



Part of Energy Queensland

11 February 2022

Ms Anna Collyer  
Chair  
Energy Security Board  
COAG Energy Council Secretariat  
John Gorton Building  
King Edward Terrace  
PARKES ACT 2600

Email to: [info@esb.org.au](mailto:info@esb.org.au)

Dear Ms Collyer

### **Interoperability Policy – Stage 1: Inverter based resources**

Ergon Energy and Energex welcome the opportunity to provide comment to the Energy Security Board (ESB) on their consultation on Interoperability Policy Stage 1 – Inverter based resources.

We support the intent to standardise interoperability for inverter-based resources and have responded based on our own consultations and strategic direction in this area. We believe that certification and compliance are of particular importance given the national implications and interdependencies required across network operators and customer stakeholders.

Ergon Energy and Energex have responded to each of the questions raised in the consultation paper in the attached submission. Should the ESB require any additional information or wish to discuss any aspect of this submission, please contact Sarah Williamson on 0409 239 883 or Barbara Neil on 0429 782 860.

Yours sincerely

per Sarah Williamson  
**Acting Manager Regulation**

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*Encl: Ergon Energy and Energex submission to ESB consultation on Interoperability Policy – Stage 1: Inverter based resources*



# Interoperability Policy Stage 1: Inverter based resources

Joint response to the ESB  
11 February 2022



Part of Energy Queensland

## Interoperability Policy – Stage 1: Inverter based resources

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### ABOUT ERGON ENERGY

Ergon Energy Corporation Limited (Ergon Energy) is part of Energy Queensland and manages an electricity distribution network which supplies electricity to more than 740,000 customers. Our vast operating area covers over one million square kilometres – around 97% of the state of Queensland – from the expanding coastal and rural population centres to the remote communities of outback Queensland and the Torres Strait.

Our electricity network consists of approximately 160,000 kilometres of powerlines and one million power poles, along with associated infrastructure such as major substations and power transformers.

We also own and operate 33 stand-alone power stations that provide supply to isolated communities across Queensland which are not connected to the main electricity grid.

### ABOUT ENERGEX

Energex Limited (Energex) is part of Energy Queensland and manages an electricity distribution network delivering world-class energy products and services to one of Australia's fastest growing communities – the South-East Queensland region.

We have been supplying electricity to Queenslanders for more than 100 years and today provide distribution services to almost 1.4 million domestic and business connections, delivering electricity to a population base of around 3.4 million people via 52,000km of overhead and underground network.

### Contact details

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## 1 INTRODUCTION

Ergon Energy and Energex welcome the opportunity to provide comment to the Energy Security Board (ESB) on their consultation on Interoperability Policy Stage 1 – Inverter based resources.

Ergon Energy and Energex support the intent to standardise interoperability for inverter-based resources and have responded based on our own consultations and strategic direction in this area. We believe that certification and compliance are of particular importance given the national implications and interdependencies required across network operators and customer stakeholders.

For additional information, please refer to our publicly accessible information on this topic via the following resources:

- Consultation 1
- Consultation 2
- Dynamic Standard for Small IES Connections – Ergon
- Dynamic Standard for Small IES Connections - Energex

Ergon Energy and Energex have responded to each of the questions raised in the consultation paper in Section 2. Should the ESB require any additional information or wish to discuss any aspect of this submission, please contact Sarah Williamson on 0409 239 883 or Barbara Neil on 0429 782 860.

# Interoperability Policy – Stage 1: Inverter based resources

## 2 TABLE OF DETAILED COMMENTS

Consultation Paper Feedback Question	Ergon Energy and Energex response
<b>Assessment Framework</b>	
<p>1. What are stakeholder views on the framing of the feature sets as described in Chapter 3 (and in the accompanying FTI paper)?</p>	<p>Ergon Energy and Energex agree the approximate alignment of the concept of ‘feature sets’ to the work already undertaken in the leading DER interoperability standard (IEEE 2030.5) is appropriate and generally well accepted.</p> <p>However, based on the definition provided in the Consultation Paper, we suggest ‘Mechanisms for control’ may be more appropriately named ‘Communication Protocol’. While CSIP-AUS (IEEE 2030.5) is based on Hypertext Transfer Protocol (HTTP) protocol, we believe more efficient underlying protocols such as Message Queuing Telemetry Transport (MQTT) should be allowed for to ‘carry’ the same core interoperability feature sets in the future. Each protocol should support common features such as time sync, logging and alarms in their own way as appropriate.</p> <p>It should be noted that Ergon Energy and Energex distinguish between the terms ‘Data’ and ‘Telemetry’, where ‘Data’ tends to represent static attributes (such as those referred to in the ‘Registration’ function set) and ‘Telemetry’ refers to measurement points that frequently change state. The CSIP-AUS guide refers to this as ‘Monitoring Data’. As such, ‘Telemetry’ or ‘Monitoring Data’ may be considered more appropriate names for this feature set.</p>
<p>2. What are the stakeholder views on the selected groupings of functionality for the feature sets? Are these the most appropriate grouping of feature sets, or are there others that should be considered?</p>	<p>Ergon Energy and Energex suggest references to ‘control’ of devices should only be made in the ‘Grid support DER functions’ feature set. Furthermore, the terminology should clearly indicate the different functional requirements between communicating the safe grid operational conditions (Dynamic Operating Envelopes (DOE)) and sending direct control instructions for how the device should behave to meet any additional contractual requirements between the customer and DNSP or aggregator.</p> <p>It is not our intention or the intent of CSIP-AUS to use published DOE to control the operation of customer DER but instead communicate the safe operating conditions under which a customer’s site must comply at their connection point. It is expected that aggregators or Home Energy Management Systems (HEMS) may further control DER within these bounds to meet the desires of the customer.</p> <p>Given the interdependencies of the features sets on one another, we suggest the order of the groupings could be more appropriately sorted, similar to the layers of the Open Systems Interconnection (OSI) model:</p> <ul style="list-style-type: none"> <li>• Data (or Telemetry)</li> <li>• Grid Support DER Functions</li> <li>• Registration</li> <li>• Mechanisms for control (or Communication Protocol)</li> <li>• Cybersecurity</li> </ul>

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Consultation Paper Feedback Question	Ergon Energy and Energex response
<p>3. What are stakeholder views on each of the proposed criterion as described in Chapter 3 (and in the accompanying FTI paper)?</p>	<p>We agree the seven assessment criterion appear appropriate.</p>
<p>4. Are there considerations that have not been captured in the assessment framework?</p>	<p>Ergon Energy and Energex offer no further considerations for the assessment framework.</p>
<p>5. This assessment framework has been established to assist consideration of the CSIP-Aus standard for inverter based DER (solar PV and battery storage); however, it could also support consideration of other technology groups, such as EV smart charging and smart appliances. What are stakeholder views in respect of the applicability of this framework to other technologies, e.g., could the framework be applied to electric vehicle charging standards as a subsequent exercise?</p>	<p>It is Ergon Energy and Energex’s intention to offer DOE to Electric Vehicle Supply Equipment (EVSE) and other smart appliances in the future. However, it is preferred that only one device will communicate with the DNSP server directly, as published DOE apply to a connection point and not a specific device. It is envisioned that should customers connect multiple DER of different types that one of them will act as a HEMS and control the other devices to ensure connection point level compliance.</p> <p>If required a single DOE, made up of a dynamic export limit and a dynamic import limit can be separately communicated to a generation only DER (e.g. Photo voltaic (PV) inverter) and a load only DER (e.g. Unidirectional EVSE) respectively. When more than one active DER can contribute to export and/or import (e.g. PV inverter and AC-coupled BESS) their response must be coordinated.</p>

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Consultation Paper Feedback Question		Ergon Energy and Energex response
<b>Application of the policy</b>		
<b>Applicability</b>		
<p>6. Understanding consumer needs will be important to support effective interoperability settings and secure acceptance for application of standards. What might be implications for the way households and businesses use their DER devices and how they may choose to interact with systems and markets?</p>	<p>Ergon Energy and Energex have conducted extensive customer and stakeholder consultation on the needs and benefits of dynamic connections and standardised interoperability. Feedback provided through this process has confirmed stakeholders are largely supportive of our proposals.</p> <p>In particular, we believe our responsibility should be to the connection point where practical, and not interfere with downstream management of individual DER. This should set the base layer of physical network capacity that is free to be built upon for market interaction by customers or the aggregators that represent them.</p> <p>As the capacity of DER continues to increase, DOEs will be necessary for ensuring the safe operation of the network. Customers will continue to be given the choice to connect with a reduced fixed export limit as well as the opportunity to ‘self-consume’. Individual consumer needs will dictate which option is most beneficial for a particular installation and will continue to evolve as the price of Battery Energy Storage Systems (BESS) and EV reduces over time.</p>	
<p>7. Is there an assumption that existing fleets of devices would need to be grandfathered? If so, how long might be appropriate? Would sunset arrangements need to be considered to address potential issues of inequity issues?</p>	<p>Ergon Energy and Energex do not intend to impose DOEs on existing connections, and the interoperability requirements will only apply to new connections. Given that the standard warranty period is 10 years for inverters and that a change in inverter requires a new connection agreement, it is expected that most systems will be upgraded to comply with the new requirements over time.</p>	
<p>8. Is it appropriate for new standards to apply to all retailers? How would aggregators and embedded network providers be treated?</p>	<p>Ergon Energy and Energex intend to apply a consistent standard (STNW3510 Dynamic Standard for Small IES Connections and STNW3511 Dynamic Standard for low voltage (LV) Embedded Generator Connections) for all customers regardless of retailer or aggregator. Additional requirements may be imposed for Isolated Networks and High Voltage Distribution Networks which are outside the scope of this standard and have additional complexity and requirements.</p> <p>Embedded networks with dynamic connections are required to meet the same standards at their connection point and therefore must manage all DER within the embedded network to maintain compliance at the connection point.</p>	



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Consultation Paper Feedback Question	Ergon Energy and Energex response
<b>Compliance timeframes</b>	
<p>9. How might we assess timing of industry readiness? Is it appropriate for timing to be considered as part of the feature sets, rather than conformance to the entire standard, to allow gradual phasing in of functionality over time?</p>	<p>In our latest public consultation on this topic, Ergon Energy and Energex consulted directly on this question and believe a staged approach is appropriate and preferred. Aggregator mediated interoperability is relatively cheap to implement and manage initially and based on feedback we have received this can be achieved in 6-12 months given firm specifications.</p> <p>Once the base level of functionality is built, accepted, and proven useful then consideration for extending functionality or requirements to the device level can be made.</p>
<p>10. Is there a case for phasing in introduction of the standard (or relevant aspects of the standard) across different jurisdictions based on need? What might these considerations include?</p>	<p>The strong feedback that we have received from our stakeholders is that national consistency is preferred almost above all else. Vendors do not want to build disparate solutions for disparate jurisdictions, and this may also apply to the timing of these requirements.</p>
<p>11. Are there other parameters (additional to those described in Table 1) that may also be valuable for consideration of inclusion in this process?</p>	<p>Our consultation paper on Dynamic Customer Connections<sup>1</sup> provides further details on the feature set we will be requiring.</p>

<sup>1</sup> Ergon Energy and Energex (2021), *Enabling Dynamic Customer Connections for DER Stage 2 Consultation Paper*

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Consultation Paper Feedback Question	Ergon Energy and Energex response
<b>Related decisions</b>	
<p>12. How and when is the certification and compliance mechanisms determined? What are the likely lead times to establish such a capability?</p>	<p>Certification and compliance are likely to be the longest lead time activities in regard to interoperability given the wide co-ordination required for agreement of requirements and deployment.</p> <p>There is an urgent need for a centralised national authority for certifying and trusting aggregators and devices from a cybersecurity perspective such that network operators have confidence in the systems connected and operating on our networks. In practice, this would require the issuance of signed certificates, likely for aggregators first and ultimately directly into devices (making them difficult to modify if requirements change).</p> <p>We would support alternative approaches such as the use of return telemetry and market data to continuously audit connection compliance.</p>
<p>13. What might be likely systems and processes required to ensure that customers can easily switch providers that conform to these new standards? How does this relate to other IT and systems upgrades identified as part of AEMO regulatory and IT systems roadmap?</p>	<p>The communication protocols used to communicate with devices should follow open standards (such as IEEE 2030.5, MQTT, Modbus or REST APIs) and not make use of a proprietary protocol.</p> <p>In instances where devices communicate to a private cloud service maintained by the manufacturer, a suitable device level method using a documented and open communication protocol should also be available for use by the customer HEMS or other future vendors.</p>
<p>14. Are there other cross-cutting issues that stakeholders consider need to be raised and explored as part of this policy assessment?</p>	<p>Refer to our response to Q15 below.</p>
<b>Costs</b>	
<p>15. The burden of compliance with implementing the technical standards will fall in the immediate term on the vendors across the solar and</p>	<p>Ergon Energy and Energex have received feedback on the potential cost implications of return telemetry (or 'Data') passing through multiple vendor, aggregator and DNSP systems which may produce cost inefficiencies that are ultimately passed on to customers.</p> <p>We are open to collaborate on potential solutions to this issue but believe access to this telemetry is critical to the accurate calculation and allocation of capacity in low-visibility LV networks and still offers one of the more cost effective methods of achieving this.</p>

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### Consultation Paper Feedback Question

### Ergon Energy and Energex response

storage industry. In the medium term, the upfront and operational costs for compliance will likely be passed back to customers via Traders (retailers and aggregators). What are the key issues for retailers in ensuring this can be delivered at low cost? Are there aspects of the feature sets that have significant cost implications? Is there merit in staging the introduction of functionality over time?