitigation elements explicitly or implicitly identified? Mitigation elements are broadly defined as any action, intervention, process or approach that could lead to a reduction in the GHG emissions emanating from a sector. |
| Principles applicable to identified mitigation elements | 6 | Dynamic and evidence based | Has provision been made for regular updating of mitigation-related information based on latest information? |
| | 7 | Precautionary principle | Is there sufficient evidence that identified risks associated with mitigation elements (environmental and other) have been assessed and found to be acceptable and/or manageable? |
| | 8 | Sustainable development pillars | Do mitigation elements have a significant impact on any of the three pillars (social, environmental and economic) of sustainable development (including inter and intra generational concerns), and if so, have trade-offs between the pillars been considered? |
| | 9 | Risk management, adaptation and other co-benefits | Have the risk management and adaptation impacts and/or other co-benefits (like employment or industrial development) of mitigation elements been assessed? |
| | 10 | Cost-effectiveness | Is sufficient information available to evaluate the cost effectiveness of mitigation elements? |
| | 11 | Behaviour change | Are market-based or other measures included to incentivise low carbon production or consumption? |
| | 12 | Equity | Have the equity implications of mitigation elements been assessed (income distribution and fair allocation of effort)? |
| | 13 | Special needs | Has the possible impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) been considered? |
| | 14 | Polluter pays | Has the Polluter Pays Principle been applied? |
| | 15 | Resource mobilisation | Have sources of funding for mitigation elements been considered or identified? |

The first five (*general*) principles are based on the basic components required to develop a sector mitigation strategy, and can be relevant to policy documents even if no mitigation elements¹ are identified in the document.

¹ Mitigation elements are broadly defined as any action, intervention, process or approach that could lead to a reduction in the GHG emissions emanating from a sector.

The remaining ten (*mitigation element-linked*) principles relate to the way that specific mitigation elements are implemented. These principles are therefore only applicable in instances where mitigation elements have been identified. They are intended to guide the implementation of mitigation elements and are therefore relevant even in cases where documents are only starting to consider specific mitigation elements.

For the purposes of the policy gap analysis five alignment categories are identified. These categories are shown in the table below.

Table 16 Categories of alignment

| Alignment category | Criteria |
|-------------------------|---|
| Fully aligned (FAL) | Explicit alignment with the NCCRP principle exists and no further development actions are required. Mitigation elements are explicitly identified by either being referred to as mitigation or abatement options or their GHG emissions reduction implications are quantified. |
| Partially aligned (PAL) | Only implicit alignment with the specific NCCRP principles exists and/or further information is required before the alignment can be assessed. Actions that are likely to reduce GHG emissions, but where the quantum of the expected reduction isn't specified, or which are not explicitly identified as GHG mitigation actions, for example, will denote partial alignment. |
| Not aligned (NAL) | The principle is relevant to the document in question but has not been addressed. |
| Contradictory (CON) | The outcome or intent of the specific section of the policy document is contradictory to the aims of the NCCRP |
| Unclear (UNCL) | It is not clear if the section or action refers to mitigation (as opposed to an intervention addressing a more general environmental, economic or social issue) or to the relevant mitigation element-linked principle (i.e. whether a general provision to update a document includes information related to mitigation elements). Or it is not clear if an action will have a net mitigation impact in practice. Some actions can reduce or increase emissions depending on conditions or how they are implemented. |
| Not applicable (N/A) | The principle is not applicable to the policy document being considered. |

The requirements for meeting the different criteria listed for the different alignment categories will be context-specific, and will differ based on the type of policy document assessed since different types of policy documents are expected to contain different levels of detail. Much less information, for example, will be required for a high-level policy document to be in full alignment with the NCCRP principles than would be the case for an implementation plan.

In order to assist in the scoring process and provide some consistency to what is an inherently subjective process, customised scoring guides were developed to take account of the varying levels of detail expected in different types of policy documents. Scoring guides customised to address the content requirements of the following four types of policy documents were developed:

- High-level policies, frameworks or strategies;
- Legislation (Bills or Acts);
- Regulations; and
- Implementation plans.

The level of detail required for a document to be fully aligned with a mitigation principle increases from the top to the bottom of the list above. The threshold to achieve a fully aligned rating is thus

much lower in the high-level policies, frameworks or strategies scoring guide than it is in the scoring guide customised for implementation plans. The complete scoring guides are shown in [Annexure 1](#).

In order to implement the policy gap analysis framework, therefore, the scoring guides in [Annexure 1](#) need to be applied to a policy document to determine the level of alignment (according to the alignment categories from Table 16) between the content of a policy document and the relevant NCCRP mitigation principle (contained in Table 15). Care needs to be taken to ensure that the scoring guide customised to the type of policy document being assessed is used in the assessment.

The results of the **policy gap analysis for each policy document** are presented in table format for ease of interpretation. An example results table is presented as Table 17 below. A short motivation for the alignment category awarded is provided in the description column of the table. The relevant section in the policy document assessed against the specific principle is also shown. The way in which the relevant section is denoted will depend on the style of the document assessed, and most commonly will be a section or paragraph number or a page number.

As can be seen from the example below, it is possible for a document to contain content that is both aligned and not aligned (or contradictory) to the same principle. In order to move towards full alignment with a principle, not only would the criteria specified in the relevant scoring guide need to be met, but all content that is in contradiction with the NCCRP's conceptualisation of the principle needs to be removed. Content or statements which are rated as unclear also need to be amended to meet the fully aligned criteria. Likewise, instances where adherence to a specific principle is expected but not forthcoming need to be addressed. This situation might arise where a document applies a specific principle to one mitigation element, but does not, for example, apply the same principle to another mitigation element. In order to be fully aligned, a principle needs to be consistently applied to all the applicable areas within a policy document.

In order to provide an **overview of the level of alignment with the NCCRP within a sector, a summary table is provided** that includes the results from the assessments of the individual policy documents within the sector. An example of such a summary table is shown in Table 18. The relevant alignment categories for each principle are presented in two columns, the "Yes" column indicates where a document was found to be partially or fully aligned with a mitigation principle, while the "No" column indicates instances where a document was found to be not aligned, in contradiction, or unclear with respect to the alignment relating to the principle. For each document the highest level of alignment (e.g. fully aligned rather than partially aligned) is presented in the "Yes" column and the highest level of misalignment (contradictory trumps not aligned or unclear) is shown in the "No" column. In the interest of simplification, not aligned and unclear are afforded the same colour code (light red). Fully aligned is shown as dark green, partially aligned as light green and contradictory as dark red. Instances where a principle is not applicable to a policy document are presented as greyed-out blocks.

Table 17 Policy gap analysis results for individual policy document - example table

| | Principle | Alignment category | | | | | Relevant section | Description |
|----|---|--------------------|-----|-----|-----|------|------------------|-------------|
| | | FAL | PAL | NAL | CON | UNCL | | |
| 1 | Climate Change Mitigation awareness | | | | | | | |
| 2 | Consideration of emissions implications | | | | | | | |
| 3 | Resource efficiency | | | | | | | |
| 4 | Research, development and innovation | | | | | | | |
| 5 | Mitigation elements | | | | | | | |
| 6 | Dynamic and evidence based | | | | | | | |
| 7 | Precautionary principle | | | | | | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | |
| 10 | Cost-effectiveness | | | | | | | |
| 11 | Behaviour change | | | | | | | |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | | |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | | |
| | | 5 | 9 | 4 | 4 | 2 | | |

For a document to be fully aligned, there should be only dark green in the “Yes” column and no red in the “No” column (grey blocks should be ignored). Consequently, the more dark green there is in the “Yes” column, and the less red there is in the “No” column, the closer a document will be aligned with the NCCRP principles.

Exactly the same visual presentation applies with respect to assessing how consistently individual mitigation principles (both general and linked to mitigation elements) are applied across the policy documents within a sector. A principle is implemented in full alignment with the NCCRP principles if only dark green blocks are presented in the relevant row. And the more dark green blocks, and the less red blocks, in the row, the closer the principle is to being consistently applied in a way consistent with the NCCRP principles across the reviewed documents in a sector.

To enable a more direct comparison of the level of alignment of different documents and principles, a relative alignment indicator is shown at the bottom of each column and at the far right of each row. This alignment indicator is presented both in terms of colour and segments of a pie chart. Both presentation forms are based on the same relative alignment score. The highest and lowest alignment scores are taken, and all the values that fall within the top 20 percent of the range is given a complete pie (and dark green shading). All the values that fall within the bottom 20 percent of the range are allocated an empty pie (and dark red shading). The middle of the distribution is awarded either one pie segment (20 – 40 percent of the range), two pie segments (40 – 60 percent of the range) or three pie segments (60 – 80 percent of the range). Comparative colour shadings are also provided along the spectrum from dark green (best or most consistent alignment) to dark red (worst or most inconsistent alignment).

In practical terms, the more pie segments or the closer to dark green the relative alignment indicator for a document (column) or principle (row) is, the more aligned it is with the NCCRP principles (relative to the other documents or principles). Please note that the full pie or dark green does not denote full alignment, only relatively more alignment with the NCCRP principles compared to the other documents or principles. The criterion for full alignment was presented above (no red and only dark green in the relevant row or column).

Table 18 Summary of policy alignment in a sector - example table

| Alignment | 1 | | 2 | | 3 | | 4 | | 5 | | 7 | | Relative Alignment |
|---|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--------------------|
| | Doc 1 | | Doc 2 | | Doc 3 | | Doc 4 | | Doc 5 | | Doc 6 | | |
| | Yes | No | |
| 1 CC Mitigation awareness | Yes | No | ● |
| 2 Consideration of emissions implications | No | Yes | ● |
| 3 Resource efficiency | Yes | No | ● |
| 4 RD&I | Yes | No | ● |
| 5 Mitigation elements | Yes | No | ● |
| 6 Dynamic and evidence based | Yes | No | No | Yes | Yes | No | Yes | No | Yes | No | No | Yes | ● |
| 7 Precautionary principle | No | Yes | No | Yes | Yes | No | No | Yes | No | Yes | No | No | ● |
| 8 Sustainable development pillars | No | Yes | No | Yes | Yes | No | Yes | No | Yes | No | No | Yes | ● |
| 9 Co-benefits | No | Yes | Yes | No | Yes | No | Yes | No | Yes | No | No | Yes | ● |
| 10 Cost-effectiveness | Yes | No | No | Yes | Yes | No | Yes | No | Yes | No | No | Yes | ● |
| 11 Behaviour change | Yes | No | No | Yes | Yes | No | Yes | No | Yes | No | No | Yes | ● |
| 12 Equity | No | Yes | Yes | No | No | Yes | No | Yes | No | Yes | No | No | ● |
| 13 Special needs | No | Yes | No | Yes | No | Yes | No | Yes | No | No | Yes | No | ● |
| 14 Polluter pays | No | Yes | No | Yes | No | Yes | No | Yes | No | No | Yes | No | ● |
| 15 Resource mobilisation | Yes | No | Yes | No | Yes | No | Yes | No | No | Yes | No | No | ● |
| Relative alignment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

The summary table allows the viewer to easily observe which documents are most (or least) aligned with the NCCRP principles, and also which principles are applied the most (or least) consistently across policy documents in a sector.

2.2 Policy gap assessment recommendations

In terms of **prioritising documents to engage with the relevant line departments to try and increase their alignment with the NCCRP principles, four general principles are of particular importance**, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles. The rationale for focussing on these four principles is as follows:

Without an **explicit awareness of the climate change mitigation imperative**, it is unlikely that sectors will develop in a way that is consistent with the move to a low carbon economy in South Africa. Also, actions may already be proposed or undertaken that reduce GHG emissions in a sector, but without a focus on mitigation these actions may not be recognised as mitigation actions. This in turn could lead to additional, potentially unnecessarily costly, mitigation actions being proposed for the sector (or elsewhere in the economy when national level mitigation plans are developed) to compensate for the perceived lack of mitigation action within the sector. Similarly, in order to develop lowest cost mitigation strategies, it is important to **understand the emissions implications of all current and proposed actions** in sectors. Understanding the implications of actions that will lead to increased emissions is as important as understanding the implications of actions that will reduce emissions, since it provides an indication of the level of mitigation effort that will be required. **Increasing the efficiency with which resources are used within sectors** is not only often the most cost-effective way of reducing emissions, but it also increases the development prospects of a sector over time. Finally, in order to reduce South Africa's GHG emissions in line with the NCCRP principles, it is important that **mitigation elements are identified and included in the policy documents of all sectors**.

To increase alignment, it is suggested that the guidance in the relevant Policy Gap Assessment scoring guides are followed. The scoring guides provide the minimum criteria required for policy documents to be partially aligned with the NCCRP mitigation principles. Comparing the requirements for statements being partially aligned with the requirements for them to be fully aligned will highlight the minimum additional content that is required to fully align documents. This report has intentionally not provided guidance as to the content required in specific documents, since the maximum current feasible level of alignment will depend on the priorities and resources available within the relevant government departments. The relevant departments are also in the best position to know what additional information, processes and specifications will enable the scoring guide criteria to be met in the most efficient manner.

2.3 How to use the policy gap assessment

The Policy gap assessments assess how, and how consistently, the NCCRP mitigation principles have been applied in policy documents. The policy gap analysis sector summary tables provide a consolidated view of how principles have been applied. While very useful in providing an overview of the level of alignment within a sector, some granularity is lost in the process. It is thus advisable that the policy gap analysis results for individual policy document be consulted before decisions are taken on which policy documents need to be engaged with to start the policy alignment process.

The policy gap analysis framework and results presented in this report are intended to serve as tools to be utilised in the process of mainstreaming climate change mitigation considerations into the policy documents of the five applicable sectors.

It is envisaged that these tools will be refined as they are applied in practice to take into account the varying context and terminology in different sectors and types of policy documents,. The differences in objectives, context and terminology between policy documents in the same sector and also between sectors, mean that the assessment of policy alignment is inherently a subjective process. This fact notwithstanding, every attempt has been made to ensure a consistent interpretation of alignment criteria based on the relevant scoring guides. The scoring guides have also been updated during the policy gap analysis, and are expected to evolve as the policy gap assessment framework is applied in future.

2.4 Mitigation element effectiveness assessment

In order for the actions proposed in policy documents to bring about actual reductions in GHG emissions, it is important that they be designed in a way that takes the context within which they are to be implemented into consideration, and that they contain sufficient information to effectively guide their implementation. This section develops a methodology for considering whether this is the case, and then applies it to the mitigation elements identified in the previous section.

The assessment of the effectiveness is based on the information provided in the policy documents themselves. Best-practice policy-making requires that policies, strategies and regulations be fact based. It is therefore important that sufficient information is provided in policy documents (either directly or through references) to allow for at least a qualitative assessment of the effectiveness and appropriateness of mitigation elements they contain. Where possible, the project team's knowledge of the mitigation elements in question was used to supplement the analysis, but this was only done in exceptional circumstances (e.g. where the answer is obvious to the project team based on their previous experience).

The methodology employed to assess the likely effectiveness of identified mitigation elements is similar to that employed for the policy gap assessment. Rather than alignment criteria based in the NCCRP's guidance, however, effectiveness criteria were identified based on the project team's experience. The criteria are shown in Table 19 below. Three effectiveness categories were identified (see Table 20) based on the likely impact the effectiveness criteria is likely to have on the expected effectiveness of a mitigation element, and the category choice was again based on the application of customised scoring guides. The effectiveness scoring guides are shown in [Annexure 2](#).

The way in which the outcome of the effectiveness assessment is presented is also similar to the results from the policy gap assessment. Given the level of detail required to assess the likely effectiveness of mitigation elements, however, the effectiveness assessment was only applied to mitigation elements identified in regulations or implementation plans. Should no relevant implementation plans or regulations be identified in a sector, other types of policy documents may be used to illustrate the methodology.

Table 19 Mitigation element effectiveness criteria

| | Effectiveness criteria | Guiding question(s) |
|----|---|--|
| 1 | Logic model (theory of change) | Has the logic model (theory of change) for mitigation element been outlined (i.e. has the mechanism through which the intervention is expected to reduce GHG emissions been described)? |
| 2 | Expected emissions reductions specified | Has the expected impact of the mitigation element on GHG emissions been considered/estimated? |
| 3 | Time frame for implementation | Has the time frame for developing and/or implementation of the mitigation element been specified (or processes to determine time frames put in place)? |
| 4 | Regulatory environment | Has the state of the regulatory environment been assessed to determine if it is conducive to the successful implementation of the mitigation element (do enabling regulations/standards exist, are there any significant regulatory barriers in place, etc.)? If gaps were identified, what processes will be put in place to fill these gaps? |
| 5 | State of technology | Has the relevant technology/approach been assessed to determine if it is sufficiently developed given the envisaged state of implementation (i.e. pilot projects will have lower threshold than large-scale roll-out)? Has the local availability of the relevant technology/approaches that underpin the mitigation element been assessed (service providers, equipment suppliers etc.)? If shortcomings were identified, are processes in place to address these shortcomings? Is there societal acceptance of the technology? |
| 6 | Human capital | Has the availability of human capital to effectively implement the mitigation element been assessed (install, operate and maintain in the case of technology, or skills to implement effectively in the case of process interventions like behaviour change)? If shortcomings were identified, are processes in place to address these shortcomings? |
| 7 | Implementation incentives | Has the cost-effectiveness of the mitigation element (taking into consideration incentives and other forms of support) been considered? |
| 8 | Funding for implementation | Has the availability of funding to implement the mitigation element been considered, taking into consideration public sector support or other forms of support available? Will implementers be able to obtain financing for implementation (is it a proven technology, does it come with large risks, etc.)? If shortcomings were identified, are processes in place to address these shortcomings? |
| 9 | Supporting infrastructure | Has the availability of supporting/required physical infrastructure been assessed? Is the infrastructure in place? Are processes in place to develop infrastructure? |
| 10 | Institutions | Has the institutions required to implement or provide support for the implementation of the mitigation element been considered (training, rating/accreditation, safety, etc.)? Are these institutions in place? Are processes in place to develop these institutions? Has responsibility for the development and/or implementation of the mitigation element been assigned? |

Table 20 Mitigation element effectiveness criteria ratings

| Effectiveness rating | Description |
|-----------------------------|---|
| High (H) | Likelihood that mitigation element will be effective is high. The mitigation element and the environment within which it will be implemented have been analysed in detail, and conditions are conducive to the implementation of the mitigation element. |
| Medium (M) | Likelihood that mitigation element will be effective is medium. The mitigation element and the environment within which it will be implemented have been considered, and processes are in place to address factors that are likely to complicate the implementation of the mitigation, element. |
| Low (L) | Likelihood that mitigation element will be effective is low. Aspects of the mitigation element or the environment in which it is to be implemented have not been considered or information provided is not sufficient to inspire confidence that the mitigation element will be effective.. |

2.5 Effectiveness of mitigation elements – recommendations

The 10 effectiveness criteria chosen are indicative of factors that need to be considered in order to ensure that a mitigation element can be implemented effectively. A mitigation element not only needs to be implemented to be successful, but must also reduce emissions. And the more emissions are reduced, the more successful the element will be deemed to have been.

The first criterion (**Logic Model**), asks whether the basic concept or idea underlying the mitigation element is sound and whether it has been implemented successfully before. The second criterion (**Expected Emissions Reductions Specified**), while not necessarily casting doubt on the ability of a mitigation element to be implemented effectively, does indicate a risk that the mitigation element may not be designed in a way to maximise emissions reductions (by, for instance focussing on other benefits like employment creation or energy security without adequately considering the trade-off with emissions reductions). It is therefore still important information to consider when assessing the design of mitigation elements. Without set **time frames for implementation**, there is a risk that a mitigation element may never be implemented (or is implemented much later than envisaged). To avoid disappointment, it is important that the **technology** that underpins the mitigation action is sufficiently developed to be rolled out in the way intended, and that the **regulatory environment** in which it is deployed will allow it to be effectively operated. Furthermore, a lack of available **human capital, supporting infrastructure** or **institutions** required for the mitigation element to function effectively can easily thwart the implementation of promising mitigation elements. To ensure mitigation elements are rolled out, it is vital that sufficient **funding is available to cover the initial implementation** of mitigation elements (particularly where large up-front costs are expected). Even when the full cost of installing a mitigation element has been covered, it may still not be cost-effective to implement it due to higher maintenance or replacement cost, a reduction in the efficiency of a plant, or a change in the quality of products produced, for example. It is thus important to also consider whether there is an **incentive** (in the broad economic sense of the word) **to implement** a mitigation element. Whether or not mitigation elements are likely to be implemented or not is closely linked to their cost-effectiveness. This assessment should also consider incentives in the narrower sense of the word (i.e. public sector, donor or other financial support). Focussing only on incentives in the narrower sense of the work, however, is not sufficient since it still needs to be determined whether any available incentives are sufficiently large to ensure that there is a financial rationale for implementing a mitigation element. Where mitigation elements are required by law, obviously the cost-effectiveness assessment falls away since there is a clear incentive to implement.

As mentioned in the previous section, effectiveness criteria are scored on the basis of whether they are likely to increase (High rating) or reduce (Low rating) the likelihood of a mitigation action being implemented successfully. Effectiveness criteria that receive a Medium rating are not likely to reduce the likelihood that a mitigation element will be effectively implemented, provided that certain actions that are included in the relevant policy document are undertaken to support the implementation of the mitigation element. **The focus will thus be on identifying and addressing effectiveness criteria that are likely to reduce the likelihood that mitigation elements will be implemented successfully when recommending actions to increase mitigation element effectiveness.**

2.6 How to use mitigation element effectiveness assessment

The mitigation element effectiveness assessment provides an indication of whether a specific mitigation element has been designed in a way that provides it with a good chance of being successfully implemented. It is, in itself, not a guarantee that a mitigation element will be successful, since external factors or shortcomings in the way the mitigation element is implemented may cause it to not be as successful as envisaged. It does, however, show whether a robust planning process was followed to guide the implementation of a mitigation element based on the best available information.

To maximise the probability that a mitigation element will be implemented successfully, the implementation process itself will need to be monitored to ensure that the implementation plan is followed, and that any changes in the conditions within which the mitigation element is being implemented (including new information about the mitigation element itself) is taken into consideration.

3 AGRICULTURE, FORESTRY AND OTHER LAND USE

3.1 Policy gap assessment

3.1.1 Documents reviewed

The following priority documents were included in the gap analysis:

- National Forestry Act (Act 84 of 1998) (NFA)
- National Veld and Forest Fire Act (Act 101 of 1998) (NVFFA)
- White Paper on Sustainable Forest Development in South Africa (1995) (WPSFD)
- Woodlands Strategy Framework (2005) (WSF)
- Spatial Planning and Land Use Management Act (2013) (SPLUMA)
- Draft Climate change sector plan for Agriculture, Forestry and Fisheries (2013) (CCSP)
- Guidelines for the Formulation of Spatial Development Frameworks (2005) (SDF)
- Development Framework Act (repealed)

This list of documents was presented to the workshop participants for review and amendments where necessary. It was pointed out that the Spatial Planning and Land Use Management Act was recently promulgated and repealed the Development Framework Act. The DFA was subsequently eliminated from further analysis. Another document that was suggested was the National Forest and Development Strategy. However, this document did not have a mitigation focus and was thus not included as well.

3.1.2 Summary of results

Table 21 shows that there are large differences in the levels of alignment of the documents reviewed with the NCCRP mitigation principles. Documents like the draft Climate Change Sector Plan for Agriculture, Forestry and Fisheries (2013) and the Woodlands Strategy Framework (2005) display high levels of alignment, whereas very little alignment exists with respect to the National Veld and Forest fires Act; the National Forest Act; and the SPLUMA.

The CCSP displays a high level of alignment; however, there was some contradictory statements worth mentioning. The CCSP identifies biofuels as a mitigation element but does not cover all the details relating to their production. Given the potential role of biofuels in the future and the fact that the CCSP will guide the development of implementation plans, this concern should be addressed. The SPLUMA does not suggest any mitigation elements, which is worrying because it is a relatively new document. In addition, the SDF document, is not well aligned to the NCCRP mitigation principles. The SDF includes proposed mitigation element that are contradictory to the NCCRP principles.

In terms of general principles, the highest level of alignment was found for Resource Efficiency; while moderate alignment was found for the Research, Development and Innovation as well as for Mitigation Elements. Consideration of the emissions implications of proposed actions was largely absent from most documents. However, it is worth noting that some of the documents, particularly the documents related to forestry, supported activities that are unlikely to increase GHG emissions, especially activities relating to sustainable management, conservation and protection of natural forests and woodlands. On the other hand, it is important that the carbon sequestering impact of forests is acknowledged and recorded where possible. This will enable such documents to better quantify their contribution to the mitigation space.

With respect to the mitigation-linked principles, the assessment shows a number of principles have been neglected. These are the Cost Effectiveness, Behavioural Change, Equity, and Special Needs principles. This should raise concerns as the agricultural sector supports the livelihoods of the majority of people living in rural area. Ensuring alignment with these principles will not only improve mitigation actions, but may contribute to rural development and food securities – both priorities of government. The Resource Mobilisation and Co-benefit principles display some alignment, but further attention is warranted.

Table 21 Summary of policy alignment in the AFOLU sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | Relative Alignment | | | | |
|--|------|----|-----|----|-------|----|-----|----|--------------|----|--------------|----|----------------|----|--------------------|--|-----|---|---|
| | CCSP | | WSF | | WPSFD | | NFA | | NVFFA | | SPLUMA | | Guidelines SDF | | | | | | |
| Alignment | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | | | | | |
| 1 CC Mitigation awareness | Yes | | Yes | | | | | | | | | | | | ● | | | | |
| 2 Considerations of Emissions implications | Yes | | | | | | | | | | | | | | ● | | | | |
| 3 Resource efficiency | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | | ● | | | | |
| 4 RD&I | Yes | | Yes | | Yes | | Yes | | | | | | | | ● | | | | |
| 5 Mitigation elements | Yes | | Yes | | Yes | | Yes | | | | | | Yes | | ● | | | | |
| 6 Dynamic and evidence based | | | | | Yes | | Yes | | [Greyed out] | | [Greyed out] | | | | ● | | | | |
| 7 Precautionary principle | Yes | | | | | | | | | | | | | | | | | ● | |
| 8 Sustainable development pillars | Yes | | Yes | | Yes | | Yes | | | | | | | | | | Yes | | ● |
| 9 Co-benefits | Yes | | Yes | | Yes | | | | | | | | | | | | | | ● |
| 10 Cost-effectiveness | | | | | | | | | | | | | | | | | Yes | | ● |
| 11 Behaviour change | Yes | | Yes | | | | | | | | | | | | ● | | | | |
| 12 Equity | Yes | | Yes | | | | | | | | | | | | ● | | | | |
| 13 Special needs | | | Yes | | | | Yes | | | | | | | | ● | | | | |
| 14 Polluter pays | | | | | Yes | | | | | | | | | | ● | | | | |
| 15 Resource mobilisation | Yes | | | | Yes | | | | | | | | | | ● | | | | |
| Relative alignment | ● | | ● | | ● | | ● | | ● | | ● | | ● | | | | | | |

3.1.3 Detailed assessment by document

3.1.3.1 Draft Climate Change Sector Plan for Agriculture, Forestry and Fisheries (2013)

3.1.3.1.1 Overview

This draft document outlines the agricultural, forestry and fisheries sector response to climate change. It was developed by the Department of Agriculture, Forestry and Fisheries (DAFF) in line with the National Disaster Management Framework of 2005 and in fulfilment of the requirements of the NCCRP principles. This document identifies four key performance areas: institutional arrangements for climate change; vulnerability assessment for climate change; mitigation and adaptation; and response and recovery. In terms of facilitating the processes, the following enablers are identified: Information management and communication; education and training, public awareness and research; and funding arrangements.

The sector plan champions and promotes climate smart agriculture, which includes the integration of land suitability, land use planning, agriculture, forestry and fisheries to ensure that synergies are properly captured and will enhance resilience, adaptive capacity and mitigation potential.

3.1.3.1.2 Assessment summary

The draft Climate Change Sector Plan (CCSP) was developed in order to fulfil the requirements of the National Climate Change Response Strategy. While the document is classified as a sector plan, it is a high level document that provides guidance to different commodities subsectors to develop their specific mitigation elements. Subsequent and more detailed implementation plans are expected to be developed from the CCSP. We have therefore classified it as a high level policy document within the context of this assessment. The document is fully aligned with the five general mitigation principles.

In terms of the mitigation-linked principles, the document exhibits a variety of alignment scores. It is fully aligned with two, partially aligned with five and not aligned with two. The document however, has been scored as contradictory to the Cost Effectiveness principles of the NCCRP. This is because it is silent on the cost of the proposed mitigation elements. In order to increase uptake by stakeholders (primarily farmers) it is important that any change in production activities (such as thrashing) to promote mitigation is cost effective. The partially aligned principles are the Precautionary Principle; Sustainable Development Pillars; Behaviour Change; Equity; and Risk Management, Adaptation and other Co-benefits. While the Dynamic and Evidence Based and as Resource Mobilisation principles are fully aligned. The Special Needs principle have been considered in the document but relate to climate change in general and not necessarily mitigation action. Therefore, it has been scored as unclear. There would be value in improving the alignment of special needs and the cost effectiveness principles for the agricultural sector.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

Table 22 CCSP for Agriculture, Forestry and Fisheries policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|----|-----|--|---|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | 1.5 | Reducing green GHG emissions through cleaner technology is the challenge on the one hand, but devising alternate strategies for adapting, to the negative effects of CC is equally important, especially for poorer communities and the vulnerable economy. |
| 2 | Considerations of Emissions implications | | | | | | | 1.3.3; 4.2.3 | Monitor and report agricultural GHG emissions to the national GHG inventory. Mechanisms need to be established by national, provincial and local governments to transfer CC related information to all stakeholders and to ensure regular updating of such databases/mechanisms in view of monitoring their effectiveness. |
| 3 | Resource efficiency | | | | | | | 4.4.1 | Promote sustainable production practices to conserve the natural resource base to ensure resilience. Develop integrated needs-based rehabilitation programmes aimed at resorting livelihoods and recovery of natural resources in affected areas. |
| 4 | Research, development and innovation | | | | | | | 5.2.4 | a) Identify research needs related to climate change, b) Promote research programmes and advisory services, |
| | | | | | | | | 5.3 | Sourcing funding for climate change activities including research |
| 5 | Mitigation elements | | | | | | | 1.3.3; 1.5 | The development and implementation of policies, strategies, actions plans and or regulations is supported to mitigate GHG emissions from: land use changes that convert land from greenhouse gas sinks to sources). |
| | | | | | | | | | Intensive tillage requires multiple operations using multiple equipment. Moving away from intensive can reduce emissions |
| | | | | | | | | | Stubble and trash burning (sugarcane burning) must be discouraged. |
| | | | | | | | | Agriculture can reduce GHG emissions by providing biofuels derived from biomass sources such as wheat, maize, soya beans, and crop residues. | |
| 6 | Dynamic and evidence based | | | | | | | 4.2.3 | Mechanisms need to be established by national, provincial and local governments to transfer CC related information to all stakeholders and to ensure regular updating of such databases/mechanisms in view of monitoring their effectiveness. |
| 7 | Precautionary principle | | | | | | | 1.5 | Biofuel production is one of the cleaner fuel fuels that can bring positive spin off to the economy provided that proper and cleaner technologies are available, that biofuels are affordable and that food security is not jeopardised through, for example, alternative crops being grown that cannot be used for food in time of need. |
| 8 | Sustainable development pillars | | | | | | | 4.1.1 I, iv | With the employment of new technologies, many employment opportunities will be created, contributing to the New Millennium Development Goals of having poverty and unemployment. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | | CC can have negative impacts on the economy as it affects agricultural production and will ultimately affect food security. |

| Principle | Alignment category | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|----|-----|------------------|--|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 10 | Cost-effectiveness | | | | CON | | | 4.2 | The document does not mention the cost effectiveness of mitigation elements. It has thus been scored as contradictory as the cost effectiveness of mitigations elements must be taken into account. for instance, the costs of thrashing instead of burning |
| 11 | Behaviour change | | PAL | | | | | 3.1 | The document calls for concerted action needs to be taken to address awareness on climate change in the most effective manner, including at schools and tertiary level; all tiers of government; the private and public sector; industry and value chains, organised agriculture, the media and the public at large. Because of the close link between adaptation and mitigation in the AFOLU sectors, we understand climate change to include both mitigation and adaptation. |
| 12 | Equity | | PAL | | | | | page 6 | Devising alternative strategies for adapting to imminent effects of climate change equally opportune and appropriate, especially for poorer communities and the second economy. However, this seems to be applicable to adaptation not mitigation. |
| 13 | Special needs | | | | | NC | | 2, page 19 | The Impact of CC particularly at grassroots level is noticed in terms of deficiencies in food production, food supply, energy and devastating forest fires. This seems to be considered more for adaptation than mitigation |
| 14 | Polluter pays | | | NAL | | | | | |
| 15 | Resource mobilisation | | PAL | | | | | 3.5 | The funding sources envisaged by the National Agricultural Research and Development strategy should be accessed for Climate change related research and include forestry and fisheries Research projects. Sourcing the increasing amounts of Research funding available internationally, including the Green Economy Fund is also a priority issue. |

3.1.3.2 A Woodland Strategy Framework for the Department of Water Affairs and Forestry (2005)

3.1.3.2.1 Overview

This document is a product of the National Forest Act (NFA) and the White Paper on sustainable forest development. It provides an outline of what should practically be done to implement policy in terms of woodlands. It also identifies programmes and functions that would be required and point out where woodlands should be incorporated into existing functions and programmes of the Department as well as where new functions should be established in order to aid the implementation of the policy.

The forestry vision is based on benefits that people derive from forests and the sustainable management of these forest resources. Woodlands represents a very important forest resource within this context, because it is accessible to many people and provides a range of forests goods and services. Forests in general have a positive impact in removing emissions from the environment. Therefore, from a mitigation perspective, it is important that forests are protected and managed sustainably.

3.1.3.2.2 Assessment summary

The Woodlands Strategy Framework is a high level strategy which includes few mitigation elements. The document is fully aligned with four of the general principles while it is silent on the Consideration of Emissions Implication principle. The actions supported by the document are not likely to result in an increase in GHG emissions. In fact, the rehabilitation of forestry is likely to contribute to the reduction of GHG emissions. However, as this is a secondary benefit from forests, the document does not place emphasis on this.

As the supported action is not primarily proposed as a mitigation option, its alignment with the mitigation-linked principles is not very strong. It is only fully aligned with the Behavioural Change principle, while four principles are partially aligned and four principles are not aligned. The partially aligned principles are Sustainable Development Pillars; Risk Management, Adaptation and other Co-adaptation benefits; Equity; and Special Needs.

These principles are partially aligned as they relate to climate change in general, including mitigation and adaptation. The document is not aligned with the Cost Effectiveness principle as espoused in the NCCRP. Cost effectiveness of potentially large-scale and costly mitigation element do not seem to be considered.

The document is silent on the Polluter Pays principle. This may be a particularly important principle as it may act as a deterrent against those who cut down forests. More so because such activity will lead to increased GHG emissions. However, for the purpose of this document, the polluter pays principle is not applicable.

The scoring guide for high level policy documents was applied to this document.

Table 23 Woodlands Strategy Framework policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--|--------------------|-----|-----|-----|----|-----|------------------|---|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | 3.1.1 b | A national programme of forest rehabilitation linked to the National Land Care programme, working for woodlands and the extended Public Works programme could have the triple benefit of combating degradation, providing fuelwood sources and carbon sinks and environmental benefits through improved supply of ecosystem good and services. |
| 2 | Considerations of Emissions implications | | | | | | | | The document is silent on this principle. However, the document should require reporting of carbon stocks and the extent of woodlands at appropriate time intervals. |
| 3 | Resource efficiency | | | | | | | 3.1.2 | Community Forestry Management in communal woodland areas is a key strategy and programme that needs to be developed to address this challenge. Such a strategy or programme follows from the Department's statutory responsibility to ensure sustainability of these resources |
| 4 | Research, development and innovation | | | | | | | 5.2.5 | There are a number of matters that need to be investigated in woodlands. There would be a need to commission research on some baseline studies that are fundamentally important to further work. The recommendation is to include woodlands research into the Forestry Research Plan. One area is the accuracy of information regarding woodlands and the biodiversity that it contains as it relates to management and conservation of woodlands |
| 5 | Mitigation elements | | | | | | | 3.1.1b | Promotion of rehabilitation forestry. There are significant area of the country that have been subjected to different scales and intensities of land degradation that require rehabilitation. |
| 6 | Dynamic and evidence based | | | | | | | | |
| 7 | Precautionary principle | | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | 3.1.4 | Local natural resources provide a safety net for the livelihood of the poor. HIV is expected to increase poverty, with more households losing their sources of income through loss of employed family members. This spells greater demand for woodlands goods and services and dependence upon these. The possible contribution of woodlands to health care in the form of medicinal plants merits consideration as well. |
| 9 | Risk management, adaptation, and other co-benefits | | | | | | | 3.1.4 | Local natural resources provide a safety net for the livelihood of the poor. HIV is expected to increase poverty, with more households losing their sources of income through loss of employed family members. This spells greater demand for woodlands goods and services and dependence upon these. The possible contribution of woodlands to health care in the form of medicinal plants merits consideration as well. |
| 10 | Cost-effectiveness | | | | | | | | Cost effectiveness of potentially large-scale and costly mitigation element not considered |
| 11 | Behaviour change | | | | | | | 5.2.7 | General awareness raising is an established tool within forestry. There may be a need to structure awareness work in a more focused manner in general. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|----|-----|------------------|---|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| | | | | | | | | Annexure, p24 | Develop an education and awareness programme for people involved with resource management and policy development. Promote forestry legislation by means of awareness raising. This is because of the close link between adaptation and mitigation |
| 12 | Equity | | | | | | | | Poor people are likely to benefit from the rehabilitation of forests |
| 13 | Special needs | | | | | | | | The promotion of rehabilitation of forests and woodlands on which locals depend have the indirect effect of addressing the special needs of the poor and vulnerable. |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | 4.4 | The allocation of research funds does not clearly state forest rehabilitation focus |

Table 24 White Paper on Sustainable Forest policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--|--------------------|-----|-----|-----|------|----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | NA | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Considerations of Emissions implications | | | | | | | | The considerations of emissions implications should also extend to negative emissions. The document should also support the reporting of how much carbon is being taken out of the atmosphere by reforestation |
| 3 | Resource efficiency | | | | | | | 2.5 | Ensure that afforestation permit allocations and integrated catchment management will be directed at equitable, efficient and sustainable allocation of resources linked with local economic development and resource use plans |
| 4 | Research, development and innovation | | | | | | | 2.5 | Address all options to increase timber yields and improve efficiency through research, technological and managerial innovation, recycling and waste minimization, and development of alternative fibre sources. |
| 5 | Mitigation elements | | | | | | | 2.7 | The Government will promote the sustainable use and management of these forests and woodlands resources, rehabilitation of degraded forests. |
| 6 | Dynamic and evidence based | | | | | | | | The Government will play a role to influence developments in the forest sector by disseminating the information gathered from monitoring, evaluation and research, shedding light on issues of the day, engaging stakeholders in debate about implications of findings, and generally facilitating agreements on policy options. |
| 7 | Precautionary principle | | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | | Continually monitor and assess forest health and factors affecting it (pest, disease, fire, effects of plantation on soils, impacts of atmospheric pollution, and conservation of adequate gene pool) as a basis of strategic responses to any potential threats to sustainability. |

| Principle | | Alignment category | | | | | | Relevant section | |
|-----------|---|--------------------|-----|-----|-----|------|----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | NA | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | 2.6 | Government recognises that community forestry can contribute to improving the environment, enriching the resources, and creating income opportunities in previously disadvantaged communities in rural. It can be an important component of the range of activities that is needed to create employment |
| 10 | Cost-effectiveness | | | | | | | 2.5 | The government undertakes to foster continued competitiveness of the forestry sector locally and internationally within bounds of acceptable environmental and social costs |
| 11 | Behaviour change | | | | | | | 3.2.1 | The Government will play a role to influence developments in the forest sector by disseminating the information gathered from monitoring, evaluation and research, shedding light on issues of the day, engaging stakeholders in debate about implications of findings, and generally facilitating agreements on policy options. |
| 12 | Equity | | | | | | | | |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | 2.5 | Develop and follow policy where industrial and profitable community forestry should bear the environmental and resource costs of afforestation, e.g. costs of water |
| 15 | Resource mobilisation | | | | | | | 3.2.1 | Private sector, in partnership with government, organized labour and other stakeholders need to ensure that the industrial forest sector is unified in its strategy to address sustainability, human resources development, research and innovation. |

3.1.3.3 White Paper on Sustainable Forest Development in South Africa [1995]

3.1.3.3.1 Overview

This White Paper on Sustainable Forest Development Policy is the second such document produced by the Department. It was intended to provide the forestry industry and the general public with a clear view of policy direction in the sector. The overall goal of government is to promote a thriving forestry sector, utilised to the lasting and sustained benefit of the whole community, and developed and managed to protect and to improve the environment.

This forest policy defines the role of government in dealing with the forest sector. It is set within a frame of overarching policies, including macroeconomic, trade, industrial development, and human resource development. The forest policy directs, facilitates, and regulates the actions of players in the sector. It addresses the need to adapt and strengthen the central government institutions in forestry, in order to ensure effective implementation. Forests have a positive impact in mitigation activities and therefore need to be aligned to the NCCRP principles.

3.1.3.3.2 Assessment summary

The White paper on sustainable forest development has been classified as a high level policy document and contains few mitigation elements. It precedes the NCCRP and thus unlikely to have significant alignment. In terms of the five general mitigation principles the document is fully aligned with only one (Resource Efficiency), while it is partially aligned with two principles. The document does, however, not display an awareness of climate change considerations and associated considerations of emissions implications is neither required nor supported. The main activity supported by the document – promoting the sustainability and rehabilitation of forests – is also the relevant climate change mitigation option.

As expected with a high level document, particularly one that predates the NCCRP, there is limited alignment with the mitigation linked principles. Only two of the ten mitigation linked principles are fully aligned, while another two are partially aligned and three are unclear. This is because the document is written so broadly that it is not clear whether there is alignment or not. For instance, principles such as Polluter Pays would be an important principle to be aligned for this document. While the document makes some statements towards the Behavioural Change principle, it needs to go a step further and specifically educate stakeholders and the general public on the mitigation benefits of maintaining sustainable forests.

The scoring guideline for high level policy frameworks and strategies was applied in the policy gap analysis.

3.1.3.4 National Forest Act (1998)

3.1.3.4.1 Overview

This act followed the White Paper on Forest Policy and had the following purposes: to promote sustainable management and development of forests for the benefit of all; create the conditions necessary to restructure forestry in state forests; and promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes. This act concretises the vision of the White Paper considered in the previous section.

3.1.3.4.2 Summary of analysis

The National Forest Act (NFA) precedes the NCCRP and therefore is unlikely to have strong alignment. In terms of the general principles, the Act is partially aligned with three, namely the Resource Efficiency; Research, Development and Innovation; and Mitigation Elements. The document does not display any awareness regarding climate change awareness or considerations, or consider the emissions implications of actions. While this may suggest that the document is not aligned to the NCCRP, it is important to consider that the primary action suggested by the document is the protection and sustainable use of forest. This, by its very nature, will have positive impact on climate change mitigation.

In terms of the mitigation-linked principles, the NFA is fully aligned with the Dynamic and Evidence-based as well as Sustainable Development Pillars principles. The Cost Effectiveness principle was scored as not applicable, while the Precautionary Principle and Co-Benefits Principles were relevant but not aligned. Non alignment was also found when considering the Equity, Polluter Pays, and Resource Mobilisation principles. Given the importance of the forestry sector both the Climate Change mitigation as well as economic development, there would be great value in ensuring that these principles move towards full alignment.

The scoring guide for acts and regulations was applied in the policy gap assessment.

Table 25 National Forest Act policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--|--------------------|-----|-----|-----|----|----|-----------------------------|--|
| | | FAL | PAL | NAL | CON | NC | NA | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Considerations of Emissions implications | | | | | | | | |
| 3 | Resource efficiency | | | | | | | 12(b) | Create or promote certification programmes and other incentives to encourage sustainable forest management. |
| 4 | Research, development and innovation | | | | | | | 5 (1), (2) | The minister must carry out or commission research. This research must promote the objectives of forest policy and conform with national policies and programmes relating to Science and technology |
| 5 | Mitigation elements | | | | | | | Chapter 3, part 1 | Prohibits the destruction of indigenous trees in any natural forests without a licence. |
| | | | | | | | | Chapter 4, 19 (c) | Restrictions on entry into any area protected for environmental purposes in terms on this Act or any other law. |
| | | | | | | | | 4,4(a), (e) | The minister may prohibit any activity which may cause deforestation or prevent rehabilitation; require the owner to take specified steps to prevent deforestation or rehabilitate the natural forest or woodland. |
| 6 | Dynamic and evidence based | | | | | | | Chapter 2, part 2 6(1), (2) | The minister must monitor forests with reference to forest resources, biological diversity in forests, The productive and environmental functions of forests, amongst others. The minister must disseminate the information derived from monitoring to the public in a way which in his or her opinion will promote sustainable forest management. |
| 7 | Precautionary principle | | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | 1(a),(d) | The purpose of the Act includes: to promote the sustainable management and development of forests for the benefit of all; and promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes.. |
| | | | | | | | | 33 (c) | Forests must be developed and managed so as to conserve biological diversity, ecosystem and habitats, sustain the potential yield of their economic, social and environmental benefits, Promote the fair distribution of their economic, social, health and environmental benefits. |
| 9 | Risk management , | | | | | | | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|----------------------------------|--------------------|-----|-----|-----|----|----|------------------|--|
| | | FAL | PAL | NAL | CON | NC | NA | | |
| | adaptation and other co-benefits | | | | | | | | |
| 10 | Cost-effectiveness | | | | | | | | |
| 11 | Behaviour change | | | | | | | | The document calls for greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination. However, this call for participation is not very clear on whether it will include any climate change related outcomes. |
| 12 | Equity | | | | | | | | |
| 13 | Special needs | | | | | | | 1(f) | Forests must be developed and managed so as to advance persons or categories of persons disadvantaged by unfair discrimination. |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | | |

Table 26 SPLUMA policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--|--------------------|-----|-----|-----|----|-----|------------------|---|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Considerations of Emissions implications | | | | | | | | |
| 3 | Resource efficiency | | | | | | | 7c | Principle of efficiency where land development optimises the use of existing resources and infrastructure. In addition decision making procedures are designed to minimize negative financial, social, economic or environmental impacts. |
| 4 | Research, development and innovation | | | | | | | 21(j) | Include a strategic assessment of the environmental pressures and opportunities within municipalities, including spatial location of environmental sensitivities. |
| 5 | Mitigation elements | | | | | | | 24 (b) | Take cognisance of any environmental management instrument adopted by relevant environmental management authority, and must comply with environmental legislation |

3.1.3.5 National Veld and Forest Fires Act (1998)

3.1.3.5.1 Overview

The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout South Africa. The Act outlines a variety of institutions that can be used to combat veld, forest, and mountain fires. It promotes and regulates the establishment, registration, duties and functioning of fire protection associations (FPAs). The act clearly outlines the roles of land owners with regard to roles and responsibilities in erecting fire breaks and fire prevention. It also states what actions, or lack thereof, constitute an offence in terms of this Act and the subsequent fines that can be levied.

This Act focuses on the institutional arrangements and administration of fire protection associations and is therefore not relevant to this study. However, the policy gap assessment framework for Acts and Regulations was applied and it was determined that all of the principles were not applicable. Based on this, it is not presented here.

3.1.3.6 Spatial Planning and Land Use Management Act [2013]

3.1.3.6.1 Overview

This Act provides a framework for spatial planning and land use management in the Republic. It specifies and clarifies the relationship between the spatial planning and the land use management system and other kinds of planning to provide for the inclusive, developmental, equitable and efficient spatial planning at different spheres of government. The act also provides a framework for the monitoring, coordination and review of the spatial planning and land use management as well as policies, principles, norms and standards.

The act provides guidelines for provinces and municipalities on the processes and procedures that must followed in developing, implementing, enforcing spatial and land use plans. As spatial plans and land use activities may have an impact on GHG emission and can also play an integral role in mitigation action.

3.1.3.6.2 Summary of analysis

While this document was recently promulgated (2013), it is surprising that it has limited alignment with the NCCRP principles. The document does not display an awareness of climate change issues or the need to consider the GHG emissions implications of actions. It only considers environmental considerations on a general level and promotes compliance with general environmental legislation. The document does not explicitly nor implicitly identify mitigation elements. As the document does not propose any mitigation elements, the analysis was limited to the first five mitigation principles.

The scoring guide for Acts was applied in the policy gap assessment.

3.1.3.7 Guidelines for Spatial Development Framework (2011)

3.1.3.7.1 Overview

The Spatial Development Framework (SDF) guidelines were compiled by the Department of Rural Development and Land Reform to improve the quality of spatial development frameworks (SDF) and to assist in directing and coordinating their development within municipalities. This document presents a set of guidelines to assist municipalities with the formulation of metropolitan, district and local SDFs that:

- a) comply with requirements of the Municipal Systems Act, the National Environmental Management Act,
- b) Reflect and implement the principles for spatial development set out in the Development Facilitation Act.

These guidelines include practical advice on how to: write and illustrate SDF reports; ensure that the SDF is accessible to a wide audience; propose spatial interventions that will effectively address common spatial issues facing municipalities and assist with achieving the desired spatial form.

Given that spatial development can have an important impact on GHG emissions, it is important that mitigation considerations are included in SDFs at all levels of government.

3.1.3.7.2 Summary of analysis

With respect to the five general principles, the SDF guidelines only supports the Resource Efficiency principle, while it is not aligned with the Climate Change Awareness, Consideration of Emissions Implications, and the Research, Development and Innovation principle. However, the document does identify some mitigation elements. Two of the mitigation elements seems contradictory to the NCCRP principles. These relates to the promotion of higher intensity land use and supporting activity corridors.²

With respect to mitigation-linked principles, the document is partially aligned to three principles, and silent on seven. The partially aligned principles are Sustainable Development Pillars, Risk Management, and Cost Effectiveness. This document is the first of the AFOLU documents that is partially aligned with the Cost Effectiveness principle. The rest of principles are relevant but not aligned to the NCCRP principles.

The scoring guide for regulations was applied in the policy gap assessment.

² Activity corridors refer to more intense activities along major road and rail infrastructure in metropolitan areas or large towns

Table 27 Guidelines for SDF policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--|--------------------|-----|-----|-----|----|----|------------------|---|
| | | FAL | PAL | NAL | CON | NC | NA | | |
| 1 | Climate Change Mitigation awareness | | | | | | | Table 3.1 | |
| 2 | Considerations of Emissions implications | | | | | | | | It is likely that SDP have emissions implications |
| 3 | Resource efficiency | | | | | | | 3(C) (Viii) | Encourage environmentally sustainable development by promoting farming methods that do not erode or breakdown the structure of the soil remove nutrients beyond sustainable nor pollute resources. |
| | | | | | | | | 1.10.6 | Land should be used for its highest and best practical use. This suggests that it is best use in monetary terms, but climate change externality is not included. |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | 4.2 (a) | These are areas where a higher intensity of land uses and activities will be supported and promoted. Nodal development improves efficiency as it provides easy access and creates thresholds for a variety of uses and public transport services. |
| | | | | | | | | 4.2 (b) | Urban corridors – more intense activities along major road and rail infrastructure in a metropolitan area or large town, often known as activity corridors. |
| | | | | | | | | 4.3.2 a | Provide off-grid services to small settlements that don't have efficient access to service networks. Solutions include the use of solar power, rain water harvesting and boreholes and ventilated improved pit latrines. |
| | | | | | | | | 3 (C) viii | Promoting farming methods that do not erode or breakdown the structure of the soil remove nutrients beyond sustainable nor pollute resources. |
| | | | | | | | | 4.3.2 b | Careful co-ordination of periodic markets combined with community services such as ABET courses and administrative services rendered by |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|--|-----|-----|-----|----|----|------------------|--|
| | FAL | PAL | NAL | CON | NC | NA | | |
| | | | | | | | | home affairs in a district could assist in providing cost effective transport solutions. |
| 6 | Dynamic and evidence based | | | | | | | |
| 7 | Precautionary principle | | | | | | | |
| 8 | Sustainable development | | | | | | Table 4.2 | Identify areas where valuable natural, economic and heritage resources such as protected areas, water catchments including dams, agricultural areas or scenic landscapes should be protected and promoted. |
| 9 | Risk management and adaptation co-benefits | | | | | | | Encourage environmentally sustainable development by promoting farming methods that do not erode or breakdown the structure of the soil remove nutrients beyond sustainable nor pollute resources. |
| 10 | Cost-effectiveness | | | | | | 4.2.2 c | Solutions include the use of solar power, rain water harvesting and boreholes and ventilated improved pit latrines (VIPs) e.g. enviro-loos. The capital investment in these low operating may be higher upfront, but the service costs will be more affordable to poor communities and municipalities in the long term |
| 11 | Behaviour change | | | | | | | |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | | |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | | |

3.2 Policy gap assessment – recommendations

The policy gap analysis assessed a number of documents in the AFOLU sector. These included the Climate Change Sector Plan (CCSP); Woodlands Strategy Framework (WSF); White Paper on Sustainable Forest Development Policy (WPSFD), National Forest Act (NFA); National Veld and Forest Fires Act (NVFFA); Spatial Planning and Land Use Management Act (SPLUMA), and the Guidelines for Spatial Development Framework (SDF). The results showed significant differences in the levels of alignment with the NCCRP principles. Documents like the CCSP and WSF display high levels of alignment, whereas there were very little alignment in the case of the National Veld and Forest fires Act and SPLUMA. The National Forest Act displayed moderate alignment with the NCCRP principles.

In terms of **prioritising documents to engage with the relevant line departments to try and increase their alignment with the NCCRP principles**, four general principles are of particular importance, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

Of these four principles, it is worrying that the Mitigation Awareness and Consideration of Emissions Implication principles are considered least often. This can largely be attributed to the fact that most of these documents predate the NCCRP. Mitigation Awareness is only captured in the CCSP and WSF, while Considerations of Emissions implication is only captured in the CCSP. Resource Efficiency and Mitigation Elements are considered in majority of the documents. In terms of recommendations, attentions should be focused on ensuring that climate change mitigation awareness is introduced in AFOLU policy documents.

SPLUMA scored poorly in terms of alignment with the four general principles, only showing alignment with the Resource Efficiency principle. The SDF was marginally better showing some alignment with both Resource Efficiency as well as Mitigation Element principles. Both these documents relate to spatial planning, which in turn affects economic planning and development. Therefore, they should be prioritised to try and increase alignment. The CCSP showed the highest level of alignment with the NCCRP principles. As it is likely to act as the overall guide for the sector's response to climate change, it should also be prioritised to ensure that the contradictory statements are reconsidered. Moreover, this document is still in draft form, so from a timing perspective, presents an opportune time for efforts to increase alignment with the NCCRP principles.

The forestry documents also fared poorly when considering the four principles. Both the WPSFD and NFA were not aligned with the Mitigation Awareness and Consideration of Emissions Implication principles, while aligned with the Resource Efficiency and Mitigation Elements. Given the importance of the forestry sectors in economic development, at the very least one of these documents should be prioritised. Ideally, the WPSFD as it covers different forest types and in essence guides the implementation of the NFA.

Therefore, in terms of recommendations, documents to be prioritised are the CCSP, SPLUMA, SDF, and the WPSFD. The NFA may also be prioritised as the forestry documents do not consider emissions implications of proposed actions.

3.3 Effectiveness of mitigation elements

3.3.1 Mitigation elements reviewed

The effectiveness assessment has been undertaken for only two documents in the AFOLU sector. These are the Climate Change Sector Plan (CCSP) and the Guidelines for the development of Spatial Development Frameworks (SDF). As specified in the methodology, it was agreed to only undertake the effectiveness assessment for regulations and implementation plans. The SDF was categorised as a regulation and therefore was a natural candidate for this assessment. Although the CCSP was classified as a high level policy document, it was also included in this analysis. This is because of the expectation that implementation plans will be developed based on the guidance provided by the CCSP. Subjecting the CCSP to the effectiveness assessment is meant to only provide an indication of the factors and level of details that must be considered and included in the subsequent implementation plans to improve the likelihood of effectiveness. Therefore, there is a disclaimer that the scores are likely to be lower than they would otherwise have been since policy documents are not expected to have the same level of detail as an actual implementation plan.

3.3.2 Summary of results

The CCSP has two mitigation elements that have been subjected to this analysis, namely, the promotion of minimum tillage, and the promotion of land use changes that convert land from GHG sources to sinks. It is useful to point out that biofuel production was also identified as a mitigation element in the gap assessment. However, because it was scored as contradictory to the NCCRP³, it was not carried through to this assessment.

With respect to these two mitigation elements, the Logic Model, Funding for Implementation, and Institutions criteria indicated a high likelihood of the mitigation elements being effectively implemented. Supporting infrastructure is also in place for minimum tillage, but has not been considered for land use changes. The Expected Emissions Reductions Specified, Time Frame for Implementation, Human Capitals and Implementation Incentives (cost-effectiveness) effectiveness criteria indicated a reduced likelihood that the elements will be implemented effectively. In addition, the regulatory environment and state of technology is not considered at all for minimum tillage, whereas the availability of supporting infrastructure is not considered in the case of land use change. Failing to consider these factors is likely to reduce the likelihood of successful implementation. However, this must be viewed within the context that this is a high level policy document and the detail required will hopefully be included in subsequent implementation plans.

³ Any mitigation benefits that materialise will be in the energy or transport sectors, while emissions in the agriculture sector are likely to increase.

Only two mitigation elements were relevant for this analysis in the SDF. The first element focused on providing off grid services such as solar energy to rural areas while the second element related to encouraging environmentally friendly farming. The design of these elements, however, casts doubt on their ability to be implemented effectively. Most effectiveness principles are not considered at all, and the few that are (three in the case of farming methods and one for off-grid services) indicate that further preparatory work is required to create a conducive environment for the mitigation elements.

Table 28 Mitigation element effectiveness summary - AFOLU

| | | 1 | 2 | 3 | 4 | Relative Effectiveness |
|------------------------|---|------------------------|------------------------|-------------------------|-----------------------|------------------------|
| Effectiveness criteria | | CCSP - Minimum tillage | CCSP - Land use change | SDF - Off grid services | SDF - Farming methods | |
| 1 | Logic model (theory of change) | | | | | 50% |
| 2 | Expected emissions reductions specified | | | | | 0% |
| 3 | Time frame for implementation | | | | | 0% |
| 4 | Regulatory environment | | | | | 13% |
| 5 | State of technology | | | | | 25% |
| 6 | Human capital | | | | | 13% |
| 7 | Implementation incentives | | | | | 13% |
| 8 | Funding for implementation | | | | | 50% |
| 9 | Supporting infrastructure | | | | | 25% |
| 10 | Institutions | | | | | 63% |
| Relative effectiveness | | 40% | 40% | 5% | 15% | |

3.3.3 Effectiveness assessment by mitigation element

3.3.3.1 Climate Change Sector Plan for Agriculture - Minimum tillage

There a number of shortcomings in the design of the minimum tillage element within the CCSP. In fact six of the 10 factors analysed indicate a low likelihood that the mitigation element will be implemented effectively. The level of detail required to indicate if an element is likely to be implemented effectively is not expected to be contained in a high level document but in implementation plans. Therefore, the best use of the results would be to discuss some of the details that ought to be included in the implementation plans.

To maximise the likelihood that minimum tillage is designed such that it can be implemented effectively, it will be important to consider the availability and state of technology, particularly the availability of equipment suitable for both large and small scale farming. Ensuring that relevant personnel with the requisite expertise (human capital) must be provided for in the implementation to improve likelihood of effective implementation. The minimum tillage must be designed to ensure that potential costs and potential support for farmers to take up minimum tillage (implementation

incentives) are considered to ensure that it can be effectively implemented. The National Carbon Sinks Assessment captures some of this detail, and therefore an explicit reference to this document in the CCSP would be useful to ensure the correct factors are taken into consideration when implementing minimum tillage strategies.

3.3.3.2 Climate Change Sector Plan for Agriculture - Land use change

As with the previous mitigation element, there are a number of shortcomings in the design of the Land Use Change mitigation element. To maximise the likelihood that land use changes are designed such that they can be effectively implemented, it will be important for the implementation plans to speak to the following issues. First, the expected emissions and time frame to implement the mitigation element must be specified. Ensuring that relevant personnel with the requisite expertise (human capital) must be provided for in the implementation to improve likelihood of effective implementation. Land use changes naturally requires a change by farmers and thus may come with some risk. Therefore, it must be designed to ensure that potential costs and potential support for farmers to take up proposed land use changes (implementation incentives) are considered to ensure that it can be effectively implemented.

3.3.3.3 Guidelines for Spatial Development Frameworks - Off grid services

There are a number of short comings in the design of providing off-grid services such as solar energy (from a mitigation perspective) as outlined in the SDF. In fact, the only factor that is not likely to reduce the likelihood of effectively implementing this element effectively is that long run cost effectiveness of solar energy has been considered (albeit not in full detail). These shortcomings will need to be addressed before these mitigation elements are implemented.

The document provides guidelines as to how spatial development frameworks must be developed. It covers both process and content. Therefore, in order to develop spatial development frameworks that include mitigation elements with a high probability of being implemented effectively, it is important that sufficient detail is included in the SDF guidelines document.

3.3.3.4 Guidelines for Spatial Development Frameworks - Farming methods

Most effectiveness principles are not considered at all with respect to this mitigation element, and the few that are (state of technology, human capital availability and institutions required to support implementation) indicate that further preparatory work is required to create a conducive environment for the mitigation element to be implemented. The guidelines would thus need to be updated in order to ensure that the mitigation element has a high probability of being successfully implemented.

Table 29 Climate Change Sector Plan for Agriculture - Minimum tillage effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Mitigation element: Reducing intensive tillage |
|------------------------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | Description |
| 1 | Logic model (theory of change) | ■ | | | | Minimum tillage implies less land cultivation and thus likely to reduce the CO2 released from numerous land prep operations based on the traditional cultivation method. |
| 2 | Expected emissions reductions specified | | | ■ | | As this is a high level document, this is not contained here. Implementation plan based on this strategy, however, would need to contain this information. |
| 3 | Time frame for implementation | | | ■ | 7 | The Document calls for its review every five years or sooner if necessary. It is anticipated that detailed time frames would be indicated in implementation plans |
| 4 | Regulatory environment | | | ■ | 4.1.2 | The sector plan calls for agricultural policy and strategy that is aligned with the NCCRP principles. The document also tasks the DAFF with ensuring that a Plan of Action and strategies on Climate Change activities are developed. However, it is important to ensure that subsequent strategies and policies support and not replace or impede the CCSP. |
| 5 | State of technology | | | ■ | | Not addressed in the document, but there technology to undertake minimum tillage operations is available. The bigger issue is the knowledge around if effect on productivity |
| 6 | Human capital | | | ■ | | Although not expressly stated in the document, this is likely to be led by the provincial departments' extension system. Given the resource constraints, public private partnerships or other interventions are thus likely to be required to ensure the effective implementation of this mitigation element. |
| 7 | Implementation incentives | | | ■ | | Converting to minimum tillage system may potentially to reduce land preparation costs. However, in order to fully understand it's impact, further investigations will be necessary when commodity based implementation plans are developed. |
| 8 | Funding for implementation | ■ | | | 5.3.1 | The DAFF to fund CC programme and to establish mechanisms in approaching potential national funding institutions including the national treasury for financial assistance for CC activities. However, given governments focus on addressing poverty and food security issues, funding is not likely to be a problem. |
| 9 | Supporting infrastructure | ■ | | | | The extension support system, both government and private sector is likely to play a key role in achieving minimum tillage. Also, the equipment to implement minimum tillage are largely available. |
| 10 | Institutions | ■ | | | 4.1.2 | The DAFF is tasked with encouraging and coordinating the development of Climate Change strategies at provincial and local levels as well as draft climate change action plan guidelines for Provincial Departments of Agriculture |
| | | 4 | 0 | 6 | | |

Table 30 Climate Change Sector Plan for Agriculture – Land use change

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Land use changes are a well-known and proven mitigation element. |
| 2 | Expected emissions reductions specified | | | | | As this is a high level document, this is not contained here. Implementation plan based on this strategy, however, would need to contain this information. |
| 3 | Time frame for implementation | | | | 7 | The Document calls for its review every five years or sooner if necessary. It is anticipated that detailed time frames would be indicated in implementation plans. |
| 4 | Regulatory environment | | | | 4.1.2 | The sector plan calls for agricultural policy and strategy that is in alignment with the NCCRP principles. The document also tasks the DAFF with ensuring that a Plan of Action and strategies on Climate Change activities are developed. Regulations that support farmers through financial or non-financial means may be considered when developing implementation plans. When developing implementation plans and strategies, results from other relevant policy reviews such as that contained in the National Carbon Sinks Assessments should also be considered. |
| 5 | State of technology | | | | | Not addressed in the document, but the technology to undertake minimum tillage operations is available. The equipment to facilitate the changes in land use will depend on the actual use that the land will be put to. Questions, however, exist around its effect on efficiency productivity and this needs to be addressed when implementation plans are developed. |
| 6 | Human capital | | | | | The document does not address this issue in detail. However, it is likely to be led by the provincial department's extension system. Given the resource constraints, public private partnerships or other interventions thus likely be required to ensure the effective implementation of this mitigation element. |
| 7 | Implementation incentives | | | | | The document only highlights that changes in land use should be considered but does not consider the details. Assessing other potential uses of land will need further investigations when commodity based implementation plans are developed. It may be important to consider offering financial or non-financial support to support farmers when developing implementation plans |
| 8 | Funding for implementation | | | | 5.3.1 | The DAFF to fund CC programme and to establish mechanisms in approaching potential national funding institutions including the national treasury for financial assistance for CC activities |
| 9 | Supporting infrastructure | | | | | In the extension support system, both government and private sector is likely to play a key role in achieving minimum tillage. The equipment to facilitate the changes in land use will depend on the actual use that the land will be put to. This is not considered in the document |
| 10 | Institutions | | | | 4.1.2 | The DAFF is tasked with encouraging and coordinating the development of Climate Change strategies at provincial and local levels as well as draft climate change action plan guidelines for Provincial Departments of Agriculture |
| | | 3 | 3 | 5 | | |

3.4 Effectiveness of mitigation elements - recommendations

None of the four elements contained in the two documents assessed included a sufficient level of detail to inspire confidence in their ability to be implemented. The CCSP, however, both addressed more of the effectiveness criteria and is also a high-level policy document. It is thus expected that most of the shortcomings will be addressed when the two mitigation elements contained in it are included in detailed implementation plans.

The design of the elements contained in the SDF casts doubt on their ability to be implemented effectively. Most effectiveness principles are not considered at all, and the few that are (three in the case of farming methods - State of Technology, Human Capital and Institutions, and one for off-grid services – Implementation Incentives) indicate that further preparatory work is required to create a conducive environment for the mitigation elements.

The SDF, a regulation, is already guiding implementation and yet the two mitigation elements described in it also consider very few of the effectiveness criteria proposed in this report. **The SDF should therefore be prioritised in efforts to increase the effectiveness of mitigation elements in the AFOLU sector..**

Table 31 Guidelines for SDFs – Off-grid services

| Effectiveness criteria | Alignment category | | | Relevant section | Description |
|------------------------|--------------------|---|---|------------------|--|
| | H | M | L | | |
| 1 | | | | | Solar energy is a known mitigation element. However in this document, it is also not clear if off grid electricity relates only to renewable energy technologies, or also includes fossil fuel-based technologies. |
| 2 | | | | | Not addressed in the document |
| 3 | | | | 1.6.6 | Time frame is not specified in the document. However, the document does speak to the need to consider reviewing the a SDF after 5 years in line with the IDP cycle. If further suggests that a complete review may be necessary after 10 years. |
| 4 | | | | | Not addressed. |
| 5 | | | | | The document does not examine whether the relevant technology is available, or explicitly list the technologies. |
| 6 | | | | 3.3 | The document does speak of the importance of the right people allocated to the right tasks. Although it is not expressly related to the mitigation element. Nor does it assess whether such people are available for the implementation of this element. |
| 7 | | | | 4.3.2 a | The document states that capital investment in off grid services may be higher upfront, but the service costs will be more affordable to poor communities and municipalities in the long term. |
| 8 | | | | 4.9.5 | The document states that " interventions addressing some of the spatial issues identified in the SDF may require operational solutions. It will be necessary to link the implementation programme to funding sources' budget requirements and cycles. However, the document does not explicitly identify any funding sources. |
| 9 | | | | Table 3.1 | The document does speak to the importance of the infrastructure. However, this is within the context of developing a spatial plan. |
| 10 | | | | 6, 1.1.2 | The document states that once a draft SDF has been prepared, and the public consulted, it must be submitted to the municipal council for approval. The municipality then needs to submit the IDP, including the SDF, to the provincial MEC for local government The document also highlights the need for coordination between the municipality, provincial, and national spheres of government |
| | | | 0 | 1 | 9 |

Table 32 Guidelines for SDFs – Farming methods

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Appropriate farming methods can be an effective mitigation element. This document, however, does not state the parameters required to ensure that there will be mitigation benefits. |
| 2 | Expected emissions reductions specified | | | | | |
| 3 | Time frame for implementation | | | | 7.3.2 | Time frame for the implementation of this element is not specified in the document. However, the document does speak to the need to consider reviewing the document after 5 years in line with the IDP cycle. It further suggests that a complete review may be necessary after 10 years. |
| 4 | Regulatory environment | | | | | |
| 5 | State of technology | | | | 4.3.2 c | Equipment to assist in changing farming methods is available. This is likely to be accessed through other institutions such as the provincial departments of agriculture. |
| 6 | Human capital | | | | 3.3 | The document does speak of the importance of the right people allocated to the right tasks. Although it is not expressly related to the mitigation element. However, it does not assess whether such human capital is available. It has been scored as a medium as other sections in the document refer to collaboration with relevant departments, such as agriculture, and Rural development & Land Reform . |
| 7 | Implementation incentives | | | | | |
| 8 | Funding for implementation | | | | | |
| 9 | Supporting infrastructure | | | | | |
| 10 | Institutions | | | | 6 and 4.3.2 c | The document states that once a draft SDF has been prepared, and the public consulted, it must be submitted to the municipal council for approval. The Municipality then needs to submit the IDP, including the SDF, to the provincial MEC for local government. The document calls for collaboration with the Departments of Agriculture and Land Reform, and relevant. |
| | | 0 | 3 | 7 | | |

4 ENERGY

4.1 Policy gap assessment

4.1.1 Documents reviewed

- White Paper on Energy Policy (1998) (White Paper)
- National Energy Act (2008) (NEA)
- Biofuels Industrial Strategy of the Republic of South Africa (2007) (Biofuel Strategy)
- Petroleum Product Act (1997), Amendment of Regulation regarding Petroleum Products Specifications and Standards (2012)
- Regulations regarding the Mandatory Blending of Biofuels with Petrol and Diesel (2012)
- Climate Change Policy Framework for State Owned Companies (2012) (CCPF for SOC)
- National Energy Efficiency Strategy (2005) (NEES)
- Draft Second National Energy Efficiency Strategy Review (2012) (2nd DRNEES)
- National Energy Efficiency Action Plan (2014) (NEEAP)
- Standard Offer Policy - Policy to support the Energy Efficiency and Demand Side Management (2010) (SO for EEDSM)
- The Nuclear Act (1999)
- Draft Integrated Energy Planning Report (2013) (Draft IEP)
- Integrated Resource Plan Update (2013) (IRP Update)

The National Energy Efficiency Strategy was moved to the Energy section from the Industry section based on feedback received at the Industry stakeholder workshop.

4.1.2 Summary of results

The policy gap assessment of energy sector documents revealed varying degrees of alignment with the NCCRP mitigation principles. Overall, energy sector documents for which a full policy gap assessment has been conducted, displayed a higher degree of alignment with the general principles than with the mitigation element-linked principles. In terms of the former, the highest level of alignment across documents was found for Mitigation-related RD&I, Consideration of Emission Implications and Climate Change Awareness. The latter was recognised in all documents except the National Energy Act.

An analysis of mitigation element-linked principles shows that the Resource Mobilisation principle was applied consistently across all relevant documents. Several of the identified mitigation elements are aimed at changing producer and consumer behaviour and are based on a sound fact base and applied in a way that can respond to new information (with Behaviour Change and Dynamic and Evidence-based being the next most prevalent principles). Equity considerations were, however, largely absent from most documents, with the exception of the Biofuel Industrial

Strategy and the draft IEP. Energy sector documents also seem to be placing insufficient attention on the Polluter Pays principle and ensuring the interests of groups with special needs are safeguarded. The Precautionary Principle, too, was largely neglected. Importantly, given the scale of the effort required to move to a low carbon economy and the limited resources available to fund this transition in South Africa, ascertaining whether mitigation elements are cost effective has also not received the attention it deserves, with Cost-effectiveness being clearly and consistently used as a guiding principle only in the NEES and the draft IEP.

In terms of individual documents, the It is troubling that the main guiding document for the draft Integrated Energy Plan shows the highest level of alignment with the NCCRP mitigation principles, followed by the Standard Offer Programme for Energy Efficiency and Demand-side Management, the Biofuels Industrial Strategy and the National Energy Efficiency Strategy energy sector, the White Paper on Energy, shows very low overall alignment with the NCCRP principles. While the White Paper does contain content aligned with many of the general NCCRP principles, it also displays non-alignment, insufficient clarity on or even contradiction with most general principles, and lacks any alignment with several principles related to specific mitigation elements. That is, however, not surprising considering this document was formulated in the mid-nineties, when climate change mitigation was not yet firmly on the agenda of developing countries. Similarly to the White Paper, the National Energy Act also shows alignment with general principles rather than the mitigation element-specific ones, however, given this is a much more recent document, there is less explanation for these gaps, especially since the principles with which alignment is missing could have easily been included. Interestingly, many of the considerations included in the National Energy Efficiency Strategy that bring it into relatively high alignment with the NCCRP are lacking in its implementation document, the National Energy Efficiency Action Plan, which is well-aligned with the general principles, but almost completely fails to meet any of the NCCRP guidance relating to the implementation of individual mitigation elements. The Integrated Resource Plan Update also seems to lack the comprehensiveness of the Integrated Energy Plan in terms of considering the desired characteristics of energy supply options (as opposed to the set of supply options, which is expected to be less comprehensive, considering the IRP only focuses in the electricity sector), so it also displays a much lower level of alignment with the NCCRP principles.

A more detailed assessment of each document is provided in the following section.

Table 33 Summary of policy alignment in the energy sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | Relative Alignment |
|---|-------------|-----|------------------|--------------|------|------------|-------|--------------|-----------|------------|-----|----|-----|----|------|----|-----|----|-----|----|--------------------|
| | White Paper | NEA | Biofuel Strategy | CCPF for SOC | NEES | 2nd DRNEES | NEEAP | SO for EEDSM | Draft IEP | IRP Update | | | | | | | | | | | |
| Alignment | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | |
| 1 CC mitigation awareness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 2 Consideration of emissions implications | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 3 Resource efficiency | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 4 RD&I | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 5 Mitigation elements | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 6 Dynamic and evidence based | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 7 Precautionary principle | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 8 Sustainable development pillars | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 9 Risk management, adaptation and other co-benefits | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 10 Cost-effectiveness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 11 Behaviour change | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | ● |
| 12 Equity | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 13 Special needs | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 14 Polluter pays | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| 15 Resource mobilisation | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Grey | | Yes | No | Yes | No | ● |
| Relative alignment | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

4.1.3 Detailed assessment by document⁴

4.1.3.1 White Paper on Energy (1998)

4.1.3.1.1 Overview

The 1998 White Paper on Energy outlines in broad strokes the government policy regarding the supply and consumption of energy for the decade following its publication.

It was the first document for the energy sector issued by the post-apartheid government and as such it reflects a national energy policy, which aims to adequately develop the national energy resources to meet the energy needs of the whole nation. The document provides a good overview of the post-apartheid energy system and its challenges, and lists a number of policy objectives together with the associated short and medium term policy priorities (i.e. actions needed to achieve those objectives). It also provides a rather detailed analysis of the demand and supply sides of the energy system and considers a number of relevant cross-cutting issues. As a high level document, it does not provide implementation plans but rather aims to create a framework within which such plans can be developed.

As mentioned in the Ministerial foreword to the Paper, the policy outlined therein “strengthens existing energy systems in certain areas, calls for the development of underdeveloped systems and demonstrates a resolve to bring about extensive change in a number of areas”. It also addresses international trade and co-operation, capacity building, and the collection of adequate information.

With regard to its considerations of climate change and climate mitigation, the Paper largely reflects the prevalent developing country views on these issues during the time in which it was being prepared (the “green paper” that formed the basis for the consultation process was released in 1995 and it eventually evolved into the White paper released in 1998). As such, it acknowledges climate change as a potential threat, but leaves a certain degree of uncertainty as to the link between anthropogenic GHG emissions and their impact on the climate, as well as the magnitude of potential climate change effects.

Despite being well into a second decade after the 1998 White Paper has been released, its update is still pending, entailing a significant lack of a comprehensive vision for South Africa’s energy sector as a whole; especially considering the significant changes in its development determinants in the past few years (such as increasing coal prices, decreasing renewable energy costs, South

⁴ Please note, that some references to government bodies in this review might seem inconsistent. This is due to the fact, that government has seen some re-organisation over the time period covered by the documents reviewed (the oldest being the White Paper on Energy from 1998 and the newest the National Energy Efficiency Action Plan from 2014). For instance, the Department of Minerals and Energy (DME) mentioned in the White Paper has since been split into the Department of Energy (DoE) and Department of Mineral Resources (DMR), but the review maintains the original names of the departments as they were during the time the documents were published.

Africa's climate mitigation ambitions etc.). Its update is even more essential considering the White Paper on Energy is the single most comprehensive energy sector policy document and is intended to guide the actions of "parliamentarians, those involved in the energy sector and any other concerned and interested parties, including energy suppliers, and consumers, employees in the energy sector, researchers, academics, environmentalists, policy makers, contractors, product developers and manufacturers".

4.1.3.1.2 Assessment summary

The White Paper presents a somewhat inconsistent view on the issues of climate change and climate mitigation. It gives it only a passing mention in the introductory section (as part of the international context) and in a later section describing short-term policy objectives with regard to managing energy-related environmental impacts, it places a high importance on mitigating the health impacts of air pollutants, but considers other energy-related environmental damage "long term, contentious and hard to define or quantify." Until this point, any action on climate mitigation is seen as purely a reaction to outside (i.e. international) developments or pressure (in a possible scenario where SA exports would be penalised due to their high carbon footprint). However, towards the end of the document, in the section on cross-cutting issues, there is a discussion of SA's contribution to global GHG emissions, and its possible role in the global mitigation effort. To reflect such an inconsistent view, the principle on climate change awareness had to be split and each reference to climate mitigation awareness was assessed separately.

The Paper recognizes the need and potential for improvement of a number of aspects of SA's energy sector and includes a number of actions that could be framed as climate mitigation elements, though they are mainly identified as mitigation elements for short-to-mid-term energy challenges to meeting the country's energy needs. The possible improvements it identifies include demand-side management practices, increasing security of supply through diversification of the energy mix (to include renewables) and increasing the efficiency of current energy use. Because such measures are not framed as mitigation elements, a number of provisions in the Paper relating to them - be it only a general recognition of the *need* for such improvements or even *concrete support measures* (both listed under the Mitigation Elements principle in Table 34) - were marked as partially aligned. All of those could easily be turned into fully aligned if the "potential" mitigation elements they refer to (such as renewable energy and energy efficiency) would be recognised as such.

The Paper also includes a few provisions for further development and use of fossil resources, both SA's own and imported ones, with no due consideration on the impact this might have on the country's emissions. Those instances are clearly marked as contradictory mitigation elements. The Paper is unclear about the role of nuclear energy in SA's future energy mix, but does recognize nuclear waste management as an insufficiently resolved issue. This is the only instance where the document violates the Precautionary Principle.

Table 34 White paper on energy policy gap assessment

| Principle | | Alignment category | | | | | Relevant section | Description | |
|-----------|---|--------------------|-----|-----|-----|------|------------------|-------------|---|
| | | FAL | PAL | NAL | CON | UNCL | | | N/A |
| 1 | Climate change mitigation awareness | | | | | | | 5.1.1 | Paper recognizes that "the energy sector has larger environmental impacts than most economic sectors, with associated GHG emissions feared to be a major contributor to global warming" and states that "as a signatory to the UNFCCC, SA intends to play a constructive role in the alleviation of environmental emissions." It also warns of the possibility that "direct pressure will be placed on SA exports through environmental conditionalities." However, it does not make the connection between the energy sector as a source of emissions and an important climate mitigation sector explicit. |
| | | | | | | | | 5.3.4 | A "no-regrets approach on energy-environment decisions", is proposed. However considering that short-term environmental impacts focus on local air pollutants affecting human health, there is reason to assume this principle does not refer to limiting the impact of the energy sector on climate change. |
| | | | | | | | | 8.4.6 | Scientific opinion suggesting that "the continued emission due to human activities of GHGs, principally carbon dioxide and methane, may bring about significant and long-term changes to the functioning of the earth's atmosphere is quoted It also concedes to "great uncertainty on the possible impacts and damage attributable to such climate change, although indications are that their scale could be significant." |
| 2 | Consideration of emissions implications | | | | | | | 5.2.1 | It does, however, admit that SA is responsible for 1,6% of global GHG emissions (in 1997) and the country's energy sector is the single largest source of GHG emissions in Africa. It recognizes the energy sector is one of the key stakeholders in the climate change arena. It commits the DoE to follow a 'no regrets' approach in the energy sector with regard to the potential global environmental impacts of energy activities. |
| | | | | | | | | 6.4.2.1 | Implementation of "Energy policy sector objective 1 - Increasing access to affordable energy services" could potentially increase emissions of GHG through both grid and off-grid electrification, depending on the energy source used (which is not specified in the document). It is therefore important that emissions from the sector are monitored effectively. |
| | | | | | | | | 7.4.3 | Government commits to facilitate the removal of market barriers so as to provide access to bulk diesel supplies for small-scale farmers, without any consideration on CC impacts. It is therefore important that emissions from the sector are monitored effectively. |
| | | | | | | | | 7.4.8 | Government commits to keep the cost of liquid fuels as low as possible and make it available as widely as possible, without consideration of CC impacts. It is therefore important that emissions from the sector are monitored effectively. |
| | | | | | | | | 8.4.3 | "Government commits to promoting a refining and petrochemicals hub at a coastal location, without consideration of CC impacts. It is therefore important that emissions from the sector are monitored effectively. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--------------------------------------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 3 | Resource efficiency | | | | | | | 6.1.5. | Government commits to take primary responsibility for monitoring the pollution and resource impacts of bulk energy supply, but does not provide any details on how this will be implemented. |
| | | | | | | | | 6.1.5. | Paper recognizes the opportunity to "promote EE and energy conservation measures in building low cost housing at a time when the national housing campaign is still in its formative stages." |
| | | | | | | | | 6.2.2 | Paper recognizes great potential to stimulate the adoption of energy demand management in middle and high income households, through strategies such as time of use electricity tariffs, energy efficient lighting, insulation, and solar water heating." |
| | | | | | | | | 6.3.2 | Government commits itself to the promotion of EE in industry, commerce and mining and the development of holistic programmes for the sector. DoE commits to advise other government departments on the EE implications of alternative transport modes and public transport subsidy policies, and to provide assistance in the formulation of fiscal and transport policies to promote energy conservation and efficiency. Issues identified for prioritisation include "the EE implications of income tax deductions on company vehicles and travel allowances, as well as vehicle benefit schemes and the effect of transport subsidies." |
| | | | | | | | | 7.6.4.3 | Calls for increased efficiency in coal use, but no further details as to what this might entail are provided. |
| | | | | | | | | 7.4.2 | The section on "Policy challenges for liquid fuels" includes the need to achieve "the optimum and efficient utilisation of liquid fuels" as one of the key challenges, however, but no further details as to what this might entail are provided. |
| 4 | Research, development and innovation | | | | | | | 6.4.3 | Recognizes the need for "research on the government's role in the promotion of alternative fuel vehicles, the technical and economic feasibility of such technologies, and the key requirements for their successful promotion," as well as "research to develop and stimulate energy-efficient and environmentally friendly transport energy technologies," but no further details as to how this might be achieved are provided. |
| | | | | | | | | 7.7.1 | Government commits to providing focused support for the development, demonstration and implementation of RE sources for both small and large-scale applications. Specific activities listed include information dissemination, education, extension and referral services, and the active promotion of implementation. |
| | | | | | | | | 8.5 | The section on "Research and development" does not list increasing R&D on climate mitigation options as one of the policy challenges to address. |
| 5 | Mitigation elements | | | | | | | 5.2.1 | Implementation of "Energy policy sector objective 1 - Increasing access to affordable energy services" could potentially increase emissions of GHG through both grid and off-grid electrification, depending on the energy source used (which is not specified in the document). |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|--------------------|-----|-----|-----|------|-------|---|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | 5.2.3 | Energy sector policy objective number 3 - Stimulating economic development" states that "Government policy is to remove distortions and encourage energy prices to be as cost-reflective as possible. To this end prices will increasingly include quantifiable externalities." Externalities are to be included are not specified. |
| | | | | | | | 5.4.4 | The section outlining medium-term policy priorities for the objective "Managing energy-related environmental impacts" suggests the facilitation of the monitoring, evaluation and demonstration of clean energy technologies. |
| | | | | | | | 6.1.5 | Paper recognizes the opportunity to "promote EE and energy conservation measures in building low cost housing at a time when the national housing campaign is still in its formative stages." |
| | | | | | | | 6.1.5 | Paper also recognizes great potential to stimulate the adoption of energy demand management in middle and high income households, through strategies such as time of use electricity tariffs, energy efficient lighting, insulation, and solar water heating." |
| | | | | | | | 6.2.2 | In the section on "EE in industry, commerce and mining" government commits itself to the promotion of EE and the development of holistic programmes for the sector. |
| | | | | | | | 6.2.3 | Paper recognizes that "the environmental impacts of energy use by industry, mining and commerce can be reduced by the use of cleaner energy end-use technologies," however, no details are provided as to how this could be achieved. |
| | | | | | | | 6.2.3 | Government commits itself to "continue to track developments in international environmental standards, in order to formulate policies that prevent the loss of SA exports through unwitting transgressions of any environmentally sensitive policies supported by our trading partners." This could apply to taxation of carbon-intensive products, but is not specified. |
| | | | | | | | 6.3.2 | DoE commits to advise other government departments on the EE implications of alternative transport modes and public transport subsidy policies, and to provide assistance in the formulation of fiscal and transport policies to promote energy conservation and efficiency. |
| | | | | | | | 6.4.2.1 | Government commits to facilitate the removal of market barriers so as to provide access to bulk diesel supplies for small-scale farmers, without any consideration of CC impacts. |
| | | | | | | | 6.4.1 | Paper acknowledges that "mechanisation, fertilisers and pesticides are energy-intensive technologies and, whilst they clearly have a role to play in increasing productivity for commercial farmers, need to be balanced with environmental protection." It also points that "new technologies make it possible to design farming systems, which are energy efficient, productive, profitable and environmentally responsible," but does not call for their implementation. |
| | | | | | | 6.4.3 | Paper acknowledges the potential for agricultural, forestry and agro-forestry products, by-products and residues to serve as raw materials for processing into modern bio-fuels, but does not explicitly make the connection between their potential as energy carriers and climate mitigation. | |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|--------------------|-----|-----|-----|------|-----|------------------|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | 7.1.4.1 | Government commits itself to "implementing reasonable legislative and other measures to progressively realise universal household access to electricity." Access to electricity could be achieved through grid supplies, solar home systems, generators, hybrid systems, battery systems or any other supply solution which provides an appropriate and affordable electricity supply. Depending on the choice of technology, achieving universal access may or may not increase GHG emissions. |
| | | | | | | | 7.1.4.3 | The section on "Role of off-grid solution" recognises the role and challenges of off-grid solutions and pledges to provide support, but does not differentiate between renewable and non-renewable off-grid solutions. |
| | | | | | | | 7.1.5.8 | The section on "Non-utility generation" states that one of the purposes of encouraging the entry of multiple players into the electricity generation market in SA is to encourage the development of "renewable and environmentally sound electricity generation technologies," but does not frame this as a mitigation measure. |
| | | | | | | | 7.2.3 | Paper states that it is "unlikely that additional nuclear capacity will be required for a number of years," but also that "it would not be prudent to exclude nuclear power as a supply option." Decisions on the role of nuclear power will need to be taken within the context of an integrated resource planning process. |
| | | | | | | | 7.3.1 | The section on "Policy framework for oil & gas resources" lists a number of support measures to promote the development of SA's oil & gas resources, with no consideration to CC impacts. |
| | | | | | | | 7.4.3 | Government commits to keep the cost of liquid fuels as low as possible and make it available as widely as possible, with no consideration to CC impacts. |
| | | | | | | | 7.4.8 | Government commits to promoting a refining and petrochemicals hub at a coastal location, with no consideration to CC impacts. |
| | | | | | | | 7.4.14 | Paper proposes to progressively lower tariff protection afforded to the synthetic fuels industry. At the same time, it proposes to promote the dispensation of synthetic fuels for as long as their manufacturers do not have viable access to the retail sector. The net effect of these two opposing measures on the use of highly polluting synthetic fuels in SA is not established. |
| | | | | | | | 7.5.2 & 7.5.3 | The section on "Gas resources and industry development" (7.5.2) promotes the development of SA's gas sector based on regional gas trade. While the section on the impact of gas on the environment (7.5.3) recognizes gas an energy carrier with lower carbon dioxide emissions relative to other fossil fuels, it does not specify whether the development of a national gas sector will be supported to be complementary or to substitute other forms of fossil energy. |
| | | | | | | | 7.6.4 | Call for policies to ameliorate the impact of coal on the environment, but it does not specify whether that might include impacts on the climate. |
| | | | | | | | 7.7 | Policy is based on an understanding that renewables are energy sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential, but no plans for their implementation are specified. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|----------------------------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | | 7.7.1 | Commits to provide focused support for the development, demonstration and implementation of renewable energy sources for both small and large-scale applications. Activities will include information dissemination, education, extension and referral services, and the active promotion of implementation. |
| | | | | | | | | 7.1.6 | Promotes the idea of opening SA's electricity market to IPPs, with one of the motivations being "increased opportunities to exploit cheaper and environmentally benign generation options." |
| | | | | | | | | 7.7.3 | The "Rural fuel wood" section commits to "facilitate the production and management of woodlands through a national social forestry programme for the benefit of rural households, where appropriate," but no connection is made between the impact of unsustainable use of wood as fuel and its climate impacts (nor how better fuel wood management would mitigate that). |
| | | | | | | | | 7.7.4 | Commits to "promote the development and implementation of appropriate standards and guidelines and codes of practice for the correct use of RE technologies." |
| | | | | | | | | 7.7.6 | The section on "RE systems" mentions that "a number of rural villages have been targeted for installation of solar home systems (SHS), solar cookers, solar water pumps and solar water heaters," but provides no detailed implementation targets, leaving the impact of such a programme unclear. |
| | | | | | | | | 8.8.1 | In the section on "Removal of barriers to international energy and energy technology trade" barriers restricting the import of renewable energy and energy efficiency equipment are identified as those to be removed in the short-term. |
| 6 | Dynamic and evidence based | | | | | | | 6.2.2 | The section on "EE in industry, commerce and mining" provides an estimate of savings in the sector that vary between 10%-20% of current consumption. No provision is made to update this figure as new EE technologies become available. |
| | | | | | | | | 7.1.5.6 | States the requirement to use "integrated resource planning methodologies in evaluating further electricity supply investments and the decommissioning of older power stations." It defines the IRP as a "decision-making process concerned with the acquisition of least-cost energy resources, which takes into account the need to maintain adequate, reliable, safe, and environmentally sound energy services for all customers." As such, the IRP should also be used as a tool to inform the development of climate mitigation elements in the energy sector. However, such a role is not explicitly mentioned. |
| | | | | | | | | 7.7.2 | The section on "Renewable energy," requires government support for RE technologies for application in specific markets to be based on researched priorities, but no more than a mention of this is provided. |
| | | | | | | | | 7.7.5 | Commits to "establish suitable information systems of RE statistics, where justifiable," and to "assist with the dissemination thereof," however, no link is made to use such information systems to evaluate the role of RE as a climate mitigation option. |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|------------------|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | 8.1 | The section on "Integrated Energy Planning" describes the IEP process, as having, amongst others, the technical function of "interpreting the requirements of national economic, social and environmental policies for the energy sector," however, the link to the IEP informing the planning of any mitigation activities in the energy sector, or integrating climate mitigation considerations in the IEP process are not explicitly mentioned. |
| | | | | | | | 8.1.1 | Requires the DoE to ensure that an integrated resource planning approach is adopted for large investment decisions by energy suppliers and service providers. However, the possibility for the IRP informing the planning of any mitigation activities in the electricity sector, or integrating climate mitigation considerations in the IRP process are not explicitly mentioned. |
| | | | | | | | 8.4.3 | Requires the DoE to include explicit environmental considerations into studies regarding energy suppliers and users, and to integrate these results through Integrated Energy Planning. Government also commits to take primary responsibility for monitoring the pollution and resource impacts of bulk energy supply. |
| 7 | Precautionary principle | | | | | | 7.2.7 | In the section on "Radioactive waste management," the Paper raises the issue that no final decisions have been made on how to deal with spent nuclear fuel in the long term, which poses a major environmental (and health) hazard. |
| 8 | Sustainable development pillars | | | | | | 8.1 | The section on "Integrated Energy Planning" describes the IEP process, as having, amongst others, the technical function of "interpreting the requirements of national economic, social and environmental policies for the energy sector, thus acknowledging the possible impacts of energy supply (and demand) measures on equity, the environment or economy. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | |
| 10 | Cost-effectiveness | | | | | | 7.1.5.6 | The Paper requires the IRP to include cost as one of the considerations on the energy resources that are to be part of the national electricity supply. |
| | | | | | | | 7.6.4.1 | Clean coal technologies are recognised as cheaper, more efficient and more environmentally benign compared to secondary carriers such as electricity in some applications, especially where thermal energy is required. Therefore, government commits itself to be involved in standard setting, monitoring, evaluation, and demonstration of clean coal technology where necessary. |
| | | | | | | | Several | The need to provide affordable energy to SA's citizens and industry is mentioned several times across the document, but no long-term vision or guidance is provided in relation to how new technological developments potentially serving this objective should be supported in their early stages of development and especially what is an acceptable cost of supporting them until they reach commercialization. |
| 11 | Behaviour change | | | | | | 6.1.5. | In the section on "EE and energy conservation in households," government commits itself to the promotion of EE awareness in households. |
| | | | | | | | 6.1.6 | Paper recognizes "there is a great need to supply all householders with responsible information about the efficient, safe and cost-effective use of appliances and fuels." |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|-----|-----|-----|------|-----|------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | 6.3.2 | DME commits to "provide information on the fuel use characteristics of new vehicles" by ensuring that energy consumption information is included in all advertising, vehicle test reports and vehicle specifications. |
| | | | | | | | 7.7.1 | In the section on "Monitoring of international RE developments" government commits to provide support to renewables through a number of activities including information dissemination, education, extension and referral services, and the active promotion of implementation. |
| | | | | | | | 8.3.1 | This section provides more details on the EE programme announced in section 6.2.2 and mainly includes initiatives to promote behaviour change in relation to energy usage. These include commitments by government to a) promote an energy efficiency awareness amongst industrial and commercial energy consumers, and encourage the use of energy-efficient practices by this sector, b) establish energy efficiency norms and standards for commercial buildings, c) promote the performance of audits, demonstrations, information dissemination, sectoral analyses and training programmes, d) establish energy efficiency standards for industrial equipment and e) implement an energy efficiency programme to reduce consumption in its installations. |
| | | | | | | | 8.3.2 | This section is a continuation of section 6.1.5. and outlines more actions to improve EE in households. Those include a commitment by government to promote EE awareness in households and to facilitate the establishment of relevant standards and codes of practice for the thermal performance of dwellings, the inclusion thereof in the national building codes, and will promote their implementation through appropriate measures. Also suggested is a programme of education for decision-makers, such as designers, financiers, builders and home-owners on dealing with the costs and benefits of building dwellings with good thermal performance. |
| | | | | | | | 8.3.2.1 | The section on "Appliance efficiency" suggests that government promotes the introduction of a domestic appliance labelling programme. |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | | |
| 14 | Polluter pays | | | | | | 3.4.3 | The section on " Oil and Gas exploration and production" explicitly mentions the PPP, but no further elaboration is provided. |
| 15 | Resource mobilisation | | | | | | 5.4.4 & 8.9.3.1 | Both in the section outlining medium-term policy priorities for the objective "Managing energy-related environmental impacts" as well as the section on "Environmental costs," government commits to investigate an environmental levy on energy sales, together with appropriate fiscal support for more environmentally benign and sustainable energy options including energy efficiency. |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|--------------------|-----|-----|-----|------|-----|------------------|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | 20 | 22 | 4 | 8 | 14 | 0 | 8.6 | In the section on human resources in the energy sector, the DoE commits to make recommendations for human resource development strategies and programmes in the sector. |

Finally, it is worth noting that because the identified “potential” mitigation elements are not framed as such, there is not sufficient information in the Paper to assess them against the remaining principles, except in a number of isolated cases. The sustainable development principle, can for instance be considered partially aligned with, though this alignment is indirect through the requirement the White Paper places on the integrated energy planning process, which is to consider all sustainable development aspects when advising on the country’s energy supply system.

To provide a comprehensive overview of government’s policy with regard to the energy’s sector’s role in climate mitigation, the Paper should as a minimum:

- Acknowledge the mitigation potential of a number of interventions it already proposes and further develop them following principles 2-15;
- Be re-structured to consistently report all aspects of particular mitigation elements, which are now scattered in piecemeal fashion across the document.

The scoring guide customised for use with high level policies, frameworks and strategies was used in the policy gap assessment.

4.1.3.2 National Energy Act (2008)

4.1.3.2.1 Overview

The National Energy Act addresses certain very specific aspects of energy sector regulation. It is a compilation of:

- The regulatory framework for the gathering, analysing and publishing of energy data;
- Provisions allowing the Minister of Energy the prerogative to adopt measures not contemplated in any other legislation, to minimise the negative safety, health and environmental impacts of energy carriers;
- A list of criteria for the formulation of measures that provide for the universal access to appropriate forms of energy for all South Africans;
- A description of the process and content of the Integrated Energy Plan;
- The act of establishing and providing the operation modalities for the South African National Energy Development Institute;
- A number of general provisions around the regulation of renewable energy, energy efficiency and conservation, the safe, healthy and sustainable use of energy and other aspects.

The Act does not regulate any mitigation elements directly. However, it does so indirectly, through the establishment of the Integrated energy plan and the South African National Energy Development Institute (SANEDI).

Table 35 National Energy Act policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|-----------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | | | | | | Chapter 2, Section 4 | The Act mentions environmental suitability of energy as one of the aspects to consider when formulating measures that provide for the universal access to appropriate forms of energy. What such environmental suitability might entail is not specified. |
| 2 | Consideration of emissions implications | | | | | | Chapter 3, Section 6 | The Integrated Energy Plan must (amongst others) take account of GHG mitigation within the energy sector; although the IEP "uses" rather than "reports emissions from the source" this could be considered as an indirect incentive to consider the emission implications of actions. |
| 3 | Resource efficiency | | | | | | Chapter 6, Section 19 | The Act provides the Minister of Energy with the power to make regulations regarding minimum levels of EE in each sector of the economy, steps and procedures necessary for the application of EE technologies and procedures, prohibition of the manufacture, or importation or sale of electrical and electronic products and fuel burning appliances for reasons of poor EE, setting EE standards for specific technologies, processes, appliances, devices, motor vehicles and buildings. |
| 4 | Research, development and innovation | | | | | | Chapter 4, Section 7 | The Act establishes SANEDI and assigns it the function (among others) to direct, monitor, conduct and implement energy research and technology development in all fields of energy (except nuclear), as well as promote energy research and technology innovation, commercialisation of energy technologies resulting from energy R&D programmes, promote relevant energy research through cooperation etc. Although research on RE and EE are not explicitly mentioned, it is reasonable to assume they are included within SANEDI's mandate. |
| 5 | Mitigation elements | | | | | | Chapter 4, Section 7 | The Act also assigns SANEDI with the function (among others) of increasing EE in SA, by a) undertaking EE measures as directed by the Minister, b) increasing EE throughout the economy, c) increasing the GDP per unit of energy consumed, and d) optimising the utilisation of finite energy resources. |
| | | | | | | | Chapter 6, Section 19 | The Act provides the Minister of Energy with the power to make regulations regarding the minimum contributions to national energy supply from RE sources and measures and incentives designed to promote the production, consumption, investment, R&D of RE. |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|---|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | Chapter 6, Section 19 | The Act provides the Minister of Energy with the power to make regulations regarding minimum levels of EE in each sector of the economy, steps and procedures necessary for the application of EE technologies and procedures, prohibition of the manufacture, or importation or sale of electrical and electronic products and fuel burning appliances for reasons of poor EE, setting EE standards for specific technologies, processes, appliances, devices, motor vehicles and buildings. |
| 6 | Dynamic and evidence based | | | | | | Chapter 3, Section 6 & Chapter 4, Section 7 | The data gathering and analysing mandate of the IEP and the energy R&D supporting mandate of SANEDI form the basis for the development of dynamic and evidence-based mitigation options. |
| 7 | Precautionary principle | | | | | | | |
| 8 | Sustainable development pillars | | | | | | Chapter 3, Section 6 | The development of the Integrated Energy Plan must take into account sustainable development. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | |
| 10 | Cost-effectiveness | | | | | | | |
| 11 | Behaviour change | | | | | | Chapter 6, Section 19 | The Act provides the Minister of Energy with the power to make regulations regarding labelling for energy efficiency purposes of household appliances, devices and motor vehicles; |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | | |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | Chapter 4 | The Act supports the development of human capital in the energy sector through the establishment of SANEDI, which the Act mandates with training and development in the field of energy research and technology development. |
| | | 5 | 5 | 6 | 0 | 1 | | |

4.1.3.2 Assessment summary

As mentioned in the National Energy Act overview, the Act itself does not include any mitigation elements directly, however, it does establish two very important processes for informing the development of mitigation elements and supporting R&D and commercialisation of energy technologies that can contribute to climate mitigation.

Through the establishment of the Integrated Energy Planning (IEP) process, the Act scores positively in terms of emissions considerations, because it makes provisions for the collection of energy data that will enable the development of GHG inventories, as well as on the Sustainable Development Pillars principle, because it requires the IEP process to include considerations on all aspects of sustainability.

Because it establishes the South African National Energy Development Institute (SANEDI), the Act is considered as fully aligned with the principle of promoting resource efficiency, since promoting energy efficiency is one of SANEDI's main mandates.

Considering the Act also provides the basis for the regulation of a number of other aspects of the energy system, it is surprising it does not address the areas for which it has been marked as un-aligned, as given the nature of the document, it would be expected to deal with those.

The acts and legislation scoring guide was applied in the policy gap assessment.

4.1.3.3 Biofuels Industrial Strategy of the Republic of South Africa (2007)

4.1.3.3.1 Overview

The South African Biofuels Industrial Strategy outlines Government's approach to policy, regulations and incentives for the development of a biofuel sector in South Africa. The primary objective of the Strategy is not related to climate mitigation, but rather aims at creating jobs in the energy-crop and biofuels value chain, especially in underdeveloped rural areas.

The Strategy proposes a modest 2% penetration level of biofuels in the national liquid fuel supply, (400 million litres pa) to be achieved within five years of its publication. It proposes to use sugar cane and sugar beet for the production of bioethanol, and sunflower, canola and soya beans for biodiesel. Maize and jatropha are explicitly excluded as feedstocks based on food security concerns.

4.1.3.3.2 Assessment summary

Because climate mitigation is not listed as one of the objectives of the Biofuels Industrial Strategy, it is marked as only partially aligned with the principle on climate mitigation elements. Despite this, the document is fully aligned with most other assessment principles. It scores particularly well on the Precautionary Principle, because it provides a comprehensive assessment of possible threats

from biofuel production on food availability, existing rural businesses (i.e. animal feed production), competition for water resources and also touches upon a possible impact on land prices. By adopting a very conservative target and ensuring it is maintained by limiting licenses to producers it fully satisfies the requirement for risk assessment and risk management comprised within the precautionary principle.

Considering that creation of opportunities for economic development and job creation in underutilised rural areas is the Strategy's main objective, it is not surprising that it also scores well against the principle of sustainable development pillars, equity and co-benefits.

The Strategy also devotes significant attention to a combination of government support and other resources that could be utilised to achieve its objectives, which again earns it a fully aligned mark against the resource mobilisation principle.

The few principles with which the Strategy remains non-aligned (Emissions Implications, Resource Efficiency, the Polluter Pays principle and the Cost-Effectiveness principle) could be easily accommodated if the Strategy was to be expanded to include climate mitigation as one of its drivers. Adding provisions to accommodate further alignment with the NCCRP principles would not compromise the current setup of the Strategy.

The high level policies, frameworks and strategies scoring guide was applied in the policy gap assessment.

4.1.3.4 Petroleum Product Act (1997), Amendment of Regulation regarding Petroleum Products Specifications and Standards (2012)

4.1.3.4.1 Overview

The Amendment of regulation regarding petroleum products specification and standards provide the detailed quality standards for fuel transport fuel sold in SA.

4.1.3.4.2 Assessment summary

It does not include any mention of climate mitigation whatsoever. The only relevance of this document for the development and implementation of any mitigation actions in SA is that it specifies the maximum amount of biodiesel that can be blended into the various grades of diesel fuel.

Because it is only tangentially related to the issue of climate mitigation in SA, a detailed policy gap assessment was not performed on this document.

Table 36 Biofuel industrial strategy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | | | | | | | 1 | Biofuels are recognised as a climate mitigation option. |
| 2 | Consideration of emissions implications | | | | | | | 3 | The feasibility study undertaken in support of the Strategy estimates SA would save approximately R 100 million per annum from GHG emissions (assumed carbon price not specified, so actual emissions savings cannot be calculated back). |
| 3 | Resource efficiency | | | | | | | | |
| 4 | Research, development and innovation | | | | | | | 6.6 | The section on "Biofuels production plants" suggests that SA invests in R&D on second generation biofuels to keep abreast of international developments |
| | | | | | | | | | Proposes the creation of an R&D platform that will allow for the strengthening of local capacity and leveraging on international R&D work. |
| 5 | Mitigation elements | | | | | | | 2 | Biofuels are recognised as a climate mitigation option, although in SA, the Biofuels Strategy is driven predominantly by the need to address issues of poverty and economic development. |
| 6 | Dynamic and evidence based | | | | | | | 9.2 | Proposes the creation of an R&D platform that will allow for the strengthening of local capacity and leveraging on international R&D work. The research focus areas are to include the investigation of alternative feedstock, development of energy crops and improvement of known technologies whilst further developing, supporting and piloting the second generation technologies. |
| 7 | Precautionary principle | | | | | | | 3 | Proposes that biofuels target is met by utilising crops grown mainly on under-utilised land to avoid deviation of crops currently used for food supply. |
| | | | | | | | | 6.2 | The section on "Food security" explicitly excludes maize as a biofuel feedstock to ensure no availability shortages or excessive price increases are experienced for this staple food. |
| | | | | | | | | 6.3 | A possible price drop for animal feed is discussed but it is concluded that volume of animal feed by-products generated by the set biofuel targets will not jeopardise the viability of the animal feed industry. |
| | | | | | | | | 6.4 | A possible increase in the price of land is mentioned, although it is not resolved whether the proposed biofuel targets might in fact have an impact on it. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | | 6.5 | Issues of possible competition between biofuel feedstock production and other water users is discussed and is proposed to develop regulation to address specific instances when such competition might occur. |
| | | | | | | | | 8.1 | Only qualifying producers up to a 2% penetration level of locally produced biofuels will be licensed. |
| 8 | Sustainable development pillars | | | | | | | 1 | The "Introduction" section mentions that the biofuels programme has the potential to uplift agricultural sectors and to unlock substantial economic benefits, by: <ul style="list-style-type: none"> - Attracting investment into rural areas; - Promoting agricultural development; - Import substitution of foreign oil with balance of payment savings; - Overcoming trade distorting effects due to subsidised agricultural production in developed countries. In SA specifically, a requirement for the Biofuel strategy was to create jobs in underdeveloped areas |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | 1 | The biofuels programme has the potential to uplift agricultural sectors and to unlock substantial economic benefits, by: <ul style="list-style-type: none"> - Attracting investment into rural areas; - Promoting agricultural development; - Import substitution of foreign oil with balance of payment savings; - Overcoming trade distorting effects due to subsidised agricultural production in developed countries. In SA specifically, a requirement for the Biofuel strategy was to create jobs in underdeveloped areas. |
| | | | | | | | | 2 | Main aim for the Strategy is to provide additional source of income for underdeveloped agricultural regions. |
| 10 | Cost-effectiveness | | | | | | | 7 | The section on "The strategy" discusses the support price for the biofuels given the assigned levy exemptions and compares them with oil prices. |
| | | | | | | | | 6.1 & 7 | Options to support the production of biofuel feedstock are identified, but their costs are not sufficiently discussed. |
| 11 | Behaviour change | | | | | | | 7. & 8.3. | Propose specific fuel levy exemptions for both bioethanol and biodiesel (50% and 100% for biodiesel and bioethanol, respectively). |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 12 | Equity | | | | | | | 2 | Strategy's main objective is to provide additional source of income for underdeveloped agricultural regions. |
| | | | | | | | | 8.5 | The section on "Capacity building and development" proposes that government ensures the training and capacity building of previously disadvantaged communities and emerging entrepreneurs to maximise transformation and the benefits inherent in this industry. |
| 13 | Special needs | | | | | | | 6.2 | Explicitly excludes maize as a biofuel feedstock to ensure no availability shortages or excessive price increases are experienced for this staple food disproportionately consumed by the poor. |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | 4 | Identifies sugar companies as possible investors. |
| | | | | | | | | 6.1 | Proposes that feedstock supply will be achieved by targeting existing agricultural support programmes such as Comprehensive Agricultural Support Programme (CASP) of the Department of Agriculture (DoE). |
| | | | | | | | | 6.8 | Outlines the main elements of contracts between oil companies and biofuels producers that ensure long-term viability of both biofuels refining and feedstock growing processes. |
| | | | | | | | | 7. & 8.3. | Propose specific fuel levy exemptions for both bioethanol and biodiesel (50% and 100% for biodiesel and bioethanol, respectively). |
| | | | | | | | | 8.5 | Proposes that government ensures the training and capacity building of previously disadvantaged communities and emerging entrepreneurs to maximise transformation and the benefits inherent in this industry. |
| | | | | | | | | 8.6 | Lays out the roles of various government agencies in achieving the objectives of the Strategy. |
| | | 17 | 5 | 3 | 0 | 0 | 0 | | |

4.1.3.5 Climate Change Policy Framework for State Owned Companies (2012)

4.1.3.5.1 Overview

The Climate Change Policy Framework for State Owned Companies (CCPF for SOC) is a guiding document developed by the Department of Public Enterprises and is meant to ensure that the SOC play their strategic role as agents of change in supporting the government's mitigation vision as outlined in the NCCRP. The framework is also intended to guide longer term actions required to put South Africa on a low carbon development path.

4.1.3.5.2 Assessment summary

The very nature of the CCPF for SOC makes it fully aligned with the climate change mitigation awareness principle; in fact, the need for an effective response to climate change is re-iterated several times across the document.

Besides this recognition of the need to act on climate change, however, as a guiding high-level document, the Framework does not prescribe specific climate mitigation action, but rather lays on the SOCs the imperative of supporting government's ambitions on climate mitigation and suggests a few broad steps that SOCs should follow to achieve this.

Following this, the Framework addresses most of the principles indirectly, mainly through the characteristics of the strategic plans for climate change-related actions the Framework requires the SOCs to develop. These plans should give due considerations to any international and national risks and opportunities arising from the CC arena and outline concrete initiatives on how to address them, describe broader government support and resources that can be used to accelerate or enhance the implementation of the SOCs plans, as well as include a reporting framework for their GHG emissions. The plans are also to be regularly updated. Because plans are explicitly required to contain these elements, the Framework is marked as fully aligned against the principles of considering emissions implications, being dynamic and evidence-based, and following the Precautionary Principle, identifying risk management co-benefits and ensuring resource mobilisation for mitigation elements.

Alignment with a number of other principles is achieved through commitments by the Department of Public Enterprises (DPE), such as guiding the SOCs in achieving the balance between their socio-economic development mandate, financial viability and their new role as change agents supporting the government's vision on climate change, which makes the Framework fully aligned with the Sustainable Development Pillars principle.

Surprisingly, the Framework is silent on five principles, which could have easily been included as required elements for the strategic plans the SOC are to develop.

The high level policies, frameworks and strategies scoring guide was applied in the policy gap assessment.

Table 37 CCPF for SOC gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|--------------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | | | | | | | Several | The need for an effective response to CC is re-iterated several times across the document. |
| 2 | Consideration of emissions implications | | | | | | | Core policy principles | GHG emissions must be included in the reporting framework of the strategic plan on CC each SOC is to develop. |
| 3 | Resource efficiency | | | | | | | | |
| 4 | Research, development and innovation | | | | | | | Policy design principles | SOCs should be encouraged to innovate and be supported in on-going learning and continuous improvement; although the field of innovation is not made specific, there is reason to believe the statements refers to innovation in climate related elements. |
| 5 | Mitigation elements | | | | | | | Several | The Framework does not prescribe any specific mitigation action to the SOC, but proposes they be elaborated in the strategic plans on CC each SOC needs to develop. |
| 6 | Dynamic and evidence based | | | | | | | Core policy principles | SOCs' strategic plans to be updated regularly at an interval consistent with the National Climate Change Response. |
| | | | | | | | | Special initiatives | DPE commits to establish a web-site to enable knowledge sharing between SOC around best practice in relation to climate change, and to disseminate case studies pertaining to country and enterprise responses to climate change relevant to SOCs. |
| 7 | Precautionary principle | | | | | | | Policy design principles | This section states that any conflicts between the SOCs commercial, economic, developmental and environmental objectives should be carefully managed, but no further elaboration on this is provided. |
| | | | | | | | | Core policy principles | This section requires that global, national and sub-national risks (and opportunities) related to CC mitigation elements (?)and their impacts on the SOC be included in the strategic plans on CC each SOC needs to develop. |
| 8 | Sustainable development pillars | | | | | | | Several | The objective of balancing the strategic socio-economic development mandate of SOCs and their financial viability with their additional role as change agents to support the government's vision on CC is re-iterated several times across the document. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | Policy design principles | This section requires the detailed strategic plans to be developed by the SOCs to outline concrete initiatives that the SOCs will take to address the identified risks (and opportunities). |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|-----|-----|-----|------|-----|------------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | Core policy principles | DPE commits to identify and foster synergies between SOCs around strategic mitigation and adaptation initiatives. |
| 10 | Cost-effectiveness | | | | | | | |
| 11 | Behaviour change | | | | | | Several | The Framework's' very aim is to change the behaviour of SOCs to ensure they fulfil their role in supporting the government's vision on CC mitigation and adaptation. |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | | |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | Core policy principles | The Department will collaborate with all SOC on learning in the development of enterprise level strategies. |
| | | | | | | | Core policy principles | Requires the strategic plans to be developed by the SOCs to describe how broader government support and resources can be used to accelerate or enhance the implementation of the plan. |
| | | | | | | | Core policy principles | DPE commits to work closely with the SOCs and with national development finance institutions to stimulate investment in initiatives designed to achieve the national CC response goals, and to mobilising broader government support and resources in the implementation of the plans. |
| | | 12 | 3 | 5 | 0 | 0 | 0 | |

4.1.3.6 National Energy Efficiency Strategy (2005)

4.1.3.6.1 Overview

The National Energy Efficiency Strategy (NEES) is the first strategy explicitly focusing on energy efficiency in South Africa. It is a direct result of the White Paper on Energy Policy (1998) and aims to create a bridge between energy sector development and broader local socio-economic development objectives. Its objectives explicitly take all three pillars of sustainable development into consideration (economic, environmental and social). By setting a national energy efficiency target (12% improvement by 2015) to be achieved through enabling instruments and interventions, the NEES has an important mitigation role.

4.1.3.6.2 Assessment summary

Given the fact that the NEES predates the NCCRP by a number of years, it is surprisingly well aligned with the mitigation principles contained in the newer document. Most principles are applied in a way fully aligned with the NCCRP.

There are only three areas of misalignment with the NCCRP principles, one of which (mentioning low local electricity prices as a driver of beneficiation) is no longer relevant. The NEES does however fail to account for the possible cost-raising effect of technical standards relating to energy efficiency and the roll-out of renewable energy on income distribution, and does not apply the precautionary principle with respect to biofuels.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

Table 38 National Energy Efficiency Strategy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | | | | | | | 2 | Reducing CO2 emissions is one of the explicit goals of the strategy. |
| 2 | Consideration of emissions implications | | | | | | | 3,3 | A final energy demand reduction target is specified, which provides and indication of the impact on energy usage if the strategy is implemented successfully. |
| 3 | Resource efficiency | | | | | | | Various | Document aims to advance energy efficiency |
| 4 | Research, development and innovation | | | | | | | 4,1 | SANERI funded to created dedicated programme for R&D into energy efficiency. |
| 5 | Mitigation elements | | | | | | | 2 | Goal 5 - Reduce CO2 emissions. |
| | | | | | | | | 3,1 | Low electricity costs mentioned as driver of beneficiation. |
| | | | | | | | | 5 | Specific actions per sector outlined in section 5 |
| | | | | | | | | 6 | Renewable energy mentioned as cross-cutting issue. Thermally efficient building methods and biofuels also addressed. |
| 6 | Dynamic and evidence based | | | | | | | 1,3 | DME to monitor realised costs and benefits of intervention. Systems proposed to monitor and evaluate energy efficiency performance. Periodic strategic review of programmes under the Strategy called for. |
| | | | | | | | | 3,1 | Up-to-date baseline data provided. |
| | | | | | | | | 3,1 | Sector baseline studies commissioned. Studies on likely impact of technical energy efficiency interventions commissioned. |
| | | | | | | | | 3,3 | Review of national and sector targets at end of each implementation stage. |
| 7 | Precautionary principle | | | | | | | 6,2 | Biofuels mentioned without mention for need to consider possible unintended consequences. |
| 8 | Sustainable development pillars | | | | | | | 2 | Sustainable development pillars explicitly incorporated into Strategy goals. |
| | | | | | | | | 6,3 | Environmental and health interventions addressed under cross-cutting issues. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | 2 | Co-benefits explicitly included in Strategy goals. |
| | | | | | | | | 3,4 | Co-benefits explicitly included in Strategy outcomes. |
| 10 | Cost-effectiveness | | | | | | | 1,3 | Energy efficiency put forward as a low cost mitigation option. Payback term mentioned as yardstick. Cost-benefit analysis supported. |
| 11 | Behaviour change | | | | | | | 1,3 | Array of instruments (including activities aimed at information asymmetries) proposed. |

| | | | | | | | | | |
|----|-----------------------|--|--|--|--|--|--|--------|---|
| | | | | | | | | 3,1 | Importance of non-technical interventions (Energy Management Best Practice) highlighted. Energy management and awareness programmes in industry and mining. |
| | | | | | | | | 3,3 | Behaviour change advocated in most sectors. |
| | | | | | | | | 4,1 | Many of the support measures listed are aimed at information asymmetries. |
| 12 | Equity | | | | | | | 4.1, 5 | Potential cost-raising effect of efficiency standards, certification and accreditation not mentioned (advocated for many sectors). |
| | | | | | | | | 6,2 | Potential cost-raising effect of renewable energy not mentioned. |
| 13 | Special needs | | | | | | | 2 | Poor benefit from goal of using energy efficiency to address energy poverty and increase environmental outcomes. Other vulnerable groups not mentioned. |
| 14 | Polluter pays | | | | | | | 4,3 | "Fee bates" a form of polluter pays. Direct incentives not supported. |
| 15 | Resource mobilisation | | | | | | | 4,3 | Funding instruments explicitly considered. |
| | | | | | | | | 4,3 | Skills accreditation for energy services companies mentioned. |

4.1.3.7 Draft Second National Energy Efficiency Strategy Review (2012)

4.1.3.7.1 Overview

The document reviewed herewith is the second review of South Africa's National Energy Efficiency Strategy published in 2005. This edition lays out the steps necessary for the strategic process of reviewing sector targets, as well as the elements of a plan to achieve reductions in energy intensity.

The Strategy serves multiple goals of enhancing energy security by improving the use of existing and new generation capacity, improving SA's global competitiveness through reducing energy costs, decoupling growth and energy consumption (and thus GHG emissions) from economic growth and promote job creation.

The sectors targets included in the Strategy are applicable up to the end of 2015, although it is important that the 2012 review takes a longer-term view of the contribution that all sectors in South Africa society can make towards creating a sustainable energy future. These are reflected in the "aspirational targets" set forward by the Government.

Also worth noting is that the Strategy takes a broad view of energy efficiency and also covers energy conservation, energy substitution by renewable energy sources on the demand side, energy substitution through fuel switching (only when it results in energy efficiency gains), re-generation and own-generation (from waste or waste heat).

4.1.3.7.2 Assessment summary

Similarly to other high-level strategies, the Draft Second National Energy Efficiency Strategy Review of 2012 shows a high level of alignment with the general principles related to a sectors' mitigation strategy (1-5), but much less so with the principles applicable to a specific mitigation measure (6-15).

The Strategy review starts by recognizing energy efficiency as one of the most cost-efficient climate mitigation measures, which makes it fully aligned with the principles of CC Mitigation Awareness and Resource Efficiency. After a discussion of the Status Quo regarding energy usage in SA, it then proposes clear, quantifiable targets for the major demand sectors, as well as the main supply sector. For each sector, it also provides a comprehensive list of voluntary and regulatory measures that will support the achievement of the sectoral targets. This combination of setting targets as well as measures to achieve them brings the Strategy review in full alignment with the principle relating to mitigation elements and options. The only general principle with which there is only partial alignment is that of emissions reporting. This is because GHG emissions reporting is not explicitly called for, although any emissions reductions can be derived from the required proxies, that is energy use and energy intensity.

Table 39 Draft Second National Energy Efficiency Strategy Review gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | | | | | | 1 & 4.1 | The Strategy recognizes EE as the most cost-efficient climate mitigation measure |
| 2 | Consideration of emissions implications | | | | | | 1.1 | Target sectors are committed to measuring their energy performance against a set baseline; GHG emissions can be derived from such data, but their reporting is not explicitly called for. |
| | | | | | | | 7.1 | Commits the DoE to establish a monitoring & verification system for continuous updating and reporting of energy intensity data. |
| 3 | Resource efficiency | | | | | | 1 | In the "Introduction" section, the Strategy recognizes EE as the most cost-efficient climate mitigation measure. |
| 4 | Research, development and innovation | | | | | | 5.4.6 | Commits the DoE to fund SANEDI, which has a mandate to invest in EE R&D. |
| 5 | Mitigation elements | | | | | | 4.3 & 6.1 | Sets out target for industrial and mining sector: 15% improvement in EE compared to 2000 baselines by 2015 to be achieved by a mix of voluntary and regulatory measures. |
| | | | | | | | 4.4 | Sets out target for power generating sector: 15% improvement in EE compared to 2000 baselines by 2015 measured by looking at usage of all equipment other than that of the thermodynamic cycle (and excludes the RE build but includes transmission and distribution of power) |
| | | | | | | | 4.5 | Sets out target for commercial and public building sector: 15% improvement in EE compared to 2000 baselines by 2015 (focuses on new building mainly) to be achieved by a mix of voluntary and mandatory instruments. |
| | | | | | | | 4.6 | Sets out target for residential sector: 10% per capita improvement in EE compared to 2000 baselines by 2015, to be achieved by a mix of voluntary and regulatory measures. |
| | | | | | | | 4.7 | Sets out target for transport sector: 10% improvement in EE compared to 2000 baselines by 2015 to be achieved by a mix of voluntary and regulatory measures. |
| | | | | | | | 4.8 | Sets out the total final EE target: 12% reduction in energy intensity compared to 2000baseline by 2015 |
| | | | | | | | 5.2 | Lists the standards and other regulatory measures to be used to achieve the sectoral targets. |
| 6 | Dynamic and evidence based | | | | | | 4.2 | Sectoral targets are to be reviewed regularly, though it is not specified that it must be based on new evidence and evolving best practices. |
| | | | | | | | 4.3 | Benchmarks for industrial and mining sub-sectors are to be developed to ascertain the baselines and potentials for EE more accurately. |
| | | | | | | | 7.2 | The Strategy itself is to continue being reviewed regularly. |

| | | | | | | | | | |
|----|---|--|--|--|--|--|-------|--|---|
| 7 | Precautionary principle | | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | | Job creation is mentioned as one of the effects of increased competitiveness, which is one of the goals of the Strategy, but no attention is paid to it as a SD pillar. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | | |
| 10 | Cost-effectiveness | | | | | | 4.3 | For the industry & mining sectors targets, the benchmarks to be developed will allow a differentiation between EE efforts according to sub-sector abilities. | |
| | | | | | | | | Resource efficiency is only considered for the Industry & mining sector and not the rest. | |
| 11 | Behaviour change | | | | | | 5.4.4 | Lists a number of initiatives aimed at achieving behavioural changes amid end-users, mainly (but not exclusively) consumers. | |
| | | | | | | | 5.5.1 | Lists a number of voluntary agreements aimed at achieving behaviour change. | |
| 12 | Equity | | | | | | | | |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | 5.3 | Provides an overview of financial instruments (incentives and their source and taxes) to stimulate the uptake of EE. | |
| | | | | | | | 5.4 | Provides an overview of other support measures including the establishment of EE agencies and development of educational programmes on EE in various curricula to build the necessary human capital for EE implementation. | |

With regard to principles relating to specific mitigation elements, for most of the sectors, there is alignment with the principle calling for mitigation measures to be dynamic and evidence based and to induce behaviour change. The resources needed to implement the measures outlined per sector are also adequately addressed. In terms of cost-effectiveness, the Strategy Review make provisions for it only with regard to the industry and mining sector, but neglects the issue in all other sectors, which is why it is marked as both aligned and non-aligned with the cost-effectiveness principle.

The non-alignment with the remaining mitigation element-specific principles is surprising, as the missing considerations could easily be integrated in the existing structure of the Strategy and should be addressed in the next review expected to take place in 2015.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

4.1.3.8 National Energy Efficiency Action Plan (2014)

4.1.3.8.1 Overview

The National Energy Efficiency Action Plan (NEEAP) summarises the current and planned actions to support the National Energy Efficiency Strategy (NEES) for the period 2013-2015. Its aim is to assist and provide guidance to all stakeholders and sectors of the actions being taken by Government, of both a voluntary and mandatory nature, to achieve its EE objectives.

The key purpose of the NEEAP is therefore to (i) provide detail and guidance about the short-term actions being taken by Government to implement the country's long-term needs and vision set out in, inter alia, the NEES; (ii) assist in prioritising future activities/policies to achieve the EE improvements set out in the NEES; (iii) understand current EE related activities/policies/challenges; and (iv) report on the progress made in implementing the NEES and any other documents that are relevant to the EE policy framework.

The NEEAP should be monitored on an annual basis and updated at least every three years, to reflect progress made, new information and changing conditions.

This NEEAP does not supersede or replace the NEES, which remains the overall guiding document on EE policy in South Africa. Rather, it is intended to support the NEES by reflecting recent changes in policy and existing programmes, describing the measures and activities intended to create an enabling environment for the implementation of these policies and programmes (including overcoming the barriers to EE), and facilitating the start of performance monitoring in respect of the aspirational targets contained in the NEES.

4.1.3.8.2 Assessment summary

As most energy sector documents, the National Energy Efficiency Action Plan (NEEAP) is better aligned with the general principles, rather than the mitigation-element specific ones.

It is surprising, that despite being its implementation plan, the NEEAP does not follow the NEES in giving due consideration to most mitigation-element specific principles. Most astoundingly, it does not include cost-effectiveness considerations. In addition, the Mitigation Elements and the Behaviour Change principles had to be split to reflect the running EE programs contained in the NEEAP, for which the document is considered fully aligned, and those the document only proposes, on which it is considered unclear, as any impact from those programmes cannot be guaranteed until they are actually implemented. If any of the proposed programmes actually materialise by the time the NEEAP sees its first iteration, they would obviously add to the document's alignment with the NCCRP principles.

The “unclear” score under the Polluter Pays principle also warrants a short discussion. A carbon tax on the industry and mining sectors is one of the most important instruments to increase uptake of EE in these two sectors included in the NEEAP. The implementation of the carbon tax is, however, beyond the authority of the DoE, which is the line ministry responsible for the implementation of the NEEAP. Hence, while the carbon tax is a commonly used measure to achieve compensation by polluters, the NEEAP should be considered unclear on this aspect, until the carbon tax in South Africa is adopted.

4.1.3.9 Standard Offer Incentive Scheme (2012)

4.1.3.9.1 Overview

The Standard Offer⁵ Policy intends to stimulate energy efficiency and demand-side management (EEDSM) through enabling regulations and institutional governance structures and by introducing targeted financial incentives. The Policy covers issues that go beyond what is suggested by its title and provides clarity with respect to:

- The regulator's role and responsibility pertaining to various EEDSM interventions;
- The stipulation of energy efficiency resource standard (EERS) to be included in the IRP;
- The process and governance for a tariff-based financial incentive (the standard offer) necessary to stimulate energy efficiency.

⁵The document defines a standard offer as “a mechanism to acquire demand-side resources (energy efficiency/load reduction) under which a utility purchases resources based on a pre- determined rate (e.g., R/kWh or R/kW)”.

Table 40 National Energy Efficiency Action Plan gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|-----------------------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | | | | | | 2.1 | The NEEAP is based on the NEES, whose explicit goal is to reducing CO2 emissions. |
| 2 | Consideration of emissions implications | | | | | | 4.1.1 | An EE Target Monitoring System (EETMS) is currently being developed to EE track improvements achieved at a national 'economy-wide' level. |
| 3 | Resource efficiency | | | | | | document as a whole | The main objective of the NEEAP as a whole is to promote efficiency of energy resources. |
| 4 | Research, development and innovation | | | | | | 6 | A number of studies on various aspects of EE have already been and will continue being commissioned by Government, including an investigation into suitable support structure for the roll out of EE initiatives within local government and optimising energy / fuel consumption along major corridors and identification of EE opportunities to inform the planned EE Framework. |
| 5 | Mitigation elements | | | | | | 5.1.1, 5.2.1, 5.3.1, 5.4.1, 5.5.1 | A number of existing programmes to promote uptake of EE measures are already in place in the industry and mining sectors, the commercial and public buildings sector, the residential sector, the transport sector and the electricity sector. |
| | | | | | | | 5.1.2, 5.2.2, 5.3.2, 5.4.2, 5.5.2 | A number of additional programmes are being considered for the industry and mining sectors, the commercial and public buildings sector, the residential sector, the transport sector and the electricity sector that would further increase the uptake of EE measures, however, until they are formally adopted, their future and thus impact remain unclear. |
| 6 | Dynamic and evidence based | | | | | | 1 | The NEEAP is to be reviewed at least every 3 years. |
| 7 | Precautionary principle | | | | | | | As most EE measures pose very little environmental risks, the NEEAP can be considered exempt from such considerations. |
| 8 | Sustainable development pillars | | | | | | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | |
| 10 | Cost-effectiveness | | | | | | | |
| 11 | Behaviour change | | | | | | 5.1.1, 5.2.1, 5.3.1, 5.4.1 | A number of existing programmes involving energy use reporting, labelling and certifications are already in place in the industry and mining sectors, the commercial and public buildings sector, the residential sector and the transport sector that support behaviour change in terms of increasing EE. |
| | | | | | | | 5.1.2, 5.2.2, 5.3.2, 5.4.2 | A number of additional programmes are being considered for the industry and mining sectors, the commercial and public buildings sector, the residential sector and the transport sector that support behaviour change in terms of increasing EE, however, until they are formally adopted, their future remains unclear. |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 14 | Polluter pays | | | | | | | 5.1.2 | Another possible future measure considered for increasing the uptake of EE is the carbon tax for industrial and mining sector, which, if implemented, would force polluters to pay for their emissions. The carbon tax has been announced for 2016 in the budget speech, however, until it is formally passed, it remains unclear. |
| 15 | Resource mobilisation | | | | | | | 2.3 | One of the new actions by Government to achieve the aspirational EE targets by 2015 is to improve competency level through training, specifically ESCOs and associated energy practitioners including energy auditors, energy managers and measurement and verification professionals (all sectors). |
| | | | | | | | | 5.1 - 5.6 | A bearer of costs has been identified for all existing and possible future programmes. |
| | | | | | | | | 6 | The DoE is tasked with training of building inspectors, control officers, plumbing and construction industry, as well as adding capacity within the Department who understand municipal operations (rather than national). |

Table 41 Standard Offer Programme for EEDSM gap assessment

| | Principle | Alignment category | | | | | | Relevant section | Description |
|----|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | ■ | | | | | | Background | EE & DSM are recognised as providing positive returns to energy consumers and the environment through the reduction of (amongst others) the carbon footprint of the energy sector. |
| 2 | Consideration of emissions implications | | | | | | ■ | | |
| 3 | Resource efficiency | ■ | | | | | | all | The very nature of the programme promotes EE. |
| 4 | Research, development and innovation | | | | | | ■ | | |
| 5 | Mitigation elements | ■ | | | | | | 3 | This policy intends to stimulate energy efficiency through (i) enabling regulations and institutional governance structures, and (ii) introducing targeted financial incentives. |
| | | ■ | | | | | | 4 | Defines the role of the regulator in facilitating EE and DSM. |
| | | ■ | | | | | | 5 | Requires the Minister of Energy to set energy efficiency resource standards (EERS). |
| 6 | Dynamic and evidence based | | | ■ | | | | | |
| 7 | Precautionary principle | | | | | | ■ | | |
| 8 | Sustainable development pillars | | ■ | | | | | 8 | The EEDSM programme is to be accompanied by a training and capacity building initiative. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | ■ | | |
| 10 | Cost-effectiveness | | ■ | | | | | 1 | Recognizes EE and DSM as relatively cost-effective, but does not request cost evaluations for individual measures. |
| 11 | Behaviour change | ■ | | | | | | all | The SO incentivises a reduction in energy consumption. |
| 12 | Equity | | | | | | ■ | | |
| 13 | Special needs | | | | | | ■ | | |
| 14 | Polluter pays | | | | | | ■ | | |
| 15 | Resource mobilisation | ■ | | | | | | 4 | In the section describing the role of the regulator in facilitating EE and DSM it requires NERSA to ensure that the EE resource standards funding provision is included in the MYPD. |
| | | ■ | | | | | | 8 | Provides an overview of human capital development activities, including a training and capacity building initiative to accompany the EEDSM programme, focusing on energy auditing, manufacturing, installation, and maintenance and training of ESCOs in various technologies through various academic institutions and professional bodies. |
| | | | ■ | | | | | 9 | Commits Government to assist in mobilising funding for EE interventions by ESCOs and identifies possible funding sources. |
| | | 8 | 3 | 1 | 0 | 0 | | | |

4.1.3.9.2 Assessment summary

The Policy guiding the Standard Offer Incentive Scheme mainly concerns the governance and procedural aspects of the Standard Offer, as a measure to incentivise pre-selected EE interventions. Its very nature as a document supporting EE and DSM, brings it into full alignment with the general principles of CC Mitigation Awareness, Resource Efficiency and Mitigation Elements. As a mechanism incentivising EE, it also scores as full aligned on the principle of Behavioural Change, and given that it commits NERSA to ensure that the EE resource standards funding provision is included in the MYPD, it is also fully aligned with the principle of Resource Mobilisation.

As a predominantly procedural document, a number of the NCCRP principles are not relevant (and consequently receive N/A scores). The principle that stipulates that mitigation elements should be dynamic and evidence-based, however, is relevant and missing from the document. An emphasis on basing support on the latest available information is important to ensure that support is targeted towards the most cost-effective energy efficiency options and practices.

The scoring guide for implementation plans was applied in the policy gap assessment.

4.1.3.10 Regulations regarding the Mandatory Blending of Biofuels with Petrol and Diesel (2012)

4.1.3.10.1 Overview

As the title suggests, the document regulates the mandatory blending of bio-ethanol or biodiesel with petroleum petrol and petroleum diesel, respectively, to produce a biofuel blend that may be sold in SA. In particular, the regulations address the purchase process; specify the blending ratios for both types of biofuel and lists the type of records to be kept by licensees.

4.1.3.10.2 Assessment summary

The Regulations do not include any mention of climate mitigation whatsoever. The only relevance of this document for the development and implementation of any mitigation actions in SA is that it specifies purchase process of biofuels and their blending ratios with conventional transport fuels.

Because it is only tangentially related to the issue of climate mitigation in SA, a detailed policy gap assessment was not performed on this document.

4.1.3.11 The Nuclear Act (1999)

4.1.3.11.1 Overview

The Nuclear Act covers the following aspects of the nuclear sector in South Africa:

- It establishes the South African Nuclear Energy Corporation and defines all aspects of its operations;
- It provides the framework for implementation and application of all protocols between SA and the International Atomic Energy Agency in support of the Nuclear Non-Proliferation Treaty;
- It regulates the acquisition and possession of nuclear fuel, certain nuclear and related material and certain related equipment, including their import and export;
- It prescribes measures regarding the discarding of radioactive waste and the storage of irradiated nuclear fuel; and to provide for incidental matters.

4.1.3.11.2 Assessment summary

The Act does not include any mention of climate mitigation whatsoever; despite the fact it regulates an important mitigation option. The Act can be considered fully aligned with only two of the NCCRP principles; those are the RD&! principle (by stating that one of the main functions of the South African Nuclear Energy Corporation is to undertake and promote research and development in the field of nuclear energy) and the Precautionary Principle (by setting out the Minister's responsibilities concerning SA's international obligations with regard to nuclear non-proliferation and regulating the handling of nuclear waste).

Because of such limited alignment with the NCCRP principles, a full gap assessment for the Act is not presented here. It should, however, be mentioned that in absence of a White Paper on nuclear energy, the Act is the most likely candidate to include more considerations on nuclear as a climate mitigation option and should thus be expanded to reflect them.

4.1.3.12 Draft Integrated Energy Planning Report (2012)

4.1.3.12.1 Overview

The purpose and objectives of the Integrated Energy Plan (IEP) are anchored in the National Energy Act of 2008. The IEP is the main guiding document for the development of South Africa's energy system. It takes into consideration the crucial role that energy plays in the entire economy and is informed by the output of extensive analyses founded on a solid fact base. It is a multi-faceted, long-term energy framework which has multiple objectives, including:

- To guide the development of energy policies and, where relevant, set the framework for regulations in the energy sector;
- To guide the selection of appropriate least-cost technologies to meet energy demand (i.e. the types and sizes of new power plants and refineries to be built);
- To guide investment in and the development of energy infrastructure in South Africa; and
- To propose alternative energy strategies which are informed by testing the potential impacts of various factors such as proposed policies, introduction of new technologies, and effects of exogenous macro-economic factors.

In addition, it enables enable energy policymakers to quantify and provide feedback on the extent to which the energy sector can contribute to the attainment of policy imperatives in other sectors.

By comparison with sectoral plans that look at how to ensure that energy needs are met, the IEP strives to provide a long-term vision of how energy can be optimally used as a mechanism for South Africa to remain competitive.

In essence, the IEP:

- Defines the problem statement and its key objectives;
- Describes the current state of the energy sector;
- Defines key energy policy questions;
- Identifies policy alternatives;
- Analysis and evaluates key policy alternatives;
- Makes recommendations for future development of the energy sector.

4.1.3.12.2 Assessment summary

A number of NCCRP principles are reflected in the IEP objectives directly (such as Resource Efficiency) or through proxies (such as equity through access to energy and SD pillar through localization and job creation). The IEP objectives are, however, high-level aspirations and the true impact of the IEP will depend on the extent to which they are included in the criteria for choosing energy supply options. For principles where both an aligned objective and related evaluation criteria are present, the IEP is marked as fully aligned, while cases where only the objective is aligned (directly or via a proxy), partial alignment is awarded.

Following this approach, the IEP is fully aligned with the principles of Consideration of Emissions Implications, Resource Efficiency, Cost-effectiveness, the Precautionary Principle and Risk

Management and other Co-benefits, and partially aligned with the principles of SD Pillars, Equity and Special Needs.

In addition, the IEP analysis and process indicate alignment with more principles. The IEP test cases - that is possible future development alternatives for South Africa's energy sector – all consider a portfolio of mitigation elements, which brings the IEP in full alignment with the Climate Change Mitigation Awareness principle, the principle of Mitigation Elements and partially aligned with the Polluter Pays principle, which is implicit in its “carbon tax” test case. Because the IEP is continuously updating its data (and is itself subject to regular updating), it is also fully aligned with the Dynamic and Evidence based principle.

Finally, the IEP is not expected to make provisions on R&D for the mitigation elements it includes, elaborate on how they induce behaviour change (though those could be included in the demand projections) or identify funding sources for the implementation of its proposed energy mixes; hence those principles are market as not applicable.

To further increase the IEP alignment with the NCCRP principles, the IEP could extend the evaluation criteria it applies to the various energy supply (and possibly DSM options) in its quantitative analysis to include non-energy related indicators measuring, for instance, social impacts (possible job creation), impact on equity and groups with special needs).

Because the IEP is neither a high-level policy document, a piece of legislation, a regulation, nor an implementation plan, it does not fully conform to any of the customised scoring guides developed for this project. Despite this, the high level policy document scoring guide was applied in the policy gap assessment. Consequently, the IEP policy gap assessment may display an artificially high level of alignment with the NCCRP mitigation principles. For instance, the IEP scores as highly aligned with the Behaviour Change principle, because it considers the carbon tax, even though it is only included as one of the IEP test cases. In other words, the IEP can only consider such mitigation elements and their characteristics (as one of the many possible scenarios, or test cases, as they are referred to in the IEP), but cannot promote them, which means its actual impact on South Africa's mitigation ambitions as outlined in the NCCRP cannot be judged.

Table 42 Draft Integrated Energy Plan gap assessment

| | Principle | Alignment category | | | | | Relevant section | Description |
|----|---|--------------------|-----|-----|-----|------|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | | |
| 1 | Climate change mitigation awareness | | | | | | 2.2 | Minimising the emissions from the energy sector is one of the IEP key objectives. |
| | | | | | | | 3 | The IEP test cases assume varying degrees of climate mitigation. |
| 2 | Consideration of emissions implications | | | | | | 4.5 | The IEP reports emissions for all the cases it analyses (i.e. possible future developments of the energy sector). |
| 3 | Resource efficiency | | | | | | 1, 2.2 | Efficiency is one of the key IEP objectives and primary energy resource usage is one of the criteria considered when assessing different energy supply options. |
| 4 | Research, development and innovation | | | | | | | |
| 5 | Mitigation elements | | | | | | 6.2 | All of the test cases include varying combinations of several mitigation elements. |
| 6 | Dynamic and evidence based | | | | | | | The IEP is regularly updating its data and is itself subject to regular updates. |
| 7 | Precautionary principle | | | | | | 2.2 | Water conservation is one of the key IEP objectives as well as one of the criteria considered when assessing different energy supply options. |
| 8 | Sustainable development pillars | | | | | | 2.2 | All three SD pillars are also reflected in the key objectives driving the IEP process. Furthermore, the IEP methodology seeks to ensure that the process of designing the future energy roadmap keeps a balanced view of the '3E' imperatives (Energy access and security; Economic growth and development; and Environmental sustainability). |
| 9 | Risk management, adaptation and other co-benefits | | | | | | 2.2 | Water conservation is one of the key IEP objectives as well as one of the criteria considered when assessing different energy supply options. |
| | | | | | | | 2.2 | Security of supply is a co-benefit of a diversified energy mix and is one of the key IEP objectives. |
| 10 | Cost-effectiveness | | | | | | 2.2 | Cost-effectiveness is one of the key IEP objectives as well as one of the criteria considered when assessing different energy supply options. |
| 11 | Behaviour change | | | | | | | The IEP considers the carbon tax, as one of the test cases. |
| 12 | Equity | | | | | | 2.2 | Increased energy access can be considered as a proxy for improved equity and is one of the key IEP objectives. |
| 13 | Special needs | | | | | | 2.2 | Increased energy access can be considered as a proxy for improving the situation of special needs groups and is one of the key IEP objectives. |
| 14 | Polluter pays | | | | | | 6.2 | The polluter pays principle is implicit in the Carbon Tax case. |
| 15 | Resource mobilisation | | | | | | | |
| | | 11 | 4 | 0 | 0 | 0 | | |

4.1.3.13 Integrated Resource Plan Update (2013)

4.1.3.13.1 Overview

The Integrated Resource Plan (IRP) is the main guiding document informing the development of the South African electricity sector. It identifies the preferred generation technologies (and assumed energy efficiency demand side management interventions) required to meet expected electricity demand up to 2030. The policy-adjusted scenario contained in the Integrated Resource Plan 2010-30 that was published in 2010 and promulgated in March 2011 still represents the official government position on future generation capacity in South Africa. In order to stay up-to-date, the IRP needs to be adjusted every two years to reflect both changing macroeconomic realities as well as technological progress of electricity generation and energy efficiency options. Until it is replaced by a full iteration, the IRP Update, which is assessed here, is intended to provide insight into critical changes for consideration on key decisions that will be taken before the new IRP is published.

4.1.3.13.2 Assessment summary

Similarly to the IEP, the IRP Update scores positively on a number of principles due to the kind of analysis it undertakes and the process of regular updating it is subject to. Because its assumptions include a portfolio of EE options, it is considered fully aligned with the principle of Resource Efficiency. Because its test cases include a portfolio of mitigation elements, it is considered fully aligned with the principles of Climate Change Mitigation Awareness and mitigation elements. The fact that it considers a carbon tax test case makes it fully aligned with the principle of Behaviour Change and partially aligned with the Polluter Pays principle, which is implicit in the carbon tax. The model in the IRP and its updated uses to forecast the different electricity supply mixes under the base and test cases is a cost-optimisation model, which brings it into full alignment with the principle of Cost-Effectiveness. In addition, the IRP reports emissions for the base case and the different test cases, which makes it fully aligned with the principle of Consideration of Emissions Implications. As the IRP is regularly updated, it is also fully aligned with the principle requiring mitigation elements to be dynamic and evidence based.

Another similarity with the IEP is that the nature of the IRP and its updates do not require plans for RD&I of mitigation elements, or identify the funding necessary for their implementation. However, its relationship with the IEP also creates some confusion with regard to a number of mitigation-specific principles, namely the Precautionary Principle, Sustainable Development Pillars, and the Risk Management, Equity and Special Needs principles. Considering it is the IEP's mandate to reflect on the impact of the energy sector on the wider economy and society, it could be argued this check is part of the IEP process and need not be included in the IRP and its updates. At the same time, since the IEP provides a platform for integration between planning processes in each of the energy carrier environments, it could also be argued that its wider objectives should be translated or reflected in the individual plans, such as the IRP, the liquid fuels roadmap etc. While beyond the scope of this project to resolve the inconsistency, it has been flagged by marking the relevant principles in the IRP gap assessment as not-aligned or not applicable.

The IRP Update was also scored using the high-level policy document scoring guide, although the same consideration as discussed for the IEP apply for the IRP Update as well.

Table 43 Integrated Resource Plan Update gap assessment

| | Principle | Alignment category | | | | | | Relevant section | Description |
|----|---|--------------------|-----|-----|-----|------|-----|------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate change mitigation awareness | ■ | | | | | | 1, 6 | The IRP update explicitly considers scenarios for climate mitigation strategies. |
| 2 | Consideration of emissions implications | ■ | | | | | | | GHG emissions per technology are one of the inputs into the modelling work underpinning IRP recommendations. |
| 3 | Resource efficiency | ■ | | | | | | 10 | The update assumes a higher level of market-driven EE compared to the 2010 IRP. |
| 4 | Research, development and innovation | | | | | | ■ | | |
| 5 | Mitigation elements | ■ | | | | | | 2 | The test cases all include various levels of climate mitigation elements. |
| 6 | Dynamic and evidence based | ■ | | | | | | 1 | The IRP should be updated every two years. This update includes more recent technology costs, as well as new demand projection. |
| 7 | Precautionary principle | | | ■ | | | | | |
| 8 | Sustainable development pillars | | | ■ | | | | | |
| 9 | Risk management, adaptation and other co-benefits | | | ■ | | | | | |
| 10 | Cost-effectiveness | ■ | | | | | | | The model used by the IRP process is a technology cost-optimisation model. |
| 11 | Behaviour change | ■ | | | | | | 6 | The IRP does provide a Carbon tax scenario which tries to estimate the impact of a carbon tax on the national energy mix. |
| 12 | Equity | | | ■ | | | | | |
| 13 | Special needs | | | ■ | | | | | |
| 14 | Polluter pays | | ■ | | | | | 6 | The polluter pays principle is implicit in the Carbon tax test case. |
| 15 | Resource mobilisation | | | | | | ■ | | |
| | | 7 | 1 | 5 | 0 | 0 | | | |

4.2 Policy gap assessment - recommendations

The policy gap analysis in the energy sector highlighted large differences in the levels of alignment with the NCCRP principles between the documents reviewed. Documents like the draft IEP (2013), the Standard Offer Policy to support the Energy Efficiency and Demand Side Management (2010), the Biofuel Industrial Strategy (2007) and the National Energy Efficiency Strategy (2005) display relatively high levels of alignment with the mitigation principles contained in the NCCRP, whereas there is very little alignment in the case of the White Paper on Energy (1998), the National Energy Act (2008), interestingly, the National Energy Efficiency Action Plan (2014).

In terms of **prioritising documents to engage with the relevant line departments to try and increase their alignment with the NCCRP principles**, four general principles are of particular importance, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

Looking at the energy sector documents with a focus on these principles, it is clear that the draft Second NEES Review, the draft IEP and the IRP Update are the only documents that are fully aligned with all four of them. A number of documents display content that is both aligned and in contradiction with one or more of these core principles.

The NEES and NEEAP for instance, are both fully aligned with all four, but also contain content that is in contradiction or not clear with respect to the Mitigation Element principle. The first document because it mentions low electricity costs as a driver for beneficiation, without questioning the impact this might have on the country's emissions, and the second because it is unclear about the future of a number of possible mitigation elements it describes. However, since the NEES Review is not in conflict with this principle, this shortcoming can be considered rectified for this document. For the case of the NEEAP, if the additional (i.e. those that are not already in their implementation phase) EE measures and programmes it suggests can be further elaborated on in on, it could easily be fully aligned with all four main NCCRP principles. This could reasonably be achieved with the next NEEAP update due in 2017.

The White Paper on Energy should be a priority in terms of mainstreaming the NCCRP mitigation principles as it contradicts itself on all but the Resource Efficiency principle. It is important that the NCCRP mitigation elements be applied consistently to any future updates of this document. Climate change should be recognised as a challenge and the role of South Africa's energy system in its mitigation should be clearly stated and remain a guiding principle throughout the document. Any aspirations for the country's energy system, be it utility-scale or small-scale, need to be put forward with due consideration of their impact on the energy system's GHG emissions. This does not necessarily mean there can be no actions that increase GHG emissions in the short-term. Such actions, however, should be recognised as leading to increased emissions and offset with additional reductions elsewhere in the energy system or their low carbon alternatives should be promoted in the medium-to-long-term.

Other documents related to the energy sector require less effort to become aligned with these principles: the NEA only needs to acknowledge climate change and the need for its mitigation, which could easily be included . The Biofuels Industrial Strategy and the Climate Change

Policy Framework for SOC need to pay more attention to resource efficiency, which is currently not addressed. Considering those are both high-level policy documents, general support for resource efficiency as one of the criteria for promoting specific mitigation actions would be sufficient, as this can be elaborated on in subsequent implementation plans.

4.3 Effectiveness of mitigation elements

4.3.1 Mitigation elements reviewed

For the energy sector, the following mitigation elements were assessed for their effectiveness:

- The Standard Offer policy in support of EE and DSM
- Biofuels Industrial Strategy (bioethanol and biodiesel together)
- NEEAP – EE measures for the mining and industry sectors (as a group of measures)
- NEEAP – EE measures for the commercial and public buildings (as a group of measures)
- NEEAP – EE measures for the residential sector (as a group of measures)
- NEEAP – EE measures for the transport sector (as a group of measures)
- NEEAP – EE measures for the power sector (as a group of measures)

4.3.2 Summary of results

Of the documents containing the mitigation measures assessed for their effectiveness, the NEEAP has generally been found to include measures with the highest likelihood of success. The Standard Offer Policy was found to have neglected a number of effectiveness criteria, but overall still stood a relatively good chance of being implemented successfully. Serious concerns however exist about the ability of the Biofuels Industrial Strategy to be implemented effectively.

In terms of effectiveness criteria, the documents reviewed indicate that funding for implementation of the assessed mitigation elements and the institutions required to implement or provide support to them are mostly in place and likely to contribute to their effectiveness. This was the case for all mitigation elements assessed. Furthermore, the necessary supporting infrastructure seems to be in place for all mitigation elements with the exception of biofuels. For most mitigation elements the logic underlying them seem to be sound as they are based on well-known and proven technologies if designed and implemented effectively. The only exception is again biofuel production, as it seen as a means to promote agricultural development and its role as a mitigation option is completely overlooked.

While the expected emission reductions have not been specified for any of the mitigation elements listed, their implementation will yield data from which those emission reductions can be calculated, with varying levels of accuracy. Again, this makes the likelihood of these mitigation elements being effective either medium or high for all mitigation elements except biofuels.

The effectiveness criteria contributing least to the likely effectiveness of the identified mitigation elements is Implementation Incentives (cost-effectiveness), which has only been partially assessed for biofuels and not at all for the other elements.

In terms of individual mitigation elements, the EE measures for the mining and industrial sectors outlined in the NEEAP is the mitigation element most likely to be effective, as most effectiveness criteria indicate an increased chance of success. EE measures for all other sectors covered by the NEEAP are also relatively likely to be successful, their main relative shortcoming being the available of data – estimates of emission reductions will be made with varying levels of success outside of the mining and industrial sectors.

Finally, biofuels as a possible mitigation option is least likely to be effective, which is partly due to the fact that it has not been framed as a mitigation option by the Biofuel Industrial Strategy, and partly by the fact that this is a high-level document which is not expected to include details on a number of effectiveness criteria. Consequently the Biofuels Industrial Strategy has primarily been included in this assessment to flag the areas which will need to receive special focus when future implementation plans for biofuels are developed.

Table 44 Mitigation element effectiveness summary - Energy

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Relative Effectiveness |
|------------------------|---|---|------------------------------|--|---|---|---|---|------------------------|
| | | Standard Offer for EEDSM in Public Facilities and Housing | Biofuels Industrial Strategy | National Energy Efficiency Action Plan - EE in industry and mining | National Energy Efficiency Action Plan - EE in commercial and public buildings sector | National Energy Efficiency Action Plan - EE in residential sector | National Energy Efficiency Action Plan - EE in transport sector | National Energy Efficiency Action Plan - EE in power sector | |
| Effectiveness criteria | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| 1 | Logic model (theory of change) | | | | | | | | 86% |
| 2 | Expected emissions reductions specified | | | | | | | | 57% |
| 3 | Time frame for implementation | | | | | | | | 71% |
| 4 | Regulatory environment | | | | | | | | 36% |
| 5 | State of technology | | | | | | | | 79% |
| 6 | Human capital | | | | | | | | 43% |
| 7 | Implementation incentives | | | | | | | | 7% |
| 8 | Funding for implementation | | | | | | | | 100% |
| 9 | Supporting infrastructure | | | | | | | | 93% |
| 10 | Institutions | | | | | | | | 100% |
| Relative effectiveness | | 60% | 30% | 80% | 75% | 75% | 75% | 75% | |

4.3.3 Effectiveness assessment by mitigation element

4.3.3.1 Standard Offer for EEDSM in Public Facilities and Housing

Overall, the standard offer for EEDSM in public facilities and housing is relatively likely to be effective, though a number of improvements are possible to increase its impact as a mitigation measure. The most important of those is defining strict timelines for its step-by-step implementation. Also missing are a comprehensive assessment of the regulatory environment to deduct whether it is conducive or not for the standard offer as a mitigation measure, as well as the measure's cost-effectiveness assessment.

These effectiveness criteria are assessed here as reducing the effectiveness of the standard offer as a mitigation measure due to lack of information; hence, they should be investigated as a matter of priority, to establish whether they might in fact act as a barrier or in support of the implementation of the mitigation measure in question.

4.3.3.2 Biofuels Industrial Strategy

Biofuels as described in the Biofuels Industrial Strategy are overall not likely to be effective as a mitigation option. As mentioned in section 4.3.2, this is partly due to the fact that they have not been framed as a mitigation option by the Strategy, and partly by the fact that this is a high-level document which is not expected to include details on a number of effectiveness criteria. The value of the effectiveness exercise here is thus twofold: on one hand, to point out that the Strategy does not frame biofuels as a mitigation option, thereby a priori reducing the likelihood of their effectiveness (reflected in a low score for the first principle), but most importantly, to point to aspects that should be elaborated in a future biofuels implementation plan to maximise the likelihood of their effectiveness as a mitigation measure.

With respect to the latter, a clear methodology to quantify possible GHG emissions avoided from displacing a certain amount of fossil fuels with biofuels will need to be specified. This is by no means an easy task – experience from countries with more ambitious biofuels targets has shown that a life-cycle assessment of biofuel value chains is a very complex exercise. Thus, much work will need to be done before the quantification of emission reductions will have a positive impact on the likelihood of biofuels being effective as a mitigation option. The implementation of biofuels is a complex process spanning multiple sectors, and a clear and coordinated implementation timeline would also be needed, as will be an up-to-date technology assessment. Furthermore, based on an ex-post assessment, it can be concluded that the regulatory environment has so far not been conducive to biofuels, one of the main obstacles being that their uptake was voluntary. This has recently changed, but the obligatory blending of biofuels has come too late to impact the initial target set out in the Biofuel Industrial Strategy. In any event, a biofuel implementation plan would need to re-assess the regulatory environment and its changes since the Strategy was published, to establish its current conduciveness.

The human capital aspect of biofuel implementation is not assessed at all by the Strategy, and consequently, no human capital development actions in support of biofuel production and use have as yet been put in place, which considerably reduces the likelihood of biofuels being an effective mitigation measure. Finally, the supporting infrastructure needs to be considered more carefully.

Table 45 Standard offer for EEDSM in public facilities effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | 6, | Describes the SO model, which reduces GHG emissions through improved EE. |
| 2 | Expected emissions reductions specified | | | | 7 | Emission reductions or energy savings in new buildings and from energy conservation will be calculated by an independent verifier, as will be those for energy savings from SWH, though only the latter are already estimated by the SO policy document. |
| 3 | Time frame for implementation | | | | | Time frame for implementation not specified. |
| 4 | Regulatory environment | | | | | The document does not provide sufficient information on the regulatory environment to judge its conduciveness. |
| 5 | State of technology | | | | | The document does not provide an assessment of technologies supported, but EE measures are well-established and non-controversial, so the likelihood they will be effective in this respect can be reasonably considered as "medium" even in absence of such an assessment. |
| 6 | Human capital | | | | 8 | Availability of human capital not assessed, but some training, capacity building and accreditation activities are suggested. |
| 7 | Implementation incentives | | | | | The SO Policy does not provide sufficient information to judge its assessment of the mitigation measure's cost-effectiveness. |
| 8 | Funding for implementation | | | | 4, 9 | The Regulator shall ensure that the energy efficiency resource standard (EERS) funding provision is included in the MYPD & government shall assist in mobilising funding for ESCOs for energy efficiency interventions. |
| 9 | Supporting infrastructure | | | | | The document does not provide an assessment of necessary supporting infrastructure, but EE measures generally do not need additional supporting physical infrastructure, so the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 10 | Institutions | | | | 6 | The SO model describes all institutions needed to implement it and assigns them clearly defined responsibilities. All required institutions already exist. |

Table 46 Biofuels effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|---------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | The mechanism through which the intervention is expected to reduce GHG emissions has not been described and considering that first generation biofuels (which are the focus of the Strategy) can have widely diverging carbon footprints based on a well-to-wheel basis, the Strategy should include this in its considerations. |
| 2 | Expected emissions reductions specified | | | | 3 | The feasibility study undertaken in support of the Strategy estimates SA would save approximately R 100 million per annum from GHG emission, however the assumed carbon price is not specified, so actual emissions savings cannot be calculated back. |
| 3 | Time frame for implementation | | | | | The period for the pilot phase (5 years) is mentioned and its end date can be deduced from the document, though no timeline is provided for the multitude of tasks and actions needed to achieve the target biofuel penetration in the pilot period. |
| 4 | Regulatory environment | | | | | Considering the 2% biofuels target has not been met, it is possible to provide an ex-post assessment of the regulatory environment as being uncondusive. If the assessment was done ex-ante, it would have been scored as low as well, because of leaving a number of issues unresolved (or rather, to be resolved in an implementation plan, which was never developed). One of the most notable regulatory failures of the Strategy itself was to not request an obligatory blending mandate of biofuels with mineral fuels. |
| 5 | State of technology | | | | | Not investigated. |
| 6 | Human capital | | | | 8.5 | Availability of human capital not assessed. The Strategy recommends that Government should ensure the training and capacity building of previously disadvantaged communities and emerging entrepreneurs to maximize transformation and the benefits inherent in this industry, however, no specifics as to which skills should be developed are given. |
| 7 | Implementation incentives | | | | 6.1, 7 | The section on "The strategy" discusses the support price for the biofuels given the assigned levy exemptions and compares them with oil prices. Options to support the production of biofuel feedstock are identified, but their costs are not sufficiently discussed. |
| 8 | Funding for implementation | | | | 4, 6.1, 6.8, 7, 8.3 | Identifies sugar companies as possible investors; Proposes that feedstock supply will be achieved by targeting existing agricultural support programmes such as Comprehensive Agricultural Support Programme (CASP) of the Department of Agriculture; Outlines the main elements of contracts between oil companies and biofuels producers that ensure long-term viability of both biofuels refining and feedstock growing processes; Propose specific fuel levy exemptions for both bioethanol and biodiesel (50% and 100% for biodiesel and bioethanol, respectively). |
| 9 | Supporting infrastructure | | | | 8.2 | The Strategy does acknowledge the point that the existing pipeline infrastructure cannot be used to transport biofuel and therefore identifies existing oil industry at the depots, however this may not always be feasible due to feedstock logistics. |
| 10 | Institutions | | | | 8.6 | All required institutions are in place. Document lays out the roles of various government agencies in achieving the objectives of the Strategy. |
| | | 2 | 2 | 6 | | |

While the Biofuels Industrial Strategy does identify refineries closest to the biofuels plants as preferred off takers to optimise biofuel economics, proximity with a refinery must be balanced with the demand of feedstock logistics, which might make such a suggestion sound sensible in theory, but work less well in practice.

4.3.3.3 NEEAP - EE in industry and mining

Overall, the EE measures for the industry and mining sectors as outlined in the NEEAP, are the mitigation measures most likely to be effective of those assessed for the energy sector. They are well-understood and have a proven track record, which makes them a credible mitigation option.

The NEEAP introduces the Energy Efficiency Target Monitoring System (EETMS) that will collect data from which emissions savings can be calculated. In addition, the EETMS data for this sector (as opposed to the other sectors covered by the NEEAP) will be supplemented with energy data from industrial users, the provision of which has been made mandatory by new regulation. Together, this will allow for a fairly accurate estimate of GHG emission reductions. This is why EE in industry and mining scored higher than the other sectors included in the NEEAP with regard to the specification of expected emission reductions.

Other factors that contribute to the high likelihood of the group of EE measures for industry and mining as outlined in the NEEAP being effective, are that timeframes for their implementation have been set, an institution or entity expected to bear the cost of implementation has been identified, and institutional frameworks have been clearly outlined. In addition, although a technology assessment and a supporting infrastructure assessment are both missing from the NEEAP, EE measures are well-established, have a proven track record and generally do not need additional supporting physical infrastructure, so the likelihood they will be effective in these respects can be reasonably considered as "high" even in absence of such assessments.

Three main areas where improvement is still necessary, are the lack of a cost-effectiveness assessment of the EE measures taking into consideration the available support measures and programmes, gaps in the regulatory environment and concerns around human capital availability, of which the second one is probably the most critical. The NEEAP correctly identifies a number of important barriers in the regulatory environment, and proposes solutions to some, although the single most important barrier to the effectiveness of the proposed EE measures in the sector, namely that they are not mandatory but aspirational, remains unanswered. Finally, the NEEAP does include a number of proposals to build human capital for EE, though it appears this has not been anchored in an assessment of available skills to install, operate and maintain the EE technologies in the sector, which makes the proposed interventions in this regard of questionable effectiveness.

Table 47 EE in industry and mining effectiveness assessment

| Effectiveness criteria | | Alignment category | | | National Energy Efficiency Action Plan - EE in industry and mining | |
|------------------------|---|--------------------|---|---|--|---|
| | | H | M | L | Relevant section | Description |
| 1 | Logic model (theory of change) | | | | | Energy efficiency options in the industry and mining sectors are well-understood and have proven to be effective mitigation measures internationally. |
| 2 | Expected emissions reductions specified | | | | 4.1.1 | The Energy Efficiency Target Monitoring System will collect data from which GHG emission savings can be estimated, though a detailed methodology for accurately calculating emission savings per sector is still missing. In addition, the introduction of regulations on the mandatory provision of energy data for industrial users will allow a much more detailed breakdown of energy uses per industrial sub-sector and hence any EE savings and GHG emission reductions attribution (compared to other sectors covered in the NEEAP). |
| 3 | Time frame for implementation | | | | 5.1.1 & 5.1.2 | Start and expected end date specified for all existing and possible future measures to encourage the uptake of EE in the sector, except where funding continuity could not be established. |
| 4 | Regulatory environment | | | | 2.4.3, 6 | Barriers in regulatory environment (i.e. disincentives on municipal level, non-mandatory approach) have been identified and solutions to some (but not all!) are proposed. The main barrier that remains is that all EE targets are aspirational! |
| 5 | State of technology | | | | | The document does not provide an assessment of technologies supported, but EE measures are well-established and non-controversial, so the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 6 | Human capital | | | | 2.3, 6 | A comprehensive human capital assessment is lacking, however, one of the new actions by Government to achieve the aspirational EE targets by 2015 is to improve competency level through training, specifically ESCOs and associated energy practitioners including energy auditors, energy managers and measurement and verification professionals (all sectors). The DoE is tasked with training of building inspectors, control officers, plumbing and construction industry, as well as adding capacity within the Department who understand municipal operations (rather than national). |
| 7 | Implementation incentives | | | | | All programmes and measures in support of EE in this sector are supported by clearly specified incentives, but their cost-effectiveness is not considered. |
| 8 | Funding for implementation | | | | 5.1 | A bearer of costs has been identified for all existing measures and programmes in support of EE. |
| 9 | Supporting infrastructure | | | | | Even though the document does not provide an assessment of necessary supporting infrastructure, it is known that EE measures generally do not need additional supporting physical infrastructure. Hence, the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 10 | Institutions | | | | 2.2.5, 5.1.1 | The current broad EE institutional framework is clearly outlined. The relevant institutions involved in implementing programmes and measures in support of EE in the sector are listed. |
| | | 7 | 2 | 1 | | |

4.3.3.4 NEEAP - EE in commercial and public buildings sector

Overall, the EE measures for the commercial and public buildings sector as outlined in the NEEAP, are relatively likely to be effective. They are well-understood and have a proven track record, which makes them a credible mitigation option. Other factors that contribute to the high likelihood of their effectiveness are that timeframes for their implementation have been set, an institution or entity expected to bear the cost of implementation has been identified, and the broad and sector-specific institutional frameworks have been clearly outlined. In addition, although a technology assessment and a supporting infrastructure assessment are both missing from the NEEAP, EE measures are well-established, have a proven track record and generally do not need additional supporting physical infrastructure, so the likelihood they will be effective in these respects can be reasonably considered as "high" even in absence of such assessments.

Several areas for improvement remain, starting with a lack of a methodology to calculate GHG emission avoided by the sector, although the data collected by the Energy Efficiency Target Monitoring System should allow for a first estimate. Furthermore, a cost-effectiveness assessment of the EE measures taking into consideration the available support measures and programmes is lacking, and crucially the regulatory environment has been found to be not fully conducive to the implementation of EE measures. The NEEAP correctly identifies a number of important barriers in the regulatory environment, and proposes solutions to some, although the single most important barrier to the effectiveness of the proposed EE measures in the sector, namely that they are not mandatory but aspirational, remains unanswered. Finally, the NEEAP does include a number of proposals to build human capital for EE, though it appears this has not been anchored in an assessment of available skills to install, operate and maintain the EE technologies in the sector, which makes the proposed interventions in this regard of questionable effectiveness.

4.3.3.5 NEEAP - EE in residential sector

Overall, the EE measures for the residential sector as outlined in the NEEAP, are relatively likely to be effective. They are well-understood and have a proven track record, which makes them a credible mitigation option. Other factors that contribute to the high likelihood of their effectiveness are that timeframes for their implementation have been set, an institution or entity expected to bear the cost of implementation has been identified, and the broad and sector-specific institutional frameworks have been clearly outlined. In addition, although a technology assessment and a supporting infrastructure assessment are both missing from the NEEAP, EE measures are well-established, have a proven track record and generally do not need additional supporting physical infrastructure, so the likelihood they will be effective in these respects can be reasonably considered as "high" even in absence of such assessments.

Table 48 EE in commercial and public buildings effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Energy efficiency options in the commercial and public building sectors are well-understood and have proven to be effective mitigation measures internationally. |
| 2 | Expected emissions reductions specified | | | | 4.1.1 | The Energy Efficiency Target Monitoring System will collect data from which GHG emission savings can be estimated, though a detailed methodology for accurately calculating emission savings per sector is still missing. |
| 3 | Time frame for implementation | | | | 5.2.1, 5.2.2 | Start and expected end date specified for all existing and possible future measures to encourage the uptake of EE in the sector, except where funding continuity could not be established. |
| 4 | Regulatory environment | | | | 2.4.3, 6 | Barriers in regulatory environment (i.e. disincentives on municipal level, non-mandatory approach) have been identified and solutions to some (but not all!) are proposed. The main barrier that remains is that all EE targets are aspirational. |
| 5 | State of technology | | | | | The document does not provide an assessment of technologies supported, but EE measures are well-established and non-controversial, so the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 6 | Human capital | | | | 2.3, 6 | Comprehensive human capital assessment is lacking, however, one of the new actions by Government to achieve the aspirational EE targets by 2015 is to improve competency level through training, specifically ESCOs and associated energy practitioners including energy auditors, energy managers and measurement and verification professionals (all sectors). The DoE is tasked with training of building inspectors, control officers, plumbing and construction industry, as well as adding capacity within the Department who understand municipal operations (rather than national). |
| 7 | Implementation incentives | | | | | All programmes and measures in support of EE in this sector are supported by clearly specified incentives, but their cost-effectiveness is not considered. |
| 8 | Funding for implementation | | | | 5.2 | A bearer of costs has been identified for all existing measures and programmes in support of EE. |

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---------------------------|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 9 | Supporting infrastructure | | | | | Even though the document does not provide an assessment of necessary supporting infrastructure, it is known that EE measures generally do not need additional supporting physical infrastructure. Hence, the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 10 | Institutions | | | | 2.2.5, 5.2.1 | The current broad EE institutional framework is clearly outlined. The relevant institutions involved in implementing programmes and measures in support of EE in the sector are listed. |
| | | 6 | 3 | 1 | | |

Table 49 EE in residential sector effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Energy efficiency options in residential sector are well-understood and have proven to be effective mitigation measures internationally. |
| 2 | Expected emissions reductions specified | | | | 4.1.1 | The Energy Efficiency Target Monitoring System will collect data from which GHG emission savings can be estimated, though a detailed methodology for accurately calculating emission savings per sector is still missing. |
| 3 | Time frame for implementation | | | | 5.3.1, 5.3.2 | Start and expected end date specified for all existing and possible future measures to encourage the uptake of EE in the sector, except where funding continuity could not be established. |
| 4 | Regulatory environment | | | | 2.4.3, 6 | Barriers in regulatory environment (i.e. disincentives on municipal level, non-mandatory approach) have been identified and solutions to some (but not all!) are proposed. The main barrier that remains is that all EE targets are aspirational. |
| 5 | State of technology | | | | | The document does not provide an assessment of technologies supported, but EE measures are well-established and non-controversial, so the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |

| Effectiveness criteria | | Alignment category | | | National Energy Efficiency Action Plan - EE in residential sector | |
|------------------------|----------------------------|--------------------|---|---|---|--|
| | | H | M | L | Relevant section | Description |
| 6 | Human capital | | | | 2.3, 6 | A comprehensive human capital assessment is lacking, however, one of the new actions by Government to achieve the aspirational EE targets by 2015 is to improve competency level through training, specifically ESCOs and associated energy practitioners including energy auditors, energy managers and measurement and verification professionals (all sectors). The DoE is tasked with training of building inspectors, control officers, plumbing and construction industry, as well as adding capacity within the Department who understand municipal operations (rather than national). |
| 7 | Implementation incentives | | | | | All programmes and measures in support of EE in this sector are supported by clearly specified incentives, but their cost-effectiveness is not considered. |
| 8 | Funding for implementation | | | | 5.3 | A bearer of costs has been identified for all existing measures and programmes in support of EE. |
| 9 | Supporting infrastructure | | | | | Even though the document does not provide an assessment of necessary supporting infrastructure, it is known that EE measures generally do not need additional supporting physical infrastructure. Hence, the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 10 | Institutions | | | | 2.2.5, 5.3.1 | The current broad EE institutional framework is clearly outlined. The relevant institutions involved in implementing programmes and measures in support of EE in the sector are listed. |
| | | 6 | 3 | 1 | | |

Several areas for improvement remain, starting with a lack of a methodology to calculate GHG emission avoided by the sector, although the data collected by the Energy Efficiency Target Monitoring System should allow for a first estimate. Furthermore, a cost-effectiveness assessment of the EE measures taking into consideration the available support measures and programmes is lacking, and crucially the regulatory environment has been found to be not fully conducive to the implementation of EE measures. The NEEAP correctly identifies a number of important barriers in the regulatory environment, and proposes solutions to some, although the single most important barrier to the effectiveness of the proposed EE measures in the sector, namely that they are not mandatory but aspirational, remains unanswered. Finally, the NEEAP does include a number of proposals to build human capital for EE, though it appears this has not been anchored in an assessment of available skills to install, operate and maintain the EE technologies in the sector, which makes the proposed interventions in this regard of questionable effectiveness.

4.3.3.6 NEEAP - EE in transport sector

Overall, the EE measures for the transport sector as outlined in the NEEAP, are relatively likely to be effective. They are well-understood and have a proven track record, which makes them a credible mitigation option. Other factors that contribute to the high likelihood of their effectiveness are that timeframes for their implementation have been set, an institution or entity expected to bear the cost of implementation has been identified, and the broad and sector-specific institutional frameworks have been clearly outlined. In addition, although a technology assessment and a supporting infrastructure assessment are both missing from the NEEAP, EE measures are well-established, have a proven track record and generally do not need additional supporting physical infrastructure, so the likelihood they will be effective in these respects can be reasonably considered as "high" even in absence of such assessments.

Several areas for improvement remain, starting with a lack of a methodology to calculate GHG emission avoided by the sector, although the data collected by the Energy Efficiency Target Monitoring System should allow for a first estimate. Furthermore, a cost-effectiveness assessment of the EE measures taking into consideration the available support measures and programmes is lacking, and crucially the regulatory environment has been found to be not fully conducive to the implementation of EE measures. The NEEAP correctly identifies a number of important barriers in the regulatory environment, and proposes solutions to some, although the single most important barrier to the effectiveness of the proposed EE measures in the sector, namely that they are not mandatory but aspirational, remains unanswered. Finally, the NEEAP does include a number of proposals to build human capital for EE, though it appears this has not been anchored in an assessment of available skills to install, operate and maintain the EE technologies in the sector, which makes the proposed interventions in this regard of questionable effectiveness.

Table 50 EE in transport sector effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Energy efficiency options in the transport sector are well-understood and have proven to be effective mitigation measures internationally. |
| 2 | Expected emissions reductions specified | | | | 4.1.1 | The Energy Efficiency Target Monitoring System will collect data from which GHG emission savings can be estimated, though a detailed methodology for accurately calculating emission savings per sector is still missing. |
| 3 | Time frame for implementation | | | | 5.4.1, 5.4.2 | Start and expected end date specified for all existing and possible future measures to encourage the uptake of EE in the sector, except where funding continuity could not be established. |
| 4 | Regulatory environment | | | | 2.4.3, 6 | Barriers in regulatory environment (i.e. disincentives on municipal level, non-mandatory approach) have been identified and solutions to some (but not all!) are proposed. The main barrier that remains is that all EE targets are aspirational. |
| 5 | State of technology | | | | | The document does not provide an assessment of technologies supported, but EE measures are well-established and non-controversial, so the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 6 | Human capital | | | | 2.3, 6 | A comprehensive human capital assessment is lacking, however, one of the new actions by Government to achieve the aspirational EE targets by 2015 is to improve competency level through training, specifically ESCOs and associated energy practitioners including energy auditors, energy managers and measurement and verification professionals (all sectors). The DoE is tasked with training of building inspectors, control officers, plumbing and construction industry, as well as adding capacity within the Department who understand municipal operations (rather than national). |
| 7 | Implementation incentives | | | | | All programmes and measures in support of EE in this sector are supported by clearly specified incentives, but their cost-effectiveness is not considered. |
| 8 | Funding for implementation | | | | 5.4 | A bearer of costs has been identified for all existing measures and programmes in support of EE. |

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---------------------------|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 9 | Supporting infrastructure | | | | | Even though the document does not provide an assessment of necessary supporting infrastructure, it is known that EE measures generally do not need additional supporting physical infrastructure. Hence, the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 10 | Institutions | | | | 2.2.5, 5.4.1 | The current broad EE institutional framework is clearly outlined. The relevant institutions involved in implementing programmes and measures in support of EE in the sector are listed. |
| | | 6 | 3 | 1 | | |

Table 51 EE in power sector effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Energy efficiency options in the power sector are well-understood and have proven to be effective mitigation measures internationally. |
| 2 | Expected emissions reductions specified | | | | 4.1.1 | The Energy Efficiency Target Monitoring System will collect data from which GHG emission savings can be estimated, though a detailed methodology for accurately calculating emission savings per sector is still missing. |
| 3 | Time frame for implementation | | | | 5.5.1, 5.5.2 | Start and expected end date specified for all existing and possible future measures to encourage the uptake of EE in the sector, except where funding continuity could not be established. |
| 4 | Regulatory environment | | | | 2.4.3, 6 | Barriers in regulatory environment (i.e. disincentives on municipal level, non-mandatory approach) have been identified and solutions to some (but not all!) are proposed. The main barrier that remains is that all EE targets are aspirational. |
| 5 | State of technology | | | | | The document does not provide an assessment of technologies supported, but EE measures are well-established and non-controversial, so the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|----------------------------|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 6 | Human capital | | | | 2.3, 6 | A comprehensive human capital assessment is lacking, however, one of the new actions by Government to achieve the aspirational EE targets by 2015 is to improve competency level through training, specifically ESCOs and associated energy practitioners including energy auditors, energy managers and measurement and verification professionals (all sectors). The DoE is tasked with training of building inspectors, control officers, plumbing and construction industry, as well as adding capacity within the Department who understand municipal operations (rather than national). |
| 7 | Implementation incentives | | | | | All programmes and measures in support of EE in this sector are supported by clearly specified incentives, but their cost-effectiveness is not considered. |
| 8 | Funding for implementation | | | | 5.5 | A bearer of costs has been identified for all existing measures and programmes in support of EE. |
| 9 | Supporting infrastructure | | | | | Even though the document does not provide an assessment of necessary supporting infrastructure, it is known that EE measures generally do not need additional supporting physical infrastructure. Hence, the likelihood they will be effective in this respect can be reasonably considered as "high" even in absence of such an assessment. |
| 10 | Institutions | | | | 2.2.5, 5.5.1 | The current broad EE institutional framework is clearly outlined. The relevant institutions involved in implementing programmes and measures in support of EE in the sector are listed. |
| | | 6 | 3 | 1 | | |

4.3.3.7 NEEAP - EE in power sector

Overall, the EE measures for the power sector as outlined in the NEEAP, are relatively likely to be effective. They are well-understood and have a proven track record, which makes them a credible mitigation option. Other factors that contribute to the high likelihood of their effectiveness are that timeframes for their implementation have been set, an institution or entity expected to bear the cost of implementation has been identified, and the broad and sector-specific institutional frameworks have been clearly outlined. In addition, although a technology assessment and a supporting infrastructure assessment are both missing from the NEEAP, EE measures are well-established, have a proven track record and generally do not need additional supporting physical infrastructure, so the likelihood they will be effective in these respects can be reasonably considered as "high" even in absence of such assessments.

Several areas for improvement remain, starting with a lack of a methodology to calculate GHG emission avoided by the sector, although the data collected by the Energy Efficiency Target Monitoring System should allow for a first estimate. Furthermore, a cost-effectiveness assessment of the EE measures taking into consideration the available support measures and programmes is lacking, and crucially the regulatory environment has been found to be not fully conducive to the implementation of EE measures. The NEEAP correctly identifies a number of important barriers in the regulatory environment, and proposes solutions to some, although the single most important barrier to the effectiveness of the proposed EE measures in the sector, namely that they are not mandatory but aspirational, remains unanswered. Finally, the NEEAP does include a number of proposals to build human capital for EE, though it appears this has not been anchored in an assessment of available skills to install, operate and maintain the EE technologies in the sector, which makes the proposed interventions in this regard of questionable effectiveness.

4.4 Effectiveness of mitigation elements – recommendations

The two implementation plans included in the assessment of the expected effectiveness of mitigation were the Standard Offer Policy to support the Energy Efficiency and Demand Side Management and the NEEAP. The Biofuels Industrial Strategy was also included, because despite it being a high-level policy document, it is focused on a specific mitigation option and does elaborate on a number of implementation aspects that can be assessed for their effectiveness as well as providing the opportunity to flag areas that will need to be addressed by a future implementation plan.

In terms of prioritising actions to increase effectiveness of the mitigation measures reviewed, the following is proposed for each of the documents reviewed:

- The NEEAP: Its next update should explicitly include an assessment of the cost-effectiveness of the proposed mitigation elements taking into consideration the available support measures and incentives to ensure that the elements are sufficiently attractive to implement. Furthermore, attention should be paid to remove remaining regulatory barriers to EE measures already identified, and undertaking a comprehensive assessment of the human capital required to implement the proposed EE measures/programmes. Finally, all sectors apart from the industry and mining sector will need to outline the necessary

mechanism/methodologies for considering the resulting avoided, as the data collected through the Energy Efficiency Target Monitoring System might not be sufficient.

- The Standard Offer Policy: The Policy is currently lacking a clearly defined time frame for implementation, an assessments of the regulatory environment, and an assessment of the cost-effectiveness of the proposed mitigation elements taking into consideration the available support measures and incentives.
- Finally, in order to take the Biofuels Industrial Strategy forward, an implementation plan needs to be developed that will ensure that the intervention is designed in a way that reduces emissions (based on a sound logic model) and estimates what the likely emissions reductions would be, specifies a clear time line for implementation, addresses any outstanding regulatory issues, considers the correct biofuels technologies to use, ensures sufficient human capital is available to implement the strategy, considers if biofuels production will be cost-effective when all available support and incentives are considered, and details how any required supporting infrastructure is to be put in place. Ensuring that the necessary institutions required to roll out biofuels at scale are in place, and that sufficient funds are available to start implementing the roll-out have already been addressed in the Strategy, and can be thus be easily transposed into the implementation plan.

The focus in the energy sector should primarily be on ensuring that more detailed implementation plans are developed for mitigation elements put forward in the sector's high level policy documents. Secondly, the existing implementation plans should be updated to include the missing and fully address incomplete effectiveness criteria.

5 INDUSTRY

5.1 Policy gap assessment

5.1.1 Documents reviewed

The following documents were included in the gap analysis:

- National Industrial Policy Framework (2007) (NIPF)
- New Growth Path (2011) (NGP)
- Industrial Policy Action Plan 2013-2016 (IPAP)
- Electric Vehicle Industry Road Map and Key Action plans (2013) (EV Roadmap)
- National Exporter Development Programme Publication (2013) (NEDP)
- Special Economic Zones Policy and Bill (2013) (SEZ Bill)
- Preferential Procurement Regulations (2011) in terms of Preferential Procurement Policy Framework Act (2000) (PP Regs)

In response to stakeholder comments at the Industry stakeholder workshop the National Energy Efficiency Strategy (2005) was included in the Energy sector analysis in Section 3.2. It was pointed out that a new version of the Special Economic Zones Policy and Bill was available. The 2012 version that was initially reviewed was consequently replaced by a 2013 version of the document. It was also suggested that the National Exporter Development Programme Publication (2013) be replaced by the National Export Strategy. The National Export Strategy, however, despite being drafted in 2000 was never formally accepted, and is currently being updated.⁶ As a result the document was not included in the analysis.

5.1.2 Summary of results

Table 52 shows that there are large differences in the levels of alignment with the NCCR principles of the documents reviewed. Documents like the Electric Vehicle Industry Road Map and Key Action Plans (2013) and the IPAP (2013) display relatively high levels of alignment with the mitigation principles contained in the NCCRP, whereas there is very little alignment in the case of the Special Economic Zones Policy and Bill (2012) and the Preferential Procurement Regulations (2011).

In terms of general principles, the highest level of alignment across documents was found for Support for Mitigation-related RD&I and Resource Efficiency. Climate Change Awareness was also present in most of the documents (albeit not always implemented fully within every document), with only the Preferential Procurement Regulations (2011) showing no mitigation awareness.

Consideration of Emissions Implications was however largely absent from most documents, with it only being included in three documents (NGP, IPAP and the EV Road Map), and only fully

⁶ See Gonzalez-Nunez, X. and Gous, A. (2013) *Review of the 2007 South African NES and present industrial policies*. Available [online]: <http://www.tips.org.za/national-export-strategy>

implemented within one of these three documents (EV Road Map). This is a worry since most of the documents included actions that could lead to increased GHG emissions over time.

An analysis of mitigation element-linked principles shows that the Resource Mobilisation principle was applied most consistently (being included, at least in part, in all relevant documents). Mitigation elements were also mostly based on a sound fact base and applied in a way that can respond to new information (with Dynamic and Evidence-based being the next most prevalent principle). There was also a strong focus on mitigation elements with positive co-benefits (particularly in terms of employment creation) and deploying measures aimed at changing producer and consumer behaviour.

The Precautionary Principle, however, was largely neglected. This despite the fact that many of the interventions put forward had recognised risks associated with their implementation. Despite a strong overall focus on social justice and income distribution in many documents, more often than not the impact of individual mitigation elements on equity, individuals with special needs, and sustainable development more broadly was not investigated. The Polluter Pays principle was also neglected. Importantly, given the scale of the effort required to move to a low carbon economy and the limited resources available to fund this transition in South Africa, ascertaining whether mitigation elements are cost effective has not received the attention it deserves.

A number of instances of mitigation principles being applied in a way contradictory to the NCCRP principles were identified. This holds even for documents that are generally quite well aligned. In a number of documents the same principle is applied in ways that are both aligned and non-aligned (or even contradictory) to the NCCRP principles. This indicates that there is still a fair amount of work to be done to ensure that policy documents are fully aligned with the NCCRP. It is heartening, however, that the NCCRP mitigation principles are widely utilised in policy documents in the industry sector – even if consistent application of these principles are still lacking.

Table 52 Summary of policy alignment in the Industry sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | Relative Alignment | |
|--------------------|---|--------|-------|-------|-------|-------|------------|-------|-------|--------|----------|--------|---------|-----|--------------------|--------|
| | NIPF | | NGP | | IPAP | | EV Roadmap | | NEDP | | SEZ Bill | | PP Regs | | | |
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | | |
| 1 | CC Mitigation awareness | Green | Brown | Green | Pink | Green | | | | Green | Pink | Green | Pink | | Pink | Green |
| 2 | Consideration of emissions implications | | Brown | Green | | Green | Brown | | | | Brown | | Brown | | Pink | Orange |
| 3 | Resource efficiency | Green | | Green | | Green | | | | Pink | Green | | | | Pink | Green |
| 4 | RD&I | Green | | Green | | Green | | | Green | | | | | | | Green |
| 5 | Mitigation elements | Green | Brown | Green | | Green | Pink | | | | Pink | | Pink | | Pink | Yellow |
| 6 | Dynamic and evidence based | Green | | | Pink | Green | | | | | | | | | | Green |
| 7 | Precautionary principle | | Brown | | Brown | Green | Brown | Brown | | | | | | | | Red |
| 8 | Sustainable development pillars | | Brown | | Pink | Green | | Green | | | | | | | | Yellow |
| 9 | Co-benefits | | Pink | Green | | Green | | Green | | | | | | | | Green |
| 10 | Cost-effectiveness | Green | | | Brown | Green | Brown | Green | Brown | | | | | | | Orange |
| 11 | Behaviour change | Green | | | Pink | Green | | Green | | | | | | | | Green |
| 12 | Equity | | Pink | Green | | | Pink | Green | Brown | | | | | | | Orange |
| 13 | Special needs | | Pink | | Pink | | Pink | Green | | | | | | | | Orange |
| 14 | Polluter pays | | Pink | | Pink | | Pink | Green | | | | | | | | Orange |
| 15 | Resource mobilisation | Green | | Green | | Green | | Green | | | | | | | | Green |
| Relative alignment | | Yellow | | Green | | Green | | Green | | Orange | | Yellow | | Red | | |

5.1.3 Detailed assessment by document

5.1.3.1 National Industrial Policy Framework (2007)

5.1.3.1.1 Overview

The National Industrial Policy Framework (NIPF) provides the broad framework for the implementation of industrial policy in South Africa and outlines government's preferred path to industrialisation. It identifies broadly the types of activities to be prioritised and identifies key cross-cutting and sector-specific constraints that curtail the development of these sectors. 13 strategic programmes are proposed to address the constraints and exploit any opportunities that may exist within these sectors. In addition, key principles and processes are put in place to guide the development of detailed sector strategies and Key Action Plans (KAPs) targeting specific sectors and sub-sectors.

By outlining the principles, processes and criteria used to both prioritise sectors for industrial policy interventions and develop the strategies what will facilitate these interventions, the NIPF can serve as a powerful tool to ensure that climate change mitigation considerations are mainstreamed into the implementation of industrial policy in South Africa. Industrial policy, by its very nature, is expected to influence GHG emissions through its impact on energy use, spatial development, and industrial structure. It is important that the emissions implications of industrial policy actions are explicitly considered and clearly outlined.

5.1.3.1.2 Assessment summary

The NIPF is a high level strategy which includes few mitigation elements. The document is partially or fully (Resource Efficiency) aligned with three of the five general mitigation principles (although a contradiction is found with respect to Mitigation Elements). The document does, however, not display an awareness of climate change considerations, and considering the emissions implications of actions is not required or supported. Actions are supported in the document that may increase emissions, and thus these two general principles are judged as being applied in a manner that contradicts the aims of the NCCRP principles. Given the significant impact that industrial policy can have on emissions in the long term, it is important that these contradictions are addressed as soon as possible.

Table 53 NIPF policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | CON | | | 7.2.1 | GHG emissions not included in assessment of potential impact of sector with respect to sector targeting (factors included: employment, value-addition, diversification of production and exports, technology development and broad based empowerment). While there are mentions of resource efficiency in the document, these do not directly influence sector targeting or implementation of industrial policy broadly. |
| | | | PAL | | | | | 1.2.1 | NIPF endeavours to facilitate structural change (away from commodities) towards knowledge economy in long term mentioned. |
| 2 | Consideration of emissions implications | | | | CON | | | 1.1.1 | Target growth rate of 6% mentioned without consideration of environmental impacts at policy design level. |
| 3 | Resource efficiency | FAL | | | | | | 2.4.1 | Efficiency of infrastructure (traditional and modern [telecoms]) promoted. |
| | | | | | | | | 13 | Systematically measuring and benchmarking various aspects of firm-level efficiency is highlighted as important aspect of industrial upgrading. |
| 4 | Research, development and innovation | | PAL | | | | | 2.5.1, 14 | Strong emphasis on research, development and innovation in support of structural change and move to knowledge economy (but not directly linked to mitigation). |
| 5 | Mitigation elements | | PAL | | | | | 7.2.2 | Biofuels mentioned, but not in context of mitigation. |
| | | | PAL | | | | | 13 | Systematically measuring and benchmarking various aspects of firm-level efficiency is highlighted as important aspect of industrial upgrading. |
| | | | | | CON | | | 4.2.5 | Relatively cheap electricity mentioned as resource to drive industrialisation. Given when the NIPF was released, this statement was assumed to have referred to cheap coal-fired electricity as other sources of cheap electricity was not available locally. |
| 6 | Dynamic and evidence based | | PAL | | | | | 1.6.1 | Regular review of NIPF required, which is likely to include mitigation elements. But this is not explicitly stated. |
| | | | PAL | | | | | 5.2.3, 7.2.1 | Self-discovery process as outlined in the NIPF is aimed at generating up-to-date and relevant information. |
| | | | PAL | | | | | 7.2.2 | Regular monitoring and evaluation cycles are called for in Key Action Plans. |
| 7 | Precautionary principle | | | | CON | | | 7.2.2 | Biofuels carry identified risks in terms of food security that have not been acknowledged. No mention was made that Biofuels Strategy or other policy guidance will determine the way biofuels are developed. |
| 8 | Sustainable development pillars | | | | CON | | | 7.2.1 | Biofuels carry identified risks in terms of food security that have not been acknowledged. No mention was made that Biofuels Strategy or other policy guidance will determine the way biofuels are developed. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-------|---|-------------|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | | |
| 10 | Cost-effectiveness | | | | | | 7.2.1 | Cost-benefit analysis of alternative policy responses is required. | |
| 11 | Behaviour change | | | | | | 8.5 | Industrial financing is to be deployed to facilitate industrial upgrading (but mitigation not mentioned). | |
| 12 | Equity | | | | | | | | |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | 5.2.4 | Key Action Plans need to be supported by sufficient human and financial resources. | |
| | | 4 | 8 | 4 | 5 | 0 | | | |

As expected with a high level strategy, few mitigation elements were included. The NIPF contains one contradictory statement, in that relatively low cost electricity is mentioned as a driver of industrialisation. Given the range of electricity generation options available at the time, this comment probably referred to coal-fired electricity generation. Given changes in electricity pricing since 2007, it is likely that this statement will be absent of future incarnations of the NIPF.

With respect to mitigation element-linked principles, the document is fully or partially aligned with four, silent on four, and contradicts the NCCRP principles with respect to the remaining two. In both cases this is due to possible interventions to support development of biofuels being mentioned without a discussion of the possible negative impact of biofuels on food security.

The scoring guide for high level policy frameworks and strategies was utilised.

5.1.3.2 New Growth Path (2011)

5.1.3.2.1 Overview

The New Growth Path (NGP) lays out a strategy to address the unsustainable levels of unemployment in South Africa and to move South Africa to a more “developed, democratic, cohesive and equitable economy” (NGP, 2011:6). It aims to meet specific growth and employment targets while supporting the transition to a greener economy in the medium to long term. In order to meet these goals, the NGP attempts to combine the Industrial Policy Action Plan interventions with interventions and work programmes in rural development, science and technology, education and skills development, labour, social development and target sector initiatives.

The NGP attempts to facilitate structural changes in the economy, actively support certain activities, and lead South Africa to a more labour-intensive growth model. The activities undertaken as part of its implementation are therefore expected to impact on South Africa’s GHG emissions trajectory. It is therefore important that the NGP be aligned with the mitigation approaches and objectives in the NCCRP.

5.1.3.2.2 Assessment summary

The NGP is largely aligned with the NCCRP principles with regards to general mitigation principles. It is fully aligned in terms of awareness of the need for mitigation activities and the promotion of resource efficiency, while further alignment is possible regarding support for mitigation element-linked RD&I and the identification and presentation of mitigation elements. An important area where the NGP contradicts the NCCRP principles is the lack of quantification of the likely GHG emissions impacts of the various interventions it puts forward. This is a significant oversight given the level of ambition and potential impact of NGP interventions.

The NGP is not aligned with the NCCRP principles with respect to a number of mitigation-related principles, and contradicts the Precautionary and Cost-effectiveness Principles by not considering the risks associated with nuclear energy generation or assessing the cost-effectiveness of the numerous (and often large) interventions it proposes. The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

Table 54 New Growth Path policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|---|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | p6, 8 | Document aims to create "greener economy" over the medium to long term. Trade-off between present costs and future benefits of a green economy are highlighted. |
| | | | | | | | | p13 | Far-reaching changes to global economy are expected as result of efforts to reduce climate change. South Africa has carbon-intensive economy. Mitigation efforts will have heavy costs, but also create opportunities for new industries. |
| | | | | | | | | p15 | Acknowledgement that dependence on minerals value chain led to high emissions intensity. |
| | | | | | | | | p18 | Environmental outcomes explicitly mentioned as one of the indicators of success in the NGP. |
| | | | | | | | | p43 | Development Finance Institutions called upon to fund green growth. |
| 2 | Consideration of emissions implications | | | | | | | p18 | Environmental outcomes is mentioned as one of indicators of the indicators of success of the NGP. |
| 3 | Resource efficiency | | | | | | | p24 | Public sector Infrastructure investment advocated to increase efficiency throughout economy. |
| | | | | | | | | p32 | Comprehensive support for energy efficiency supported. |
| 4 | Research, development and innovation | | | | | | | p20 | Support for "green technologies" proposed. |
| | | | | | | | | p31 | Technological innovation seen as opportunity, particularly in renewable energy technologies. Emulation, adaption and diffusion of technologies called for. |
| | | | | | | | | p42 | Need for greater R&D support for green technologies identified. |
| 5 | Mitigation elements | | | | | | | p28 | Emphasis on expansion of both freight and commuter rail transport included. |
| | | | | | | | | p28 | Development of renewable energy industry supported. |
| | | | | | | | | p31 | Production of biofuels targeted. |
| | | | | | | | | p32 | Comprehensive support for energy efficiency proposed. |
| | | | | | | | | p32 | Recycling schemes proposed. |
| | | | | | | | p57 | Government called upon to identify hydro and other green electricity generation options in the region (Southern and Central Africa) | |
| 6 | Dynamic and evidence based | | | | | | | | |
| 7 | Precautionary principle | | | | | | | Various | Options like biofuel production and hydro power have been proposed without consideration of possible negative impacts. No mention was made that Biofuels Strategy or other policy guidance will determine the way biofuels are developed. |
| 8 | Sustainable development pillars | | | | | | | | Addressed in general, but not relating to mitigation elements. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | Various | Co-benefits beyond employment not were not considered. |
| 10 | Cost-effectiveness | | | | | | | Various | Cost-effectiveness of interventions not assessed (or importance highlighted) despite advocating a number of interventions. |
| 11 | Behaviour change | | | | | | | | Not mentioned in relation to mitigation elements. |
| 12 | Equity | | | | | | | Various | Strong general emphasis on reducing income inequality in document, but impact or burden of specific mitigation elements not addressed. |
| 13 | Special needs | | | | | | | | Not mentioned in relation to mitigation elements. |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | p43 | Development Finance Institutions called upon to fund green growth |
| | | | | | | | | p59-61 | Various sources of public sector funding considered. Sources of international funding for considered to green the economy (FDI, donors). |
| | | | | | | | | p40 | Skills development is mentioned as one of the issues to address with financial resources raised. |
| | | 5 | 16 | 5 | 2 | 1 | | | |

5.1.3.3 Industrial Policy Action Plan 2013/2014 – 2015/2016

5.1.3.3.1 Overview

The annually updated Industrial Policy Action Plan (IPAP) provides the blueprint for government's industrial policy interventions. Its main objective is to “prevent industrial decline and support the growth and diversification of South Africa’s manufacturing sector” (IPAP, 2013). It is informed by the National Development Plan and fits within the strategic direction of the New Growth Path and the National Industrial Policy Framework.

The IPAP guides the industrial policy activities of the dti and other departments that collaborate with to implement industrial policy initiatives or that are responsible for activities that influence industrial development (like transport and energy provision). The IPAP also guides and influences the industrial development activities of provincial and local government authorities. By providing direction to the implementation of industrial development activities and initiatives, the IPAP has an even greater and more direct impact on industrial (and related) GHG emissions than the NIPF and the NGP.

5.1.3.3.2 Assessment summary

The IPAP is relatively well aligned with the NCCRP principles. It is partially or fully aligned with all the general principles, although there are some instances where consideration of emissions implications is lacking for specific actions advocated in the document. The lack of consideration of the possible impact of IPAP interventions on GHG emissions means that it will not be possible to flag instances where investments are likely to lead to an emissions path that is inconsistent with the NCCRP principles before the investments are made (and the resulting emissions-generating activities are in operation). This runs the risk of scarce resources being deployed on future stranded assets, or alternatively on carbon lock-in that may make it difficult to meet the NCCRP’s mitigation objectives. There are also some instances where it is not clear whether actions that could potentially have mitigation implications will actually result in a reduction in emissions from the sector.

The IPAP is well aligned with mitigation element-linked principles, with there being partial or full alignment with seven of the ten principles. That said, the document does contain instances where two of these principles are also applied in a way contradictory to the NCCRP principles. The cost-effectiveness of a number of actions with potential mitigation benefits is not considered, and the precautionary principle is not adhered to with respect to nuclear energy. The issues of behaviour change, impact on individuals with special needs and the polluter pays principle have not been addressed.

The scoring guide for high-level policies and strategies was applied in the policy gap assessment.

Table 55 IPAP policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|--|------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | p8 | Development of environmentally sustainable industrial strategy a priority. |
| | | | | | | | | p12 | Industrialisation linked to development of energy-efficient, less carbon-intensive growth strategy designed to limit wasteful resource consumption and mitigate the environmental impact of development. |
| | | | | | | | | p119 | Explicit link to NCCRP in document. |
| 2 | Consideration of emissions implications | | | | | | | p11 | No mention of possible emissions implications of expansion of manufacturing (not integrated into support for priority sectors). Impact of expansion of target sectors on GHG emissions not considered (not integrated into support for priority sectors). |
| | | | | | | | | p20 | No mention of possible emissions implications of increased mineral beneficiation. |
| | | | | | | | | p46 | Milestones for development of technical standards for carbon footprinting of products and organisations set. |
| 3 | Resource efficiency | | | | | | | p12 | Industrialisation linked to development of growth strategy designed to limit wasteful resource consumption. |
| 4 | Research, development and innovation | | | | | | | p40 | Need for public sector financing instruments to target support for commercialisation of innovation and new technologies (Green industries one of IPAP focus sectors). |
| | | | | | | | | p46 | Processes and milestones aimed at creating technical standards for green industries will have RD&I benefits. |
| | | | | | | | | p67 | Number of RD&I support mechanisms in place. In principle covers green industries, but green industries sectoral fund not yet under development. |
| 5 | Mitigation elements | | | | | | | p11 | Aim to move South Africa to a knowledge economy. |
| | | | | | | | | p41 | Industrial financing supporting upgrading of industrial facilities and processes, including energy efficiency. |
| | | | | | | | | p44, 46, 47 | Setting mandatory technical standards that will support development of green industries (including electric and gas-propelled vehicles). |
| | | | | | | | | p48, 92 | Development of biofuels technical standards and direct support for biofuels industry (including second generation biofuels). |
| | | | | | | | | p49 | Development of technical standards for nuclear energy industry. |
| | | | | | | | | p50 | Review of compulsory specifications for coal stoves and heaters. |
| | | | | | | | | p78 | Need to ensure that low emissions technologies (including electric vehicles) are incorporated throughout SA motor industry. |
| | | | | | | | | p103 | Support for forestry sector. |
| | | | | | | | | p120 | Support for structural change towards value-adding, labour-intensive and less energy-intensive sectors. |
| | | | | | | p120 | Develop industrial policy roadmap to meet DEA-determined GHG mitigation objectives for industrial sectors. | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | | p122 | Direct support for development of renewable energy sector (including localisation requirements). |
| | | | | | | | | p123 | Direct support for development of energy efficiency sector (including localisation requirements). |
| | | | | | | | | p135 | Development of local nuclear energy sector (including localisation requirements). |
| | | | | | | | | p141 | Support of local electricity prepayment meter manufacturing (including smart meters). |
| 6 | Dynamic and evidence based | | | | | | | p10 | Key Action Plans (KAPs) for sectors updated, replaced or removed for priority sectors during every annual update of IPAP. |
| 7 | Precautionary principle | | | | | | | p92 | Possible impact of biofuels on food security highlighted. |
| | | | | | | | | p135 | Possible negative impacts of nuclear energy not considered |
| 8 | Sustainable development pillars | | | | | | | p93 | Biofuels production incentive to target employment creation and procurement from emerging and smallholder farmers. EIAs funded, but for implementation not strategic reasons. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | p93 | Biofuels production incentive to target employment creation and procurement from emerging and smallholder farmers. |
| | | | | | | | | p122 | Employment and industrial development objectives related to local content requirements in renewable energy sector. |
| | | | | | | | | p123 | Employment and industrial development objectives related to local content requirements in energy efficiency sector. |
| | | | | | | | | p135 | Employment and industrial development objectives related to local content requirements in energy efficiency sector. |
| | | | | | | | | p141 | Employment and industrial development objectives related to local content requirements electricity prepayment meter manufacturing. |
| 10 | Cost-effectiveness | | | | | | | p93 | Cost-benefit analysis of biofuels production indicates economic benefit will outweigh cost of support to the sector. |
| | | | | | | | | p122 | Cost-effectiveness of localisation in renewable energy sector not addressed. |
| | | | | | | | | P123 | Cost-effectiveness of localisation in energy efficiency sector not addressed. |
| | | | | | | | | P135 | Cost-effectiveness of localisation in nuclear sector not addressed. |
| | | | | | | | | p141 | Cost-effectiveness of localisation in electricity prepayment meter manufacturing not addressed. |
| 11 | Behaviour change | | | | | | | p40 | Industrial financing used to incentives behaviour in target sectors (including green industries, renewable energy, energy efficiency) |
| 12 | Equity | | | | | | | | IPAP seeks to address income inequality, but no mention of considering impact of individual interventions. |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | p24 | Sufficient funding and human resources are necessary to implement industrial policy interventions. |
| | | 17 | 14 | 5 | 5 | 2 | | | |

5.1.3.4 Electric Vehicle Industry Road Map and Key Action plans (2013)

5.1.3.4.1 Overview

The Electric Vehicle (EV) Industry Road Map and Key Action Plans aim to establish an EV industry in South Africa that will in turn lead to increased investment, employment creation and human capital accumulation. This is to be achieved through creating the legislative frameworks that allow EVs to be used on public roads in South Africa, and supporting the development and production of EVs and EV components locally.

Since the roll-out of EVs have significant mitigation potential in South Africa, it is important that measures aimed at ensuring this outcome are consistent with the mitigation principles contained in the NCCRP.

5.1.3.4.2 Assessment summary

The EV Industry Road Map and Key Action Plans document is well aligned with the NCCRP. All the general principles included in the NCCRP are applied fully, with the only doubt remaining being whether the local production of EVs and components will indeed lead to lower costs and greater uptake of EVs (compared to, for instance, allowing the tariff-free importation of EVs to South Africa).

In terms of mitigation element-linked principles, the only areas of misalignment related to the environmental impact of large-scale battery manufacturing and disposal not being addressed, the cost effectiveness of measures to support the EV industry not being assessed, and the potential equity implications of mandatory public sector EV purchases coupled with consumer subsidies for the private purchase of EVs not being considered. Sufficient attention is also not paid to how the funds required to implement measures to support and grow the EV industry will be sourced.

The scoring guide for implementation plans was applied in the policy gap assessment.

Table 56 EV Roadmap and KAP policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | p4 | Strong case for EVs in light of SA's GHG emissions reduction pledges. GHG savings should be quantified annually. |
| 2 | Consideration of emissions implications | | | | | | p2, 4 | Since GHG emissions reductions is one of the main reasons mentioned for supporting EV roll-out, emissions implications is included in decision-making. Estimate of percentage of state vehicle fleet to constitute EVs by 2020 is provided, this should enable the calculation of emissions implications of action plan. |
| 3 | Resource efficiency | | | | | | p6 | Investment incentives aimed at increasing economies of scale in EV production. |
| | | | | | | | p11 | Intelligent charging systems to optimize electricity use during charging. |
| 4 | Research, development and innovation | | | | | | p2 | Increase scale of local EV market is expected to lead to increased FDI and technological advancement. |
| | | | | | | | p5 | Investment incentives expected to support development of new technologies and RD&I skills. Should support local automotive design capacity and capability. |
| | | | | | | | p9 | Energy storage RD&I directly supported. |
| 5 | Mitigation elements | | | | | | p2-3 | Policies to ensure that electric vehicles comprise 5 percent of total annual fleet requirements by the State and State Owned Enterprises comprise of Electric Vehicles from 2015, increasing by 5 percent until 2020. Risk factors and ways of mitigating risks included in document. |
| | | | | | | | p5 | Investment incentives to stimulate local production of electric vehicles and components. Risk factors and ways of mitigating risks included in document. |
| | | | | | | | p7 | Legislative framework (including technical requirements) required for introduction, safe manufacturing and operation of EVs in South Africa to be developed. Expected to increase EV uptake. Risk factors and ways of mitigating risks included in document. |
| | | | | | | | p9 | Energy storage RD&I expected to reduce battery costs, which should support EV uptake. Risk factors and ways of mitigating risks included in document. |
| | | | | | | | p11 | Encourage off peak charging of EVs and optimize electricity usage during charging expected to reduce running costs of EV and increase uptake. Risk factors and ways of mitigating risks included in document. |
| | | | | | | | p13 | Tax incentives for purchasers expected to increase EV uptake. Risk factors and ways of mitigating risks included in document. |
| | | | | | | | p17 | Increase the level of integrated planning in the areas of transportation, urbanization and enabling infrastructure supports public transport and EV (and other low-carbon fuel technologies) roll-out and uptake. Risk factors and ways of mitigating risks included in document. |
| 6 | Dynamic and evidence based | | | | | | p3 | Up-to-date information relating to value and specification of public sector fleet purchases provided. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 7 | Precautionary principle | | | | | | | p9 | Issues surrounding the environmental impact of batteries not addressed. |
| 8 | Sustainable development pillars | | | | | | | p4 | Environmental and economic benefits emphasised, but impact on social pillar neglected. |
| | | | | | | | | p17 | Integrated planning in the areas of transportation, urbanization and enabling infrastructure expected to have positive impact on all three legs of sustainable development. |
| 9 | Risk management , adaptation and other co-benefits | | | | | | | p4 | Provision made for monitoring jobs and RD&I impacts. |
| | | | | | | | | p7 | Co-benefits from local EV industry expected to include: employment creation, value addition, technological advancement, foreign currency earnings and general business confidence. |
| 10 | Cost-effectiveness | | | | | | | p4 | Expectation of cost savings in public sector. Total cost of ownership to be shown to highlight savings in terms of fuel and maintenance (compared to ICE). Information to back up claim not provided. |
| | | | | | | | | p6 | Cost-effectiveness of production incentives not addressed. |
| | | | | | | | | p10 | Risk that cost of energy storage RD&I can be high and bear little fruit mentioned. Ways to reduce cost proposed. |
| | | | | | | | | p14 | Risk that cost of tax incentives for EV purchasers may outweigh costs is mentioned. Tax incentives to be thoroughly researched and costed to reduce this risk. |
| 11 | Behaviour change | | | | | | | p11 | Preferential tariff schemes and intelligent charging methods to incentivise EV ownership. |
| | | | | | | | | p13 | Tax incentives for purchasers expected to increase EV uptake. |
| | | | | | | | | p15 | Development of EV Consumer Awareness and Public Education Campaigns to increase EV uptake. |
| 12 | Equity | | | | | | | p18 | Integrated planning in the areas of transportation, urbanization and enabling infrastructure expected to reduce transport costs for poor. |
| | | | | | | | | p2; p13 | Equity impact of EV purchase requirement in public sector and purchaser subsidies not assessed. |
| 13 | Special needs | | | | | | | p18 | Document mentions that poor are set to benefit from integrated transport planning, but needs not explicitly considered. |
| 14 | Polluter pays | | | | | | | p13 | Vehicle carbon emissions tax example of polluter pays principle in action. |
| 15 | Resource mobilisation | | | | | | | p4; 10 | Document calls for possible R&D skills development benefits of electric vehicle support to be clearly demonstrated. Partnerships promoted as mechanism to promote skills transfer in development of battery technology. No mention of financial resources in document. |
| | | 13 | 16 | 0 | 3 | 0 | | | |

5.1.3.5 National Exporter Development Programme (2013)

5.1.3.5.1 Overview

The National Exporter Development Programme (NEDP) is the dti and Trade and Investment South Africa (TISA)'s flagship programme to enhance the export readiness of South African firms. The aim is to use exports as a way of increasing economic development locally. The NEDP is an implementation tool that forms part of the National Export Strategy, and is to be updated annually.

The NEDP is largely built around capacity building, training and assisting firms to gain access to export markets through information sharing and leveraging of contacts. There is also an element of assisting firms to pool resources for RD&I and meeting technical standards.

5.1.3.5.2 Assessment summary

There is a lack of alignment between the NEDP and the NCCRP principles. While the importance of mitigation is recognised, and RD&I related to exports that are in line with a green economy is supported, there is no consideration of the potential impact of increased exports (and the increase in manufacturing underpinning it) on GHG emissions. The issue of resource efficiency is also not directly addressed, and neither are mitigation elements identified that could help to reduce the emissions impact of increased export activities.

The scoring guide for implementation plans was applied in the policy gap assessment.

Table 57 National Exporter Development Programme policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | 1.2 | Exports that contribute to the green economy specifically targeted. |
| | | | | | | | | 3.7 | Importance of targeting potential exporters of environmental-friendly products highlighted. TISA should target such firms. |
| 2 | Consideration of emissions implications | | | | | | | | Emissions implications of increased exports (and likely related increased local production) not considered. |
| 3 | Resource efficiency | | | | | | | | |
| 4 | Research, development and innovation | | | | | | | 5.11 | Export villages (voluntary alliance of firms or co-operatives) and co-operatives more generally could pool resources to undertake research and development of new and improved products. |
| 5 | Mitigation elements | | | | | | | | |

5.1.3.6 Special Economic Zones Bill (2013)

5.1.3.6.1 Overview

The Special Economic Zones (SEZ) Bill governs the designation, promotion, development, operation and management of Special Economic Zones. A SEZ is an economic development tool that utilises support measures to attract investment and technology to predetermined locations to promote industrial activity and exports. SEZs will be used to target designated economic activities through the use of support measures and systems that could include incentives, business support services, streamlined approval processes and the provision of infrastructure.

SEZ can impact GHG emission levels through the extent and type of activities that they support.

5.1.3.6.2 Assessment summary

The SEZ bill is not aligned with the NCCRP principles. No explicit mention of environmental goods and services or climate change mitigation is included in the bill. Activities situated in SEZs are, however, required to comply with government's industrial development objectives, and could thus include green industries. This, coupled with the fact that the Minister of Trade and Industry may prescribe the type of service and business that may be located in a SEZ, creates scope for some SEZs to serve as low carbon development zones. This possibility is however not considered.

Furthermore, the GHG emissions impact of developing industrial complexes aimed at facilitating growth of manufacturing, tradable services and the beneficiation of mineral and natural resource is not considered. No processes for identifying mitigation elements or specifying standards (like energy efficiency or renewable energy requirements) to ensure that SEZ activities are undertaken in as climate-friendly a way as possible are considered.

Given the nature of the bill, direct support for mitigation-related RD&I is outside the scope of the document. And since no mitigation elements were identified in the document, the 10 mitigation element-linked NCCRP principles are not applicable.

The scoring guide for legislation and acts was applied in the policy gap assessment.

Table 58 SEZ Bill policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|--|--------------------|-----|-----|-----|------|-----|-------------------------|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 Climate Change Mitigation awareness | | | | | | | 22(2) | SEZ Bill does require applicants for SEZ status to further government’s industrial development objectives. This could include support for green industries and move to green economy. |
| | | | | | | | 23(5) | The Minister may prescribe the type of service and business that may be located in a SEZ in order to achieve the purpose of SEZ. There is thus scope to use SEZs as low carbon development zones. |
| | | | | | | | 5, 6(1), 6(2), 23(3)(d) | The Minister may prescribe the type of service and business that may be located in a Special Economic Zone in order to achieve the purpose of Special Economic Zone. There is thus scope to use SEZs as low carbon development zones. Sector development zones are included as one of the categories of SEZs that can be developed. |
| 2 Consideration of emissions implications | | | | | | | 4(2), 22(2), 27 | GHG emissions impact of developing industrial complexes aimed at facilitating growth of manufacturing, tradable services and the beneficiation of mineral and natural resource is not considered. |
| 3 Resource efficiency | | | | | | | 34(f) | SEZ Operator must adopt rules and regulations for businesses within the SEZ that “promote their ... efficient operation”. |
| 4 Research, development and innovation | | | | | | | | |
| 5 Mitigation elements | | | | | | | | No consideration of measures (e.g. minimum energy efficiency standards for certain types of regularly procured items) to minimise or reduce the emissions from goods and services procured on a preferential basis. |

5.1.3.7 Preferential Procurement Regulations (2011)

5.1.3.7.1 Overview

The Preferential Procurement Regulations are issued in terms of the Preferential Procurement Policy Framework Act (5/2000) and replace earlier regulations issued in 2001. They set out the procedures and requirements to follow in order to provide preferential treatment to suppliers of goods and service to the public sector that are either empowered in terms of the Broad-Based Black Economic Empowerment Act (53 of 2003) or who supply locally sourced goods or services.

Table 59 Preferential Procurement Regulations policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Consideration of emissions implications | | | | | | | | Emissions implications of switching to procuring goods and services on a preferential basis not considered. |
| 3 | Resource efficiency | | | | | | | | |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | | No measures proposed (e.g. minimum energy efficiency standards for certain types of regularly procured items) to minimise or reduce the emissions from goods and services procured on a preferential basis |

5.1.3.7.2 Assessment summary

The Preferential Procurement Regulations make no mention of climate change mitigation. There is no requirement to report emissions associated with goods and services procured on a preferential basis, or how it may compare with the emissions from goods and services procured on a non-preferential basis. No mention of resource efficiency is made, and neither are any measures proposed (e.g. minimum energy efficiency standards for certain types of regularly procured items) to minimise or reduce the emissions from goods and services procured on a preferential basis.

Given the nature of the regulations, the support of mitigation-focused RD&I is not applicable. And since no mitigation elements were identified in the document, the 10 mitigation element-linked NCCRP principles are not applicable. The scoring guide for regulations was applied in the policy gap assessment.

5.2 Policy gap assessment - recommendations

In terms of **prioritising documents to engage with the relevant line departments to try and increase their alignment with the NCCRP principles, four general principles are of particular importance**, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

The Electric Vehicle Industry Road Map is the only document that is fully aligned with all four of these principles. The NGP and the IPAP also scored well in terms of these principles, and both documents included content that demonstrated partial or full aligned with all four. The NGP, in fact, only included one unclear statement with respect to these four principles (related to Climate Change Mitigation Awareness), and thus does not warrant further attention.

The SEZ Policy and Bill (2013) and the Preferential Procurement Regulations (2011) were both relatively badly aligned with these four NCCRP principles, and **should therefore be prioritised** to try and increase alignment. The SEZ Policy and Bill (2013) contained statements that were not aligned or contradictory to all four of the principles apart from Resource Efficiency. It was fully aligned with this principle, and also included a statement that was partially aligned with Climate Change Mitigation Awareness (in addition to the not aligned statement already mentioned). The Preferential Procurement Regulations (2011) are not aligned with any of the four principles.

The **National Exporter Development Programme (2013)** performed poorly, but since it is very narrowly focused on training interventions, a **better use of time and resources** for mainstreaming purposes would probably be to use the Policy Gap Analysis Framework developed in this document to **review the level of alignment of the revised National Export Strategy with the NCCRP mitigation principles when it is released for comment.**

The **NIPF** contained statements that were contradictory to three of the four relevant principles (with Resource Efficiency being the exception – here the NIPF was fully aligned with the Mitigation Elements principle), and is therefore also a candidate for prioritised attention – particularly given that it creates the broad framework governing all industrial policy interventions in South Africa. There are however **no indications at present that this document is to be reviewed**, and from a practical perspective the IPAP has a more direct influence over the implementation of industrial policy.

The IPAP is reviewed annually, which provides ample opportunity to try and increase its alignment with the NCCRP principles. While the IPAP contained statements that were partially (Consideration of Emissions Implications) and/or fully (Climate Change Mitigation Awareness, Resource Efficiency and Mitigation Elements) aligned with all four principles, it did also included content that was contradictory to the Consideration of Emissions Implications principle and not aligned with the Mitigation Elements principle. This stems from the possible emissions impact of a number of actions proposed in the IPAP not having been considered. It is therefore suggested that the DEA focus its attentions on ensuring that considerations of the emissions implications of all the actions proposed in the IPAP is included in the document. This would also address the uncertainty that exists around the likely impact of some of the actions proposed in the IPAP that could have mitigation benefits.

5.3 Effectiveness of mitigation elements

5.3.1 Mitigation elements reviewed

Three documents considered during the policy gap assessment were classified as implementation plans or regulations, and therefore eligible to be included in the assessment of the likely effectiveness of the mitigation elements contained in these documents. Of these three documents, the Exporter Development Programme Publication and the Preferential Procurement Regulations, however, did not contain any mitigation elements. Consequently only the Electric Vehicle Industry Road Map and Action Plan met the criteria to be included in the mitigation element effectiveness assessment.

The IPAP, however, included a number of mitigation elements and plays a critical role in guiding the practical implementation of industrial policy (and thus also the mitigation elements this encompasses) in South Africa. For that reason the IPAP was included in the mitigation element effectiveness assessment. Only mitigation elements that included Key Action Plans in the IPAP were included in the assessment to ensure that sufficient information was available to allow an assessment of the likely effectiveness of the mitigation elements. It should be noted, however, that as a high-level policy document it is not expected to contain the level of detail that would be included in implementation plans. As such it is likely to receive artificially low scores in the assessment of the likely effectiveness of the mitigation elements it proposes. The IPAP assessment should therefore be viewed as an indication of the kind and level of detail of information that should be included in the implementation plans that are expected to flow from this document.

5.3.2 Summary of results

As is expected, the Electric Vehicle Industry Road Map and Action Plan scored well in the assessment of the likely effectiveness of its proposed mitigation action (increased uptake of electric vehicles in South Africa). In fact, the only factor that casted a doubt on the ability of the mitigation element to be implemented effectively (i.e. did not indicate at least a medium chance of success) was a lack of quantification of the emissions reductions expected from the successful implementation of this mitigation element. While this does not necessarily cast doubt on whether electric vehicles can be rolled out effectively, this does indicate a risk that the mitigation element may not be designed in a way to maximise emissions reductions (by, for instance focussing on other benefits like employment creation or energy security without adequately considering the trade-off with emissions reductions), this oversight is unlikely to jeopardise the roll-out of electric vehicles in South Africa. It can thus be concluded that the Electric Vehicle Industry Road Map and Action Plan was designed in a way that provides it with a good chance of being successfully implemented.

This fact notwithstanding, the effectiveness assessment showed that a number of the factors likely to underpin the success of an electric vehicle roll-out are still under development. It is therefore important that the implementation of the Electric Vehicle Industry Road Map and Action Plan is carefully monitored to ensure that the planned activities are undertaken in a timely manner.

Table 60 Mitigation element effectiveness summary - Industry

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Relative Alignment |
|------------------------|---|--|--|--|----------------------------------|--|---|--|--|--------------------|
| | | Electric Vehicle Industry Road Map and Action Plan | IPAP: Industrial upgrading (energy efficiency) | IPAP: Support to the biofuels industry | IPAP: Support to forestry sector | IPAP: Localisation of renewable energy | IPAP: Localisation of energy efficiency products and services | IPAP: Development of local nuclear energy sector | IPAP: Electricity Prepayment Meter Manufacturing | |
| Effectiveness criteria | | | | | | | | | | |
| 1 | Logic model (theory of change) | | | | | | | | | 25% |
| 2 | Expected emissions reductions specified | | | | | | | | | 0% |
| 3 | Time frame for implementation | | | | | | | | | 100% |
| 4 | Regulatory environment | | | | | | | | | 38% |
| 5 | State of technology | | | | | | | | | 31% |
| 6 | Human capital | | | | | | | | | 25% |
| 7 | Implementation incentives | | | | | | | | | 25% |
| 8 | Funding for implementation | | | | | | | | | 25% |
| 9 | Supporting infrastructure | | | | | | | | | 19% |
| 10 | Institutions | | | | | | | | | 88% |
| Relative alignment | | 60% | 40% | 25% | 40% | 35% | 35% | 40% | 25% | |

Also as expected, there are still a number of gaps in the design of the mitigation elements contained in the IPAP. All mitigation elements contained at least four areas that reduced the likelihood that they would be able to be implemented effectively (as indicated by effectiveness criteria that received “Low” scores). In fact, in all but one case (Industrial Upgrading) it was not even clear whether the mitigation elements would lead to emissions reductions. The basic premises (logic model) on which these mitigation elements are based would thus need to be more clearly outlined (by, for instance, specifying the exact nature of the intervention or the technology to be used) to inspire confidence in their value as mitigation elements. Given that the IPAP is a high-level policy document, however, this is should not necessarily be seen as a weakness, since that is exactly what is expected to happen as implementation plans are developed to operationalise these mitigation elements.

The gap in the likely effectiveness of mitigation elements contained in the IPAP and the Electric Vehicle Industry Road Map and Action Plan (which is an implementation plan that was developed in response to IPAP guidance), however, clearly highlights the importance of developing implementation plans to take the mitigation elements contained in the IPAP forward. While the number of mitigation elements contained in the IPAP is thus encouraging, the fact that only one detailed implementation plan linked to a mitigation element has flowed from it is not.

In terms of the effectiveness criteria, the fact that most of the mitigation elements assessed stem from a high-level policy document reduces the value of the results obtained. What is clear, however is that beyond the institutional setup required and the allocating of time frames for implementation, none of the other effectiveness criteria yielded encouraging results. For none of the options considered (including the roll-out of electric vehicles from an implementation plan) was the emissions reduction expected from the successful implementation of the mitigation element calculated. As mentioned earlier, this may have a negative impact on the level of mitigation achieved.

5.3.3 Effectiveness assessment by mitigation action

5.3.3.1 Electric Vehicle Industry Road Map and Action Plan

Overall, the Electric Vehicle Industry Road Map and Action Plan scores well in the assessment of the likely effectiveness of its proposed mitigation action (increased uptake of electric vehicles in South Africa).

The only factor that casts a doubt on the ability of the mitigation element to be implemented effectively (i.e. did not indicate at least a medium chance of success) is a lack of quantification of the emissions reductions expected from the successful implementation of this mitigation element. While this does indicate a risk that the mitigation element may not be designed in a way to maximise emissions reductions (by, for instance focussing on other benefits like employment creation or energy security without adequately considering the trade-off with emissions reductions), this oversight is unlikely to jeopardise the roll-out of electric vehicles in South Africa.

To maximise the likelihood that the role-out of electric vehicles in South Africa is successful, however, further work related to the state of technology (and particularly battery technology), the availability of human capital, ensuring electric vehicles are (and are recognised as being) cost-

effective, and the availability of supporting infrastructure like charging stations, is required. Tax incentives aimed at reducing the upfront cost of electric vehicles also still needs to be implemented.

In general, however, it is concluded that the Electric Vehicle Industry Road Map and Action Plan was designed in a way that provides it with a good chance of being successfully implemented

5.3.3.2 IPAP - Industrial upgrading

There are a number of shortcomings in the design of the Industrial Upgrading mitigation element within the IPAP. In fact, half the factors analysed indicated a low likelihood that the mitigation element will be will effectively implemented. Industrial upgrading is however a mature and well-understood mitigation option, responsibility for implementation has been allocated and the necessary institutions to support the mitigation element is in place. Key milestones for the development of the mitigation element have also been put in place. Most of the concerns relate to issues not yet considered, rather than known factors complicating the roll-out of the options. It is therefore possible that most of the current issues could be addressed during the development of a detailed implementation plan.

Table 61 Electric Vehicle Industry Road Map and Action Plan effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | p2 | Not included in document, but electric vehicles are a well-known mitigation element that has been proven to be successful internationally. |
| 2 | Expected emissions reductions specified | | | | | Not addressed. |
| 3 | Time frame for implementation | | | | p2 | Time frame for implementation is specified. |
| 4 | Regulatory environment | | | | p7 | Processes for addressing shortcomings in regulatory environment is proposed in document. |
| 5 | State of technology | | | | p9, 5, 15 | Processes are in place to address technology shortcomings (energy storage), local manufacturing of electric vehicles and components, and increase consumer awareness and acceptance of electric vehicles. |
| 6 | Human capital | | | | p4, 5, 9, 10 | Processes proposed to address human capital needs in areas of government procurement of electric vehicles, R&D skills in electric vehicle and component manufacture, R&D skills and skills transfer in energy storage. |
| 7 | Implementation incentives | | | | p4, 5, 10, 11 | Illustration of total cost of ownership of electric vehicles in comparison to internal combustion engine required as risk mitigation option. Production incentives for electric vehicle manufacturing proposed to enable economies of scale to be met (and costs to decrease). Storage research aimed at reducing battery costs. Preferential electricity tariffs and intelligent charging methods proposed as ways to reduce operating cost of electric vehicles. |
| 8 | Funding for implementation | | | | p13 | Variety of tax incentives proposed to reduce the purchase price of electric vehicles. Reduction of purchase price coupled with reduce operation costs (Principle 7) will increase likelihood of accessing funding for electric vehicle purchases if rolled out. |
| 9 | Supporting infrastructure | | | | p17, 11 | Measures to ensure urban infrastructure design is conducive to electrical vehicles are proposed, and process put in place to roll out charging infrastructure. |
| 10 | Institutions | | | | p7, various | Training, standards etc. needs considered throughout the document and particularly within regulatory framework section. Current institutions should be sufficient to handle electric vehicle roll-out, although additional resources and adjustment of infrastructure may be required. Responsibility for implementation is allocated. |
| | | 3 | 6 | 1 | | |

Table 62 IPAP – Industrial upgrading effectiveness assessment

| Effectiveness criteria | Alignment category | | | Relevant section | IPAP - Industrial upgrading (energy efficiency) | Description |
|------------------------|---|---|---|------------------|---|---|
| | H | M | L | | | |
| 1 | Logic model (theory of change) | | | | | Not included in document, but energy efficiency is mature and well-understood mitigation elements. |
| 2 | Expected emissions reductions specified | | | | | |
| 3 | Time frame for implementation | | | | p43 | Key milestones provided. |
| 4 | Regulatory environment | | | | | |
| 5 | State of technology | | | | | |
| 6 | Human capital | | | | p43 | Upgrading of "people" one of the programme's aims, but no analysis of needs included. |
| 7 | Implementation incentives | | | | p42 | Aim of the programme is to provide incentives that will increase the cost-effectiveness (and competitiveness) of local manufacturing. |
| 8 | Funding for implementation | | | | p42 | Funding for implementation included in the suite of incentives considered. |
| 9 | Supporting infrastructure | | | | | |
| 10 | Institutions | | | | p41, 43 | Programme will be implemented via existing institutions. Responsibility for implementation is allocated. |
| | | 3 | 2 | 5 | | |

5.3.3.3 IPAP - Support to biofuels industry

There are a number of shortcomings in the design of the design of support or the biofuels industry (from a mitigation perspective) as outlined in the IPAP. In fact, the only factors providing strong support for this element is the fact that key milestone for its implementation has been specified, and that a conducive regulatory environment has been put in place. As described in the IPAP, thus, there is a low likelihood of this element being implemented successfully.

It should be noted, however, that the content of the Department of Energy (DoE)'s Biofuels Industrial Strategy was not considered in this assessment. The DoE is listed as the lead department in the development of biofuels. So it is possible that the biofuels implementation plan will be issued by the DoE in response to the Biofuels Industrial Strategy and not by the dti in response to the IPAP, and that most of the issues identified here will be addressed drawing on the DoE's knowledge of biofuels. It is interesting, though, that the Biofuels Industrial Strategy is not mentioned in the IPAP.

5.3.3.4 IPAP - Support to forestry sector

There are a number of shortcomings in the design of the mitigation element within the IPAP. In fact, half the factors analysed indicated a low likelihood that the mitigation element will be effectively implemented. Furthermore, the basic premises (logic model) on which this mitigation element is based needs to be more clearly outlined (by, for instance, specifying the exact nature of the intervention, the current use of the land earmarked for afforestation, etc.) to inspire confidence in its value as a mitigation element.

5.3.3.5 IPAP - Localisation of renewable energy

There are a number of shortcomings in the design of the mitigation element within the IPAP, with half the factors analysed indicated a low likelihood that the mitigation element will be effectively implemented. While renewable energy is a well-known and proven mitigation element, it is not clear whether increased localisation of the renewable energy industry will have additional mitigation benefits. Theoretically this is a possibility, but not a certainty. If increased economies of scale lead to lower capital costs, then localisation can support the increased uptake of renewable energy. If scale economies are not created locally, however, then costs can increase due to reduced access to cheaper components manufactured internationally. This would most likely have a negative impact on the uptake of renewable energy locally. The basic premises on which this mitigation element is based is thus not clear enough to inspire confidence in its value as a mitigation element.

5.3.3.6 IPAP - Localisation of energy efficiency products and services

The analysis of the localisation of energy efficiency products and services yielded a similar picture to that of renewable energy in the previous section (although there are minor differences in the rating of individual effectiveness criteria). While energy efficiency in itself is a well-known and proven mitigation element, it is not clear whether increased localisation will have additional mitigation benefits.

Table 63 IPAP – Support to the biofuels industry effectiveness assessment

| | Effectiveness criteria | Alignment category | | | Relevant section | IPAP - Support to the biofuels industry Description |
|----|---|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | |
| 2 | Expected emissions reductions specified | | | | | |
| 3 | Time frame for implementation | | | | p93 | Key milestones included in document. |
| 4 | Regulatory environment | | | | p93 | Document states that "...significant progress in the development of an investor-friendly regulatory environment for the biofuels sector" have been made. |
| 5 | State of technology | | | | | |
| 6 | Human capital | | | | | |
| 7 | Implementation incentives | | | | p93 | Role of incentive programme is to ensure biofuel production is cost-effective. Mandatory blending requirements support demand for biofuels. |
| 8 | Funding for implementation | | | | | |
| 9 | Supporting infrastructure | | | | | |
| 10 | Institutions | | | | | |
| | | 2 | 1 | 7 | | |

Table 64 IPAP – Support to forestry sector effectiveness assessment

| | Effectiveness criteria | Alignment category | | | Relevant section | IPAP - Support to forestry sector |
|----|---|--------------------|---|---|------------------|---|
| | | H | M | L | | Description |
| 1 | Logic model (theory of change) | | | | | |
| 2 | Expected emissions reductions specified | | | | | |
| 3 | Time frame for implementation | | | | p104 | Key milestones specified in document. |
| 4 | Regulatory environment | | | | p104 | Processes in place to address issues around water licenses (considered to be most significant regulatory barrier). |
| 5 | State of technology | | | | | Forestry is a well-entrenched industry in South Africa, so technology is not expected to be a barrier to implementation. |
| 6 | Human capital | | | | p104 | "Providing skills and technology for forest development and business management" is part of the support proposed in document. |
| 7 | Implementation incentives | | | | | Issue of cost-effectiveness or incentives to enhance competitiveness of plantations not addressed. |
| 8 | Funding for implementation | | | | p104 | Financial resources to support at least two forestry projects proposed. |
| 9 | Supporting infrastructure | | | | | |
| 10 | Institutions | | | | p104 | Existing institutions should be sufficient to implement element, Responsibility for implementation allocated. |
| | | 2 | 3 | 5 | | |

Table 65 IPAP – Localisation of renewable energy effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | IPAP - Localisation of RE |
|------------------------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | Description |
| 1 | Logic model (theory of change) | | | | | Renewable energy is proven mitigation energy, but the impact of localisation programme on GHG emissions is not clear. |
| 2 | Expected emissions reductions specified | | | | | |
| 3 | Time frame for implementation | | | | p122 | Key milestones are specified. |
| 4 | Regulatory environment | | | | | |
| 5 | State of technology | | | | p121 | Solar and Wind Sector Development Strategy approved (although it is unclear whether this strategy was ever publicly released - it was not possible to access this document via an internet search). Solar PV localisation study completed. |
| 6 | Human capital | | | | p121 | Document lists development of skills to support renewable energy rollout as one of the reasons for pursuing localisation. |
| 7 | Implementation incentives | | | | | |
| 8 | Funding for implementation | | | | | |
| 9 | Supporting infrastructure | | | | p121 | Addressed in Solar and Wind Sector Development Strategy, but this strategy does not seem to be publicly available. |
| 10 | Institutions | | | | p122 | No new institutions required. Responsibility for implementation allocated. |
| | | 2 | 3 | 5 | | |

Table 66 IPAP – Localisation of energy efficiency products and services effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Energy efficiency is a well-known mitigation option. Impact of localisation on GHG emissions is unclear. |
| 2 | Expected emissions reductions specified | | | | | |
| 3 | Time frame for implementation | | | | p123 | Key milestones are included in the document. |
| 4 | Regulatory environment | | | | p48 | Development of standards included in the document. |
| 5 | State of technology | | | | p123 | Document states that "number of products have already been identified as having industrial potential." |
| 6 | Human capital | | | | | |
| 7 | Implementation incentives | | | | p123 | Identification of products that can be produced profitably locally still needs to be undertaken. |
| 8 | Funding for implementation | | | | | |
| 9 | Supporting infrastructure | | | | | Issue not mentioned in document, supporting infrastructure unlikely to be a major concern in the localisation of energy efficiency products and services. Needs to be confirmed before a "High" score can be achieved. |
| 10 | Institutions | | | | | Existing institutions likely to be sufficient. Responsibility for implementation has been assigned. |
| | | 2 | 3 | 5 | | |

5.3.3.7 IPAP - Localisation of nuclear components and services

The analysis of the localisation of nuclear components and services is again similar to that of the localisation in both the renewable energy and energy efficiency fields undertaken above, with questions surrounding the mitigation impact of increased localisation in the sector. Only four, as opposed to five for the aforementioned two elements, of the factors analysed indicated difficulty in implementing the element. The technology to be employed, however, is likely to have important implications for the likely effectiveness of this element.

5.3.3.8 IPAP - Electricity Prepayment Meter Manufacturing

The local manufacturing of prepaid electricity meters is the mitigation element surrounded by the most uncertainty. While it has the same average effectiveness score as support for biofuels, it is believed that a lot of the issues surrounding support for biofuels stems from the fact that the dti is not the lead department responsible for its implementation, and as such much of the information around that option is likely to reside with the lead implementer (the DoE). The dti however is the lead implementer of the Electricity Prepayment Meter Manufacturing element. The fact that seven of the ten factors considered raise serious concerns about the ability to effectively implement this option, it is not possible to assess its effectiveness at this stage.

Given the high-level nature of the IPAP, however, this does not mean that the option is likely to fail as a mitigation element, but it does emphasise that there are a lot of areas that will need to be satisfactorily addressed in an implementation plan before this option will inspire confidence as a mitigation element.

Table 67 IPAP – Localisation of nuclear components and services effectiveness assessment

| Effectiveness criteria | Alignment category | | | Relevant section | IPAP Localisation of nuclear components and services Description |
|------------------------|--------------------|---|---|------------------|---|
| | H | M | L | | |
| 1 | | | | | Nuclear energy is well-known mitigation action, but the impact of localisation on GHG emissions is unclear. |
| 2 | | | | | |
| 3 | | | | | Key milestones are included in the document. |
| 4 | | | | p49 | Development of standards included in document. |
| 5 | | | | p135 | Improving technology transfer from international vendors is mentioned in the document, and it is expected to be a benefit of localisation, but no indication that a technology assessment was undertaken to assess the extent of localisation possible, or what technology options would most easily lend themselves to localisation. |
| 6 | | | | p136 | Part of the rationale for localisation is that it would bring with it skills transfer. |
| 7 | | | | p136 | Development of incentive package is part of programme. |
| 8 | | | | p135-136 | Joint ventures is expected to bring with it access to international funding. |
| 9 | | | | | |
| 10 | | | | p136 | Institutions around nuclear safety and operation are already in place. Responsibility for implementation has been assigned. |
| | 2 | 4 | 4 | | |

Table 68 IPAP – Electricity Prepayment Meter Manufacturing effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | |
| 2 | Expected emissions reductions specified | | | | | |
| 3 | Time frame for implementation | | | | p143-144 | Key milestones included in the document. |
| 4 | Regulatory environment | | | | p142 | Issues have been identified, but they are not addressed by proposed actions. |
| 5 | State of technology | | | | p143 | Activities that are suited to local production have been identified. |
| 6 | Human capital | | | | | |
| 7 | Implementation incentives | | | | | Local content requirements and tariffs on imports are likely to increase the cost of meters. |
| 8 | Funding for implementation | | | | | |
| 9 | Supporting infrastructure | | | | | |
| 10 | Institutions | | | | | Existing institutions are likely to be sufficient. Responsibility for implementation has been assigned. |
| | | 2 | 1 | 7 | | |

5.4 Effectiveness of mitigation elements – recommendations

In terms of effectiveness criteria, it was clear that beyond the institutional setup required and the allocating of time frames for implementation, none of the other factors that increase the likelihood of a mitigation element being successfully implemented was consistently applied. For none of the options considered (including the roll-out of electric vehicles from an implementation plan) was the emissions reduction expected from the successful implementation of the mitigation elements calculated. This may have a negative impact on the level of mitigation achieved.

The only implementation plan included in the assessment of the expected effectiveness of mitigation actions, the Electric Vehicle Industry Road Map and Action Plan, was found to have generally been designed in a way that is conducive to it being successfully implemented. The only factor likely to reduce the expected effectiveness of the mitigation element is the lack of an estimation of potential emissions reductions – which may influence the design of actions linked to this mitigation element. Although the implementation plan is well designed, six of the factors required to underpin the success of an electric vehicle roll-out are still under development. Provided that progress in implementing the Electric Vehicle Industry Road Map and Action Plan implementation plans is carefully monitored, and that the actions included in the document are successfully undertaken, there is thus a high likelihood that the mitigation element will be successful and no further action is required.

As highlighted in the summary section above, all the mitigation elements contained in the IPAP included at least four areas that reduced the likelihood that they would be able to be implemented effectively. In fact, in all but one case (Industrial Upgrading) the basic premises (logic model) on which these mitigation elements are based would need to be more clearly specified to inspire any confidence in their value as mitigation elements. This should be a priority, since before this is done there is no guarantee that the effort required to develop these mitigation elements to a level where they can be included in implementation plans will be worthwhile from a mitigation perspective.

In terms of Industrial Upgrading, the emphasis should be on addressing the following factors currently casting doubt on the likely success of this mitigation element, namely: estimating expected emissions reductions, considering the state of relevant technology and the regulatory environment within which it will be deployed, and ensuring that sufficient human capital and supporting infrastructure is available to support the implementation of the mitigation element.

Overall, however, the gap in the likely effectiveness of mitigation elements contained in the IPAP and the Electric Vehicle Industry Road Map and Action Plan, highlights the importance of developing implementation plans to take the mitigation elements contained in the IPAP forward. **The focus in the industry sector should thus be on ensuring that more mitigation elements are based on sound logic and included in detailed implementation plans.**

6 TRANSPORT

6.1 Policy gap assessment

6.1.1 Documents reviewed

The following priority documents were included in the gap analysis:

- National Land Transport Act (Act 5 of 2009) (NLTA)
- National Land Transport Strategic Framework, 2006 (NLTSF)
- National Ports Act (Act 12 of 2005) (NPA)
- South Africa National Roads Agency Limited and National Roads Act (1998) (SANRAL)
- Civil Aviation Act (Act 13 of 2009) (CAA)
- Draft Non-Motorised Transport Policy (2008) (DNMTP)
- White Paper on National Transport Policy (1996) (WPNTF)
- Draft South African Maritime Transport Policy (2008) (DSAMTP)
- Public Transport Strategy (2007) (PTS)
- National Transport Master Plan (2012) (NATMAP)
- Moving South Africa: A transport Strategy for 2020 (1998) (MSA)
- Road Freight Strategy, 2011 (RFS)
- National Land Transport Transition Act (2000) (NLTTA)
- Interim National Passenger Rail Plan (2005) (INPRP)
- National Freight Logistics Strategy (2005) (NFLS)
- Rural Transport Strategy for South Africa (2007) (RTSSA)
- National Spatial Development Perspective (2006) (NSDP)

No additional documents were identified by stakeholders during the consultation process for this sector.

6.1.2 Summary of results

Table 69 below shows the summary of the documents assessed against the NCCRP principles. While most of the documents include a partial or full alignment with the Mitigation Elements principle, fewer consider climate change aspects directly (through an explicit recognition of the sector's contribution to climate change), and very few address any of the mitigation-specific principles. In terms of the mitigation-linked principles, Dynamic Evidence, Precautionary Principle, Cost-Effectiveness, and Polluter Pays principles tended to be the least consistently applied across the transport documents.

Of the individual documents, the National Land Transport Act (NLTA) shows the highest level of alignment with the principles contained in the NCCRP. A number of principles, however, are not applicable to this document since it does not include any mitigation elements. The National Transport Master Plan (NATMAP) shows the highest level of alignment with the NCCRP amongst the documents that do contain mitigation elements (and to which most of the NCCRP principles thus apply). This is an encouraging sign since this document provides an overall masterplan for the sector, and so hopefully these provisions will filter down into its implementation. Two principles which are not aligned, however, and which could be addressed are those of applying the Precautionary Principle and Behaviour Change. The latter is particularly important in the transport sector. Furthermore, a clearer link between actions and their emissions implications could be made in parts of the document.

The National Land Transport Strategic Framework (NLTSF), Draft Non-Motorised Transport Policy (DNMTP), and to a lesser extent the National Ports Act (NPA) are also relatively well aligned with the NCCRP mitigation principles.

The Road Freight Strategy (RFS) shows the lowest level of alignment with the mitigation principles, with alignment evident for only two principles (Mitigation Elements and Resource Mobilisation). This is of concern given the high contribution of road transport to transport emissions in South Africa. The Civil Aviation Act (CAA) displays the second-lowest level of alignment. In terms of general principles, the Climate Change Awareness and Consideration of Emissions Implications principles are either unclear or contradictory. With respect to the mitigation-linked principles, the following principles are not aligned: Sustainable Development Pillars, Risk management, Adaptation and other Co-benefits, Cost-effectiveness, Special Needs and Polluter Pays.

The Rural Transport Strategy for South Africa (RTSSA), National Spatial Development Perspective (NSDP), the National Freight Logistics Strategy (NFLS) and the Public Transport Strategy (PTS) are also very poorly aligned with the NCCRP principles. The relative lack of alignment of the NSDP in particular is of concern as it has far-reaching implications on the development of the sector (although this is recognized to have been released prior to the NCCRP).

Table 69 Summary of policy alignment in the Transport sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | Relative Alignment |
|-----------------------------------|------|------|--------|--------|-----|-----|-----|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|-----|-----|-------|-----|------|-----|-------|-----|------|-----|--------------------|
| | NLTA | | NLTSF | | NPA | | CAA | | DNMTP | | WPNTP | | DSAMTP | | PTS | | NATMAP | | RFS | | NLTTA | | NFLS | | RTSSA | | NSDP | | |
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | |
| 1 CC Mitigation awareness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 2 Emissions implications | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 3 Resource efficiency | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 4 RD&I | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 5 Mitigation elements | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 6 Dynamic and evidence based | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Low |
| 7 Precautionary principle | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Low |
| 8 Sustainable development pillars | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 9 Co-benefits | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 10 Cost-effectiveness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 11 Behaviour change | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 12 Equity | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Medium |
| 13 Special needs | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| 14 Polluter pays | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Low |
| 15 Resource mobilisation | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | High |
| Relative alignment | High | High | Medium | Medium | Low | Low | Low | Low | Medium | Low | Low | Low | Low | Low | Low | Low | Low | Low | Low | Low | Low |

6.1.3 Detailed assessment by document

6.1.3.1 National Land Transport Act (Act 5 of 2009)

6.1.3.1.1 Overview

The National Land Transport Act (NLTA) applies to all land-based transport within South Africa. It is prescriptive on a number of aspects including the Minister's functions, the responsibilities of the three spheres of government and other institutional arrangements; it provides for the establishment of the National Public Transport Regulator and prescribes its functions; it requires that the Minister and MECs prepare transport frameworks and integrated plans. It also regulates the integration of the bus contract system into the larger transport system, and other items such as road permits and operating licences.

The purpose of the NLTA is:

- (a) to further the process of transformation and restructuring the national land transport system initiated by the Transition Act;
- (b) to give effect to national policy;
- (c) to prescribe national principles, requirements, guidelines, frameworks and national norms and standards that must be applied uniformly in the provinces and other matters contemplated in section 146 (2) of the Constitution; and
- (d) to consolidate land transport functions and locate them in the appropriate sphere of government.

6.1.3.1.2 Policy gap assessment

The NLTA is an Act which includes one high level mitigation element; it is partially aligned with four of the five general mitigation principles. The document is fully aligned with Consideration of Emissions Implications as there is a mechanism to generate sufficient information to consider the emissions implications through the requirement for the development of the National Land Transport Strategic Framework (NLTSE). However, it does not display an acute awareness of climate change considerations.

In order to increase alignment the NLTA would need to be amended to make provision for climate change mitigation, rather than only indirect resource efficiency measures. It could also be amended to include a requirement to consider the emissions implications of actions.

Given the scope and nature of the legislation, it is not expected that mitigation element-linked RD&I would be directly addressed, in addition, given the high level nature of the mitigation element identified, the mitigation element-linked principles were not assessed.

The scoring guide for legislation and Acts was applied in this policy gap assessment.

Table 70: NLTA policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|---|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | s5(4)(g)(v) | The Minister must- in taking any measures relating to public transport- promote the efficient use of energy resources, and limit adverse environmental impacts in relation to land transport. |
| | | | | | | | | s9(2)(g) | An MEC must- ensure that there is a link with matters having an impact on transport in the province, including land use management, environmental issues, population growth, economic development and investment in infrastructure, to facilitate integration and efficient transport. |
| 2 | Consideration of emissions implications | | | | | | | s11(c)(viii) | There is a requirement for MECs to produce an annual report on the state of transport affairs and there is scope to build the consideration of the emissions implications of actions into the required planning frameworks, for example the municipal sphere of government is responsible for developing, implementing and monitoring a strategy to prevent, minimise or reduce any adverse impacts of the land transport system on the environment in its area. Furthermore, the NLTA requires the development of a National Land Transport Strategic Framework which allows for a mechanism to generate sufficient information to consider emissions implications. |
| 3 | Resource efficiency | | | | | | | s4(g)(v) | The Minister must- in taking any measures relating to public transport- promote the efficient use of energy resources, and limit adverse environmental impacts in relation to land transport. |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | s11(c)(viii) | The municipal sphere of government is responsible for developing, implementing and monitoring a strategy to prevent, minimize or reduce any adverse impacts of the land transport system on the environment in its area. |
| Given the high level nature of the mitigation element identified, the mitigation element-linked principles were not assessed. | | | | | | | | | |

6.1.3.2 National Land Transport Strategic Framework (2006)

6.1.3.2.1 Overview

The National Land Transport Strategic Framework (NLTSF) provides a strategic framework for transport, including guidance on transport planning and land transport delivery by the three spheres of government. This framework includes public transport, rural transport and safety as functional areas. Included in the framework are implementation mechanisms and processes for observing implementation through KPIs. The performance indicator framework is comprehensive and covers the responsibilities between the three spheres of government.

In each functional area, by outlining the strategy, roles and criteria used to monitor performance, the NLTSF is well situated to promote climate mitigation. Transport policy is expected to influence GHG emissions through its impact on energy use, spatial development, and the provision of general transport infrastructure. Efficiency gains from the expansion of public commuter transport and moving freight from road to rail (or more limited marine transport) can have important mitigation benefits. It is therefore important that climate change mitigation is factored into as many functional areas as possible and that the mitigation principles.

6.1.3.2.2 Policy gap assessment

The NLTSF is a high level policy document with a number of mitigation elements. The document is partially aligned with all five general mitigation principles. In terms of the awareness principle, pollutants are not defined in the NLTSF, but only in the Air Quality Act. Thus, when the AQA is updated the NLTSF will automatically be aligned. It is partially aligned dependant on GHGs being included as priority pollutants in the AQA.

Most actions support better efficiency which can indirectly mitigate climate change; strategies involve moving freight off road and onto rail (pooling of freight), and others rely on promoting public transport over private car usage.

With respect to mitigation element-linked principles, the document is fully aligned with four, partially aligned with three and not aligned on two. With respect to dynamic evidence it is not aligned as a number of mitigation actions are included but no mention of the need to use the latest available information, likewise there is no mention of the need to consider risks or unintended consequences. Polluter Pays and Resource Mobilisation are partially aligned as funding for NLTSF is mentioned; and user pays with respect to service or activity in question which can include paying for emissions.

The scoring guide for high level policy frameworks and strategies was applied in this policy gap assessment.

Table 71: NLTsf policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|--|--------------------|-----|-----|-----|------|-------|--|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 Climate Change Mitigation awareness | | | | | | | 2.16 | Land transport must be so designed as to have the least harmful impact on the environment. Air pollution from vehicle exhaust emissions and visual pollution by means of outdoor advertising will receive particular attention. Pollutants are not defined in the NLTsf, but only in the Air Quality Act. Thus, when the AQA is updated the NLTsf will automatically be aligned. It is partially aligned dependant on GHGs being included as priority pollutants in the AQA. |
| | | | | | | | 3.11.1 | Government will promote the reduction of emissions to improve air quality by, amongst others, reviewing current environmental standards and promoting effective roadworthiness testing. Pollutants are not defined in the NLTsf, but only in the Air Quality Act. Thus, when the AQA is updated the NLTsf will automatically be aligned. It is partially aligned dependant on GHGs being included as priority pollutants in the AQA. |
| | | | | | | | 3.5.1 | The environmental impact of road freight transport will be managed, in particular by focusing on the recovery of externalities, the management of the movements of heavy vehicles, and the enforcement of regulations pertaining to dangerous goods. It is not clear if this includes GHG emissions or other emissions. |
| 2 Consideration of emissions implications | | | | | | | 2.16 | Land transport must be so designed as to have the least harmful impact on the environment. |
| 3 Resource efficiency | | | | | | | 3.3.1 | Delivery of the road network will be made more efficient including road maintenance. |
| | | | | | | | 3.11.1 | Transport plans should strive to implement travel demand management (TDM) measures which are aimed at reducing single-occupant private car usage, especially for commuting trips. |
| | | | | | | | 3.5.3 | An appropriate shift of freight from road to rail will be promoted. |
| | | | | | | | 3.1.1 | Public transport will be promoted over private transport (i.e. pooling for efficiency). |
| 4 Research, development and innovation | | | | | | pg 63 | Efficient vehicle technology innovation supported. | |
| 5 Mitigation elements | | | | | | | pg 63 | Government will promote the reduction of emissions to improve air quality by, amongst others, reviewing current environmental standards and promoting effective roadworthiness testing. |
| | | | | | | | 3.5.3 | An appropriate shift of freight from road to rail will be promoted. |
| | | | | | | | 3.1.1 | Public transport will be promoted over private transport (i.e. pooling for efficiency). |
| | | | | | | | pg 63 | Efficient vehicle technology innovation supported. |
| | | | | | | | 3.11.1 | Transport plans should strive to implement travel demand management (TDM) measures which are aimed at reducing single-occupant private car usage, especially for commuting trips. |
| | | | | | | | 3.10.2 | Walking and cycling will be promoted as the preferred modes in South Africa for their appropriate distances. |

| | Principle | Alignment category | | | | | | Relevant section | Description |
|----|---|--------------------|-----|-----|-----|------|-----------------------------------|--|-------------|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | pg 42 | Subsidies are promoted for bus usage. | |
| 6 | Dynamic and evidence based | | | | | | | Not aligned as many actions are promoted – important that up to date information is provided to justify actions. Also – strategies need to be reviewed based on latest available information. | |
| 7 | Precautionary principle | | | | | | | Not aligned as many actions are promoted without mentioning the need to consider risks or unintended consequences. | |
| 8 | Sustainable development pillars | | | | | | 2.21 | Public transport services must be designed to provide affordable transport to the public | |
| | | | | | | | 3.3.1; 3.11.1; 3.1.1; 2.16; 3.5.1 | Land transport must be designed to have least harmful impact on environment and travel demand management (TDM) will be used to reduce single-car usage and enhance efficiency. | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | 2.2; 2.12; 2.21 | Enhance access to public transport services and facilities including for the poor, and enhance transport functionality in the case of persons with disabilities. | |
| | | | | | | | pg 42 | Subsidies are promoted for bus usage. | |
| | | | | | | | | Some types of transport and some production methods may be more resilient to extreme weather events than others. However, this is not mentioned and therefore not aligned in this regard. | |
| 10 | Cost-effectiveness | | | | | | 3.10 | Quality pedestrian ways are also the most cost-effective way to link existing but nonadjacent public transport facilities and to link communities to public transport facilities. | |
| 11 | Behaviour change | | | | | | 3.11.1 | Transport plans should strive to implement travel demand management (TDM) measures which are aimed at reducing single-occupant private car usage, especially for commuting trips. | |
| | | | | | | | | Public awareness material will be developed to quantify and graphically illustrate the unsustainable consequences of increasing dependence on private vehicles, urban sprawl and continuing marginalisation of the urban poor. | |
| 12 | Equity | | | | | | pg 42 | Subsidies are promoted for bus usage which results in lower fares. | |
| 13 | Special needs | | | | | | 2.2; 2.12; 2.21; 3.9 | Enhance access to public transport services and facilities including for the poor, and enhance transport functionality in the case of persons with disabilities. | |
| 14 | Polluter pays | | | | | | 2.21 pg 10 | The principle of user charging or recovering costs from direct users must be applied wherever appropriate and possible, in that such users should pay for all or most of the costs related to the service or activity in question. | |
| 15 | Resource mobilisation | | | | | | Table 4.2 | Percentage of funding needs for implementing NLTsf strategies sourced from government budgets (all spheres). | |

6.1.3.3 National Ports Act (2005)

6.1.3.3.1 Overview

The purpose of the National Ports Act (NPA) is to promote the development of an effective and productive South African ports industry that contributes to economic growth and development; establish institutional arrangements; promote and improve efficiency of ports; enhance transparency in the management of ports; strengthen the state's capacity to facilitate the development of technology; and promote the development of an integrated regional production and distribution system in line with government's policies.

Climate change mitigation can stem from focussing on requiring energy efficiency and requiring stronger reporting to track emissions from port operations and bunker fuels. In addition, port efficiency is also important as lowering of port costs may result in greater use of marine transport between SA ports which could reduce the use of more emissions-intensive road freight transport.

6.1.3.3.2 Policy gap assessment

The NPA is an act with a limited number of mitigation elements. The document is partially aligned or fully aligned with two of the five general mitigation principles. The document is unclear on considering the emissions implications of actions and R&D into climate change mitigation. It is not aligned with mitigation elements as none are included in the document.

Most actions support increased efficiency which can reduce emissions. These are mostly centred on either the ports Authority or a licenced operator carrying out their functions in a manner which increases overall port efficiency.

There is no explicit mention of GHG emission awareness. In order to become fully aligned the Act would need to be amended to explicitly incorporate climate mitigation elements and concerns.

The scoring guide for legislation and Acts was applied in this policy gap assessment.

Table 72: NPA policy gap assessment

| | Principle | Alignment category | | | | | | Relevant section | Description |
|---|---|--------------------|-----|-----|-----|------|-----|--|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | s10(4)(a) | When exercising powers... Minister must include strategic environmental impact assessment. |
| | | | | | | | | s11(g)(vi) | Authority must regulate-- pollution and the protection of the environment within the port limits. |
| | | | | | | | | s61(1)(b) | The Authority may give directives to licenced operators relating to public safety or the environment. |
| | | | | | | | | s69(1) | The Authority must ensure that a reasonable balance is achieved between the protection of the environment and the establishment, development and maintenance of ports. |
| 2 | Consideration of emissions implications | | | | | | | s62(2)(a)(v) | Every licensed operator must submit a report of its operations including: the quality and level of performance with regard to environmental criteria. |
| 3 | Resource efficiency | | | | | | | s11(1)(h); s11(1)(j), s12(f); s11(2)(c); s30(2)(f); s68(1)(c); s80(2)(r); s12(c). | The main function of the Authority is to own, manage, control and administer ports to ensure their efficient and economic functioning. |
| | | | | | | | | s62(1)(d) | A licensed operator must-- provide reliable, efficient and economical port services and facilities. |
| 4 | Research, development and innovation | | | | | | | s11(1)(v) | The main function of the Authority is to own, manage, control and administer ports to ensure their efficient and economic functioning, and in doing so the Authority must--promote research and development in the spheres of port services and facilities. |
| 5 | Mitigation elements | | | | | | | | Not aligned as no additional mitigation elements are mentioned. |

6.1.3.4 South Africa National Roads Agency Limited and National Roads Act (1998))

6.1.3.4.1 Overview and assessment

The main purpose of the South African National Roads Agency Limited and National Roads Act (Sanral Act) is mainly to provide for the establishment of the national roads agency (NRA), including its constitution and governance. The Sanral Act makes the NRA responsible for *inter alia*, planning, design, construction, operation, maintenance and rehabilitation of national roads in South Africa. Given the nature of the Sanral Act, it is not applicable to climate change mitigation mainstreaming. However, it may be possible to require considering the emissions implications of planned actions.

6.1.3.5 Civil Aviation Act (2009)

6.1.3.5.1 Overview

The main function of the Civil Aviation Act (CAA) is to give effect to the Civil Aviation Authority which is the presiding body over most matters relating to aviation in South Africa. Much of the CAA is designated to security and safety requirements; the functioning and constitution of the board members and incident investigation. The Civil Aviation Authority has as its objects to:

- (a) control and regulate civil aviation safety and security;
- (b) oversee the implementation and compliance with the National Aviation Security Program;
- (c) oversee the functioning and development of the civil aviation industry;
- (d) promote civil aviation safety and security;
- (e) develop any regulations that are required in terms of this Act; and
- (f) monitor and ensure compliance with this Act and the Convention.

This particular act is wide-ranging in conferring power to the Civil Aviation Authority. As such it may be possible to build in requirements for reporting on GHG emissions and focussing on identifying and implementing mitigation elements.

6.1.3.5.2 Policy gap assessment

The CAA contains few mitigation elements. The document is only partially aligned with two of the five general mitigation principles. The document is unclear on Consideration of Emissions Implications and contradictory on Climate Change Mitigation Awareness.

The Act allows the Council to promote efficiency interventions if it feels airports or other air navigation facilities are not providing efficient and economical air services. It also makes allowance for the phasing out aircraft based on safety and environmental considerations. This could include older aircraft with higher GHG emissions – which could act as an important mitigation element.

With respect to mitigation element-linked principles, the document is aligned with two, not aligned with five and silent on three. It is partially aligned on Dynamic and Evidence-based because

grounds for efficiency intervention are either based on present or contemplated circumstances. It is fully aligned on Resource Mobilisation as funds can be sourced from the general tax pool.

Overall, the CAA is only fully aligned in one of the 15 categories. The efficiency intervention is an indirect influence on GHG emissions without any explicit mention. In order to effect meaningful mitigation the CAA would need to explicitly incorporate climate mitigation elements within its decision-making. Awareness of the emissions impacts of actions needs to be made explicit in the document as it currently encourages building of new airports and air navigation facilities without due regard to their climate change impacts. Being able to accurately predict the emissions implications of construction and expansion activities will play an important role in focusing mitigation action in the aviation sector. Consideration of Emissions Implications can be addressed in a number of areas including the development of new air facilities as well as the introduction of additional aircraft and flight routes. Airline operators could also be held to new reporting standards regarding their GHG emissions with set targets which are periodically reviewed.

Mitigation-linked principles such as Cost-Effectiveness and Sustainable Development Pillars need to be included in the document to ensure a balance between development and mitigation considerations. The scoring guide for legislation and Acts was applied in this policy gap assessment.

Table 73: CAA policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|------------------|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | s155(1)(n)(x) | The Minister may make regulations regarding the use or the management of aerodromes, including the technical, operational, environmental management and protection standards in. |
| | | | | | | | Article 44 (c) | Encouraging development of airports and air navigation facilities without considering for climate change mitigation |
| 2 | Consideration of emissions implications | | | | | | | Unclear as the CAA demands that relevant performance information regarding the economic, efficient and effective application of resources is compared with actual and target indicators but does not specifically mention emissions considerations. |
| 3 | Resource efficiency | | | | | | Article 44 (d) | The International Civil Aviation Organization is to foster the planning and development of international air transport so as to meet the peoples' needs for safe, regular, efficient and economical air transport. |
| | | | | | | | Article 69 | Airports are required to operate efficiently; otherwise the Council may call for remedy to restore efficiency. |
| 4 | Research, development and innovation | | | | | | | |
| 5 | Mitigation elements | | | | | | s155(1)(x) | The Minister may make regulations regarding the phasing out of aircraft based on aviation safety and environmental considerations. |
| | | | | | | | Article 69 | If airports are not reasonably efficient and economical, this can create grounds for efficiency intervention. |
| 6 | Dynamic and evidence based | | | | | | Article 69 | Grounds for efficiency intervention are either based on "present or contemplated" circumstances. |
| 7 | Precautionary principle | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | Not aligned as the interventions do not consider economic, social and environmental impact. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | Not aligned as the interventions do not consider risks or co-benefits. |
| 10 | Cost-effectiveness | | | | | | | Not aligned as cost-effectiveness of the mitigation elements are not considered. |
| 11 | Behaviour change | | | | | | | |
| 12 | Equity | | | | | | | Not aligned as equity considerations with respect to mitigation elements have not been considered. |
| 13 | Special needs | | | | | | | Not aligned as special needs considerations with respect to mitigation elements have not been considered. |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | s74 | The Civil Aviation Act allows for funding through <i>inter alia</i> , monies appropriated by Parliament. |

6.1.3.6 Draft Non-Motorised Transport Policy (2008)

6.1.3.6.1 Overview

The Draft Non-Motorised Transport Policy (DNMTP) provides a policy framework for non-motorised transport (NMP), including three main functional areas, namely, animal-drawn transport (ADT), cycling, and walking. Included in the framework are considerations around regulation, infrastructure, transport planning, safety, environmental impacts, funding and socio-economic impacts.

The document as a whole promotes ADT, cycling and pedestrian usage, which are all beneficial in terms of lowering GHG emissions. The DNMTP, by its nature, is well-suited to promoting mitigation. NMP policy is expected to influence GHG emissions through its impact on energy use, spatial development, and general transport infrastructure. It is therefore important that mitigation is explicitly factored into all functional areas and that the NCCRP mitigation principles are adequately considered.

6.1.3.6.2 Policy gap assessment

The DNMTP is a high-level policy framework with a number of mitigation elements built into it. Four of the five general mitigation principles are partially aligned with the NCCRP guidance. Most actions promote NMT which can indirectly mitigate climate change. These actions are mostly centred on the promotion of ADT, cycling and pedestrian usage. Although implied throughout the document, there is no explicit mention of climate change mitigation.

With respect to mitigation element-linked principles, it is fully aligned with one, partially aligned with six, silent on one and not aligned with two. It is partially aligned with the Dynamic and Evidence-based principle because it requires the updating of regulation and regular legislative reviews. It also talks to commissioning periodic research to better understand the legalities of ADT. With regard to the Precautionary Principle it recognises that promotion of NMT carries safety risks. Sustainable Development Pillars are recognised in a more positive light with NMT promoting development and alleviating poverty, which also talks to co-benefits of NMT. The document makes no mention of Cost-Effectiveness and Equity. Behaviour Change is promoted through marketing and creating awareness of NMT to target audiences. Special Needs have been considered as the document primarily addresses the needs of the poor. Resource Mobilisation is fully aligned as funding has been considered where necessary, the main sources of income include donor funds, central government grants, local revenues (from the local government and the community), and allocations from a dedicated road fund.

The scoring guide for legislation and high-level policy frameworks and strategies was applied in this policy gap assessment.

Table 74: DNMTTP policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|--------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | Ministers' Forward | Through non-motorised transportation there is an opportunity to improve quality of lives, energy conservation and a safe sustainable environment. |
| | | | | | | | section 2.4 | In meeting NMT, the national government will strive to adhere to the principle of environmental protection, and energy conservation. |
| 2 | Consideration of emissions implications | | | | | | Section 3.2.7 | Acknowledges that actions may have environmental implications. In compliance with environment regulations it will be necessary to minimize or avoid the degradation of the environment. |
| 3 | Resource efficiency | | | | | | section 3.3.3.3 | For short distances NMT appears to be the most efficient means of mobility, while for longer distances public transport or cars offer greater efficiency. |
| 4 | Research, development and innovation | | | | | | Section 2.3 | Facilitation of research and new initiatives to improve NMT performance. |
| 5 | Mitigation elements | | | | | | section 3.3.3.4 | The Department of Transport will encourage the use of roads that are under-utilised, to promote the use cycling as part of intermodal transport. |
| | | | | | | | section 4.2.5 | Infrastructure encourages and promotes the adoption and usage of NMT. DoT should work to ensure infrastructure is improved. |
| | | | | | | | section 3.3.2 | The development of road networks and other transport infrastructure is a necessary condition to facilitate animal-drawn transport |
| | | | | | | | section 3.4 | Promotion of pedestrian usage on roads by making laws more conducive and promoting other infrastructure such as cross-walks, traffic calming etc. |
| | | | | | | | | ADT: Promotes usage of animal-drawn transport while issuing a policy statement regarding updating all its institutional and legislative arrangements. |
| 6 | Dynamic and evidence based | | | | | | exec summary | The regulations, legislative review and update are required with immediate implementation of this policy. |
| | | | | | | | section 3.2 | ADT: Periodically commission or conduct research to have a clearer understanding of the legal effects of animal transportation. |
| | | | | | | | section 3.4 | Walking: The Municipalities will update their traffic by-laws in line with the updated and new regulations that incorporate non-motorised transport. |
| | | | | | | | section 3.3 | Cycling: The Department of Transport will update all its institutional and legislative arrangements to effect the most cycling-friendly legislative and institutional environment possible. The Municipalities will update their traffic by-laws in line with the updated and new regulations that incorporate non-motorised transport. |
| 7 | Precautionary principle | | | | | | section 4.2.4 | There should be continued monitoring and collection of data on risk exposure of non-motorised transport users. This data collection should be accompanied by data verification and validation against benchmarks. Recognition that more animals, pedestrians and cyclists on roads can be dangerous if not done properly. |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|----------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 8 | Sustainable development pillars | | | | | | section 3.2.9 | The introduction and promotion of animal-drawn transport service will offer socio economic benefits. |
| | | | | | | | section 3.3.9 | The Department of Transport will ensure that cycling as transport mode plays a role in economic development and poverty alleviation. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | section 3.3.9 | The Department of Transport will ensure that cycling as transport mode plays a role in economic development and poverty alleviation. |
| 10 | Cost-effectiveness | | | | | | | |
| 11 | Behaviour change | | | | | | section 4.1.2 | The Department of Transport will market and create awareness of the NMT policy by choosing an appropriate medium in accordance with the targeted audience. |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | section 4.1.2 | The idea of a NMT policy addresses principally the needs of the poor. |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | section 3.2.8; 3.3.8 | Animal-drawn transport and cycling: The four most common sources for financing are donor funds, central government grants from the general budget, local revenues (from the local government and the community), and allocations from a dedicated road fund. |
| | | | | | | | section 3.4.5 | Pedestrian projects and programs can be funded by national governments, provincial, local, private, or any combination of sources. |

6.1.3.7 White Paper on National Transport Policy (1996)

6.1.3.7.1 Overview

The White Paper on National Transport Policy (WPNTP) sets out Government's transport policy. This policy document is designed to allow for a long term vision of transport to play a more strategic role in social development and economic growth. Its key vision is as follows:

“Provide safe, reliable, effective, efficient, and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable”.

The document is very broad in what it aims to achieve. A more integrated transport establishment, together with a drive for more efficient modal usage and less-polluting fuel, is expected to reduce GHG emissions. Strong climate change mitigation measures are crucial in a national policy document because provinces and municipalities tend to develop their own frameworks based off the national document, and it is desirable for climate change mitigation considerations to filter through in this manner.

6.1.3.7.2 Policy gap assessment

The WPNTP is a high-level policy framework which includes a number of key mitigation elements. The document is mostly fully or partially aligned with the NCCRP mitigation principles. Four of the five general mitigation principles are partially or fully aligned. The document is unclear with respect to mitigation-linked R&D.

Most actions promote resource efficiency which either directly or indirectly mitigates climate change; these are mostly centred on energy efficiency, promotion of less harmful fuels, and more efficient modal usage.

With respect to mitigation element-linked principles, it is fully aligned with one, partially aligned with four, not aligned on four, and contradictory on one. It is not aligned on Dynamic Evidence as there is no evidence of periodically using the latest available data to update the White Paper or the actions that flow from it. Sustainable Development Pillars are considered as it recognises the need for environmental sustainability in key investment decisions. Statements relating to the Cost-Effectiveness principle are both contradictory, as the document advocates cheaper diesel without direct mitigation consideration, and partially aligned as weighing the costs and benefits of environmental issues are mentioned. Behaviour Change is promoted through marketing and creating public awareness of energy efficiency and promotion of less polluting modes. Special Needs remain unclear as the poor and disabled are mentioned but without clarification. The Polluter Pays Principle is partially aligned as user charges are advocated which can potentially include the cost of GHG-related pollution. Resource Mobilisation remains unclear as funding sources are mentioned but there is no direct or indirect link to mitigation.

Table 75: WPNTP policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|--------|---|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | Vision; Goals pg8/75; vision (17/75) pg18/75 pg25/75 pg36/75 | Provide reliable, effective, efficient, and fully integrated transport operations and infrastructure whilst being environmentally and economically sustainable. |
| | | | | | | | Goals (pg8/75) | The provision of transportation infrastructure and the operation of the transportation system have the potential for causing damage through atmospheric pollution. Government is cognisant of these dangers, both in regard to the detrimental effect on our own environment, and in regard to international sanctions which could adversely affect the export of South African goods. |
| | | | | | | | pg9/75 | The South African transportation system is heavily dependent on non-renewable energy sources. Differentials between the prices of diesel, and of unleaded and leaded petrol, will be addressed as a means of encouraging the use of more efficient and less environmentally harmful fuels. |
| | | | | | | | pg22/75 | Planning for the provision of infrastructure will take place within an integrated environmental management approach, and will include inter alia the performance of environmental impact assessments (EIAs). Among the issues to be considered are environmental impacts, energy conservation. |
| | | | | | | | pg7/75; pg8/75; pg9/75. | Investments will be made after analysis of the return on such investment (ROI). The criteria do not mention GHG emissions. However it does mention that environmental sustainability will be a key measure in investment decisions. |
| 2 | Consideration of emissions implications | | | | | | Pg22 | The provision of transportation infrastructure and the operation of the transportation system have the potential for causing damage to the physical and social environment, inter alia through atmospheric or noise pollution, ecologic damage, and severance. Government is cognisant of these dangers in regard to the detrimental effect on our own environment. This document also requires EIAs. |
| 3 | Resource efficiency | | | | | | pg9/75; pg35/75 | The SA transportation system is heavily dependent on non-renewable energy sources. More efficient and less environmentally harmful fuels will be encouraged. |
| | | | | | | | pg9/75 | Investments in infrastructure which promote energy efficiency, and the least consumption of resources, will be favoured. |
| | | | | | | | pg27/75 | Operational strategic objectives include ensure that land passenger transport operations are more environmentally sensitive and sustainable, and are energy efficient. |
| | | | | | | | pg22/75 | Planning for the provision of infrastructure will consider energy conservation. |
| | | | | | | pg9/75 | Use of the most appropriate mode of transport to lessen inefficiencies. | |
| 4 | Research, development and innovation | | | | | | | Government will support research into, development of, and implementation of appropriate and innovative technologies to meet present needs.. |
| 5 | Mitigation elements | | | | | | pg35/75; pg9/75 | More energy efficient and less pollutant modes of transport will be promoted. |
| | | | | | | | pg9/75 | Investments in infrastructure which promote energy efficiency. |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|--------------------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | pg27/75 | Operational strategic objectives include ensure that land passenger transport operations are more environmentally sensitive and sustainable, and are energy efficient. |
| 6 | Dynamic and evidence based | | | | | | | |
| 7 | Precautionary principle | | | | | | | |
| 8 | Sustainable development pillars | | | | | | Vision; Goals (pg8/75); pg2/75 | Provide safe, reliable, effective, efficient, and fully integrated transport in a fashion which supports government strategies for economic and social development. |
| | | | | | | | pg9/75 | Environmental sustainability will be a key measure in investment decisions. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | |
| 10 | Cost-effectiveness | | | | | | pg7/75 | Diesel fuel is a significant element of the input costs of public passenger and freight transport. Reducing the price of diesel will make the economy more competitive. |
| | | | | | | | Goals (pg8/75) | Potential environmental issues will be identified and addressed, taking into consideration the costs and benefits associated with alternatives. These costs and benefits will be quantified in both economic and sustainability terms. |
| 11 | Behaviour change | | | | | | pg35/75 | The use of more energy efficient and less pollutant modes of transport will be promoted. Greater energy awareness will be fostered through public awareness programmes, differential fuel prices, etc. |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | 1 | pg6/75 | Special customer groups will include the poor, and the disabled. But no discussion of how mitigation elements could impact them. |
| 14 | Polluter pays | | | | | | pg13/75 | In the case of roads this may take the form of a fuel levy, which is a surrogate user charge, and where viable or appropriate, tolling which is a direct user charge. |
| 15 | Resource mobilisation | | | | | 1 | Pg20/75 | Treasury, user charges and/or investments by the private sector will fund transport, but no mention of whether this will include mitigation elements. |

Overall, the WPNTP is fairly well-aligned in a number of categories. There is explicit mention of GHG Emission Awareness especially when the document addresses less harmful fuel. In order to become fully aligned this policy would mainly need to address Consideration of Emissions Implications, Dynamic Evidence, Equity and Risk management, Adaptation and other Co-benefits.

The scoring guide for legislation and high-level policy frameworks and strategies was applied in this policy gap assessment.

6.1.3.8 Draft South African Maritime Transport Policy (2008)

6.1.3.8.1 Overview

The Draft South African Maritime Transport Policy (DSAMTP) provides a framework for the integration of maritime transportation into the overall transport strategies of the DoT. The main vision is to better integrate SA's maritime transport system into the global network of maritime supply chains. It maps out the need to ensure efficient and robust port operations, and efficient transport of cargo and passengers while leaving room for introduction of new technologies. The objectives are as follows:

- To ensure the competitiveness of South Africa's international trade through innovative, efficient, reliable, visible and integrated maritime supply chain systems;
- To grow South African maritime presence and influence domestically and abroad;
- To ensure compliance with multilateral instruments of which South Africa is a party to, and that the instruments reflect South Africa's national interests;
- To grow and broaden the participation of South Africans in the industry and ship ownership while promoting the increase of ships on the South African flag;
- To guide the maritime sector's initiatives on institutional arrangements, governance and regulatory interventions while ensuring effective and efficient co-ordination; and
- To provide a clear framework around which investors and funders can participate in maritime projects so as to improve growth and competitiveness of the maritime transport industry.

The document sets the broad maritime policy framework for South Africa. Efficient and robust port operations, together with promotion of inter-coastal transport of heavy cargo by ship rather than road expect to influence GHG emissions through its impact on energy use.

Table 76: DSAMTP policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|--|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | section 3.3.2.1 | It is economic and convenient to transport heavy cargoes between major centres, helping to reduce carbon emissions. |
| | | | | | | | section 3.10.1 | Global warming, climate change challenges, and air pollution by ships indicate to the DoT that it should continue to engage with these issues. |
| | | | | | | | section 3.10.2 | The DoT shall discharge its responsibility towards the prevention of pollution. |
| | | | | | | | section 3.10.2 | Entities reporting to DoT in the industry shall embark on Environmental Implementation Plans (EIPs) in compliance with National Environmental Management Act (NEMA). |
| | | | | | | | section 3.10.2 | The maritime industry shall subscribe to the environmental mitigation strategies that shall be decided by the South African Government where these are plausible. |
| 2 | Consideration of emissions implications | | | | | | section 3.10.2; 3.3.2.1 | The DoT shall discharge its responsibility towards the prevention of pollution. Inter-port cargoes are usually more fuel efficient than road, which can help reduce the amount of carbon footprint. The Air Quality Act also allows for reporting of GHGs as priority pollutants in a form of pollution prevention plans. Document also requires Environmental Implementation Plans. |
| 3 | Resource efficiency | | | | | | pg7/89;pg8/89; pg32/89 | Provide safe, reliable, effective, efficient, and fully integrated transport. Efficient transport services and port operations, ensuring the safe and timely arrival of freight, are a prerequisite to competitive and successful trading. |
| | | | | | | | pg12/89;pg/15/89; pg16/89; pg26/89;pg32/89 | Exports and imports must be transported as cheaply as possible. South Africa thus needs an efficient transport chain to overcome these distances and the shipping link is critical to keeping transportation costs to a minimum. |
| | | | | | | | pg23/89 | Inter-port cargoes within a country or even the region (where applicable) can be transported through coastal shipping. This alternative way of transporting cargo is usually more fuel efficient than road helping to reduce the amount of GHG emissions. |
| | | | | | | | pg60/89 | Among the strategic objectives envisaged in the National White Paper on National Maritime Transport Policy is the need to promote the development of an efficient and productive industry capable of competing on international markets. |
| 4 | Research, development and innovation | | | | | | pg69/89 | Using technology to enhance the Industry. From shipyards to port operations and to environmental protection, industry sustainability requires investment in new knowledge and the commissioning of new ideas onto the marketplace. |
| 5 | Mitigation elements | | | | | | pg23/89 | Inter-port cargoes within a country or even the region (where applicable) can be transported through coastal shipping. This alternative way of transporting cargo is usually more fuel efficient than road helping to reduce the amount of carbon footprint. |
| | | | | | | | pg69/89 | Using technology to enhance the Industry. From shipyards to port operations and to environmental protection, industry sustainability requires investment in new knowledge and the commissioning of new ideas onto the marketplace. |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|--------------------------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 6 | Dynamic and evidence based | | | | | | section 3.10.2 - Policy Statement 61 | The DoT shall discharge its responsibility towards the prevention of the pollution requiring periodic audits. |
| 7 | Precautionary principle | | | | | | | |
| 8 | Sustainable development pillars | | | | | | pg8/89 | Provide safe, reliable, effective, efficient, and fully integrated transport operations in a fashion which supports government strategies for economic and social development whilst being environmentally and economically sustainable. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | |
| 10 | Cost-effectiveness | | | | | | | |
| 11 | Behaviour change | | | | | | | |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | | |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | Pg64/89 | State backing and targeted funding but no mention of mitigation-specific funding. |

6.1.3.8.2 Policy gap assessment

The DSAMTP is relatively well aligned with the NCCRP in terms of general principles, despite containing few key mitigation elements. All five general mitigation principles are partially or fully aligned.

Most actions promote resource efficiency which indirectly mitigates climate change; these are mostly centred on resource efficiency in port operations and driving inter-port cargoes by ship rather than road.

With respect to mitigation element-linked principles, it is fully aligned with one, not aligned with seven, and unclear on two. It is not aligned on Precautionary principle; risk management, Cost-Effectiveness; Behaviour Change, Equity, Special Needs and Polluter Pays as mitigation actions are present but do not mention mitigation-specific parameters in these categories. With regard to Dynamic Evidence, it is unclear as periodic audits are required with respect to pollution but fails to mention whether GHG emissions are included. Resource Mobilisation is also unclear as it discusses government funding with no mitigation-specific consideration.

Overall, the DSAMTP is fairly well-aligned in a number of categories. There is explicit mention of GHG Emission Awareness in reducing carbon footprint. In order to become fully aligned this policy would mainly need to address a number of mitigation element-linked principles which would also need to be operationalised.

The scoring guide for high-level policy frameworks and strategies was applied in this policy gap assessment.

6.1.3.9 Public Transport Strategy (2007)

6.1.3.9.1 Overview

The Public Transport Strategy has two key thrusts, being Accelerated Modal Upgrading and Integrated Rapid Public Transport Networks. The former of these, Accelerated Modal Upgrading, refers to short to medium term initiatives to transform bus, taxi and rail service delivery. The second thrust, relating to Integrated Rapid Public Transport Networks, covers the implementation of high quality networks of Rail Priority Corridors and Bus Rapid Transit Corridors, particularly in the six metros. This is a longer term project with a legacy impact, and which can contribute to mitigation.

At the time of writing of this report there was an indication that this Strategy was going to be reviewed, which would provide a good opportunity to ensure better alignment between the Strategy and the principles of the NCCR.

6.1.3.9.2 Gap assessment summary

The strategy identifies the link between private car use and the need to cut greenhouse gas emissions, suggesting a fully aligned rating in the first principle. It also obtains a rating of fully aligned in the principles related to special needs and resource mobilisation, and partially aligned in the principles relating to mitigation elements, sustainable development pillars and cost

effectiveness. For the remaining principles there is no alignment. Given the strong relationship between public transport and mitigation, it is suggested that greater alignment should be sought.

It is noted that improved public transport offers a mitigation opportunity when replacing other forms or less efficient forms of transport. Where, however, it offers transport to people who have not had any (motorised) transport before, increased public transport can result in an increase in emissions.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

6.1.3.10 National Transport Master Plan for 2010 - 2050

6.1.3.10.1 Overview

The stated aim of the National Transport Master Plan (NATMAP) is to “...develop a land use/transportation integrated physical development framework by which future planning and investments decisions are to be made by the three spheres of Government.” The framework covers the period 2010-2050, and intends to support long term and sustainable socio-economic growth, through presentation of an integrated development plan and an implementation action plan for the country, including provinces, development corridors, regions and urban areas.

NATMAP is relevant to climate mitigation in that activities in the transport sector which are implemented within the framework can have either positive or negative greenhouse gas emissions implications.

6.1.3.10.2 Assessment summary

Table 78 shows the policy gap assessment framework applied to NATMAP.

Climate change has been considered extensively in the development of NATMAP, with inclusion of low carbon transport being central to the Plan. The only two principles not fully or partially aligned are that relating to being dynamic and evidence based (which is given a rating of unclear), and the application of the Precautionary Principle.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

Table 77 Public Transport Strategy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|-----|-----|------------------|---|
| | FAL | PAL | NAL | CON | N/A | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | B | "This, together with the increasing pressures for drastic cuts in climate change emissions – means that the mass motorisation of the South African population will not be possible, and neither is it desirable, nor equitable." The document then looks at public transport as a solution to this challenge. |
| 2 | Consideration of emissions implications | | | | | | | |
| 3 | Resource efficiency | | | | | | | |
| 4 | Research, development and innovation | | | | | | | |
| 5 | Mitigation elements | | | | | | | The document covers increased use of public transport which can potentially have a mitigation benefit. However the explicit link is not made which is why it is allocated a partial rather than full alignment. |
| 6 | Dynamic and evidence based | | | | | | | |
| 7 | Precautionary principle | | | | | | | |
| 8 | Sustainable development pillars | | | | | | B | "Integrated rapid public transport service networks are the mobility wave of the future and are the only viable option that can ensure sustainable, equitable and uncongested mobility in livable cities and districts." |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | |
| 10 | Cost-effectiveness | | | | | | Page 24 | "Careful estimates of required passenger transport expenditure are still to be made and will depend on the costing of municipal transport plans and networks" |
| 11 | Behaviour change | | | | | | | |
| 12 | Equity | | | | | | | |
| 13 | Special needs | | | | | | Page 7 | Section talks about access to transport by people with special needs. |
| 14 | Polluter pays | | | | | | | |
| 15 | Resource mobilisation | | | | | | Page 23 | Section describes funding in some detail |

Table 78 NATMAP gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|---|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | Goal 7 of the Goal Achievement Matrix Evaluation Criteria | The need to include low carbon considerations in decision making is made explicit "Does this project promote the use of low-carbon energy sources?" Also promotes public transport |
| | | | | | | | | p 20 goals and objectives, Goal 6 | This goal aims to reduce the carbon footprint of transport, and use low carbon energy sources |
| | | | | | | | | 3.4.2 | Environmental management section specifically identifies GHG emissions as an issue that needs to be addressed. |
| 2 | Consideration of emissions implications | | | | | | | | Environmental protection is central to NATMAP, and is mentioned a significant number of times throughout the document. |
| | | | | | | | | 3.7.1 | There is a requirement to "Determine the carbon footprint for the provincial road network and develop an action plan to limit Greenhouse Gas (GHG) emissions on the network to meet South Africa's targets in this regard". |
| 3 | Resource efficiency | | | | | | | | Efficiency is mentioned throughout. While this mostly focusses generically on "transport efficiency", this will have a direct impact on fuel/energy efficiency. There is mention of fuel efficiency (3.1.4.2), and energy efficiency (in 7 places). |
| | | | | | | | | 3.4 | This section is specifically dedicated to energy efficiency |
| 4 | Research, development and innovation | | | | | | | 3.4.2.2 | Promote research and development of innovative alternative technologies that improve access and help protect the environment. Not clear if this includes GHG. |
| 5 | Mitigation elements | | | | | | | Goal 7 of the Goal Achievement Matrix Evaluation Criteria | The need to include low carbon considerations in decision making is made explicit "Does this project promote the use of low-carbon energy sources?" NATMAP also focuses on public transport which can potentially be a mitigation element, where it replaces other modes of transport which are higher emitters. Where, however, it offers transport to people who have not had any (motorised) transport before, increased public transport can result in an increase in emissions. |
| | | | | | | | | p 20 goals and objectives, Goal 6 | States that to reduce the carbon footprint of transport, low carbon energy sources need to be used |
| | | | | | | | | 3.4.2 | The environmental management section explicitly identifies mitigation elements to be implemented. |
| 6 | Dynamic and evidence based | | | | | | | | The planning process is identified to need regular updating, so this could include considerations relating to mitigation elements. But not clear. |
| 7 | Precautionary principle | | | | | | | | This was not seen explicitly discussed |
| 8 | Sustainable development pillars | | | | | | | | Mention is made of the different pillars of SD at various places in the document. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | 3.2.1 (vii) | "Provision of transport infrastructure leads to increased mobility and accessibility that affords the population wider employment, social and recreational choices. As people get more employment opportunities, household income improves and the livelihood of families is better sustained." |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|------|-----|---|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | | 2.2.2 | "Based on the above principles, freight and passenger transport will therefore support and enable general overarching government policies and strategies, particularly those strategies that relate to promoting and developing growth, redistribution, employment creation and social integration, both in South Africa and within regional context." |
| | | | | | | | | Goal 3.2 | In assessing projects, it is necessary to ask the question "Does this project link a rural area to an economic centre / employment area/ public amenities and services?" |
| 10 | Cost-effectiveness | | | | | | | Table A10 and following pages | Very detailed costs of individual actions provided. |
| 11 | Behaviour change | | | | | | | 3.1.4.2 | This section (referring to energy and the environment) makes reference to "Continue further public education and awareness programme", but it is not clear whether this includes that related to lower carbon transport options. |
| 12 | Equity | | | | | | | Table 10 | A number of allowances are made here for subsidised transport |
| | | | | | | | | Goal 10 p 23 | To provide transport that is equitable to all stakeholders: Providing transport suitable to all stakeholder groups, including but not limited to persons with disabilities, different income groups, different operators, different regions and provinces. |
| 13 | Special needs | | | | | | | | See previous point. |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | 3.6.2 (vii) | In order to achieve the vision of the strategy, "Achievement of competence at all levels in all modes will only be possible if urgent steps are taken to promote the training and education of officials, management, drivers, technicians and operations staff. There is need for creation of several transport training institutions in South Africa, preferably in the form of private sector colleges, backed by assisted study schemes to be developed by government and industry." |
| | | | | | | | | 3.8.2; 6.3.2.1; 6.4 p 149 onwards; and a number of other places | Funding is discussed in detail |

6.1.3.11 Road Freight Strategy (2011)

6.1.3.11.1 Overview

The Road Freight Strategy for South Africa has the stated aim of focusing on sustainable interventions to address the issues of excess road freight; poor road conditions; overloading; ineffective law enforcement; slow regional integration; and a poor road safety record.

6.1.3.11.2 Gap assessment summary

The gap assessment summary is shown in Table 79. The strategy includes four strategic thrusts. Of these, that which is relevant to greenhouse gas emissions mitigation relates to promoting integrated transport solutions which will facilitate the shift from road to rail, the latter mode being a lower emissions option than the former. This thrust includes an activity of managing traffic congestion, through interventions such as improved public transport, and locating distribution centres at the edge of urban areas that have a potential greenhouse gas emissions mitigation benefit. This provides a rating of partially aligned in the mitigation elements principle. At the same time it recommends increasing capacity on the major corridors which could potentially increase traffic and associated emissions, and hence be contradictory to the principles.

Given the contribution of road freight to emissions, in order to be aligned with the NCCR principles the Strategy would have to address considerations of its impact on emissions. In a number of areas where there may be impacts, the Strategy has been rated as “Contradictory”, whilst in other areas a rating of not aligned has been given. The only other area of partial alignment, apart from mitigation elements, is that of resource mobilisation.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

Table 79 Road Freight Strategy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|-----------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Consideration of emissions implications | | | | | | | | |
| 3 | Resource efficiency | | | | | | | | |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | 5.1.5 | Includes promoting of intermodal solutions and reducing traffic congestion through interventions such as improved public transport, locating distribution centres at the edge of urban areas. |
| | | | | | | | | 5.1.5 | Construction of extra lanes on road corridors may remove congestion but will increase GHG emissions if it encourages more trucks onto the highways. |
| 6 | Dynamic and evidence based | | | | | | | | No mention despite there being potential long-term impacts of the strategy |
| 7 | Precautionary principle | | | | | | | | No consideration of the potential risks of implementing the strategy |
| 8 | Sustainable development pillars | | | | | | | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | | No consideration given to this category |
| 10 | Cost-effectiveness | | | | | | | | Insufficient information provided to determine cost effectiveness of options |
| 11 | Behaviour change | | | | | | | | |
| 12 | Equity | | | | | | | | |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | 6.5 | Indicates that additional funds will be required for implementation of various components of the strategy as a whole, however doesn't refer to specific mitigation interventions. |
| | | | | | | | | Section 6.9, item 2.5 | Identifies that skills and capacity need to be developed to implement the strategy. |

6.1.3.12 National Land Transport Transition Act (2000)

6.1.3.12.1 Overview

The Act sets up the roles, responsibilities and structures related to land transport in South Africa, with the aim of transforming and restructuring land transport in the country. It has a limited bearing on what activities are actually implemented. There is some mention of energy efficiency and environmental impact, but this is a relatively small component of the Act.

6.1.3.12.2 Gap assessment summary

Table 80 presents the assessment framework applied to the Act.

The Act has a number of provisions related to public transport and energy efficiency of transport, both of which have a potential mitigation benefit, although the link is not explicitly mentioned. A result is that full or partial alignment is seen in a number of the categories. Notable here are the provisions around equity and special needs. Although there is non-alignment in certain principles, these may be argued not to be critical given the high-level nature of this document. The same holds for the rating of unclear with respect to the Consideration of Emission Implications principle. This is not critical to this document given that the responsibility for implementation is allocated at the provincial level.

As noted previously, where transport is provided to people who have not had any (motorised) transport before, increased public transport can result in an increase in emissions.

The scoring guide for legislation and acts was applied in the policy gap assessment.

6.1.3.13 Interim National Passenger Rail Plan (2005)

6.1.3.13.1 Overview

This document is a business plan, exploring operational considerations relating to passenger rail. It makes no mention of environment, climate change etc. The only possible place where climate mitigation could find relevance here is if it represented a potential (international) funding source which could affect the business plan. But apart from that, it does not seem to be relevant to this current work and as such has been given a N/A rating in all of the principles in the assessment framework. The full assessment framework has thus not been presented here.

Table 80 National Land Transport Transition Act policy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | 5 | "The Minister must promote the efficient use of energy resources and limit adverse environmental impact in relation to land transport." |
| | | | | | | | | 63 | "The MEC must ... further or encourage the efficient use of energy resources, and limit or reduce adverse environmental impacts to the minimum." |
| 2 | Consideration of emissions implications | | | | | | | | The document mentions reporting against indicators, but these indicators are to be defined by the Minister, the Ministers in each province, and in the national land transport strategic framework. So there is insufficient specificity to ensure that the reported information will include that which can be used to determine GHG emission implications. |
| 3 | Resource efficiency | | | | | | | 5 | "The Minister must promote the efficient use of energy resources and limit adverse environmental impact in relation to land transport." |
| | | | | | | | | 63 | "The MEC must ... further or encourage the efficient use of energy resources, and limit or reduce adverse environmental impacts to the minimum." |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | | The strategy focuses on public transport which can potentially be a mitigation element, where it replaces other modes of transport which are higher emitters. Where, however, it offers transport to people who have not had any (motorised) transport before, increased public transport can result in an increase in emissions. This emphasizes the need considering the emissions implications of actions. |
| 6 | Dynamic and evidence based | | | | | | | 52 | The Act requires monitoring of its implementation, which will include efficient public transport. In particular, paragraph 52 refers to the National Transport Register which is to "serve as a data base to monitor the implementation of formalisation of the public transport industry and to serve as input to the government's programme of economic assistance to that industry." |
| 7 | Precautionary principle | | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | | |
| 10 | Cost-effectiveness | | | | | | | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 11 | Behaviour change | | | | | | | | |
| 12 | Equity | | | | | | | 4 | Public transport services... are planned where possible so that subsidies are aimed to assist currently marginalised users and those who have poor access to social and economic activity. |
| 13 | Special needs | | | | | | | 4 | The needs of special categories of passengers must be considered in planning and providing public transport infrastructure, facilities and services, and these needs should be met as far as may be possible by the system provided for mainstream public transport. |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | Part 6 | The Minister and municipalities may provide funding for land transport. |

6.1.3.14 National Freight Logistics Strategy (2005)

6.1.3.14.1 Overview

The Strategy focuses on addressing problems relating to infrastructure, institutional infrastructure, integrated planning, ownership, management, skills, financing within the freight sector.

Effective implementation of improvements in these areas has the potential to result in efficiency and greenhouse gas mitigation benefits, although it does need to be recognised that increased freight traffic particularly on roads can lead to an increase rather than decrease in emissions. However the link to climate mitigation awareness is not clear. However a rating of “partially aligned” was given to the Resource Efficiency and Mitigation Elements principles. There is also some reference to research, development and innovation, giving the document a partially aligned rating with respect to that principle. Apart from these principles, the document was allocated a rating of not applicable for the remaining categories – which is appropriate given that it is largely an operational strategy. It needs to be acknowledged, however that there are some broad references to environmental protection and social equity in this document but these are not directly linked to the mitigation elements.

The scoring guide for high level policies and strategies was applied in the policy gap assessment.

Table 81 National Freight Logistics Strategy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Consideration of emissions implications | | | | | | | | |
| 3 | Resource efficiency | | | | | | | | The whole document refers to greater efficiency in the freight system which is will result in improved efficiency in energy usage |
| 4 | Research, development and innovation | | | | | | | 3.8.1 | Refers to the use of technology innovation and implementation to improve efficiency. |
| 5 | Mitigation elements | | | | | | | | The whole document addresses inefficiency in the freight system, which can act as a mitigation measure. |

6.1.3.15 Rural Transport Strategy for South Africa (2007)

6.1.3.15.1 Overview

The Rural Transport Strategy is aimed at "...developing a balanced and sustainable rural transport systems by supporting local infrastructure and services". The two main strategic thrusts of the strategy are:

- Promoting coordinated rural nodal and linkage development; and
- Developing demand-responsive, balanced and sustainable rural transport systems

Within this context, the Strategy focuses on improving access roads, developing roads that are passable, and upgrading infrastructure and corridors. The Strategy recognizes that an efficient and effective rural transport system will ultimately contribute towards sustainable social and economic development in rural areas.

6.1.3.15.2 Gap assessment summary

Table 82 shows the gap assessment framework applied to the Rural Transport Strategy.

The focus of the Strategy is on providing transport services in rural areas, and thus there is no explicit mention of greenhouse gas mitigation or any of the other principles related to that area. Given, however, the strong focus on public transport, a "partial alignment" rating has been given on certain of the principles including the Mitigation Elements principle, and those related to risk management, equity, special needs and resource mobilisation. In line with the scoring guide, the document is fully aligned with respect to Consideration of Emissions Implications.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

Table 82 Rural Transport Strategy gap assessment

| | Principle | Alignment category | | | | | | Relevant section | Description |
|----|---|--------------------|-----|-----|-----|------|-----|------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Consideration of emissions implications | | | | | | | 4.1 and Table 3 | One of the guiding principles is "Sustainability of the transport system itself and of its impacts on the wider social, economic and biophysical environment". |
| 3 | Resource efficiency | | | | | | | | |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | | The strategy focuses on public transport which can potentially be a mitigation element, where it replaces other modes of transport which are higher emitters. Where, however, it offers transport to people who have not had any (motorised) transport before, increased public transport can result in an increase in emissions. |
| 6 | Dynamic and evidence based | | | | | | | | |
| 7 | Precautionary principle | | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | | One of the strategic challenges is identified as follows: "...to overcome the "big jump" in access opportunities from the village (and its ubiquitous store or local school) to the nearest town centre. This problem affects economic access (to markets, or the economic mainstream) as well as access to education and social services. Addressing this problem requires a coordinated set of nodal and linkage development initiatives." - the latter which are considered in the strategy. |
| 10 | Cost-effectiveness | | | | | | | | |
| 11 | Behaviour change | | | | | | | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 12 | Equity | | | | | | | | The Strategy has a specific focus on providing transport services to those living in rural areas who often don't have access to transport services |
| 13 | Special needs | | | | | | | | The Strategy has a specific focus on providing transport services to those living in rural areas who often don't have access to transport services |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | | Funding sources are considered in a number of places throughout the document, including for improved public transport. |

6.1.3.16 National Spatial Development Perspective (2006)

6.1.3.16.1 Overview

The National Spatial Development Perspective (NSDP) was developed as a tool to support development planning in government to “...support coordinated government action and alignment to meet social, economic and environmental objectives”. It provides “... principles and mechanisms for guiding infrastructure investment and development decisions; a description of the spatial manifestations of the main social, economic and environmental trends that should form the basis for a shared understanding of the national space economy; and an interpretation of the spatial realities and the implications for government intervention.”

While recognizing the potential *impacts* of climate change on development, the NSDP does not refer explicitly to the role of development in *mitigating* (or growing) emissions.

6.1.3.16.2 Gap assessment summary

Table 82 shows the gap assessment framework applied to the NSDP.

Although the NSDP makes provision for a number of planning elements that could be considered mitigation elements (including resource efficiency – giving it a fully or partially aligned score in principles 2, 3 and 5), the link to greenhouse gas mitigation is not made explicit. As such, a rating of not aligned was given in Principles 6, 7, 9 to 12, 14 and 15. Partial alignment scores were given in principle 8 due to a number of mentions of trade-offs in decision making around sustainable development, and in Principle 13 as there is a strong focus in the NSDP in making provision for addressing poverty and the development patterns which came about as a result of Apartheid.

The scoring guide for high level policy frameworks and strategies was applied in the policy gap assessment.

Table 83 NSDP policy gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | | | | | | | | |
| 2 | | | | | | | 2.5 | This section talks broadly to the protection of the environment and space. |
| 3 | | | | | | | 1.6.3 | Mentions how spatial development can have an efficiency benefit for a number of different resources, including energy, water, materials etc |
| 4 | | | | | | | | |
| 5 | | | | | | | | The need for efficient and effective public transport is mentioned extensively throughout the document. |
| | | | | | | | 2.4.1 | Intermodal links, and an improved rail network, can both act as potential mitigation elements in the transport sector. |
| | | | | | | | 1.1 Principle 5 | Urban densification reduces travel distances and hence lowers emissions. |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | 1.1, 1.2, 1.1.1 | One of the overriding aims of this document is to ensure that all three of the sustainable development pillars are covered. These sections mention the challenging trade-offs in development planning (although not directly on the mitigation elements, but this is considered to be implicit). |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 11 | Behaviour change | | | | | | | | |
| 12 | Equity | | | | | | | | |
| 13 | Special needs | | | | | | | 1.1 Principle 5 | Poverty and redressing apartheid issues are explicitly considered in the NSDP. |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | | |

6.2 Policy gap assessment – recommendations

In terms of **prioritising documents to try and increase their alignment with the NCCRP principles**, four general principles are of particular importance, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

Only one document, the NATMAP, is fully aligned with three of the four principles. With respect to Consideration of Emissions Implications, the document specifically identifies GHG emissions as an issue that needs to be addressed. While there is a requirement to monitor modal share (which has a relationship to emissions), the link is not made explicit in the document. Furthermore, quantified targets are required to be set by mode based on technology superiority preferences, including energy efficiency and "environmental performance" – with a clear link to emissions.

The National Land Transport Act, Draft Non-Motorised Transport Policy, White Paper on National Transport Policy, and Draft South African Maritime Transport Policy are all either partially or fully aligned with these principles, suggesting that these documents do not require significant attention during the engagement process. That said, however, maritime emissions (for example) are growing steadily. In order to ensure that this is addressed it is important that all the NCCRP mitigation principles are included in the relevant policy documents and that the consideration of emissions implications in particular is implemented in practice.

The National Ports Act does not include reference to mitigation elements, and the National Land Transport Transition Act does not consider emissions implications, both of which may be considered appropriate given the purposes of those documents.

The remaining six documents are the priority documents for attention. The **Road Freight Strategy** shows particularly poor alignment, needing attention in all four of the priority principles. The **Rural Transport Strategy for South Africa** requires the incorporation of Climate Change Mitigation Awareness and Resource Efficiency. Both of these documents are important to engage with given the contribution of road transport to emissions in South Africa. As mentioned above, the **CAA regulations** also include a number of areas where alignment with the NCCRP mitigation principles are lacking (see Section 6.1.3.5) – including around Climate Change Mitigation Awareness, and Emissions Implications – considerations that are also lacking in the **National Freight Logistics Strategy**. The **Public Transport Strategy** is not aligned in the categories of Considering Emissions Implications and Resource Efficiency. Given the significant ability of the actions contained in these documents to impact GHG emissions levels, it is important that all four of the principles are mainstreamed into these documents.

Finally, consideration should be given to incorporating Climate Change Mitigation Awareness into the **National Spatial Development Perspective**. Spatial planning can play a very important role in reducing emissions growth through influencing how housing is provided, how people access services, and how mobility needs are met amongst others. Early consideration of climate change can maximise such benefits.

6.3 Effectiveness of mitigation elements

6.3.1 Mitigation elements reviewed

In the transport sector there were no regulations or implementation plans identified or reviewed as part of this project. In order to demonstrate the effectiveness assessment in this sector, one strategy and one high-level policy document were analysed using the effectiveness framework. These documents are the National Land Transport Strategic Framework (NLTSF) and the National Transport Master Plan. The former was identified to include two mitigation elements, and the latter five mitigation elements.

Given the nature of these documents, it would be expected that they would not contain the required level of detail to determine the effectiveness of the mitigation elements contained therein, and hence may score low in the analysis. That level of detail would rather be expected in the regulations and implementation plans that flow from these documents. The analysis that follows should be read in this context.

6.3.2 Summary of results

The NLTSF contained two mitigation elements, namely a general 'reduction in emissions' strategy and a move from road to rail strategy. The following effectiveness criteria indicated factors likely to increase the probability that both elements would be successfully implemented: Logic Model, Funding for Implementation and Institutions. Expected Emissions Reductions Specified was neglected for both mitigation elements. The only other factor likely to reduce the probability that a mitigation element would not be implemented successfully is the lack of consideration of whether sufficient human capital is available to support a move from road to rail. A detailed audit of the skills requirements that will accompany a significant increase in freight rail volumes in South Africa will address this shortcoming. All the remaining effectiveness criteria indicated that although there is still some work that needs to be done to create conditions conducive to support the successful implementation of the mitigation elements, the required actions have been identified in the documents.

Given that the mitigation elements were contained in a high-level strategy document, they scored exceptionally well in the effectiveness assessment. It is thus likely that all the remaining design shortcomings will be addressed once the mitigation elements are included in detailed implementation plans.

In terms of the National Transport Master Plan, for all of the mitigation elements considered, the logic models were sound, the technologies chosen were encouraging, and time frames for implementation were stated. Furthermore, for all except transport demand management, the supporting infrastructure is in place for the mitigation element to be effective, and funding is considered for all except Integrated urban management and transport planning. There is less alignment with the Human Capital principle.

Table 84 Mitigation element effectiveness summary - Transport

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Relative Effectiveness |
|------------------------|---|--|---|--|---|--|---|--|------------------------|
| | | National Land Transport Strategic Framework - Reduction of emissions | National Land Transport Strategic Framework - Freight shift from road to rail | National Transport Master Plan - Transport Demand Management | National Transport Master Plan - Public Transport | National Transport Master Plan - Promoting non-motorised transport | National Transport Master Plan - Integrated urban management and transport planning | National Transport Master Plan - Shift from road to rail | |
| Effectiveness criteria | | | | | | | | | |
| 1 | Logic model (theory of change) | | | | | | | | 100% |
| 2 | Expected emissions reductions specified | | | | | | | | 0% |
| 3 | Time frame for implementation | | | | | | | | 86% |
| 4 | Regulatory environment | | | | | | | | 29% |
| 5 | State of technology | | | | | | | | 86% |
| 6 | Human capital | | | | | | | | 21% |
| 7 | Implementation incentives | | | | | | | | 14% |
| 8 | Funding for implementation | | | | | | | | 86% |
| 9 | Supporting infrastructure | | | | | | | | 79% |
| 10 | Institutions | | | | | | | | 50% |
| Relative Effectiveness | | 60% | 55% | 45% | 65% | 50% | 40% | 70% | |

Interestingly, the regulatory environment isn't always clear for all of the mitigation elements to be effective – which might be expected given this is a master plan for transport. However, it may be argued that the regulations are specified in other documents. For none of the mitigation elements is the link to emission reductions specified.

Of the mitigation elements in NATMAP, it appears that the shift from road to rail and public transport have the greatest chances of being effective, while Integrated urban management and transport planning has the lowest likelihood of success.

6.3.3 Effectiveness assessment by mitigation element

6.3.3.1 National Land Transport Strategic Framework - Reduction of emissions

Three of the effectiveness criteria considered point to a high probability that the mitigation element can be implemented successfully (namely the Logic Model, Funding for Implementation and Supporting Infrastructure criteria). The only effectiveness criterion not addressed with respect to this mitigation element is the quantification of likely emissions reductions. All the remaining effectiveness criteria indicated that although there is still some work that needs to be done to create conditions conducive to support the successful implementation of the mitigation elements, the required actions have been identified in the documents (or at the very least the oversights are not expected to impact significantly on the ability to implement the mitigation element).

In conclusion, it seems that this particular mitigation element has been designed in a way that is conducive to it being successfully implemented.

6.3.3.2 National Land Transport Strategic Framework - Freight shift from road to rail

Three of the effectiveness criteria considered point to a high probability that the mitigation element can be implemented successfully (namely the Logic Model, Funding for Implementation and Institutions criteria). The only effectiveness criterion not addressed with respect to this mitigation element are the quantification of likely emissions reductions, and the consideration of human capital availability. All the remaining effectiveness criteria indicated that although there is still some work that needs to be done to create conditions conducive to the support successful implementation of the mitigation elements, the required actions have been identified in the documents (or the very least a belief exists that the oversights are not expected to impact significantly on the ability to implement the mitigation option).

In conclusion, although its design is not as complete as that of the preceding mitigation element, it does seem as if the mitigation element has been designed in a way that is conducive to it being successfully implemented.

Table 85 Reduction in emissions NLTsf effectiveness assessment

| Effectiveness criteria | Alignment category | | | Relevant section | National Land Transport Strategic Framework - Reduction of emissions Description |
|---|--------------------|---|---|--------------------|---|
| | H | M | L | | |
| 1 Logic model (theory of change) | H | M | L | 3.11.1 | Air pollution will be minimised through the reduction of vehicle exhaust emissions and the promotion of clean land transport modes and practices. -Transport plans should strive to implement travel demand management (TDM) measures which are aimed at reducing single-occupant private car usage, especially for commuting trips. -Transport plans will promote the usage of public passenger transport modes such as rail, bus and taxi as well as non-motorised modes such as walking and cycling. -Government will promote the use of more efficient vehicle technologies and fuels. -Government will promote the reduction of emissions to improve air quality by, amongst others, reviewing current environmental standards and promoting effective roadworthiness testing. |
| 2 Expected emissions reductions specified | | | L | | Not specified, but medium selected because reducing vehicle exhaust emissions is expected to reduce GHG emissions |
| 3 Time frame for implementation | | M | | | Time frames not adequately discussed, but the document does mention checking the KPIs set out in the document periodically and funding for the implementation of the NLTsf for the 'next' 5 years. |
| 4 Regulatory environment | | M | | 2.6 | Regulatory framework for transport largely in place. Processes are underway to address shortcomings, namely: documents relating to planning requirements will be finalised and regulations will be gazetted, and the Transport Appeal Tribunal (TAT) and provincial appeal bodies, where applicable, will be established. |
| 5 State of technology | | M | | 3.3.1 | The delivery of the road network will be made more efficient: Modern “operations technology”, such as travel demand management (TDM) and intelligent transportation systems (ITS), will be incorporated to increase capacity. |
| 6 Human capital | | M | | 3.2.3; 3.3.1 | The development of the network will include the development of SMMEs and the enhancement of skills and capacity. |
| 7 Implementation incentives | | M | | 3.3.1 and pg 40 | The delivery of the road network will be made more efficient: Design standards will be refined to achieve the optimum balance between cost and utility. Bus services receiving operating subsidies from national or provincial government will help incentivise more public transport usage |

| Effectiveness criteria | | Alignment category | | | National Land Transport Strategic Framework - Reduction of emissions | |
|------------------------|----------------------------|--------------------|---|---|--|---|
| | | H | M | L | Relevant section | Description |
| 8 | Funding for implementation | | | | 5.3 | The DOT is further committed to the funding of the nationally driven components of the NLTSF through its existing budgets and through leveraging additional resources from the National Treasury. |
| 9 | Supporting infrastructure | | | | 3.1.6 | Selected public transport infrastructure will be upgraded. Facilities that give priority to public transport on existing roads will be promoted. The management and maintenance of public transport infrastructure will be improved. A national land transport information system will be developed. |
| 10 | Institutions | | | | 2.6 | Institutions largely in place, although co-ordination of institutional responsibilities relating to land transport must be strengthened. Transport Appeal Tribunal (TAT) and provincial appeal bodies, where applicable, will be established. The key responsibility in implementation lies with National Government, but the provincial and local level of government are also included. |

Table 86 Freight shift from road to rail NLTsf effectiveness assessment

| Effectiveness criteria | Alignment category | | | Relevant section | Description |
|---|--------------------|---|---|------------------|--|
| | H | M | L | | |
| 1 Logic model (theory of change) | | | | 3.5.3 | Shifting freight from road to rail is a proven mitigation option that has been implemented successfully internationally. |
| 2 Expected emissions reductions specified | | | | | This is not mentioned |
| 3 Time frame for implementation | | | | | Time frames not adequately discussed, but the document does mention checking the KPIs set out in the document periodically and funding for the implementation of the NLTsf for the 'next' 5 years. |
| 4 Regulatory environment | | | | 3.5.3 | <p>The sustainability of current road Gross Vehicle Mass (GVM) limits will be investigated and recommendations for changes, if appropriate, will be implemented after a consultative process.</p> <p>More efficient law enforcement with regard to overloading and prosecution of offenders will be carried out as part of the implementation of the Road to Safety 2001 -2005.</p> <p>Effective performance regulation will be introduced, and ownership and competition issues as they affect the three spheres of government will be clarified.</p> <ul style="list-style-type: none"> -The draft rail policy will be finalised -A strategic rail oversight function will be developed in the national sphere of government -The institutional framework for rail across all three spheres of government will be clarified. -The possibility of involving the private sector in operations will be explored. <p>Local transport plans will address the integration of rail services within the overall transport system and these plans will inform the national-level institutions responsible for rail service provision.</p> |
| 5 State of technology | | | | 3.5.3 | Improved service levels for customers using rail freight will be promoted through the effective management of rail freight systems. This is likely to involve the use of fairly standard technologies. |
| 6 Human capital | | | | | Human capital not discussed |
| 7 Implementation incentives | | | | | <p>Strategies will be developed in support of more realistic cost-recovery mechanisms in the road freight system.</p> <p>A more balanced sharing of freight transport between road, rail and pipeline modes will be promoted and will be based on economic and efficiency grounds that incorporate the total costs of each mode to the economy.</p> |

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|----------------------------|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 8 | Funding for implementation | | | | 5.3 | The DOT is further committed to the funding of the nationally driven components of the NLTSF through its existing budgets and through leveraging additional sources from Treasury. |
| 9 | Supporting infrastructure | | | | 3.5.3 | Improved service levels for customers using rail freight will be promoted through the effective management of rail freight systems |
| 10 | Institutions | | | | 3.1.10 | No new institutions will be required. The key responsibility lies with National Government, but the provincial and local level of government are also included. |

6.3.3.3 National Transport Master Plan - Transport Demand Management

Table 87 shows the effectiveness assessment for this mitigation element. In interpreting this element, it needs to be highlighted that transport demand management does include some of the other elements reviewed from this document. It can be seen that there is a sound logic model, time frame for implementation, a suitable technology base, funding base, supporting infrastructure and institutions which will contribute to the effectiveness of the mitigation element. Given the nature of the document, it could be argued that the low ratings for the other criteria is appropriate. Clearly, however, a stronger link with expected emissions reductions could be made.

6.3.3.4 National Transport Master Plan – Public Transport

For the mitigation element of public transport, Table 88 shows that there is medium to high likelihood of success attributed to with a high number of the effectiveness criteria, suggesting a good chance for it to be effectively implemented. The lack of consideration of the cost-effectiveness of this mitigation element (Implementation Incentives principle), and the lack of estimation of expected emission reduction outcomes, is consistent with other documents in the transport sector. These are consideration that could be addressed across the board in this sector.

6.3.3.5 National Transport Master Plan – Promoting non-motorised transport

Table 89 shows the effectiveness assessment for this mitigation element. The likelihood of success is not as consistently high as for some of the other elements considered, suggesting a lower potential effectiveness of this mitigation element. In particular, the following effectiveness criteria casts doubt on the likely effectiveness of this mitigation element: Regulatory Environment, Human Capital, Implementation Incentives and Institutions.

6.3.3.6 National Transport Master Plan – Integrated urban management and transport planning

Table 90 shows that there are a number of the effectiveness criteria for which a “low” rating is giving for this mitigation element, suggesting that, based on the assessment, there may be some concerns relating to the effectiveness thereof. These include the regulatory environment, human capital, funding and institutional arrangements. Having said that, however, some of these issues may be addressed by policy relating to urban development and town planning. There would be merit in ensuring this is the case, and that relevant documents are aligned to ensure effective implementation of this mitigation element, as it has a number of positive benefits including mitigation.

6.3.3.7 National Transport Master Plan – Shift from road to rail

The shift from road to rail has been suggested by previous analyses to be the mitigation element with one of the highest potentials for total emission reductions in this sector. As such, it is good to see in Table 91 that there is high or medium likelihood of success attributed to all the effectiveness criteria except two. The low rating for the Expected Emissions Reductions Specified criterion is consistent with the remainder of the documents reviewed in this sector, and that of the Implementation Incentives might be expected given the nature of the mitigation element and that of the document being reviewed.

Table 87 National Transport Master Plan – Transport Demand Management effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | National Transport Master Plan - Transport Demand Management (noting that some of the other mitigation elements reviewed also play a role in TDM) | Description |
|------------------------|---|--------------------|---|---|--------------------------------------|--|-------------|
| | | H | M | L | | | |
| 1 | Logic model (theory of change) | | | | 3.4.1.2 (iv), 3.4.2.2 (i) and others | Demand management has a clear positive impact on emissions - this is also directly stated in 3.4.2.2 (vii). | |
| 2 | Expected emissions reductions specified | | | | | Insufficient information to make the assessment of emissions implications - which is appropriate for a high-level document such as this one. | |
| 3 | Time frame for implementation | | | | 5, Annexures | The document provides details of timing (over 5 to 10 year blocks of time) for a vast number of projects. | |
| 4 | Regulatory environment | | | | | Not clear from this document what the specific regulatory requirements are for this mitigation element to be carried out. | |
| 5 | State of technology | | | | | The components of demand management, which include urban planning, traffic management etc are clearly defined, and are well established globally and skills are available locally for it to be implemented properly. | |
| 6 | Human capital | | | | | Although there are broad statements relating to training in the document, there is no specific reference to human capital for this mitigation element. | |
| 7 | Implementation incentives | | | | | None identified | |
| 8 | Funding for implementation | | | | 6.4 | Funding for implementation of the Plan is described in detail, which includes funding for this mitigation element. | |
| 9 | Supporting infrastructure | | | | | Various kinds of infrastructure are required for TDM. The Plan identifies the need for identifying what infrastructure is required. | |
| 10 | Institutions | | | | 3.9 | It is mentioned that recommendations are made in "Chapter 10 of the Phase 3 Consolidated Report (Forward Planning) for the establishment of new institutions and the transformation of existing institutions". The Phase 3 report precedes the report on which this analysis is based. However no specific recommendations were identified | |
| | | 4 | 2 | 4 | | | |

Table 88 National Transport Master Plan – Public transport effectiveness assessment

| Effectiveness criteria | | Alignment category | | | National Transport Master Plan - Public Transport | |
|------------------------|---|--------------------|---|---|---|---|
| | | H | M | L | Relevant section | Description |
| 1 | Logic model (theory of change) | | | | 3.4.2.2 (iii) | Public transport is well established as a mechanism for reducing greenhouse gas emissions. This section identifies the link between public transport and environmental management, of which GHG emissions is identified to be one component. |
| 2 | Expected emissions reductions specified | | | | | Insufficient information to make the assessment of emissions implications - which is appropriate for a high-level document such as this one. |
| 3 | Time frame for implementation | | | | 5, 7.4.3 (iv), Annexures | The document provides details of timing (over 5 to 10 year blocks of time) for a vast number of public transport projects, including both road and rail projects. |
| 4 | Regulatory environment | | | | Table 4 (i) | Although some regulations are in place, such as the Public Transport Strategy of 2007, NATMAP suggests "Changes in the South African "transport culture" is essential but can only be introduced through regulatory measure, including forced restrictions on private car use for person movements" |
| 5 | State of technology | | | | | Public transport options are already entrenched in South Africa's transport systems. |
| 6 | Human capital | | | | 3.6.2 (vii) | "Achievement of competence at all levels in all modes will only be possible if urgent steps are taken to promote the training and education of officials, management, drivers, technicians and operations staff. There is need for creation of several transport training institutions in South Africa, preferably in the form of private sector colleges, backed by assisted study schemes to be developed by government and industry." |
| | | | | | Annexure B | Project 4064 talks to the need for establishment of transport planning institutions/colleges for all modes of transport. "Institutions must be specifically designed to cover all modes, including drivers, operations staff, maritime staff, maintenance staff and operations and senior management. The specific course material and training systems as well as apprenticeship, practice and experience programmes must be developed in collaboration with industrial concerns to ensure usability of the training in meeting industry needs." |
| 7 | Implementation incentives | | | | | |
| 8 | Funding for implementation | | | | 6.4 | Funding for implementation of the Plan is described in detail, which includes funding for this mitigation element. |

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---------------------------|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 9 | Supporting infrastructure | | | | 5, Annexures | A wide range of projects which include development of public transport infrastructure is detailed. |
| 10 | Institutions | | | | 3.9 | It is mentioned that recommendations are made in "Chapter 10 of the Phase 3 Consolidated Report (Forward Planning) for the establishment of new institutions and the transformation of existing institutions". The Phase 3 report precedes the report on which this analysis is based. However no specific recommendations were identified. |
| | | 5 | 4 | 2 | | |

Table 89 National Transport Master Plan - Promoting non-motorised transport effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Although the mechanism by which emission reductions takes place is not explicitly described, this is a well-established intervention for reducing GHG emissions. |
| 2 | Expected emissions reductions specified | | | | | Insufficient information to make the assessment of emissions implications - which is appropriate for a high-level document such as this one. |
| 3 | Time frame for implementation | | | | 5, Annexures | The document provides details of timing (over 5 to 10 year blocks of time) for a vast number of projects. Furthermore 3.4.1.2 suggests that NMT projects should be prioritised in the "short term" |
| 4 | Regulatory environment | | | | | Not covered explicitly in this document. |
| 5 | State of technology | | | | | "Technologies" are simple and relate to options such as provision of safe cycle and pedestrian paths. |
| 6 | Human capital | | | | | Human capital requirements specifically for NMT is not addressed, although this falls under the wider umbrella of transport infrastructure development. This is not addressed explicitly in this document. |
| 7 | Implementation incentives | | | | | |

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|----------------------------|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 8 | Funding for implementation | | | | 6.4 | Funding for implementation of the Plan is described in detail, which includes funding for this mitigation element. |
| 9 | Supporting infrastructure | | | | 5, Annexures | A wide range of projects which include development of NMT infrastructure is detailed. |
| 10 | Institutions | | | | | Not addressed specifically (although it could be argued that this is a part of broader passenger transport institutional capacity) |
| | | 5 | 0 | 5 | | |

Table 90 National Transport Master Plan - Integrated urban management and transport planning effectiveness assessment

| Principle | | Alignment category | | | Relevant section | Description |
|-----------|---|--------------------|---|---|------------------|--|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | 3.4.2.2 (iii) | This mitigation option is well established globally for reducing GHG emissions. |
| 2 | Expected emissions reductions specified | | | | | Insufficient information to make the assessment of emissions implications - which is appropriate for a high-level document such as this one. |
| 3 | Time frame for implementation | | | | | Planning is an ongoing process, so although there is no specific indication of timescales/specific projects, this element is still given a rating of "high" in this principle. |
| 4 | Regulatory environment | | | | | Not clear from the document |
| 5 | State of technology | | | | | Urban and transport planning is well established globally, and local expertise exists in this area. |
| 6 | Human capital | | | | | Not addressed in the document |
| 7 | Implementation incentives | | | | | |
| 8 | Funding for implementation | | | | | Not clear from the document |
| 9 | Supporting infrastructure | | | | | This mitigation element relates to development of physical infrastructure, so the principle is integral to the element, hence the rating of high. |
| 10 | Institutions | | | | | Not covered in the document |
| | | 4 | 0 | 6 | | |

Table 91 National Transport Master Plan - Shift from road to rail effectiveness assessment

| Principle | Alignment category | | | Relevant section | National Transport Master Plan -Shift from road to rail |
|-----------|---|---|---|--------------------------|---|
| | H | M | L | | Description |
| 1 | Logic model (theory of change) | | | | Transport of freight by rail is less energy intensive than by road, and hence less GHG emissions intensive. |
| 2 | Expected emissions reductions specified | | | | Insufficient information to make the assessment of emissions implications - which is appropriate for a high-level document such as this one. |
| 3 | Time frame for implementation | | | 5, 7.4.4 (ii), Annexures | The document provides details of timing (over 5 to 10 year blocks of time) for targets and various projects which will facilitate the shift, including upgrades/building of lines and intermodal transfer stations which are required to implement the road/rail shift. |
| 4 | Regulatory environment | | | 7.3.3 (iv) | "Vigorous regulatory measures will be introduced as part of the main drive to promote the shift from road to rail for both road and rail traffic." |
| 5 | State of technology | | | | Rail is already well established in South Africa |
| 6 | Human capital | | | 3.6.2 (vii) | "Achievement of competence at all levels in all modes will only be possible if urgent steps are taken to promote the training and education of officials, management, drivers, technicians and operations staff. There is need for creation of several transport training institutions in South Africa, preferably in the form of private sector colleges, backed by assisted study schemes to be developed by government and industry." |
| | | | | Annexure B | Project 4064 talks to the need for establishment of transport planning institutions/colleges for all modes of transport. "Institutions must be specifically designed to cover all modes, including drivers, operations staff, maritime staff, maintenance staff and operations and senior management. The specific course material and training systems as well as apprenticeship, practice and experience programmes must be developed in collaboration with industrial concerns to ensure usability of the training in meeting industry needs." |
| 7 | Implementation incentives | | | | |
| 8 | Funding for implementation | | | 6.4 | Funding for implementation of the Plan is described in detail, which includes funding for this mitigation element. |
| 9 | Supporting infrastructure | | | | Development of physical infrastructure is an integral part of this element, hence the rating of high. |

| Principle | | Alignment category | | | Relevant section | Description |
|-----------|--------------|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 10 | Institutions | 6 | 3 | 2 | 6.2.2.1 | Covers institutional infrastructure and changes required for supporting intermodal transport. The need for revising the institutional structures related to achieving this shift are acknowledged in the Phase 3 report which precedes the document being reviewed. Detailed recommendations are provided in that document. |

6.4 Effectiveness of mitigation elements – recommendations

No implementation plans or regulations were identified to be included in the review as part of this project which is to some degree a function of the fact that many of the responsibilities for implementation of transport legislation is assigned to the provincial and local authorities (only certain functions are to be implemented at the national level). As such, the effectiveness of mitigation elements needs to be determined by considering the implementation plans developed by individual provincial and local governments. Even though much of the responsibility for implementing the mitigation elements considered falls on provincial and local government, the documents reviewed still allocated some responsibilities, like coordination and putting in place conducive regulatory environments and installing supporting infrastructure, to the National Department of Transport. It is thus important that implementation plans are also developed at a national level to ensure that these responsibilities are met. At a minimum, the National Department of Transport needs to develop norms and standards to ensure that there is consistency in the way the mitigation elements are implemented across the different jurisdictions.

The National Land Transport Strategic Framework (NLTSF) contains two mitigation elements, namely a general ‘reduction in emissions’ strategy and a move from road to rail strategy. Calculating the expected emissions reductions was neglected for both mitigation elements. The **NLTSF could be enhanced by ensuring that a mechanism is in place to consider the likely emissions implications of the proposed actions**; for example, it could require that emissions data on road and rail be determined so that a given percentage shift from road to rail would yield a given percentage reduction in overall GHG emissions. As long as the basic methodology is set out in the NLTSF, a subsequent implementation plan can provide a more detailed model. **A lack of consideration of whether sufficient human capital is available to implement** a move from road to rail also reduces the likelihood that this option will be implemented effectively and needs to be addressed. **A number of actions have been identified that are required to create conditions conducive to the successful implementation of the mitigation elements contained in the document, and it is important that these actions are included in implementation plans.**

The National Transport Master Plan (NATMAP) contains five mitigation elements, being transport demand management, public transport, promoting non-motorised transport, integrated urban management and transport planning and shift from road to rail. **It is not clear whether supporting infrastructure is required** or in place for transport demand management, and **funding for implementation** has not been considered for integrated urban management and transport planning. The **Human Capital and Institutions effectiveness criteria have also not been applied** to promoting non-motorised transport or integrated urban management and transport planning, and **neither is it clear whether the regulatory environment is conducive** to the implementation of these two elements. **None of the mitigation elements included an estimation of expected emissions reductions, or considered the Implementation Incentives (cost-effectiveness) principle.** The latter, however, is of less importance where actions are required by law.

In summary, it is clear that although policy is in place, which does include consideration of a number of mitigation elements, **the effectiveness criteria to ensure effectiveness of the mitigation elements need to be included in regulations and implementation plans, be they at the national, provincial or local level.** Some of the implementation plans required to fully implement the NATMAP may also flow from related policies or strategies like, for example, the Draft Non-Motorised Transport Policy⁷. In relation to supporting non-motorised transport, a number of the effectiveness criteria neglected in the NATMAP is expected to be covered in the Draft Non-Motorised Transport Policy.

⁷ The National Department of Transport is designated as the main custodian of the NMT policy. It is responsible for among others, ensuring a conducive regulatory environment, develop relevant funding models (including financial assistance from central government), planning and communication (coordination between different spheres of government, making the case for NMT and dissemination best practice), guidelines for infrastructure promoting NMT, - and monitoring and evaluation (including developing indicators to measure progress in supporting NMT and measuring the socio-economic benefits that flow from it). The NMT Policy designates provincial Departments of Transport as responsible for managing the implementation of the NMT in their respective provinces which includes including NMT in the Integrated Transport Plans of municipalities. Even though the Draft NMT Policy delegates much of the responsibility for implementing NMT to provincial and local government, it does allocate a number of responsibilities to the National Department of Transport. It is thus important that an implementation plan (at national level) is developed to ensure these responsibilities are met. In addition, since it is tasked with a coordination function, an important part of this national implementation plan will be to support (and measure progress in) the development of additional implantation plans at provincial and local level.

7 WASTE

7.1 Policy gap assessment

7.1.1 Documents reviewed

The following documents were included in the gap analysis:

- National Environmental Management: Waste Act (No 59 of 2008) (NEM: WA)
- National Waste Management Strategy (2011) (NWMS)
- National Policy on Thermal Treatment of General and Hazardous Waste (2009) (TTGHW)
- Municipal Waste Sector Plan (2012) (MWSP)
- National Environmental Management Waste Act: List of Activities which have or are likely to have a detrimental effect on the environment (2013)
- National Organic Waste Composting Strategy (2013) (NOWCS)
- Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas (2013) (EFRRLG)
- Waste Classification and Management Regulations (2013)
- National Norms and Standards for the Assessment of Waste for Landfill Disposal (2013)
- National Norms and Standards for Disposal of waste to Landfill (2013)
- National Waste Information Regulations (2012)

During the stakeholder consultation process, three further documents were identified for consideration for inclusion in the study. The waste tyre regulations (2009) were considered for inclusion. However, while there is reference to energy recovery from tyres, and indication that reuse/recycling is a preferred option to energy recovery, the regulations primarily focus on making provision for various party's duties with respect to tyres, and the requirement for the development of tyre management plans. As such, they were considered to be irrelevant in this document. The other documents proposed, but considered to have no relevance here were the Standards for Scrapping or Recovery of Motor Vehicles (2013), and the Norms and Standards for Storage of Waste (2013).

7.1.2 Summary of results

Table 92 shows the summary of the alignment of the documents in the waste sector with the NCCRP principles.

As expected, the principle of Resource Efficiency is extensively covered by documents in the waste sector, and since many of these have a mitigation benefit, there is good alignment with the Mitigation Elements principle. There is recognition of a climate mitigation imperative and the Precautionary Principle in three of the documents reviewed, and of sustainable development benefits in four of the documents. However only one document is rated at least "partially aligned" in terms of the Consideration of Emissions Implications principle.

Table 92 Summary of policy alignment in the Waste sector

| Document name | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | Relative Alignment |
|---|---------|----|------|----|-------|----|------|----|-------|----|-------|----|--------------------|
| | NEM: WA | | NWMS | | TTGHW | | MWSP | | NOWCS | | EFRLG | | |
| | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | |
| 1 CC Mitigation awareness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 2 Consideration of emissions implications | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 3 Resource efficiency | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 4 RD&I | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 5 Mitigation elements | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 6 Dynamic and evidence based | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 7 Precautionary principle | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 8 Sustainable development pillars | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 9 Risk management, adaptation and other co-benefits | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 10 Cost-effectiveness | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 11 Behaviour change | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 12 Equity | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 13 Special needs | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 14 Polluter pays | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| 15 Resource mobilisation | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Relative Alignment |
| Relative alignment | | | | | | | | | | | | | |

In terms of individual documents, the National Waste Management Strategy (NWMS) shows very strong alignment, and the Municipal Waste Sector Plan (MWSP) and the Waste Act (NEM: WA) are also aligned in a number of principles. There is also some alignment in the National Policy on Thermal Treatment of General and Hazardous Waste (TTGHW). Given that the NWMS represents the strategy for implementation of the Waste Act, and the Municipal Waste Sector Plan a plan for implementation at the municipal level, the alignment of these two documents is encouraging. Although alignment is low for the two other documents reviewed, this is not unexpected given the content of these documents. Opportunities for increased alignment do however exist for all these documents. It is noted that five documents have been excluded from the table as described below, as few or none of the mitigation principles were considered to be applicable to them.

7.1.3 Detailed assessment by document

7.1.3.1 National Environmental Management: Waste Act (No 59 of 2008)

7.1.3.1.1 Overview

The overriding purpose of this Act is to reform the law regulating waste management by putting greater emphasis on protecting health and the environment and contributing to sustainable development. Areas touched on include institutional arrangements and planning matters; providing for national norms and standards for regulating the management of waste; specific waste management measures; licensing and control of waste management activities; and remediation of contaminated land. Consideration is also given to compliance and enforcement. Finally, the Act makes provision for establishment of the national waste information system.

The Act is relevant to climate change mitigation from two key perspectives. The first of these is that it covers reuse and recycling of waste which is implicitly a mitigation measure, in that these activities often have a lower GHG emissions impact than producing goods from primary products. The second is that consideration is given to “recovery” from waste which includes “retrieval of energy from waste” – a mitigation measure that reduces energy generation from primary resources.

7.1.3.1.2 Assessment summary

Table 93 shows the policy gap assessment framework applied to this Act.

The Act provides high level guidance relating to waste management and environmental protection, and includes consideration of a number of activities which have the potential to contribute to climate mitigation – notably reuse, recycling and recovery of waste. Furthermore, the Act strongly promotes resource efficiency. Based on the provisions made for these activities, full alignment is seen on three of the principles (Consideration of emissions implications, Resource efficiency and being Dynamic and evidence based) and partial alignment on five more of the principles.

Table 93 National Environmental Management: Waste Act gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|-------------------------------|---|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | 2 | The Act promotes "securing ecologically sustainable development while promoting justifiable economic and social development" and "to ensure that people are aware of the impact of waste on their health, well-being and the environment." It could be argued that this reference includes climate change through the reference to environment and ecologically sustainable development, but this is not made explicit. |
| 2 | Consideration of emissions implications | | | | | | | Chapter 6 | The Waste Information System requires the collection of information of waste type, volume and management approach. This information could be used to calculate the GHG emissions implications of various management options, using generic emission factors if technology specific data is not available. |
| 3 | Resource efficiency | | | | | | | Section 17 and Part 7 | Section 17 of the Act focuses specifically on reduction, re-use, recycling and recovery of waste. This is also covered in Part 7 (Industry Waste Plans). Aspects are also covered elsewhere. |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | Section 17, Part 7 and others | A number of provisions are made from "recovery" from waste, which is defined to include "retrieval of energy from waste" |
| | | | | | | | | Section 17, Part 7 and others | Strong focus on recycling and reuse, as well as resource efficiency, which all have mitigation implications. |
| 6 | Dynamic and evidence based | | | | | | | 60 | Section 60 makes reference to the national waste information system which does require data on " waste generated, stored, transported, treated, transformed, reduced, re-used, recycled, recovered and disposed". |
| 7 | Precautionary principle | | | | | | | | |
| 8 | Sustainable development pillars | | | | | | | | Act mentions that sustainable development should be considered during implementation. This includes "recovery" options. However many of the requirements are devolved to norms and standards, waste management plans etc. |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | 2 | The potential co-benefits of effective waste management, including by recycling, reuse and recovery, are clearly outlined in this section. The theme is carried throughout the document, suggesting that during planning the potential for integrated waste management to minimise impacts on health and the environment must be considered. |
| 10 | Cost-effectiveness | | | | | | | | |
| 11 | Behaviour change | | | | | | | | |
| 12 | Equity | | | | | | | | |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | | |

However, given that the Act has limited information on implementation of these activities (which is considered to be appropriate for a document of this nature), there is no alignment with the Precautionary Principle and the ,Cost-Effectiveness, Behaviour Change, Equity, Special Needs, Polluter Pays and Resource Mobilisation principles. The Act is not contradictory to any of the principles considered.

In revising this document, consideration could be given to making the implicit link between effective waste management and climate change explicit.

The scoring guide customised for legislation and acts was used in the policy gap assessment.

7.1.3.2 National Waste Management Strategy (2011)

7.1.3.2.1 Overview

The National Waste Management Strategy (NWMS) is a legislative requirement of the Waste Act, discussed above. The purpose of the NWMS is to achieve the objectives of the Waste Act, and therefore it provides a detailed approach to achieving these objectives, a description of the necessary instruments, information on implementation and a detailed action plan.

As with the Waste Act described in the previous section, successful implementation can have climate mitigation benefits, although the actions need to be properly designed with full life cycle considerations taken into account to ensure these benefits are realised.

7.1.3.2.2 Assessment summary

Table 94 shows the policy gap assessment framework applied to this strategy.

The NWMS provides a detailed strategy for implementation of the Waste Act. It recognises explicitly the link between waste management and climate change, and if properly implemented, reuse, recycling and recovery activities can have positive mitigation effects. The Act is either partially or fully aligned with all of the principles except the Special Needs principle.

It should be noted that sometimes waste management activities can have a GHG emission cost rather than savings, when considered on a life cycle basis (for example, in the case of long transport distances to facilities or heavy energy investment in recycling). It is questionable, however, whether it is feasible under the strategy to require a full life cycle assessment on every project to ensure emissions savings to be conducted. Consideration could be given to developing generic guidelines for assessing where life cycle carbon impacts of waste related activities could become relevant to determining overall emissions, and where further analysis of an activity is required before implementation.

The scoring guide customised for implementation plans was used in the policy gap assessment.

Table 94 National Waste Management Strategy gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|------|-----|------------------------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | 2.2 | The Strategy mentions that waste management contributes to the Government Wide Monitoring & Evaluation "Output 2: Reduced greenhouse gas emissions, climate change and improved air quality, waste minimisation, diversion of waste from landfill, composting and reduced resource consumption will help to reduce CO ₂ emissions". Having said that, it doesn't take this consideration further. |
| | | | | | | | | 3.3 | The Strategy suggests that "Other discretionary norms and standards will be identified and developed using the following criteria: .. Relationship to other priority sectors (such as waste-to-energy and its contribution to the climate change mitigation strategy)." |
| 2 | Consideration of emissions implications | | | | | | | | The whole document is focused on environmental protection, through effective waste management. |
| | | | | | | | | Goal 5 and section 4.8 | In addition to the general provisions relating to environmental protection, there are provisions relating specifically to GHG emissions. For example, "Establish baseline information on waste flows for accurate waste planning and produce annual statistics from SAWIS on waste management." and "All waste management facilities required to report to SAWIS have waste quantification systems that report information to WIS." and other provisions for SAWIS. The data available from the waste information system will be sufficient to estimate emissions, using generic emission factors. |
| 3 | Resource efficiency | | | | | | | See for example Goal 1 in Table 1 | Very strongly, central to a number of components of the Strategy. |
| 4 | Research, development and innovation | | | | | | | Goal 2 in Appendix 1 - Action Plan | Mentions "Undertake a feasibility study for municipalities to implement options for waste to energy." |
| 5 | Mitigation elements | | | | | | | 2.6 Goal 1 | The Strategy mentions that "for waste types that cannot be re-used or recycled, various options exist for energy recovery, including biogas projects and methane gas from landfills" but does not frame this as a mitigation option. |
| | | | | | | | | See for example Goal 1 in Table 1 | Waste reuse and recycling is implicitly a mitigation element |
| 6 | Dynamic and evidence based | | | | | | | 4.8 | The document refers to the creation of SAWIS (which is a requirement of section 60 of the Waste Act), which will require data gathering including "current quantities of waste which are generated, reduced, re-used, recycled, recovered, stored, transported, treated and disposed". Recovery does include energy to waste in this context. |
| 7 | Precautionary principle | | | | | | | 1.3 | Refers to NEMA which requires application of the Precautionary Principle. |

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|---|-----|-----|-----|------|-----|------------------|--|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 8 | Sustainable development pillars | | | | | | Goal 3 | The social, economic and environmental benefits of waste management are acknowledged. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | Goal 3 | Provides for measurement of the job creation in the waste sector |
| | | | | | | | 2.1 | "The overall purpose of the strategy is to give effect to the objects of the Waste Act, which are to protect health, well-being and the environment through sound waste management and application of the waste management hierarchy" |
| 10 | Cost-effectiveness | | | | | | Goal 6 | Ensure sound budgeting and financial management for waste services. Full-cost accounting lays the basis for managing waste services as a financially sustainable service for all. Full-cost accounting will also indicate whether it is more cost effective to have internal or external waste service providers. |
| 11 | Behaviour change | | | | | | 3.8 | The Waste Act "empowers the Minister, in concurrence with the Minister of Finance, to make regulations for incentives and disincentives to encourage a change in behaviour towards waste generation and management. Economic instruments can change behaviour indirectly by creating a set of incentives and disincentives through pricing." |
| | | | | | | | Goal 4 | "DEA will launch a long term awareness campaign on waste management, to be implemented in a sustainable and incremental manner, with the objective of achieving behaviour changes." |
| 12 | Equity | | | | | | Goal 4 | "Specific criteria for municipal performance will inform recognition programmes. These include sustainable and equitable provision of waste services and community awareness and participation in waste management." |
| 13 | Special needs | | | | | | | |
| 14 | Polluter pays | | | | | | 3.8 | This section discusses the polluter pays principle, including "... not only the direct financial costs of collection, treatment and disposal of waste, but also externalities such as health and environmental impacts." |
| 15 | Resource mobilisation | | | | | | Goal 6 | Ensure sound budgeting and financial management for waste services. |
| | | | | | | | 3.6.1 | "The design of the EPR measures for mandatory schemes will include appropriate funding mechanisms to attract consumer participation, the establishment of cost-effective collection and return networks for discarded products, the identification of markets and uses for returned products and materials, and achieving co-operation where multiple firms are involved." |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|--|--------------------|-----|-----|-----|------|-----|------------------|--|
| | | FAL | PAL | NAL | CON | UNCL | N/A | | |
| | | | | | | | | 3.8 | The Waste Act “empowers the Minister, in concurrence with the Minister of Finance, to make regulations for incentives and disincentives to encourage a change in behaviour towards waste generation and management. Economic instruments can change behaviour indirectly by creating a set of incentives and disincentives through pricing.” |
| | | | | | | | | 4.7 | Requirements for capacity building at all three levels of government to implement the Waste Act are broadly identified. |

7.1.3.3 National Policy on Thermal Treatment of General and Hazardous Waste (2009)

7.1.3.3.1 Overview

This policy presents Government's position on thermal waste treatment as an acceptable waste management option in South Africa. It provides the framework within which two thermal waste treatment technologies shall be implemented, being incineration of general and hazardous waste and the co-processing of general and hazardous wastes as alternative fuels and/or raw materials in cement production.

Given that use of waste for energy recovery represents a greenhouse gas mitigation option (providing the waste has no higher value usage), this policy has a direct bearing on mitigation.

7.1.3.3.2 Assessment summary

Table 95 shows the policy gap assessment framework applied to this Policy.

Given that this policy relates directly to potential mitigation elements, there is in general strong alignment relating to the recognition of climate change, and the management of risk associated with these elements. This is evidence in full or partial alignment to a number of principles including Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency, Mitigation Elements, Precautionary Principle and Sustainable Development Pillars.

The areas of non-alignment are to be expected given the high-level nature of the document. Areas for improving alignment do however exist. Furthermore, the non-alignment with RD&I, is an omission, given the subject of the document.

The scoring guide customised for high level policies and strategies was used in the policy gap assessment.

7.1.3.4 Municipal Waste Sector Plan (2012)

7.1.3.4.1 Overview

The stated purpose of the document is to assist government, particularly Municipalities, to put in place mechanisms and systems to deal with waste services backlogs. The plan does make provision for implementation of measures that will have a direct influence on mitigation – notably by reducing the amount of garden waste being sent to landfill by diverting it to composting (which reduces the potential for methane generation from this material in landfills), and reducing waste and increased recycling of materials which potentially reduces the greenhouse gas impacts associated with supply of raw materials. Energy recovery from waste is also mentioned as one of the basket of options.

Table 95 National Policy on Thermal Treatment of General and Hazardous Waste gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|----|-----|-------------------------------------|--|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | 4.1 | Through this policy on thermal waste treatment, Government aims to demonstrate the country's commitment to reducing its GHG emissions, such as methane generation from landfills, and CO ₂ from calcination and coal combustion in cement production. |
| 2 | Consideration of emissions implications | | | | | | | 11 | "Any cement plant co-processing general or hazardous waste as alternative fuels and/or raw materials (AFRs), and any dedicated general and/or hazardous waste incinerator must have the relevant approvals from the competent authority in terms of South African environmental legislation." The requirements for achieving this are laid out in the document. |
| 3 | Resource efficiency | | | | | | | Section 1, and various other places | The Policy recognises the inherent value of wastes and their role in promoting resource efficiency. |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | 4.1 | The policy recognises that energy from waste has a role to play in mitigating GHG emissions. Having said that, it does not provide further detail. |
| 6 | Dynamic and evidence based | | | | | | | 6.6 | The Department is committed to supporting the implementation of this policy in terms of monitoring, enforcement and capacity building through the development of an Implementation Plan, specifically as concerns the current proposals for co-processing of waste as fuel in cement production. However, it is not clear how this will extend to GHG emissions. |
| 7 | Precautionary principle | | | | | | | 11.2 | The requirements of NEMA are referred to in this regard. Each project requires an individual risk assessment to be conducted. |
| | | | | | | | | 11.3 | A detailed, site-specific Operational and Environmental Management Plan is required that addresses various factors including risk. |
| 8 | Sustainable development pillars | | | | | | | 1, 3 | The environmental benefit of diverting waste from landfill is mentioned. |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | | |
| 10 | Cost-effectiveness | | | | | | | | |
| 11 | Behaviour change | | | | | | | | |
| 12 | Equity | | | | | | | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|-----------------------|--------------------|-----|-----|-----|----|-----|------------------|--|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | | |
| 15 | Resource mobilisation | | | | | | | | The document talks broadly about funding for infrastructure, but not for specific mitigation elements. |

Table 96 Municipal Waste Sector Plan gap assessment

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|----|-----|--|--|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 1 | Climate Change Mitigation awareness | | | | | | | | |
| 2 | Consideration of emissions implications | | | | | | | 3.3.5 | One of the priority areas of action is identified to be " Active participation in the National Waste Information System (WIS) to ensure that all waste facilities are registered and report on their respective waste quantities." The Waste Information System requires the collection of information of waste type, volume and management approach. This information could be used to calculate the GHG emissions implications of various management options, using generic emission factors if technology specific data is not available. |
| 3 | Resource efficiency | | | | | | | 3.3.1, 3.3.8, Appendix 1 (action plan) | Resource efficiency is implicit in composting, waste reduction, recycling and energy recovery. |
| 4 | Research, development and innovation | | | | | | | | |
| 5 | Mitigation elements | | | | | | | 3.3.1, 3.3.8, Appendix 1 (action plan) | Mitigation is an outcome of composting, waste reduction, recycling and energy recovery. |
| 6 | Dynamic and evidence based | | | | | | | 3.3.5, 6.1, Appendix 1 (action plan) | References the requirements of the Waste Act to establish SAWIS |
| 7 | Precautionary principle | | | | | | | | |

| Principle | | Alignment category | | | | | | Relevant section | Description |
|-----------|---|--------------------|-----|-----|-----|----|-----|--------------------------|---|
| | | FAL | PAL | NAL | CON | NC | N/A | | |
| 8 | Sustainable development pillars | | | | | | | 1.2.2.3, 2 | "District municipalities must pursue the integrated, sustainable and equitable social and economic development of the district." |
| 9 | Risk management, adaptation and other co-benefits | | | | | | | 3.3.10 | "The waste sector plays an important role in terms of job creation, in particular for semi-skilled and unskilled workers." and "The recycling industry has the potential to contribute towards job creation through materials collection and the sorting of waste. Indirect job opportunities are created for informal collectors who sell their produce to buy-back centres. The recycling industry further presents opportunities for the establishment of new enterprises such as crafts from recycled materials." |
| 10 | Cost-effectiveness | | | | | | | | |
| 11 | Behaviour change | | | | | | | 3.3.1 | Changing behaviour to encourage waste reduction, re-use and waste separation at source. |
| 12 | Equity | | | | | | | Appendix 1 (action plan) | "Derive a service payment model which will recover the costs of the service without disadvantaging the poor." |
| 13 | Special needs | | | | | | | | |
| 14 | Polluter pays | | | | | | | | "Derive a service payment model which will recover the costs of the service without disadvantaging the poor." |
| 15 | Resource mobilisation | | | | | | | 3.3.2 | "Financing and charges for waste services" |
| | | | | | | | | | Skills are discussed throughout the document but not entirely clear that it refers specifically to the mitigation elements. |

7.1.3.4.2 Assessment summary

Table 96 shows the policy gap assessment framework applied to this Plan.

Given that some of the activities covered by this Plan (composting, waste reduction, recycling and energy recovery) have the potential to reduce greenhouse gas emissions, it seems appropriate to see partial alignment with a number of the principles. Having said that, climate change is not explicitly mentioned, as indicated by the lack of alignment with principle 1. Given that choices associated with waste management options can have unintended consequences for greenhouse gas emissions, there could be value in exploring the application of the precautionary principle here.

The scoring guide customised for implementation plans was used in the policy gap assessment.

7.1.3.5 National Environmental Management Waste Act: List of Activities which have or are likely to have a detrimental effect on the environment (2013)

7.1.3.5.1 Overview

This document is published under section 19 (1) of the Waste Act of 2008 (Act 59 of 2008). It differentiates activities with a detrimental effect on the environment between those requiring a “basic assessment” and those requiring an “environmental impact assessment” as stipulated in the environmental impact assessment regulations made under section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

Although the document identifies activities in each of these categories that may act as mitigation elements, the document in and of itself doesn’t suggest activities or talk to any of the principles contained in the assessment framework. This is considered to be appropriate given the nature of the document.

Given the nature of the document, and there being given a not applicable rating against all of the principles, the policy gap assessment framework is not presented here.

7.1.3.6 Waste Classification and Management Regulations (2013)

7.1.3.6.1 Overview

The stated purposes of the Regulations are to “regulate the classification and management of waste in a manner which supports and implements the provisions of the Act; establish a mechanism and procedure for listing of waste management activities that do not require a Waste Management License; prescribe requirements for disposal of waste to landfill; prescribe requirements and timeframes for management of certain wastes; and prescribe general duties of waste generators, transporters and managers.”

There is little in this document that is directly relevant to mitigation, although the document will have an indirect bearing on mitigation elements. An example of such indirect impact is where it would provide regulations for classification and management of a particular waste stream which is to be used in a specific mitigation technology such as energy from a waste facility or biogas digester.

There is consequently a not applicable rating given to the alignment with all of the principles in the assessment framework, and for this reason the full gap assessment table is not presented for this document.

7.1.3.7 National Organic Waste Composting Strategy (2013)

7.1.3.7.1 Overview

The intention of the National Organic Waste Composting Strategy is to promote composting as one of the options available to beneficiate organic waste in order to divert it from landfill. While diversion of waste from landfill has a resource efficiency and potential GHG emissions mitigation effects (and hence is given a “partial alignment” score in Resource Efficiency and Mitigation Elements), the Strategy states explicitly that it does not consider the methane implications of composting, and hence no further alignment is seen.

While the Strategy is explicit about its intention from the outset, there could be opportunity for using the mitigation benefits as a further driver for its implementation. Should the methane implications of composting be included in future iterations of the document, it is suggested that the draft strategy be subjected to the policy gap assessment framework combined with the scoring guide for high level policies and strategies to ensure that it is properly aligned with the NCCRP principles.

Given that the Strategy is given a “not aligned” rating for all of the principles except Resource Efficiency and Mitigation Elements, the full gap assessment table is not presented here.

7.1.3.8 Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas (2013)

7.1.3.8.1 Overview

The document provides the norms and standards to ensure that the above activities are built and operated in such a way as to prevent or minimise negative impacts on society and the environment. Because these activities are required to comply with these norms and standards, they are not required to conduct a basic assessment or obtain a waste management license.

Given that flaring and recovery of landfill gas are both GHG mitigation elements, the document has direct relevance to this study.

7.1.3.8.2 Assessment summary

Despite the importance of this document as it relates to actions that have a bearing on climate mitigation, the document is not well aligned with the principles in the assessment framework. There is (apart from having an acronym for greenhouse gases (GHG) in the acronyms list which isn't used), no reference to climate change. It is partially aligned around emissions implications and mitigation elements, and is fully aligned in application of the Precautionary Principle, but for the rest is either not aligned or unclear.

The scoring guide customised for regulations was used in the policy gap assessment.

Table 97 Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas gap assessment

| Principle | Alignment category | | | | | | Relevant section | Description |
|-----------|--------------------|-----|-----|-----|------|-----|------------------|---|
| | FAL | PAL | NAL | CON | UNCL | N/A | | |
| 1 | | | | | | | | Even though GHG are mentioned in the list of acronyms, there is no mention of them anywhere else in the document. |
| 2 | | | | | | | 10 | “Gas extraction” needs to be monitored, as must “environmental performance” of the project. It does not make it explicit that volumes flared and released, and electricity generated must be reported, although this may be implicit in these requirements. |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | Flaring and energy recovery from landfill are both mitigation actions. |
| 6 | | | | | | | 10 | “Gas extraction” needs to be monitored, as must “environmental performance” of the project. It does not make it explicit that volumes flared and released, and electricity generated must be reported, although this may be implicit in these requirements. |
| 7 | | | | | | | | This is one of the primary foci of the document. |
| 8 | | | | | | | | |
| 9 | | | | | | | 5 | The guidelines do apply to the management of environmental and socio-economic risks but do not consider co-benefits or adaptation. |
| 10 | | | | | | | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |

7.1.3.9 National Norms and Standards for the Assessment of Waste for Landfill Disposal (2013)

7.1.3.9.1 Overview

These Norms and Standards focus specifically on the assessment of waste to determine suitability for disposal of waste to landfill. They provide the laboratory test procedures for identifying waste disposal requirements. Based on the fact that the purpose of the document has no relationship to climate change or greenhouse gas mitigation, it was scored as not applicable for all of the principles in the assessment framework. The completed assessment framework is not presented here.

7.1.3.10 National Norms and Standards for Disposal of waste to Landfill (2013)

7.1.3.10.1 Overview

These Norms and Standards focus specifically on requirements for disposal of waste for landfill. The document includes considerations such as different classes of landfill and their barrier designs; waste acceptance criteria for different classes of landfill; and wastes which are or will be restricted from disposal at landfill. As such, this document has little bearing on GHG mitigation.

The only potential link is that the document does provide for ultimately prohibiting disposal of hazardous waste with high calorific value from disposal to landfill. Such waste could theoretically be used for energy generation. This link is, however, tenuous. As such, the document was scored as not applicable for all of the principles in the assessment framework. The completed assessment framework is not presented here.

7.1.3.11 National Waste Information Regulations (2012)

7.1.3.11.1 Overview

The purpose of these regulations is to regulate the collection of data and information to fulfil the objectives of the national waste information system. The regulations require facilities that recover energy from waste in volumes in excess of three tonnes per day to report volumes and source of waste. Furthermore, persons handling organic waste, which could be used for energy recovery, require reporting of sources, volumes and management options. Energy recovery from waste is a GHG mitigation option. As such, the document is assigned a rating of fully aligned in Consideration of Emissions Implications. However, given the purpose of the document, for the remainder of the categories, a rating of not applicable was allocated. As such, the full assessment framework is not presented here.

7.2 Policy gap assessment – recommendations

In terms of **prioritising documents to engage with the relevant line departments to try and increase their alignment with the NCCRP principles, four general principles are of particular importance**, namely: Climate Change Mitigation Awareness, Consideration of Emissions Implications, Resource Efficiency and Mitigation Elements principles.

Of the six documents reviewed, **only the National Policy on Thermal Treatment of General and Hazardous Waste demonstrated full alignment with all four of these important principles**. Given that the **Waste Act and the National Waste Management Strategy scored well, showing full or partial alignment with these principles, it is suggested that given the nature of these documents, they do not require further attention**.

The Norms and Standards for Extraction, Flaring and Recovery of Landfill Gases is partially aligned with two of these principles (Consideration of Emissions Implications and Mitigation Elements), and is not aligned with the other two priority principles. In any further reviews, it could be proposed that **Climate Change Mitigation Awareness in particular could be made explicit. However given the nature of this document, it is suggested that significant further effort in increasing alignment is not necessarily warranted**.

The other two documents reviewed, the **Municipal Waste Sector Plan and National Organic Waste Composting Strategy** are partially or fully aligned in three of the four priority principles, with the exception of that of Climate Change Mitigation Awareness. **It is suggested that this omission be addressed in reviews of these documents**, to allow for climate change considerations to be taken into account during the decision making and planning supported by these document. **An effort should also be made to increase alignment from partial to full alignment**. Given the importance of municipalities in implementation of much of the waste legislation, **effort to increase alignment of the Municipal Waste Sector Plan across the principles would be justified**. It is further noted that the **National Organic Waste Composting Strategy is not aligned in the remainder of the principles, suggesting that a review of this document is warranted to improve alignment**.

7.3 Effectiveness of mitigation elements

7.3.1 Mitigation elements reviewed

In the waste sector, mitigation elements from two documents were reviewed, being the Municipal Waste Sector Plan (which had four mitigation elements) and the Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas (which had one mitigation element). These were the only two regulations/implementation plans included in the policy gap assessment relevant to mitigation. The other regulations reviewed in the waste sector provided specific guidelines for particular actions related to waste management, and were not considered relevant to mitigation.

7.3.2 Summary of results

Table 98 presents a summary of the results of the effectiveness assessment. The assessment suggests that the mitigation element related to flaring or recovery of landfill gas is likely to be the most effective in terms of being implemented, given that it scores a high (indicating an increased

probability of effective implementation) for all the effectiveness criteria, with the exception of Human Capital in which it scores a medium (unlikely to prevent successful implementation as long as actions mentioned in the relevant policy document are undertaken). Of the three mitigation elements included in the Municipal Waste Sector Plan, that of reuse and recycling is likely to be the most effective as it scores a medium to high for all the effectiveness criteria except two. The other two mitigation elements, however, are not as likely to be effective, unless a number of provisions are put into place or identified explicitly to support their implementation.

There a number of effectiveness criteria that are not covered sufficiently in the mitigation elements reviewed. Firstly, none of the elements consider the cost-effectiveness of suggested mitigation elements (Implementation Incentives) – which may be considered appropriate for a document such as this. Only two of the four elements are given a medium or high rating with respect to the following effectiveness criteria: Expected Emissions Reductions Specified, Funding for Implementation and Supporting Infrastructure. These are issues which are critical to ensuring effectiveness of this mitigation elements.

7.3.3 Effectiveness assessment by mitigation element

7.3.3.1 Municipal Waste Sector Plan - Reuse and recycling

Table 99 presents the effectiveness assessment for reuse and recycling. Alignment is medium or high for seven out of the ten effectiveness criteria, suggesting that there has been reasonable consideration of the requirements to ensure the effectiveness of this mitigation option. A very critical concern here however is the lack of consideration of human capital availability. Furthermore, the explicit link between the mitigation and expected emissions reductions have not been made.

7.3.3.2 Municipal Waste Sector Plan – Composting

While composting as a technology and its link to climate mitigation is well established, as evidenced by the high and medium alignment with the following effectiveness criteria: Logic Model, Regulatory Environment and State of Technology, the link to mitigation is not made explicitly in this document (Expected Emissions Reduction). Although in general it appears that there is a reasonable chance of this mitigation option being effective based on the assessment as shown in the table, the lack of identification for implementation and the lack of supporting infrastructure are both of concern with respect to implementation of this element through this Plan. However, there is also a National Organic Composting Strategy, reviewed in Section 0, which could be leveraged to complement the provisions for composting in this Plan.

7.3.3.3 Municipal Waste Sector Plan – Waste to energy

Table 101 shows the waste to energy effectiveness assessment in the Municipal Waste Sector Plan. Although the logic model underlying the element is sound, the mechanisms for information gathering to calculate emission reductions are in place, and the regulatory environment and institutions are suitable to ensure effectiveness of this mitigation element, it is concerning to see the remaining effectiveness criteria scoring low effectiveness rating. This could affect the potential for effective implementation of the mitigation element.

Table 98 Mitigation element effectiveness summary - Waste

| | | 1 | 2 | 3 | 4 | Relative Effectiveness |
|------------------------|---|---|--|---|---|------------------------|
| Effectiveness Criteria | | Municipal Waste Sector Plan - Reuse and recycling | Municipal Waste Sector Plan - Composting | Municipal Waste Sector Plan - Waste to energy | Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas | |
| 1 | Logic model (theory of change) | | | | | 100% |
| 2 | Expected emissions reductions specified | | | | | 38% |
| 3 | Time frame for implementation | | | | | 75% |
| 4 | Regulatory environment | | | | | 100% |
| 5 | State of technology | | | | | 75% |
| 6 | Human capital | | | | | 38% |
| 7 | Implementation incentives | | | | | 25% |
| 8 | Funding for implementation | | | | | 38% |
| 9 | Supporting infrastructure | | | | | 38% |
| 10 | Institutions | | | | | 88% |
| Relative Effectiveness | | 65% | 45% | 40% | 95% | |

Table 99 Municipal Waste Sector Plan - Reuse and recycling effectiveness assessment

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|---|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Recycling is well established, and in many (although not all) cases is beneficial in terms of reducing GHG emissions. This is not, however, referred to directly in this document. |
| 2 | Expected emissions reductions specified | | | | | Although reporting is required in terms of the South African Waste Information System, the requirements for calculating emissions reductions are not specified in detail. Furthermore, a full life cycle analysis would be required to determine emissions reductions. |
| 3 | Time frame for implementation | | | | Appendix 2 | Appendix 1 presents an action plan for implementation of the plan and identifies that the intervention of "Integrating waste recycling systems into existing and future waste management systems" through development and implementation of Integrated Waste Management Plans must be done in the short term. It also identifies that markets must be created for recyclable products in the short term to ensure a sustainable recycling industry. |
| 4 | Regulatory environment | | | | 1.2 | This section provides a detailed review of the legal and institutional framework for the Plan. Although not identified explicitly in this section, it is considered that the framework for supporting reuse and recycling is in place under the regulatory environment as described in this section. |
| 5 | State of technology | | | | 1.1.2, 1.1.3 | Although recovery rates and success rates of programmes are still low, recycling technologies are established in many parts of the country, and have been tried even in small rural communities, suggesting that technology acceptance may not be a big issue. |
| 6 | Human capital | | | | 1.1.2 | "More than 80% of municipalities are initiating recycling but projects are struggling due to a lack of capacity" |
| | | | | | Appendix 1 | The action of implementing a performance management system to allow performance management, while offering the necessary developmental support, including training, mentoring and practical experience. This is towards both "strengthening municipal capacity by providing staff with required skills" and optimising waste collection systems of which recycling and supporting reuse is a part. |
| 7 | Implementation incentives | | | | | |

| Effectiveness criteria | | Alignment category | | | Relevant section | Description |
|------------------------|----------------------------|--------------------|---|---|------------------|---|
| | | H | M | L | | |
| 8 | Funding for implementation | | | | 3.3.2 | The need for full cost accounting of waste services is identified here, and that "Implementing recycling programmes will reduce waste volumes to be disposed of and as a consequence also the direct cost of waste disposal with the added benefit of generating revenue for the municipality. The cost accounting exercise referred to above could include the costs of these recycling programmes against their gains in terms of real monetary returns as well as cost savings relating to increased landfill life span through saved air space." It needs to be recognised however that the Plan cannot provide actual cost/benefit figures as they differ from location to location. |
| 9 | Supporting infrastructure | | | | 4, Appendix 1 | Section 4 identifies the infrastructure needs to support reuse and recycling, while the action plan in Appendix 1 does include various actions related to infrastructure provision such as establishment of Material Recovery Facilities (MRFs) and drop off facilities for recyclables, amongst others. |
| 10 | Institutions | | | | 1.2 | The plan very clearly identifies roles and responsibilities in this regard, with one example being in the description of the legal and institutional framework. |
| | | 5 | 3 | 3 | | |

Table 100 Municipal Waste Sector Plan – Composting effectiveness assessment

| Effectiveness criteria | Alignment category | | | Relevant section | Description |
|------------------------|---|---|---|-------------------|---|
| | H | M | L | | |
| 1 | Logic model (theory of change) | | | | Composting is well established, and is typically beneficial in terms of reducing GHG emissions when compared to landfill. This is not, however, referred to directly in this document. |
| 2 | Expected emissions reductions specified | | | | |
| 3 | Time frame for implementation | | | 3.1.1, Appendix 1 | Appendix 1 presents an action plan for implementation of the plan and identifies the action of "Investigate and implement further recycling/reuse options e.g. composting..." as requiring action in the short to medium term. It does not say exactly what short to medium term means, however. It is also referred to as a priority action in Section 3.1.1 |
| 4 | Regulatory environment | | | 1.2 | This section provides a detailed review of the legal and institutional framework for the Plan. Although not identified explicitly in this section, it is considered that the framework for supporting alternative uses such as composting is in place under the regulatory environment as described in this section. |
| 5 | State of technology | | | | Although not explicitly mentioned in the document, composting is a very old technology which is simple to implement, and practiced across cultures and socio-economic groups. |
| 6 | Human capital | | | Appendix 1 | The action of implementing a performance management system to allow performance management, while offering the necessary developmental support, including training, mentoring and practical experience. This is towards "strengthening municipal capacity by providing staff with required skills" of which running composting facilities could be a part |
| 7 | Implementation incentives | | | | |
| 8 | Funding for implementation | | | 3.3.2 | It is not clear whether full cost accounting of implementing waste systems will include provision for composting centres. Home composting, which is also referred to, will not require funding. |
| 9 | Supporting infrastructure | | | | |
| 10 | Institutions | | | 1.2 | The plan very clearly identifies roles and responsibilities in this regard, with one example being in the description of the legal and institutional framework. No new institutions are required to implement composting. |
| | | 4 | 2 | 4 | |

Table 101 Municipal Waste Sector Plan – Waste to energy effectiveness assessment

| Principle | | Alignment category | | | Relevant section | Description |
|-----------|---|--------------------|---|---|-------------------|---|
| | | H | M | L | | |
| 1 | Logic model (theory of change) | | | | | Waste to energy is well established, and is beneficial in terms of reducing GHG emissions when compared to landfill. This is not, however, referred to directly in this document. |
| 2 | Expected emissions reductions specified | | | | | Reporting to the South African Waste Information System (SAWIS) is required in terms of the Waste Act, this will give sufficient information to calculate emission reductions (although this is not detailed specifically in this document) |
| 3 | Time frame for implementation | | | | 3.1.1, Appendix 1 | Appendix 1 presents an action plan for implementation of the plan and identifies the action of "Investigate and implement further recycling/reuse options e.g... energy recovery" as requiring action in the short to medium term. It does not say exactly what short to medium term means, however. It is also referred to as a priority action in Section 3.1.1 |
| 4 | Regulatory environment | | | | 1.2 | This section provides a detailed review of the legal and institutional framework for the Plan. Although not identified explicitly in this section, it is considered that the framework for supporting alternative uses such as composting is in place under the regulatory environment as described in this section. |
| 5 | State of technology | | | | | Many EfW technologies are well established. However there are various acceptance issues, few suppliers locally etc for some of the technologies. Notable here is incineration. |
| 6 | Human capital | | | | | Issue has not been addressed. |
| 7 | Implementation incentives | | | | | Issue has not been addressed. |
| 8 | Funding for implementation | | | | 3.3.2 | It is not clear whether full cost accounting of implementing waste systems will include provision for Energy from Waste facilities. Furthermore these are often developed in conjunction with other players outside of this Plan. |
| 9 | Supporting infrastructure | | | | | |
| 10 | Institutions | | | | 1.2 | The plan identifies roles and responsibilities, including in the description of the legal and institutional framework. |
| | | 3 | 2 | 5 | | |

Table 102 Flaring or Recovery of Landfill Gas effectiveness assessment

| Effectiveness criteria | Alignment category | | | Relevant section | Description |
|------------------------|---|---|---|------------------|--|
| | H | M | L | | |
| 1 | Logic model (theory of change) | | | | This is a well-established and sound approach to reducing GHG emissions. Recovery for energy has an added benefit above flaring as it offsets fossil fuel energy use. |
| 2 | Expected emissions reductions specified | | | | The need for reporting to the South African Waste Information System (SAWIS) under the requirements of the Waste Act suggests that sufficient data will be gathered to determine the emissions reduction benefits can be calculated. |
| 3 | Time frame for implementation | | | | Not relevant - the regulations apply to all new facilities. |
| 4 | Regulatory environment | | | | The Norms and Standards are a component of the regulatory environment for such facilities, so implicitly they support the establishment of facilities for flaring and landfill gas recovery |
| 5 | State of technology | | | | Technologies are well established globally |
| 6 | Human capital | | | 8 (2) | "Only suitably qualified personnel must maintain and service ... the flaring unit, the generating engines, and associated infrastructure". Since the regulations are mandatory, a lack of supporting infrastructure will not delay the implementation of the mitigation element. |
| 7 | Implementation incentives | | | | Not relevant |
| 8 | Funding for implementation | | | | Not relevant |
| 9 | Supporting infrastructure | | | | The regulations focus extensively on the development of suitable supporting infrastructure |
| 10 | Institutions | | | 3 | The regulations refer back to the overriding Acts which allocate responsibilities for monitoring and enforcement. |
| | | 9 | 1 | 0 | |

7.3.3.4 Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas

Table 102 shows the effectiveness assessment for the mitigation element of flaring and recovery of landfill gas. All the effectiveness criteria received encouraging scores for this mitigation element, suggesting a very high probability of it being effective.

7.4 Effectiveness of mitigation elements – recommendations

For the waste sector, one implementation plan and one regulation was assessed. The Municipal Waste Sector Plan included three mitigation elements, being reuse and recycling, composting and waste to energy. The second document was the Norms and Standards for Extracting, Flaring or Recovery of Landfill Gas, in which flaring and recovery are mitigation elements.

The **flaring or recovery of landfill gas** is the mitigation element most likely to be effective, given that it scores a high on nine of the ten effectiveness criteria, and a medium on the remaining criterion. As such, there is **no need to engage further with this mitigation element** in ensuring its effectiveness. **Reuse and recycling also scores well in the effectiveness assessment and hence does not require significant additional attention.** While there is no provision for the Specification of Emissions Reductions for this mitigation element, it needs to be recognised that calculation of the emission reduction benefit for reuse and recycling is challenging given the need to consider life cycle emissions (and to ensure that there are no unintended consequences elsewhere in the value chain).

Waste to energy scores the worst of the four mitigation elements considered, and a number of gaps need to be addressed in this document to ensure effectiveness of this mitigation element. It was recommended in the Policy Gap Assessment Recommendations that the Municipal Waste Sector Plan in which this mitigation element is contained be revisited as a priority document; the effectiveness of this mitigation element should be addressed during that review.

Composting as contained in the Municipal Waste Sector Plan is not likely to be a particularly effective mitigation element. It is recognised that there is a separate National Organic Waste Composting Strategy which was reviewed in the policy gap assessment, although that document does not necessarily address the effectiveness criteria missing in the Municipal Waste Sector Plan. As such, there may be some work to do, spread across these two documents, to improve effectiveness of this mitigation element.

8 CONCLUSION

The **policy gap analysis** has shown that there are large variations in the extent to which policy documents are aligned with the NCCRP mitigation principles within sectors. For the most part it seems, unsurprisingly, that the objectives of the policy documents have a larger impact on the level of alignment than when the documents were released. Policy documents that deal with issues that overlap with mitigation (like energy production or use) are typically closer aligned to the NCCRP mitigation principles than more general documents. The National Energy Efficiency Strategy, for instance, is very well aligned with the NCCRP mitigation principles despite predating it by 6 years. The same is true of the Biofuel Industrial Strategy which predates it by four years. These documents are not only well aligned with the general mitigation principles, but also with the mitigation element-linked mitigation principles. In fact, in terms of the mitigation element-linked mitigation principles, these two documents are better aligned with the NCCRP principles than two more recent policy documents (the Climate Change Sector Plan for Agriculture, Forestry and Fisheries (2013) and the Climate Change Policy Framework for State Owned Companies (2012)) that were explicitly developed to respond to the NCCRP. Although still relatively well-aligned with the NCCRP, the latter documents are silent on a number of the mitigation element-linked principles. The National Waste Management Strategy (2011), which was published in the same year as the NCCRP, again, is very well-aligned with the NCCRP principles.

In all five sectors the general mitigation principles were much more consistently applied than the mitigation element-linked principles. The exception is Consideration of Emissions Implications, which was poorly implemented in all sectors apart from the energy sector. In terms of mitigation element-linked principles, Resource Mobilisation was the most consistently applied principle. The principles that were neglected to the largest extent were Cost-effectiveness (which received little attention in all sectors apart from Energy), and Special Needs (which only received significant attention in the Transport sector).

The mitigation element effectiveness assessment highlighted the dearth of implementation plans and regulations that contain mitigation elements in the five sectors considered. Only four relevant implementation plans and two regulations were identified across the sectors. Consequently five high-level policies or strategies that were likely to lead to the development of implementation plans containing mitigation elements were included in the analysis. With a few exceptions, it was found that mitigation elements contained in implementation plans were much more likely to be designed in a way that indicated that they are likely to be effectively implemented than mitigation elements contained in high-level policies or strategies. The National Land Transport Strategic Framework and the National Transport Master Plan, for instance, both contained mitigation elements that were very well developed given the high-level nature of the documents within which they resided. Two of the three mitigation elements contained in the Municipal Sector Waste Plan, in contrast, raised questions about their ability to be implemented successfully despite it being an implementation plan. In general, however, the conclusion held that mitigation elements contained in implementation plans were much more likely to have a high probability of success than those in higher level documents.

While this was expected, the results for regulations were much more inconclusive. The fact that only two sets of regulations were in the analysis notwithstanding, these two regulations contained both

the mitigation elements most likely to be implemented successfully (in the case of the Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas) and the mitigation elements which raised the most concern about their practicality (in the case of the Guidelines for the development of Spatial Development Frameworks).

Large disparities existed in the extent to which the factors underlying the ten mitigation element effectiveness criteria had been considered in the design of mitigation elements between sectors. The indicators that were most likely to indicate an increased likelihood that mitigation elements would be able to be effectively implemented were consideration of the logic models underlying the mitigation elements (i.e. is there sound theory or experience indicating that an element will lead to actual emissions reductions), defining clear implementation time frames, and ensuring that the institutions required to implement mitigation elements are in place. The indicators most likely to cast doubt over the ability to implement mitigation elements were neglecting to consider the emissions reductions that were likely to materialise, providing no indication that sufficient human capital was available to roll out an element, or not considering whether mitigation elements would be cost-effective (after considering all public sector incentives available to support the elements) and would thus create an incentive for economic agents to implement them.

Given the relative lack of implementation plans, and the fact that mitigation elements contained in implementation plans are typically better designed than those in higher level policy documents or strategy, the **emphasis should thus be on ensuring that detailed implementation plans are developed in all sectors to guide the roll out of mitigation elements**. Given the important role of regulations in guiding the actual implementation of actions, ensuring that mitigation elements are included in regulations, and that the elements that are included are designed in a way that maximises the probability that they can be implemented successfully, should also be a priority.

ANNEXURE 1 POLICY GAP ASSESSMENT SCORING GUIDES

Scoring guide for high level policies, frameworks and strategies

| Principle | | Alignment category | | | | | |
|--|---|---|---|---|--|--|---|
| | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| General principles | | | | | | | |
| 1 | Climate Change Mitigation awareness | * Explicit mention of climate change mitigation or GHG emissions reduction | * Implicit mention of mitigation, e.g. mention of the need to reduce energy usage, increase energy efficiency, increase resource efficiency etc. | * No mention of mitigation in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * Failure to mention climate change concerns while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of mitigation in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 2 | Consideration of emissions implications | *Calls for environmental implications of actions to be considered during the planning/policy development phase. | *Acknowledge that actions may have environmental implications. | * No mention of the emissions implications of actions in a document that relates to activities that directly lead to, or influence levels, GHG emissions. | * No mention of the emissions implications of actions while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of the emissions implications of actions in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 3 | Resource efficiency | * Increased resource efficiency in consumption/production explicitly mentioned as objective. | * Efficiency of production/consumption mentioned or implicitly promoted. | * No mention of resource efficiency in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * No mention of efficiency in a document that advocates increased consumption or production that is likely to lead to increase in GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of efficiency in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 4 | Research, development and innovation | * Research, development and innovation (RD&I) relating to mitigation (directly) is proposed or supported. | * RD&I relating to mitigation (directly or implicitly) is mentioned | * No mention of RD&I in a document that relates directly to, or influence levels of, GHG emissions. | * Failure to mention RD&I while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of RD&I in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 5 | Mitigation elements | * Proposes or guides the development of mitigation elements explicitly (i.e. elements that aim to reduce future climate change, or elements that lead to GHG emissions reductions). *Mitigation elements need to be identified as having an impact on GHG emissions) | * Mention need to increase efficiency of activities that lead to GHG emissions. * Mention need to reduce use of inputs that lead to GHG emissions. | * No explicit or implicit mention of mitigation elements (or the need for mitigation elements) in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * Actions are advocated that are likely to lead to an increase in GHG emissions without any mention of the need to minimise, mitigate or offset this increase. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of mitigation elements in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| Principles applicable to identified mitigation elements | | | | | | | |

| | | Alignment category | | | | | |
|-----------|---|--|---|--|--|--|--|
| Principle | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| 6 | Dynamic and evidence based | * Need to regularly update information related to mitigation elements is highlighted. OR *Latest available data provided | * Importance of using up-to-date information related to mitigation elements is mentioned. | * No mention of importance of up-to-date information related to mitigation elements. | * Mitigation elements with medium- to long-term implications are proposed without mention of need to update information related to mitigation elements regularly. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 7 | Precautionary principle | * Need to consider risks and unintended consequences related to mitigation elements highlighted. | * Possibility of risks and unintended consequences related to mitigation elements highlighted. | * No mention of risks and unintended consequences related to mitigation elements | * Mitigation elements with identified risks or unintended consequences are proposed without any consideration of the risks or unintended consequences. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 8 | Sustainable development pillars | * Highlight importance of determining impact on equity, the environment, and economy (could be impact on firm, sector or overall economy). | * Possibility of impact on equity, the environment or economy is mentioned. | * No mention of possible impact on equity, environment, or economy (at any level). | * No mention of possible impact on equity, environment, or economy (at any level) is made while mitigation elements are proposed that are likely to impact on one or more of these factors | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 9 | Risk management, adaptation and other co-benefits | * Importance of assessing possibility of risk management (can relate to any kind of risk, i.e. natural disasters, electricity network, transport links, etc.) and adaptation impacts and/or co-benefits (any positive socioeconomic impact associated with mitigation elements, including, amongst others: employment creation, energy security, energy access, enhanced environmental outcomes, public transport access, reduced cost of public transport etc.) of mitigation elements highlighted. | * Possibility of risk management and adaptation impacts and/or co-benefits of mitigation elements acknowledged. | * No mention of risk management and adaptation impacts and/or co-benefits of mitigation elements | * No mention of risk management and adaptation impacts in a document that proposes mitigation actions likely to have negative impacts on risk management or adaptation. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 10 | Cost-effectiveness | * Importance of ensuring mitigation elements are cost effective is highlighted. | * Cost of mitigation elements recognised as a consideration in their application. | * No recognition that the cost of mitigation elements is a valid consideration in their application. | * No mention of assessing the cost of mitigation elements in a document that proposes mitigation elements with significant potential costs. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |

| | | Alignment category | | | | | |
|-----------|-----------------------|--|---|---|--|--|--|
| Principle | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| 11 | Behaviour change | * Market-based or other measures (i.e. public awareness campaigns , labelling requirements, voluntary disclosure etc.) are promoted as ways to incentivise lower-carbon production or consumption. | * Market-based or other interventions to facilitate behaviour change are recognised as possible mitigation elements. | * No mention of measures to affect behaviour change as a way to mitigate climate change. | * Measures (like subsidies, free provision, easier access etc.) proposed in the document incentivise more carbon-intensive production or consumption | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 12 | Equity | *Importance of considering impact on equity of mitigation elements is highlighted | * Possible impact of mitigation elements on equity acknowledged. | * No recognition that mitigation elements could impact equity. | * No acknowledgement of equity considerations in a document that proposes mitigation elements that could have negative impact on equity. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 13 | Special needs | * Importance of considering the impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) is highlighted | * Possible impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) is acknowledged. | * No recognition of possible impact of mitigation elements on groups with special needs and/or circumstances. | * No recognition of possible impact of mitigation elements on groups with special needs and/or circumstances in a document that proposes mitigation elements that could have a negative impact on such groups. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 14 | Polluter pays | * Polluter pays principle supported | * Polluter pays principle mentioned. | * No mention of the polluter pays principle. | * No mention of the polluter pays principle in a document that proposes mitigation elements where the costs of the mitigation elements are not borne by the emitter of GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 15 | Resource mobilisation | * Consideration of available funding sources for mitigation elements required. | * Importance of identifying dedicated funding for mitigation elements acknowledged. | * No acknowledgment of need to identify funding sources for mitigation actions. | * No acknowledgment of need to identify funding sources for mitigation actions in document that proposes mitigation actions with significant funding requirements. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |

Scoring guide for legislation and acts

| Principle | | Alignment category | | | | | |
|--|---|--|---|---|--|--|---|
| | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| General principles | | | | | | | |
| 1 | Climate Change Mitigation awareness | * Explicit mention of climate change mitigation or GHG emissions reduction | * Implicit mention of mitigation, i.e. mention of the need to reduce energy usage, increase energy efficiency, increase resource efficiency etc. | * No mention of mitigation in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * Failure to mention mitigation concerns while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of mitigation in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 2 | Consideration of emissions implications | *Allows for mechanism to generate sufficient information to consider the emissions implications of actions. | *Acknowledge need for mechanism to generate sufficient information to consider the emissions implications of actions. | * No mention of the emissions implications of actions in a document that relates to activities that directly lead to, or influence levels, GHG emissions. | * No mention of the emissions implications of actions while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of the emissions implications of actions in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 3 | Resource efficiency | * Development of measures aimed at increased resource efficiency in consumption/production required (reporting, technologies, targets etc.) included) | * Efficiency of production/consumption mentioned or implicitly promoted. | * No mention of resource efficiency in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * No mention of efficiency in a document that advocates increased consumption or production that is likely to lead to increase in GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of efficiency in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 4 | Research, development and innovation | * Research, development and innovation (RD&I) relating to mitigation explicitly (i.e. with aim to reduce future GHG emissions) required. | * RD&I relating to mitigation (directly or implicitly) is mentioned | * No mention of RD&I in a document that relates directly, or influence levels of, GHG emissions. | * Failure to mention RD&I while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of RD&I in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 5 | Mitigation elements | * Development of mitigation elements required explicitly (i.e. elements that aim to reduce GHG emissions). *Mitigation elements need to be identified as having an impact on GHG emissions. | * Mention need to increase efficiency of activities that lead to GHG emissions. * Mention need to reduce use of inputs that lead to GHG emissions. | * No explicit or implicit mention of mitigation elements (or the need for mitigation elements) in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * Actions are advocated that are likely to lead to an increase in GHG emissions without any mention of the need to minimise, mitigate or offset this increase. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of mitigation elements in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| Principles applicable to identified mitigation elements | | | | | | | |

| Principle | | Alignment category | | | | | |
|-----------|---|--|--|--|--|--|--|
| | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| 6 | Dynamic and evidence based | * Regular updating of information related to mitigation elements to support decision-making is required. | * Importance of using up-to-date information related to mitigation elements is mentioned. | * No mention of importance of up-to-date information related to mitigation elements. | * Mitigation elements with medium- to long-term implications are proposed without mention of need to update information related to mitigation elements regularly. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 7 | Precautionary principle | * Consideration of risks and unintended consequences related to mitigation elements is required. | * Possibility of risks and unintended consequences related to mitigation elements highlighted. | * No mention of risks and unintended consequences related to mitigation elements | * Mitigation elements with identified risks or unintended consequences are proposed without any consideration of the risks or unintended consequences. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 8 | Sustainable development pillars | * Consideration of impact on equity, the environment, and economy (could be impact on firm, sector or overall economy is required. | * Possibility of impact on equity, the environment or economy (could be impact on firm, sector or overall economy) is mentioned. | * No mention of possible impact on equity, environment, or economy (at any level). | * No mention of possible impact on equity, environment, or economy (at any level) is made while mitigation elements are proposed that are likely to impact on one or more of these factors | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 9 | Risk management, adaptation and other co-benefits | *Assessment of risk management and adaptation impacts and/or co-benefits of mitigation elements required. | * Possibility of risk management and adaptation impacts and/or co-benefits of mitigation elements acknowledged. | * No mention of risk management and adaptation impacts and/or co-benefits of mitigation elements | * No mention of risk management and adaptation impacts in a document that proposes mitigation actions likely to have negative impacts on risk management or adaptation. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 10 | Cost-effectiveness | * Cost-benefit assessment of mitigation elements required as a prerequisite to their implementation. | * Cost of mitigation elements recognised as a consideration in their application. | * No recognition that the cost of mitigation elements is a valid consideration in their application. | * No mention of assessing the cost of mitigation elements in a document that proposes mitigation elements with significant potential costs. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 11 | Behaviour change | * Market-based or other measures to incentivise lower-carbon production or consumption are included (or time lines for their inclusion are set). | * Market-based or other interventions to facilitate behaviour change are recognised as possible mitigation elements. | * No mention of measures to affect behaviour change as a way to mitigate climate change. | * Measures (like subsidies, free provision, easier access etc.) proposed in the document incentivise more carbon-intensive production or consumption | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 12 | Equity | *Consideration of impact of mitigation elements on equity is required. | * Possible impact of mitigation elements on equity acknowledged | * No recognition that mitigation elements could impact equity. | * No acknowledgement of equity considerations in a document that proposes mitigation elements that could have negative impact on equity. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |

| Principle | | Alignment category | | | | | |
|-----------|-----------------------|--|---|---|--|--|--|
| | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| 13 | Special needs | * Considerations of the impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) is required. | * Possible impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) is acknowledged. | * No recognition of possible impact of mitigation elements on groups with special needs and/or circumstances. | * No recognition of possible impact of mitigation elements on groups with special needs and/or circumstances in a document that proposes mitigation elements that could have a negative impact on such groups. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 14 | Polluter pays | * Polluter pays principle implemented. | * Polluter pays principle mentioned. | * No mention of the polluter pays principle. | * No mention of the polluter pays principle in a document that proposes mitigation elements where the costs of the mitigation elements are not borne by the emitter of GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |
| 15 | Resource mobilisation | * Consideration of all available funding sources for specific mitigation elements required. | * Importance of identifying dedicated funding for mitigation elements acknowledged. | * No acknowledgment of need to identify funding sources for mitigation actions. | * No acknowledgment of need to identify funding sources for mitigation actions in document that proposes mitigation actions with significant funding requirements. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * Document not relevant to the development of mitigation elements. |

Scoring guide for regulations

| Principle | | Alignment category | | | | | |
|--|---|---|---|---|--|--|---|
| | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| General Principles | | | | | | | |
| 1 | Climate Change Mitigation awareness | *Explicit mention of climate change mitigation or GHG emissions reduction. * Guidance as to how mitigation considerations need to influence decision-making. | * Implicit mention of mitigation, i.e. mention of the need to reduce energy usage, increase energy efficiency, increase resource efficiency etc. | * No mention of mitigation in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * Failure to mention climate change concerns while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of mitigation in a document that <u>does not</u> directly relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 2 | Consideration of emissions implications | * Mechanism for considering the likely emissions implications of proposed actions is in place (by, for instance, including GHG emissions in decision-making criteria). * Quantification of emissions impacts of actions is called for before actions are implemented. | *Consideration of emissions implications of actions is required. | * No mention of the emissions implications of actions in a document that relates to activities that directly lead to, or influence levels, GHG emissions. | * No mention of the emissions implications of actions while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of the emissions implications of actions in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 3 | Resource efficiency | * Methodologies for measuring and reporting on resource efficiency included (or time lines for development included). * Measures aimed at Increased resource efficiency in consumption/production required (reporting, technologies, targets etc.) included | * Mention need to increase efficiency of production/consumption. | * No mention of resource efficiency in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * No mention of efficiency in a document that advocates increased consumption or production that is likely to lead to increase in GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of efficiency in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 4 | Research, development and innovation | * Research, development and innovation (RD&I) relating to mitigation explicitly (i.e. with aim to reduce future GHG emissions) required. * Systems/processes for tracking mitigation-related RD&I included. | * Mention need to support RD&I relating to mitigation (directly or implicitly). | * No mention of RD&I in a document that relates directly , or influence levels of, GHG emissions. | * Failure to mention RD&I while advocating activities that are expected to increase GHG emissions. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of RD&I in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 5 | Mitigation elements | * A need is specified to develop mitigation elements explicitly (i.e. elements that aim to reduce future climate change, or elements that lead to GHG emissions reductions). *Mitigation elements need to be identified as having an impact on GHG emissions * Methodology for assessing and describing mitigation elements provided. | * Mention need to increase efficiency of activities that lead to GHG emissions. * Mention need to reduce use of inputs that lead to GHG emissions. | * No explicit or implicit mention of mitigation elements (or the need for mitigation elements) in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | * Actions are advocated that are likely to lead to an increase in GHG emissions without any mention of the need to minimise, mitigate or offset this increase. | *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | * No mention of mitigation elements in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| Principles applicable to identified mitigation elements | | | | | | | |

| | | Alignment category | | | | | |
|-----------|--|---|---|--|---|---|--|
| Principle | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| 6 | Dynamic and evidence based | <ul style="list-style-type: none"> * Time lines for updating information related to mitigation elements is specified. * Overview of information that needs to be updated is provided. | <ul style="list-style-type: none"> * Need to update information related to mitigation elements regularly is specified. | <ul style="list-style-type: none"> * No mention of importance of up-to-date information related to mitigation elements. | <ul style="list-style-type: none"> * Mitigation elements with medium- to long-term implications are proposed without mention of need to update information related to mitigation elements regularly | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 7 | Precautionary principle | <ul style="list-style-type: none"> * Consideration of risks and unintended consequences related to mitigation elements is required. * Methodology for considering risks and unintended consequences related to mitigation elements is specified. | <ul style="list-style-type: none"> * Possibility of risks and unintended consequences related to mitigation elements highlighted. | <ul style="list-style-type: none"> * No mention of risks and unintended consequences related to mitigation elements | <ul style="list-style-type: none"> * Mitigation elements with identified risks or unintended consequences are proposed without any consideration of the risks or unintended consequences. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 8 | Sustainable development pillars | <ul style="list-style-type: none"> * Consideration of impact on equity, the environment, and economy is required. * Guidance as to how impact should be assessed is provided. * Guidelines as to how trade-offs between SD pillars need to be considered provided. | <ul style="list-style-type: none"> * Possibility of impact on equity, the environment or economy (could be impact on firm, sector or overall economy) is acknowledged. | <ul style="list-style-type: none"> * No mention of possible impact on equity, environment, or economy (at any level). | <ul style="list-style-type: none"> * No mention of possible impact on equity, environment, or economy (at any level). | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 9 | Risk management , adaptation and other co-benefits | <ul style="list-style-type: none"> *Assessment of risk management and adaptation impacts and/or co-benefits of mitigation elements required. * Guidelines for assessment of risk management and adaptation impacts and/or co-benefits of mitigation elements provided. | <ul style="list-style-type: none"> * Possibility of risk management and adaptation impacts and/or co-benefits of mitigation elements acknowledged. | <ul style="list-style-type: none"> * No mention of risk management and adaptation impacts and/or co-benefits of mitigation elements | <ul style="list-style-type: none"> * No mention of risk management and adaptation impacts in a document that proposes mitigation actions likely to have negative impacts on risk management or adaptation. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 10 | Cost-effectiveness | <ul style="list-style-type: none"> * Cost-benefit assessment of mitigation elements required as a prerequisite to their implementation. * Guidelines for determining the cost-effectiveness (Cost-benefit analysis) of mitigation elements provided. | <ul style="list-style-type: none"> * Cost of mitigation elements recognised as a consideration in their application. | <ul style="list-style-type: none"> * No recognition that the cost of mitigation elements is a valid consideration in their application. | <ul style="list-style-type: none"> * No mention of assessing the cost of mitigation elements in a document that proposes mitigation elements with significant potential costs. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 11 | Behaviour change | <ul style="list-style-type: none"> * Market-based or other measures to incentivise lower-carbon production or consumption are included (or time lines for their inclusion are set). * Measures are fully designed and ready for implementation (or road map towards implementation is provided). * Responsibility for implementation of measures are assigned. | <ul style="list-style-type: none"> * Market-based or other interventions to facilitate behaviour change are recognised as possible mitigation elements. | <ul style="list-style-type: none"> * No mention of measures to affect behaviour change as a way to mitigate climate change. | <ul style="list-style-type: none"> * Measures (like subsidies, free provision, easier access etc.) proposed in the document incentivise more carbon-intensive production or consumption | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 12 | Equity | <ul style="list-style-type: none"> *Consideration of impact of mitigation elements on equity is required. * Guidelines for considering equity impact included (including measuring impacts on income distribution and ensuring fair allocation of effort). | <ul style="list-style-type: none"> * Possible impact of mitigation elements on equity acknowledged | <ul style="list-style-type: none"> * No recognition that mitigation elements could impact equity. | <ul style="list-style-type: none"> * No acknowledgement of equity considerations in a document that proposes mitigation elements that could have negative impacts on equity. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |

| | | Alignment category | | | | | |
|-----------|-----------------------|--|---|---|--|--|--|
| Principle | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| 13 | Special needs | <ul style="list-style-type: none"> * Considerations of the impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) is required. * Guidelines for considering the impact of mitigation elements on groups with special needs and/or circumstances is provided. | <ul style="list-style-type: none"> * Possible impact of mitigation elements on groups with special needs and/or circumstances (including the poor and vulnerable) is acknowledged. | <ul style="list-style-type: none"> * No recognition of possible impact of mitigation elements on groups with special needs and/or circumstances. | <ul style="list-style-type: none"> * No recognition of possible impact of mitigation elements on groups with special needs and/or circumstances in a document that proposes mitigation elements that could have a negative impact on such groups. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 14 | Polluter pays | <ul style="list-style-type: none"> * Polluter pays principle implemented or implementation of principle is supported (time lines for implementation set or guidelines for identifying instances when polluter pays principle would be appropriate provided). * Taxes and/or other schemes that operationalize the polluter pays principle are fully designed and ready for implementation (or road map to implementation is provided). | <ul style="list-style-type: none"> * Polluter pays principle supported. | <ul style="list-style-type: none"> * No mention of the polluter pays principle. | <ul style="list-style-type: none"> * No mention of the polluter pays principle in a document that proposes mitigation elements where the costs of the mitigation elements are not borne by the emitter of GHG emissions. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 15 | Resource mobilisation | <ul style="list-style-type: none"> * Consideration of all available funding sources for specific mitigation elements required. * Guidelines for identifying and assessing the suitability of available funding sources for specific mitigation elements included. | <ul style="list-style-type: none"> * Identification of possible funding sources for specific mitigation elements required. | <ul style="list-style-type: none"> * No identification of possible funding sources for mitigation elements. | <ul style="list-style-type: none"> * No identification of possible funding sources for mitigation elements in document that proposes mitigation actions with significant funding requirements. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |

Scoring guide for implementation plans

| | | Alignment Categories | | | | | |
|---------------------------|---|---|--|--|---|---|---|
| Principle | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A | |
| General Principles | | | | | | | |
| 1 | Climate Change Mitigation awareness | <ul style="list-style-type: none"> * Explicit mention of climate change mitigation or GHG emissions reduction. * Guidelines and/or processes specified to ensure mitigation considerations influence decision-making. | <ul style="list-style-type: none"> * Implicit mention of mitigation, i.e. mention of the need to reduce energy usage, increase energy efficiency, increase resource efficiency etc. | <ul style="list-style-type: none"> * No mention of mitigation in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | <ul style="list-style-type: none"> * Failure to mention climate change concerns while advocating activities that are expected to increase GHG emissions. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * No mention of mitigation in a document that <u>does not</u> directly relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 2 | Consideration of emissions implications | <ul style="list-style-type: none"> * Mechanism for considering the likely emissions implications of proposed actions is in place (by, for instance, including GHG emissions in decision-making criteria). * Estimate of emissions implications of proposed actions is provided. | <ul style="list-style-type: none"> * Mechanism for considering the likely emissions implications of proposed actions is in place (by, for instance, including GHG emissions in decision-making criteria). | <ul style="list-style-type: none"> * No mention of the emissions implications of actions in a document that relates to activities that directly lead to, or influence levels, GHG emissions. | <ul style="list-style-type: none"> * No mention of the emissions implications of actions while advocating activities that are expected to increase GHG emissions. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * No mention of the emissions implications of actions in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 3 | Resource efficiency | <ul style="list-style-type: none"> * Measures to increase efficiency of production or consumption mentioned or time lines specified for identifying and assessing measures. * Efficiency measures assessed in sufficient detail to be able to defend their in- or exclusion from plan. * Methodology for identifying efficiency measures that warrant further consideration needs to be specified. | <ul style="list-style-type: none"> * Measures to increase efficiency of production or consumption mentioned or time lines specified for identifying and assessing measures. | <ul style="list-style-type: none"> * No mention of efficiency measures (or need to develop measures) in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | <ul style="list-style-type: none"> * Failure to mention the need to increase efficiency while actions are advocated that are likely to lead to an increase in resource use (in production or consumption). | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * No mention of efficiency in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| 4 | Research, development and innovation | <ul style="list-style-type: none"> * Priority areas of research, development and innovation (RD&I) relating to mitigation explicitly (i.e. with aim to reduce future GHG emissions) mentioned or time lines for identification or priority areas specified. * Possible RD&I areas assessed in sufficient detail to be able to defend their in- or exclusion from plan * Responsibility for mitigation related RD&I assigned. | <ul style="list-style-type: none"> * Possible RD&I areas related to mitigation mentioned or time lines specified for identification or RD&I areas | <ul style="list-style-type: none"> * No mention of RD&I in a document that relates directly, or influence levels of, GHG emissions. | <ul style="list-style-type: none"> * Failure to mention RD&I while advocating activities that are expected to increase GHG emissions. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * No mention of RD&I in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |

| | | Alignment Categories | | | | | |
|--|---------------------------------|--|--|---|--|--|---|
| Principle | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A | |
| 5 | Mitigation elements | <ul style="list-style-type: none"> * Mitigation elements mentioned (can be direct or implicit: increase efficiency of activities that lead to GHG emissions or o reduce use of inputs that lead to GHG emissions) or time lines specified for identifying and assessing mitigation elements. *Mitigation elements need to be identified as having an impact on GHG emissions. * Mitigation elements assessed in sufficient detail (expected impact, technical feasibility, implementation time lines, conditions for effective implementation etc.) to be able to defend their in- or exclusion from plan. * Methodology for identifying mitigation elements that warrant further consideration needs to be specified. | <ul style="list-style-type: none"> * Mitigation elements mentioned (can be direct or implicit: increase efficiency of activities that lead to GHG emissions or o reduce use of inputs that lead to GHG emissions) or time lines specified for identifying of mitigation elements. | <ul style="list-style-type: none"> * No explicit or implicit mention of mitigation elements (or the need for mitigation elements) in a document that relates to activities that directly lead to, or influence levels of, GHG emissions. | <ul style="list-style-type: none"> * Actions are advocated that are likely to lead to an increase in GHG emissions without any mention of the need to minimise, mitigate or offset this increase. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * No mention of mitigation elements in a document that <u>does not</u> relate to activities that directly lead to, or influence levels of, GHG emissions. |
| Principles applicable to identified mitigation elements | | | | | | | |
| 6 | Dynamic and evidence based | <ul style="list-style-type: none"> * Time lines for updating information related to mitigation elements is specified. * Overview of information that needs to be updated is provided. * Up-to-date information is provided. | <ul style="list-style-type: none"> * Need to update information related to mitigation elements regularly is specified. | <ul style="list-style-type: none"> * No mention of importance of up-to-date information related to mitigation elements. | <ul style="list-style-type: none"> * Mitigation elements with medium- to long-term implications are proposed without mention of need to update information related to mitigation elements regularly | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 7 | Precautionary principle | <ul style="list-style-type: none"> * Methodology for considering risks and unintended consequences related to mitigation elements is specified. * Risks and unintended consequences related to mitigation elements assessed in sufficient detail to be able to defend the in- or exclusion from plan of mitigation elements. | <ul style="list-style-type: none"> * Possible risks and unintended consequences related to mitigation elements identified. | <ul style="list-style-type: none"> * Specific risks and unintended consequences related to mitigation elements are not identified. | <ul style="list-style-type: none"> * Mitigation elements with identified risks or unintended consequences are proposed without any consideration of the risks or unintended consequences. | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 8 | Sustainable development pillars | <ul style="list-style-type: none"> * Consideration of impact on equity, the environment, and economy is required. * Guidance as to how impact should be assessed is provided/implemented. * Assessment of impact on equity, the environment, and economy is provided. * Trade-offs between impacts on different SD pillars have been explicitly considered. | <ul style="list-style-type: none"> * Consideration of impact on equity, the environment, and the economy is required. | <ul style="list-style-type: none"> * Consideration of impact on equity, the environment, and economy is not required. | <ul style="list-style-type: none"> * No mention of possible impact on equity, environment, or economy (at any level) is made while mitigation elements are proposed that are likely to impact on one or more of these factors | <ul style="list-style-type: none"> *Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |

| | | Alignment Categories | | | | | |
|-----------|---|--|---|---|--|--|--|
| Principle | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A | |
| 9 | Risk management, adaptation and other co-benefits | <ul style="list-style-type: none"> * Assessment of risk management and adaptation impacts and/or co-benefits of mitigation elements required. * Guidelines for assessment of risk management and adaptation impacts and/or co-benefits of mitigation elements provided/implemented. * Risk management and adaptation impacts and/or co-benefits of mitigation elements explicitly assessed. | <ul style="list-style-type: none"> * Consideration of risk management and adaptation impacts and/or co-benefits of mitigation elements is required. | <ul style="list-style-type: none"> * No mention of risk management and adaptation impacts and/or co-benefits of mitigation elements | <ul style="list-style-type: none"> * No mention of risk management and adaptation impacts in a document that proposes mitigation actions likely to have negative impacts on risk management or adaptation. | <ul style="list-style-type: none"> * Not clear if the section refers to mitigation or relevant principle. OR * Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 10 | Cost-effectiveness | <ul style="list-style-type: none"> * Cost-benefit assessment of mitigation elements required as a prerequisite to their implementation. * Guidelines for determining the cost-effectiveness (Cost-benefit analysis) of mitigation elements provided/implemented. * Cost-effectiveness of mitigation elements explicitly assessed. | <ul style="list-style-type: none"> * Costs and benefits of mitigation elements considered at least at a high level (indication that cost is likely to be negligible or that an intervention is likely to be low, zero or negative cost is sufficient). | <ul style="list-style-type: none"> * No consideration of either the costs or benefits of mitigation actions. | <ul style="list-style-type: none"> * No consideration of either the costs or benefits of mitigation actions in a document that proposes mitigation elements with significant potential costs. | <ul style="list-style-type: none"> * Not clear if the section refers to mitigation or relevant principle. OR * Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 11 | Behaviour change | <ul style="list-style-type: none"> * Market-based or other measures to incentivise lower-carbon production or consumption are included (or time lines for their inclusion are set). * Measures are fully designed and ready for implementation. * Responsibility for implementation of measures is assigned. * Mechanism through which intervention is to facilitate behaviour change is clearly outlined. | <ul style="list-style-type: none"> * Specific market-based or other interventions to facilitate behaviour change are considered as possible mitigation elements. | <ul style="list-style-type: none"> * No consideration of measures to affect behaviour change as a way to mitigate climate change. | <ul style="list-style-type: none"> * Measures (like subsidies, free provision, easier access etc.) proposed in the document incentivise more carbon-intensive production or consumption | <ul style="list-style-type: none"> * Not clear if the section refers to mitigation or relevant principle. OR * Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 12 | Equity | <ul style="list-style-type: none"> * Guidelines for considering equity impact (including measuring impacts on income distribution and ensuring fair allocation of effort) included or implemented. * Impact of mitigation elements on income distribution assessed * Allocation of mitigation effort assessed. | <ul style="list-style-type: none"> * Equity considerations considered at least a high level. | <ul style="list-style-type: none"> * No consideration of impact of mitigation elements on equity. | <ul style="list-style-type: none"> * No consideration of impact of mitigation elements on equity in a document that proposes mitigation elements that could have negative impacts on equity. | <ul style="list-style-type: none"> * Not clear if the section refers to mitigation or relevant principle. OR * Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |
| 13 | Special needs | <ul style="list-style-type: none"> * Guidelines for considering the impact of mitigation elements on groups with special needs and/or circumstances is provided/implemented. * Impact of mitigation elements on all possible groups with special needs and/or circumstances (including the poor and vulnerable) is assessed. | <ul style="list-style-type: none"> * Possible impact of mitigation elements on some groups with special needs and/or circumstances is assessed at a high level. | <ul style="list-style-type: none"> * No consideration of possible impact of mitigation elements on groups with special needs and/or circumstances. | <ul style="list-style-type: none"> * No consideration of possible impact of mitigation elements on groups with special needs and/or circumstances in a document that proposes mitigation elements that could have a negative impact on such groups. | <ul style="list-style-type: none"> * Not clear if the section refers to mitigation or relevant principle. OR * Not clear if measure will have the desired impact. | <ul style="list-style-type: none"> * Document not relevant to the development of mitigation elements. |

| | | Alignment Categories | | | | | |
|-----------|-----------------------|--|---|---|--|---|---|
| Principle | | Fully aligned | Partially aligned | Not aligned | Contradictory | Unclear | N/A |
| 14 | Polluter pays | <p>* Polluter pays principle implemented or implementation of principle is supported (time lines for implementation set or guidelines for identifying instances when polluter pays principle would be appropriate provided).</p> <p>* Taxes and/or other schemes that operationalise the polluter pays principle are fully designed and ready for implementation (or road map towards implementation is provided).</p> | <p>* Polluter pays principle supported.</p> | <p>* No mention of the polluter pays principle.</p> | <p>* No mention of the polluter pays principle in a document that proposes mitigation elements where the costs of the mitigation elements are not borne by the emitter of GHG emissions.</p> | <p>*Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact.</p> | <p>* Document not relevant to the development of mitigation elements.</p> |
| 15 | Resource mobilisation | <p>* Primary funding source for each specific mitigation element assigned (not necessary for funding source to have been accessed or even approached yet).</p> | <p>* Possible funding sources for specific mitigation elements identified and considered (or process for identification and consideration clearly defined).</p> | <p>* No identification and consideration of possible funding sources for mitigation elements.</p> | <p>* No identification of possible funding sources for mitigation elements in document that proposes mitigation actions with significant funding requirements.</p> | <p>*Not clear if the section refers to mitigation or relevant principle. OR *Not clear if measure will have the desired impact.</p> | <p>* Document not relevant to the development of mitigation elements.</p> |

ANNEXURE 2 MITIGATION ELEMENT EFFECTIVENESS SCORING GUIDES

Scoring guide for regulations

| Effectiveness assessment rating | | | | |
|---------------------------------|--------------------------------|--|---|--|
| Principle | | Likelihood that mitigation element will be effective is high | Likelihood that mitigation element will be effective is medium | Likelihood that mitigation element will be effective is low |
| 1 | Logic model (theory of change) | <ul style="list-style-type: none"> *Mechanism through which the intervention is expected to reduce GHG emissions has been described. *Mechanism through which the intervention is expected to reduce GHG emissions is theoretically sound. | <ul style="list-style-type: none"> *Mechanism through which the intervention is expected to reduce GHG emissions has been described. | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 2 | Expected emissions reduction | <ul style="list-style-type: none"> *Mechanism for considering the likely emissions implications of proposed actions is in place (i.e. methodology for calculating emissions reduction from proposed actions exist, local emissions factors exist, correct models have been identified). | <ul style="list-style-type: none"> *Process to develop mechanism to consider the likely emissions implications of proposed actions is proposed (i.e. methodology for calculating emissions reduction from proposed actions exist, local emissions factors exist, correct models have been identified). | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 3 | Time frame for implementation | <ul style="list-style-type: none"> *Time frame for implementation is specified. | <ul style="list-style-type: none"> *Process for developing time frame for implementation is specified. | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 5 | Regulatory environment | <ul style="list-style-type: none"> *Regulatory environment has been assessed to determine if it is conducive to the successful implementation of the mitigation element (do enabling regulations/standards exist, are there any significant regulatory barriers in place, etc.). *Processes for addressing shortcomings or barriers identified are in place. | <ul style="list-style-type: none"> *Assessment of regulatory environment is required before mitigation element is implemented. | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |

| Effectiveness assessment rating | | | | |
|---------------------------------|----------------------------|--|---|---|
| Principle | | Likelihood that mitigation element will be effective is high | Likelihood that mitigation element will be effective is medium | Likelihood that mitigation element will be effective is low |
| 6 | State of technology | <p>*Technology/approach has been assessed to determine if it is sufficiently developed to enable the envisaged state of implementation (i.e. pilot projects will have lower threshold than large-scale roll-out).</p> <p>*Process are in place to address any remaining worries/shortcomings relating technology/approach risks.</p> <p>*Local availability of the relevant technology/approaches (number of service providers, equipment suppliers etc.) that underpin the mitigation element has been assessed.</p> <p>*Processes are in place to address any shortcomings with respect to the local availability of technology.</p> <p>*Level of acceptance of the technology in affected communities has been assessed.</p> <p>*Processes are in place to address low level of acceptance of technology by local communities where required.</p> | <p>*Assessment of technology/approach to determine if it is sufficiently developed to enable the envisaged state of implementation is required before implementation commences.</p> <p>*Assessment of regulatory environment is required before mitigation element is implemented.</p> <p>*Development of processes to address regulatory shortcomings or barriers is required.</p> <p>*Assessment of the level of acceptance of the technology in affected communities is required before implementation.</p> <p>*Development of processes to address low level of acceptance of technology by affected communities is required if this is likely to be a barrier to implementation.</p> | <p>*Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective.</p> |
| 8 | Human capital | <p>*Availability of human capital to install, operate and maintain the technology (or to implement a process intervention like behaviour change) has been assessed.</p> <p>*Development of processes to address shortcomings is required.</p> | <p>*Assessment of availability of human capital to install, operate and maintain technology (or to implement process interventions like behaviour change) is required before mitigation element is implemented.</p> | <p>*Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective.</p> |
| 9 | Implementation incentives | <p>*Cost-effectiveness of the mitigation element (taking into consideration incentives and other forms of support) has been assessed.</p> <p>*Development of processes to address risk that mitigation element may not be cost-effective and therefore will not be implemented is required.</p> | <p>*Assessment of cost-effectiveness of the mitigation element (taking into consideration incentives and other forms of support) is required before mitigation element is implemented.</p> | <p>*Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective.</p> |
| 10 | Funding for implementation | <p>*Availability of funding to implement a mitigation element (including public sector or other support</p> | <p>*Assessment of availability of funding for the implementation of the mitigation element</p> | <p>*Issue is not addressed or information provided is not sufficient to inspire</p> |

| Effectiveness assessment rating | | | | |
|---------------------------------|---------------------------|---|---|--|
| Principle | | Likelihood that mitigation element will be effective is high | Likelihood that mitigation element will be effective is medium | Likelihood that mitigation element will be effective is low |
| | | available) has been assessed.. *Development of processes to address funding challenges is required. | (including public sector or other support available) is required before mitigation element is implemented. | confidence that the mitigation element will be effective. |
| 11 | Supporting infrastructure | *Assessment of availability of supporting/required physical infrastructure has been completed. *Development of process to address any shortcomings is required. | *Assessment of availability of supporting/required physical infrastructure is required before mitigation element is implemented. | *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 12 | Institutions | *Institutions required to implement or provide support for the implementation of the mitigation element has been considered (including training, rating/accreditation, safety, etc.). *Processes to address institutional gaps (if relevant) is in place. *Process for allocating responsibility for implementation is specified. | *Assessment of institutions required to implement or provide support for the implementation of the mitigation element (including training, rating/accreditation, safety, etc.) is required before mitigation element is implemented. *Development of process to allocate responsibility for implementation is required before mitigation element is implemented. | *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |

Scoring guide for implementation plans

| | | Alignment category | | |
|-----------|--------------------------------|--|--|--|
| Principle | | Likelihood that mitigation element will be effective is high | Likelihood that mitigation element will be effective is medium | Likelihood that mitigation element will be effective is low |
| 1 | Logic model (theory of change) | <ul style="list-style-type: none"> *Mechanism through which the intervention is expected to reduce GHG emissions has been described. *Mechanism through which the intervention is expected to reduce GHG emissions is theoretically sound. *Mechanism through which the intervention is expected to reduce GHG emissions has been demonstrated (Not relevant for pilot/demonstration projects) | <ul style="list-style-type: none"> *Mechanism through which the intervention is expected to reduce GHG emissions has been described. *Mechanism through which the intervention is expected to reduce GHG emissions is theoretically sound. | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 2 | Expected emissions reduction | <ul style="list-style-type: none"> *Mechanism for considering the likely emissions implications of proposed actions is in place (i.e. methodology for calculating emissions reduction from proposed actions exist, local emissions factors exist, correct models have been identified). *Estimate of emissions implications of proposed actions is provided (or sufficient information provided to allow emissions implications to be calculated). | <ul style="list-style-type: none"> *Mechanism for considering the likely emissions implications of proposed actions is in place (i.e. methodology for calculating emissions reduction from proposed actions exist, local emissions factors exist, correct models have been identified).. | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 3 | Time frame for implementation | <ul style="list-style-type: none"> *Time frame for implementation is specified. | <ul style="list-style-type: none"> *Process for developing time frame for implementation is specified. | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 5 | Regulatory environment | <ul style="list-style-type: none"> *Regulatory environment is conducive to the successful implementation of the mitigation element. | <ul style="list-style-type: none"> *Regulatory environment has been assessed to determine if it is conducive to the successful implementation of the mitigation element (do enabling regulations/standards exist, are there any significant regulatory barriers in place, etc.). *Processes for addressing shortcomings or barriers identified are in place. | <ul style="list-style-type: none"> *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |

| | | Alignment category | | |
|-----------|---------------------------|---|---|---|
| Principle | | Likelihood that mitigation element will be effective is high | Likelihood that mitigation element will be effective is medium | Likelihood that mitigation element will be effective is low |
| 6 | State of technology | <p>*Technology/approach is sufficiently developed to enable the envisaged state of implementation.</p> <p>*Local access to the technology/approaches that underpin the mitigation element is available to a sufficient extent to allow the envisaged state of implementation.</p> <p>*Acceptance of the technology by affected communities are sufficient for it not to be a barrier to implementation.</p> | <p>*Technology/approach has been assessed to determine if it is sufficiently developed to enable the envisaged state of implementation (i.e. pilot projects will have lower threshold than large-scale roll-out).</p> <p>*Process are in place to address any remaining worries/shortcomings relating technology/approach risks.</p> <p>*Local availability of the relevant technology/approaches (number of service providers, equipment suppliers etc.) that underpin the mitigation element has been assessed.</p> <p>*Processes are in place to address any shortcomings with respect to the local availability of technology..</p> <p>*Level of acceptance of the technology in affected communities has been assessed.</p> <p>*Processes are in place to address low level of acceptance of technology by local communities where required.</p> | <p>*Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective.</p> |
| 8 | Human capital | <p>*Sufficient human capital is available to install, operate and maintain technology, or to implement process interventions like behaviour change, given the envisaged state of implementation.</p> | <p>*Availability of human capital to install, operate and maintain the technology (or to implement a process intervention like behaviour change) has been assessed.</p> <p>*Processes are in place to address shortcomings.</p> | <p>*Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective.</p> |
| 9 | Implementation incentives | <p>*Mitigation element will be cost-effective and therefore likely to be implemented (taking into consideration incentives and other forms of support).</p> | <p>*Cost-effectiveness of the mitigation element has been assessed (taking into consideration incentives and other forms of support).</p> <p>*If relevant, processes are in place to address risk that mitigation element may not be cost-effective and therefore will not be implemented.</p> | <p>*Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective.</p> |

| Alignment category | | | | |
|--------------------|----------------------------|--|---|---|
| Principle | | Likelihood that mitigation element will be effective is high | Likelihood that mitigation element will be effective is medium | Likelihood that mitigation element will be effective is low |
| 10 | Funding for implementation | *Project implementers will be able to access sufficient financing to implement mitigation element (taking into account public sector or other support). | *Availability of funding for implementing the mitigation element has been considered (including, public sector or other support available). *Processes are in place to address any identified funding challenges. | * Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 11 | Supporting infrastructure | *Sufficient supporting/required physical infrastructure is in place to facilitate the envisaged state of implementation. | *Availability of supporting/required physical infrastructure has been assessed. *Processes in place to address shortcomings. | * Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |
| 12 | Institutions | *Institutions required to implement or provide support for the envisaged state of implementation are in place. *Responsibility for implementation has been assigned. OR *No dedicated institutions are required. *Responsibility for implementation has been assigned. | *Institutions required to implement or provide support for the implementation of the mitigation element has been considered (including training, rating/accreditation, safety, etc.). *Processes to address institutional gaps (if relevant) is in place. *Process for allocating responsibility for implementation is specified. | *Issue is not addressed or information provided is not sufficient to inspire confidence that the mitigation element will be effective. |

ANNEXURE 3 STAKEHOLDER CONSULTATION REPORT

Introduction

The stakeholder engagement process consisted of five sector specific workshops. The purpose of the engagement process was three-fold. First, it sought to understand stakeholders' opinions and concerns regarding the mainstreaming of climate change policy into legislation, policy, strategies, plans and regulatory frameworks. Second, it served to initiate discussions of the preliminary results from policy gap assessments in the different sectors. Third, it gave the stakeholders opportunity to suggest additional documents to be included in the analysis.

Identifying stakeholders to invite to each workshop was done in consultation with the relevant DEA sector lead. These included representations from national government departments responsible for the documents reviewed, representatives of stakeholders directly affected by the policy documents (such as industry associations) and non-governmental organisations (NGOs) active in the different sectors. Invitations were also sent to the business community as well as to academia.

A presentation on the project was made at a meeting of the Intergovernmental Committee on Climate Change on the 30th of January 2014 to raise awareness of the project.

All the workshops were held at the GIZ offices, Hatfield, Pretoria. See table below for workshop details. The attendance at the workshops was good, with a total of 49 stakeholders present across the five workshops.

Table 103 Stakeholder workshop dates

| Sector | Date | Time | Number of attendees |
|---|------------------|---------------|---------------------|
| Agriculture, Forestry and other Land uses (AFOLU) | 11 February 2014 | 10:00 – 12:00 | 7 |
| Waste | 12 February 2014 | 10:00 – 12:00 | 6 |
| Energy | 17 February 2014 | 14:00 – 16:00 | 16 |
| Industry | 19 February 2014 | 14:00 – 16:00 | 6 |
| Transport | 24 February 2014 | 10:00 – 12:00 | 14 |

Structure of the workshops

Each workshop was divided into two sections. The first section entailed a presentation and discussion on the methodology used in the policy gap assessment. Given the complexity of the methodology, a significant amount of time was spent on ensuring that participants have a better understanding of the methodology. This would also enable stakeholders to make relevant and effective input into the overall project.

The second session entailed the presentation of the preliminary results for the sector and the individual documents. Given the detail in the assessment and time allocated to the workshop, the assessment results of one document was discussed in detail. The project team sector specialist outlined how the particular document was categorised (e.g. whether it was high level policy document, regulation, act, or implementation plan), how each principled was scored and the rationale behind allocating that score based on the relevant scoring guides. Interesting and at times intense debates ensued during the workshops.

Post the workshop, the project team circulated the detailed methodology together with the results to all the stakeholders that participated. In order to facilitate the commenting process, a commenting form was developed to ensure that carefully considered comments would be received. This would also enable the project team to address comments expeditiously. The comments were requested in sequence, with the first phase focusing on the methodology and list of relevant documents reviewed, and the second phase focusing on the preliminary results. Despite the ample time allowed for comments, and numerous emails sent to stakeholders, no comments were

received outside the actual workshops. The only comments emanated from BUSA (Business Unity South Africa) and were linked to the policy gap assessment framework. The comments were incorporated into the methodology, and amongst other impacts, the Emissions Reporting principle was changed to Considering the emissions implications of proposed actions.

AFOLU

The main aim of the stakeholder workshop was to present the policy gap assessment methodology and engage on the preliminary results. An assessment of this nature would always be inherently subjective, the workshop provided the project team with the opportunity to test the preliminary results with sector participants, and where necessary make amendments to the results to represent the true state of the world.

- The workshop began with Barney Kgope (DEA Sector Leader) making welcoming remarks and giving an overview of the DEA Climate Change Mitigation mainstreaming project. He explained the objectives of this project within the context of broader climate change in general, and mitigation efforts in particular. He then handed over the proceedings to the DNA Economics team to run the workshop.
- During this presentation, workshop participants were guided through the assessment framework including how documents were characterised, the scoring guidelines used in the assessment etc. This presentation also covered the individual document and overall sector reporting framework. After the presentation, participants sought clarity on the reporting framework. After some engagements, participants were happy.
- This part of the presentation took longer than anticipated but it hugely important to ensure that everyone understood the methodology so that participants can fully participate in the next phase.
- Some of the discussion around the methodology was on *effectiveness and appropriateness* of the mitigation principles. It was explained that this project will assess this from a process perspective as opposed to an outcomes perspective.
- The second part of the workshop focused on the actual assessment of the policy documents. Before discussing the documents, the DNA project team showed a list of all documents that have been assessed and requested participants to advise whether there are relevant documents that we may have missed. It was agreed that stakeholders would forward list of suggested documents to DNA Economics.

The Draft Climate Change Sector Plan (CCSP) for Agriculture, Forestry and Fisheries was discussed. However, due to time constraints, this is the only document discussed at the workshop.

- The first discussion around the CCSP was how the document should be classified. The DNA team classified the document as a high level policy document and the participants agreed. There was common agreement that the first five general mitigation principles were fully aligned, and scored correctly. The discussion then moved the mitigation-linked principles.
- Under the sustainable development pillars principle – there was some discussion on whether the description was linked more to adaptation or was there enough detail to be partially aligned. It was agreed that project team would relook at the document and consider if there other parts that could complement the section and improve the scoring.
- Under the precautionary principle, the issue is whether biofuel production actually reduces carbon emissions or not. While the document, as a high level document, is not expected to make detailed assessments, it is nonetheless expected to highlight the Climate Change risks that may be associated with

biofuel production. These risks relate to considering if marginal land is brought into production, would that results in increased emissions. While the risk of food security was considered, the workshop was of the view that more considerations should be done and therefore the document should be scored as unclear. The document should introduce a systems thinking approach.

- Under effectiveness, it was decided that the cost benefit should be replaced by just cost effectiveness. Resource mobilisation should include more than just financial resources.

Table 104 AFOLU Workshop participants

| Name | Organization | Email address |
|-------------------|--------------|--|
| Oscar Makotedi | DEA | Omokotedi@environment.gov.za |
| Churchhill Mkwalo | DAFF | ChurchillMK@Daff.gov.za |
| Johan Bester | DAFF | JohanBE@daff.gov.za |
| Itchell Guiney | DEA | iguiney@environment.gov.za |
| Phoebe Sullivan | Cirrus group | phoebe@cirrusafrica.com |
| Kosie Van Zyl | Agri SA | kosie@agrisa.co.za |
| Dawie Maree | Agri SA | Dawie@agrisa.co.za |

Waste

The workshop began with a presentation of the methodology used during the policy gap assessment. Once the methodology had been presented, participants were invited to ask any clarity seeking questions and make any comments. Some of the main points made by the stakeholders in the workshop or issues that could be distilled from their comments were:

- Stakeholders were concerned about the inherent subjectivity in the application of applications of the framework. It was mentioned that a caveat needs to be included in the final report to indicate that it is intended to provide guidance to the DEA, and is not supposed to develop new policy positions.
- There were some questions raised about the purpose of the project, and how it is to be applied across the different government departments and how it would affect the different spheres of government (national, provincial and local), given the roles and responsibilities at the sub-national level. The question was raised as to how far it should go in analysing documents prepared at the sub-national level, and to identify Misalignment in both policy and implementation between different levels of government.
 - RESPONSE: Important issue but not within scope of current project – which is looking at national policies only. Important area of future work that would ideally involve the DPLG.
- The issue of reporting was identified upfront – and particularly how reporting requirements are to be aligned between government departments. Who is the reporting to? The question of how far the waste information system (SAWIS) will go in capturing relevant information for emissions reporting. It was suggested that the **Waste Information Regulations** be included in the study. Duplication of reporting requirements was highlighted as an important issue as it increases the cost of doing business
 - RESPONSE: Important issue, but not part of current study. The current study looks at policy alignment, not alignment of implementation of policy. This is however an important area of future work.

- It was suggested that the scoring for the **National Norms and Standards for Disposal to Landfill** be included in the study (at present it isn't included). In particular it should look at opportunities for tyres and organic solvents, and flag opportunities around this.
- It was pointed out that mitigation elements related to diversion of tyres from landfills were only half designed. No thought has been given to what is going to happen to waste streams once they have been diverted from landfills. Important implications for intergovernmental alignment. DTI and EDD needs to develop strategies to incentivize actions that use waste streams to create employment.
- Reiteration of the point that considering what is to be done with diverted waste streams is important in assessing the likely effectiveness of mitigation elements. Tyres are a good example. Is what is proposed to happen to diverted tyres sensible? Idea is that most tyres will end up as fuel in cement kilns, but a roughly R500m investment is necessary to allow a cement kiln to burn tyres and still meet air quality regulations.
- Two documents were identified that were outdated: there is a new National Environmental Management Waste Act: List of Activities which have or are likely to have a detrimental effect on the environment and the Norms and Standards for Extraction, Flaring or Recovery of Landfill Gas had been finalised.
- It was highlighted that the acting of listing of activities to report/control in regulations can have CC implications. Thus important to consider framework when deciding whether or not to list activities. Coupled to this issue, there was a question as to whether the **Tyre regulations** should be included.
 - RESPONSE: This is an important issue, but relates more to the implementation of policy than policy itself. But it is definitely something for the DEA to remain mindful of.
 - RESPONSE: With respect to the Tyre regulations, while there is reference to energy recovery from tyres, and stating that reuse/recycling is a preferred option to energy recovery, there is little other relevance to this study as the regulations make provision for various party's duties with respect to tyres, and the requirement for the development of tyre management plans.
- The question was raised on international conventions which define which pollutants are designated as persistent pollutants (e.g. POPs, PIPs in Basel convention etc.)
 - International Conventions only become mandatory once they are included in legislation and regulations. So Impact already picked up in current assessment.
- Some views were offered that if a high-level comment was offered in an Act, then it applies to the rest of the document, as well as any documents that refer back to it. So for example, if there is something contained in the Waste Act relevant to main streaming, then it is implicit in any other documents that have been developed to meet the requirements of the Waste Act. For example, it was pointed out that the NEMA Act also applies to NEMA Waste Act – content included in former should be deemed included in latter.
 - NEMA Act was applied in this way in relation to NEMA Waste Act, but will double-check to ensure nothing was missed.
- It was felt that the industry should provide input directly into the effectiveness and appropriateness assessment by way of a workshop. It was suggested that the DEA convene such a workshop in future.

It was agreed that participants would be given the opportunity to provide input as follows:

- Whether the list of documents was complete
- Comment on the assessment framework
- Comment on whether the assessment framework had been correctly applied to the individual documents.

Table 105 Waste sector workshop participants

| Name | Organization | Email address |
|------------------|------------------|--|
| Donal Sehaswana | DEA | dsehaswana@environment.gov.za |
| Dudu Sibiyi | Mpumalanga DEDET | dasibiyi@mpg.gov.za |
| Shauna Costley | DEA | scostley@environment.gov.za |
| Dr Dhiraj Rama | ACMP | dhirajr.acmp@mwebbiz.co.za |
| Khashiwe Masinga | DEA | kmasinga@environment.gov.za |
| Victor Manavhela | CSIR | Vmanavhela@CSIR.co.za |
| Hanre Crous | Waste tech | hanrec@interwaste.co.za |

Energy

Some of the main points made by stakeholders in the workshop or issues that could be distilled from their comments were:

- Industry needs clarity on emissions reporting: A document should not be considered fully aligned just for mentioning that emission reporting is necessary: it should also be aligned with how the emissions should be reported (i.e. following the IPCC guidelines endorsed by the NCCRP).
 - RESPONSE: a distinction between the different types of policy documents and what is required/expected of them needs to be maintained here. This issue might thus best be addressed through an adjustment of the customised scoring guides.
- Industry concerned that DEROs would be developed based on definitions of sectors used in DEA Mitigation Potential study, which does not seem to be aligned with the sector definitions used by the National Treasury for in the proposed carbon tax scheme.
 - DNA and DEA undertook to reconsider emissions reporting principle
- Important documents that have not been reviewed: Air Quality Act, the Carbon Tax paper, National docs on coal mining
 - DNA would consider when stakeholder comments received. But general documents not issued by the DoE unlikely to be considered
- One stakeholder mentioned that a quick way to achieve better alignment of the energy sector with the NCCRP could be to develop a “Super Act,” which would be aligned with the NCCRP principles and would overtake any unaligned areas in existing Acts. This would be akin to the Act the National Treasury issued dealing with financial services.

Possible points of misunderstanding of what the project is trying to achieve are:

- Understanding of “alignment”: For the study, the focus is “alignment with NCCRP principles”, whereas industry is more concerned with “alignment across the various documents governing the energy sector” and some of them being in conflict with each other.
 - Alignment with NCCRP principles is not the same as alignment with the NCCRP; this might be something we have to consider or make more explicit.
- Alignment vs mainstreaming: There seems to be a degree of confusion between the notions of “alignment with the NCCRP principles” and “climate mainstreaming” – the former is used to flag particular areas where the reviewed documents will need to be adjusted in the long-term on-going process of climate mainstreaming.
 - DNA would make it clear that the focus of the study is mainstreaming and not necessarily alignment. Mainstreaming implies a more gradual process.

Table 106 Energy sector workshop participants

| Name | Organization | Email address |
|-----------------------|-------------------------------|--|
| Shamini Harrington | Sasol | shamini.harrington@sasol.com |
| Dr Derek Bultitude | Sasol | derek.bultitude@sasol.com |
| Nikki Fisher | Anglo | nikki.fisher@angloamerican.com |
| Pierre Venter | Banking organization | NonhlanhlaM@banking.org.za |
| Willem Van Der Merwe | Exxaro | willem.vdmerwe@exxaro.com |
| Stephen Hayton | Exxaro | wilma.fourie@exxaro.com |
| Kaverin Naidoo | Barloworld South Africa | KavendrinN@barloworld.com |
| Andre Otto | SANEDI | andreeto@afrihost.co.za |
| Mandlenkosi Mahlalela | Dept of Econ, Env and Tourism | mahlalelamm@mpg.gov.za |
| Gina Downes | Eskom | DownesGN@eskom.co.za |
| Kevin Morgan | BHP Billiton | Kevin.morgan@bhpbilliton.com |
| Kaverin Naidoo | Barloworld South Africa | KavendrinN@barloworld.com |
| Thenjiwe Sebeya | DOE | thenjiwe.sebeya@energy.gov.za |
| Stephinah Mndau | Chamber of mines | smndau@chamberofmines.org.za |
| Robert Phupheli | DOE | robert.phupheli@energy.gov.za |
| Itumeleng Mabalane | Chamber of mines | imabalane@chamberofmines.org.za |

Industry

The workshop began with a presentation of the methodology used during the policy gap assessment. Once the methodology had been finished, participants were invited to ask any clarity seeking questions and make any comments. Some of the main points made by the stakeholders in the workshop or issues that could be distilled from their comments were:

- There was a lot uncertainty about the objectives of this project. Participants queried whether the outcome of this process would be DEA approaching line departments and requesting a rewrite of policies where alignment is perceived not be there. Attempts were made to provide clarity on this matter, however, they were some lingering confusion amongst the participant. It was further explained that the report emanating from this project would give the DEA a picture in terms of whether policy documents in the industry is aligned with principles in the NCCRP. Further, this would then allow the DEA to approach individual line

departments and lobby for the inclusion of mitigation related content in iteration of existing or development of new policies.

- It was agreed that the purpose of the project would be clearly outlined in the project report.
- It was suggested that the language used in project deliverables be toned down to remove phrases like: force, compliance, requirement etc.
- There were also concerns about the definitions of terms used in the study. These include mainstreaming, alignment, and the policy gap assessment concept. Also, there was suggestion that some of the “principles” as captured by the DNA assessment framework may not necessarily be principles in the NCCRP, albeit mentioned in the NCCRP.
 - It was agreed that definitions would be included in the project report and the methodology clearly explained.
- In discussing the general mitigation principles, it was suggested that emission implications and emission reporting should be differentiated. Emission reporting is more of a requirement than a principle, and it was felt is not relevant to mainstreaming.
 - “Emissions Reporting” principle to be changed to “Considering Emissions Implications” and scoring guides adjusted.
- Some “principles” may not be covered in a particular document but that principle or its equivalent may covered by related or lower level documents. This could lead to a situation where the assessment gives a contradictory score to a particular principle while, at least in practise it is known in the industry there is some alignment. While it is acknowledged that higher level documents may not be explicit, it is important that they send signals to guide the development of lower documents with regard to Climate Change and mitigation.
- Related to above point, the participants felt that some of the principles are not relevant or should not be expected in some of the documents. This was followed by suggestions that it may be better to focus on lower level/implementation plans.
 - Participants committed to highlighting which principles they thought were not relevant to documents when reviewing the methodology and results of the study.
- It was noted that principles should be defined to eliminate confusion
 - This is done in the project report.
- There was some focus on the number of documents assessed with the participants alerting the team that newer version of some of the documents may be available it was agreed that a list of documents will be sent to the participants for verification and additions, where necessary. Also, documents should be assessed under the correct sector. E.g. the National Energy Efficiency Strategy (NEES). New versions of SEZ bill available, National Energy Efficiency Action Plan (NEEAP) updates NEES.
 - NEES will be moved to energy sector
 - Participants will review list of documents and revert.

- It was also suggested that to get a full sector view of the mitigation within a sector, it may be useful to take the root document and assess it and all other subsequent documents from that to get a sense of whether the principles are aligned or not.
 - Recognised that this would be a much larger exercise than allowed for under the current project.

It was agreed that participants would provide input in two phases:

- Comments on list of documents in each sector and the assessment framework by 28 February 2014 (project team to circulate content to comment on by 21 February 2014).
- Comment on sector results will follow and comment and extent will be dependent on comments provided on list of documents and assessment framework.

Table 107 Industry sector workshop participants

| Name | Organization | Email address |
|----------------------|----------------------|--|
| Siegfried Spanig | Arcelormittal | Siegfried.Spanig@arcelormittal.com |
| Mark Krieg | AFSA | MarkK@afsa.org.za |
| Dr Derek Bultitude | Sasol Group Strategy | derek.bultitude@sasol.com |
| Lorraine Lotter | BUSA | laurain@iafrica.com |
| Willem Van der Merwe | Exxaro | willem.vdmerwe@exxaro.com |
| Danny Ramsuchit | Sibanye Gold | Danny.Ramsuchit@sibanyegold.co.za |

Transport

Similar to the other workshops, the first part entailed a presentation on the methodology and scoring guidelines. Once the presentation was concluded, the following discussion and/or comments were raised:

- It was explained that while a number of documents have been assessed, it is important to note that not all principles are equally important (“applicable”) across documents. As an example, there may be a document that has one and two aligned principles, but given the level of importance of the document and the likely impact of the principles - this could be viewed as a high degree of mainstreaming.
 - It is therefore important that the DEA applies discretion and insight when it decides on which documents (and which principles within documents) to engage with like departments. The DEA highlighted that this is indeed the way in which it intends to use the policy gap analysis results.
- It was suggested that instead of trying to assess a range of documents, it could be useful to identify one or two core documents and then assessment those relevant documents including the subsequent (lower level) documents
 - It was however acknowledged that this would have been outside the scope of the project, and would have been a mammoth exercise given the number of lower tier policy documents that could flow from a single policy document. This would be a useful extension of the current assessment for future projects.
- Clarity was sought on the main brief and purpose of this analysis. This was explained by DNA Economics and DEA. It was suggested that DEA should approach the line departments to consult on which are the relevant / most influential documents

- It was suggested that if the assessment takes place at a national policy level, it may miss a number of alignment principles as a number of these are implemented at provincial or even municipal level. This was partly collaborated by the fact that very few implementation plans have formed part of the assessment.
- It was however acknowledged that well-defined national government implementation plans have an important role to play by ensuring that mitigation elements are implemented in a coherent, coordinated and consistent way at provincial and local government level.
- There were concerns about the status of some documents. Representatives from the DoT indicated that a number of documents are under review, including the White Paper on National Transport Programme. The DoT undertook to send the project team a prioritised list of what they believe to be the most relevant policy documents in the Transport sector to be.
 - DNA/DEA undertook to review list received from DoT and consider including additional documents in the analysis.
- The DoT mentioned that it was involved in a number of actions with possible mitigation impacts which were not necessarily reflected in current policy documents. These areas include:
 - Transport energy consumption
 - National appropriate mitigation systems (NAMAs)
 - Moving passengers from road to rail

The issues of contradictions in policy documents was raised:

- Transnet's emissions for instance will increase if freight is moved onto their rail system. This is not adequately addressed in other policy documents like the DPE CC Strategy for SOCs or the National Treasury Carbon Tax Discussion paper.
- Safety of biofuels was also questioned as biofuels degrade (continue to ferment) in fuel tanks.
- The idea of using the term "alternative energy carriers" instead of "alternative fuels" was also discussed.

Table 108 Transport sector workshop participants

| Name | Organization | Email address |
|-------------------|--------------|--|
| Stuart Rayner | NAAMSA | sraynier3@ford.com |
| Cecil Musisinyani | Transnet | cecil.musisinyani@transnet.net |
| Carel Snyman | Sanedi | carels@sanedi.org.za |
| Gavin Kelly | RFA | gkelly@rfa.co.za |
| V Lochan | AASA | aasa@global.co.za |
| Whity Maphakela | DOT | Maphakew@dot.gov.za |
| M Goudkamp | DoT | goudkamom@dot.gov.za |
| Shemani Indhul | Transnet | shemani.indhul@transnet.net |
| Marvin Ramphinwa | Transnet | Marvin.ramphinwa@transnet.net |
| Deena Govender | BMW | deena.govender@bmw.co.za |
| Mashudu Mundalamo | DEA | Mmundalamo@environment.gov.za |

| | | |
|--|---------|--|
| Itumeleng Mokone | DoT | mokonei@dot.gov.za |
| Jacob Dikgang | DoT | dikgangj@dot.gov.za |
| Cynthia Molema | DoT | molemac@dot.gov.za |
| Gail Jennings (did not attend workshop – but was included in circulation of documents) | Private | gail@gailjennings.co.za |

Department of Environmental Affairs

| Physical Address | Postal address |
|---------------------|------------------|
| Environment House | Private Bag x447 |
| 473 Steve Biko Road | Pretoria |
| Arcadia | 0001 |
| Pretoria 0083 | South Africa |
| South Africa | |

Call Centre: 086 111 2468

Call Centre E-mail: callcentre@environment.gov.za

Website: www.environment.gov.za