ACIL ALLEN

1 April 2021

Report to Australian Energy Market Commission

Consumer archetypes for a two-sided market

Final report

About ACIL Allen

ACIL Allen is a leading independent economics, policy and strategy advisory firm, dedicated to helping clients solve complex issues.

Our purpose is to help clients make informed decisions about complex economic and public policy issues.

Our vision is to be Australia's most trusted economics, policy and strategy advisory firm. We are committed and passionate about providing rigorous independent advice that contributes to a better world.

Contents

Figures

Contents

Tables

Boxes

Executive summary

In late 2018, the former COAG Energy Council requested the Energy Security Board (ESB) to advise on a long-term, fit-for-purpose market framework to support reliability, modifying the National Electricity Market (NEM) as necessary to meet the needs of future diverse sources of non-dispatchable generation and flexible resources including demand side response, storage and distributed energy resource participation.[1]

As part of this new market framework, the Australian Energy Market Commission (AEMC) and the Australian Energy Market Operator (AEMO) are developing policy that would facilitate a more fully developed two-sided market, on behalf of the ESB. The ESB, AEMC and AEMO are considering the capacity and needs of consumers to participate in a more mature two-sided market, and the complementary measures required to support and protect them during the transition.

In light of this, the AEMC has asked ACIL Allen to expand and extend the *Supporting Households Framework,* developed for Energy Consumers Australia (ECA) in 2018, to consider the needs of consumers in the development of a more effective two-sided market.

The *Supporting Households Framework* is a strategic framework to support policy-makers to consider the range of tools and services needed by different Australian households to effectively manage their energy bills.[2] The strategic framework comprised three elements, as illustrated in Figure ES 1:

1. the range of choices or decisions that households may make to manage their energy bills
2. the different types of Australian households and their diverse motivations (or willingness), abilities and opportunities to manage their energy bills
3. the range of tools and services that could support different types of Australian households to make different types of decisions to manage their energy bills.

The application of the *Supporting Households Framework* was illustrated by reference to six different types of households or consumer archetypes. These consumer archetypes illustrated how the decisions by households can vary:

— depending on the type of decision to be made

— over time, as circumstances change.

[1] COAG Energy Council, *Meeting Communique*, 19 December 2018; COAG Energy Council 2019, *Energy Security Board Post 2025 Market Design Issues Paper*, September.

[2] The full report is available on Energy Consumer Australia's website at https://energyconsumersaustralia.com.au/wp-content/uploads/Supporting-Households-to-Manage-Their-Energy-Bills-a-Strategic-Framework.pdf

Figure ES 1 Elements of the strategic framework to support households to manage their energy bills

Source: ACIL Allen.

For this project, the AEMC has engaged us to:

- determine the range of choices or decisions that households and small-medium sized businesses may make to participate in a more mature two-sided market and their opportunities to do so in this context
- identify the types of consumers who are more likely to be able to participate in, and thereby benefit from, a more mature two-sided market (noting that all consumers will benefit from a more efficient market) and those who may require assistance (and the areas where they are likely to need that assistance)
- consider what complementary measures policy-makers and government can utilise to assist consumers who may not be in a position to take advantage of a more mature two-sided market
- assist them to develop a number of consumer archetypes to illustrate the way in which different consumers may decide to participate in a more mature two-sided market and the types of complementary measures that they may require to incentivise them to participate and protect them during this transition.

Choices available to consumers to participate in the two-sided market

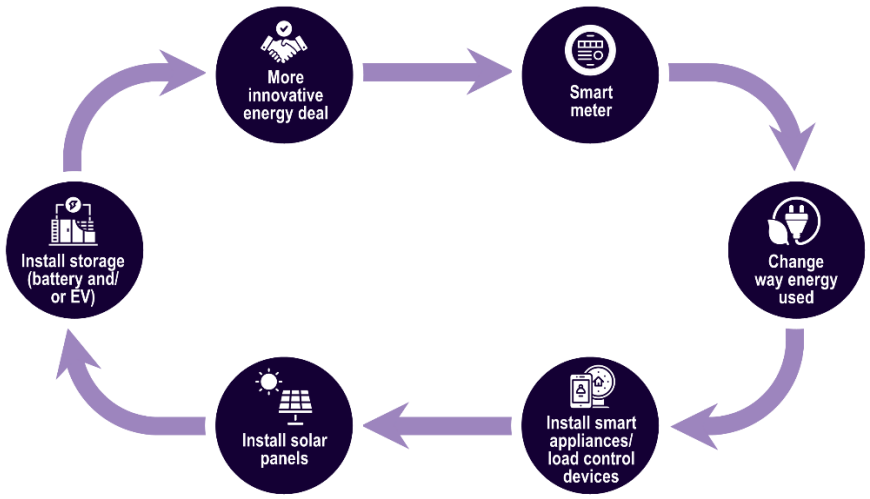
Based on our understanding of the development of an effective two-sided market, we have identified the following six choices that households and small-medium sized business consumers may make to participate in that market (see Figure ES 2):

- move to a more innovative energy deal
- install a smart meter
- change the way energy is used
- install smart appliances and/or load control devices
- install solar panels
- install storage in the form of batteries and/or electric vehicles.

Households and small-medium sized businesses do not need to make these choices in the sequence as presented in Figure ES 2. Some consumers may have already made some of these choices, although they may not be leveraging the full benefits associated with those choices. Other consumers may make some of the choices, but not others. For example, some may choose to move to a more innovative energy deal, install a smart meter and to change the way energy is

used, while others may choose to move to a more innovative energy deal, install a smart meter and install solar panels.

Figure ES 2 Choices to participate in a more mature two-sided market



Note: EV = electric vehicle

Source: ACIL Allen.

Choosing a more innovative energy deal

Prior to the development of a more effective two-sided market, consumers will be on what we would refer to as a traditional energy deal, where they have a relationship with their retailer to buy energy from the centralised system and to sell excess energy from their distributed energy resource (DER). The household or business consumer would have a separate relationship with an aggregator if they chose to participate and be rewarded for participating in some form of demand management program.

With the development of a more effective two-sided market, the household or business consumer would be able to enter into a single contractual arrangement with their "trader"[3] to facilitate greater participation in the energy market. In addition to facilitating the purchase of energy from the grid, the more innovative energy deal may provide a range of other services from a single provider.

The key decision to be made by consumers is whether to choose to move from a traditional energy deal to one of these more innovative energy deals.

Choosing to install a smart meter

To be able to access the benefits associated with participating in the future two-sided market arrangements, a household or business consumer is likely to require a smart meter. A smart meter will facilitate cost-reflective tariffs that provide incentives for the consumers to make choices that facilitate a more efficient energy market.

A consumer may or may not already have a smart meter installed. Where a consumer does not already have a smart meter installed, the consumer may make a choice implicitly to install a smart meter as a pre-condition to move to a more innovative energy deal, or may make a choice explicitly

[3] Under a more mature two-sided market traders perform all trading of energy services within the market, on behalf of end users. This concept captures the diverse arrangements that exist today – including retailers, generators, different types of aggregators, and special arrangements for storage and other devices – but without necessarily having specific market rules and participant categories for each, as exist today. Traders buy and sell services, trading between themselves, with AEMO, with network operators, and with end users. (Energy Security Board, *Moving to a two-sided market*, April 2020, page 10).

to install a smart meter, either before moving to a more innovative energy deal, in conjunction with moving to a more innovative energy deal, or after moving to a more innovative energy deal.

Choosing to change the way energy is used

If a consumer has chosen a more innovative energy deal, that deal may include incentives for consumers to participate in the energy market by adjusting their demand for energy based on the wholesale electricity price. The consumer may choose, for example to:

- reduce their demand for energy during times when wholesale electricity prices are high and/or to shift their demand for energy from times when wholesale electricity prices are high to when they are low
- control when its load is reduced or shifted in response to signals from the trader
- turn the thermostat down for space heating or up for space cooling, or run certain appliances or equipment when wholesale electricity prices are lower.

Choosing to install smart appliances and/or load control devices

Alternatively, the consumer may choose for its trader to have control over certain loads. The trader could control the loads through the use of smart appliances and/or load control devices.

The consumer may already have smart appliances and/or load control devices installed that could be accessed by the trader. Alternatively, the consumer could choose to install smart appliances and/or load control devices.

Choosing to install solar panels

The consumer may already have solar panels installed, in which case, it could sell any excess energy that is generated.

Under the more innovative energy deal, there may be greater incentives for a consumer to install solar panels. For example, the consumer may be able to store the excess energy generated in a community-based battery for use later, or may be able to sell electricity to a neighbour, or may be provided with signals as to when to use less energy to enable more energy to be exported.

The consumer may then choose to install solar panels where it has not done so already.

Choosing to install storage in the form of batteries and/or electric vehicles (EVs)

For the purposes of the choices to be made, there are two forms of storing energy – through a fixed form of storage (a battery in the home) or a mobile form of storage (an electric vehicle).

The consumer may already have some form of storage, in which case, it could store energy for use later with any excess energy that cannot be stored exported.

Under the more innovative energy deal, there may be greater incentives for a consumer to install storage. For example, the trader may send signals to the consumer as to when to charge and discharge the storage device to facilitate the most efficient outcomes for the energy market, or enable others to store energy for later use by them.

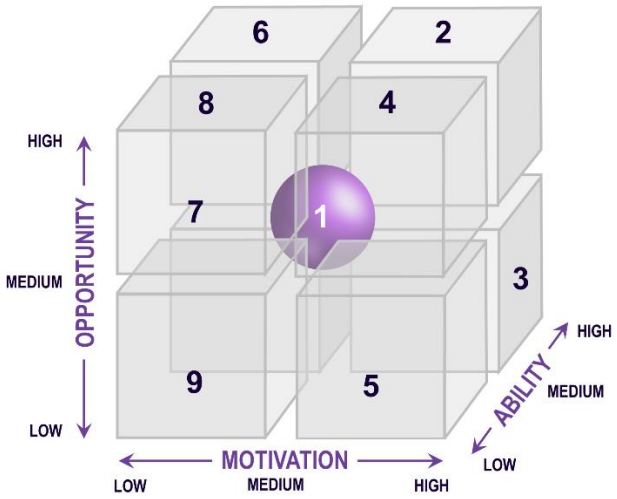
The consumer may then choose to install storage where it has not done so already.

Consumer types

We have categorised consumers based on three dimensions – their motivation, ability and opportunity to make choices – to identify nine different types of consumers, as illustrated in Figure ES 3**.** As shown in this figure, a rating of high-medium or low-medium on the three dimensions of opportunity, ability and opportunity results in the following consumer segments:

- **Enthusiasts** — consumers with a high level of ability and are enthusiastic about new ideas and technology. They are highly motivated to take action, particularly as it relates to technology (for example, installing smart appliances, solar panels and batteries) but may not pursue all opportunities (such as the best innovative energy deal for them) and so there are further opportunities for taking action to participate in the two-sided market.
- **Completers** — consumers with a high level of ability and motivation to participate in the two-sided market and so pursue all opportunities to participate in the market as those opportunities arise. Accordingly, there are no further actions that can be taken.
- **Dependent** — consumers that are motivated to take action to participate in the two-sided market and have opportunities to do so, but have a low level of ability and therefore depend on others to help them to take action.
- **Stuck** — consumers that are motivated to take action to participate in the two-sided market, but are stuck because they have a low level of ability and no opportunities to take action to participate.
- **Complacent** — consumers that have the opportunity to participate in the two-sided market and have the ability to take action, but are complacent with no motivation to do so.
- **Competent** — consumers that have the ability to take action to participate in the two-sided market (are competent) but have no motivation or opportunity to take action to participate.
- **Cautious** — consumers that have opportunities to participate in the two-sided market, but have low ability to take action to participate and so are not motivated to do so (are cautious).
- **Hard to Help** — consumers that have no opportunities to participate in the two-sided market. They have a low level of ability to seek out opportunities and are not motivated to do so. Accordingly, they are hard to help.
- **Middle Australia** — there will be a distribution of consumers across each dimension, including a proportion of consumers that lie in the centre of the distribution for a dimension, and a smaller proportion of consumers that lie in the centre of the distribution for all three dimensions (i.e. who have medium motivation, medium ability and medium opportunity). We have identified this as the ninth consumer segment and referred to it as “Middle Australia”.

Figure ES 3 Segmentation model for consumers participating in the two-sided market



Note: 1 = Middle Australia; 2 = Enthusiasts; 3 = Completers; 4 = Dependent; 5 = Stuck; 6 = Complacent; 7 = Competent; 8 = Cautious; 9 = Hard to Help

Source: ACIL Allen assessment.

The full list of factors that influence a consumer's motivation, ability and opportunity to make the choices required to participate in a two-sided market is provided in section 3.2 in Chapter 3. These factors are summarised in Table ES 1.

The factors that are relevant vary by the type of choice that can be made. For example, whether a household lives in rental accommodation is relevant to choosing to install solar panels, but not to choosing a more innovative energy deal.

The factors that influence a household's motivation and ability to make choices relating to a two-sided market are similar to the factors that influence a small-medium sized business. However, in the case of small-medium sized businesses, the factors that influence motivation and ability relate to the person in the business making energy-related decisions rather than to the business *per se*. The way the motivational factors apply to a business will change over time as people come and go from that role.

Table ES 1 Summary of factors that influence motivation, ability and opportunity of households and small-medium sized businesses to participate in a two-sided market

Motivation	Ability	Opportunity
Attitude towards the behaviour, for example, the perceived costs and benefits, the importance of energy, and cultural considerations Alignment with choices made within the business's circle of influence Likelihood of success Unwillingness to create disharmony/conflict Maintaining competitiveness	Literacy, numeracy, problem solving and research skills Language barriers Ability to self-advocate, negotiate Belief in the ability to succeed Trust in others Ability to influence behaviour of all relevant people within the household or business General interest in, and capability using, technology	Type of housing/premises Ownership status of the house/premise Scope to make energy-related decisions Access to liquid funds The way in which the business operates – the extent to which energy use is driven by the business *vis a vis* driven by the business's consumers

Source: ACIL Allen.

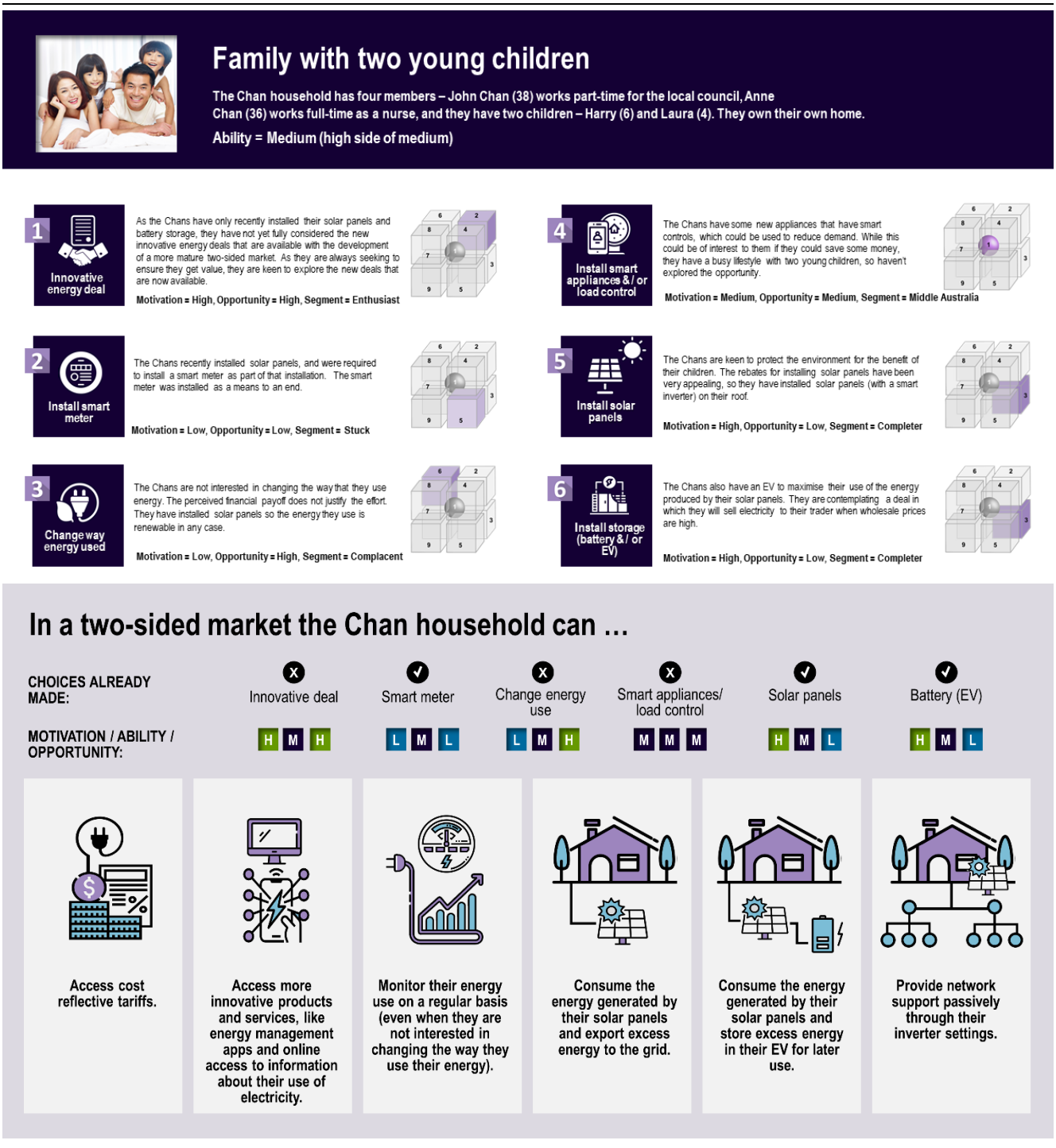
The factors that influence a particular consumer's motivation and opportunity to make choices to participate in a two-sided market will vary for each of the six choices that are available. For example, a particular household may be motivated to choose a more innovative energy deal but may not be motivated to install solar panels because of the perceived cost. A business may have the opportunity to install a smart meter but may not have the opportunity to change the way they use energy.

The factors that influence a consumer's motivation and opportunity to make choices to participate in a two-sided market will also vary over time. For example, a business may have the opportunity to choose a more innovative energy deal, but once they have chosen the best innovative energy deal, they will not have the opportunity to choose a more innovative energy deal, at least in the short term. A household may not be motivated to turn off the air conditioner while teenage children are living at home, to maintain family harmony, but they may be motivated to do so when the children leave home.

The factors that influence a consumer's ability to make choices to participate in a two-sided market are less likely to vary over time.

The application of the consumer segmentation framework to the two-sided market is further illustrated by reference to six consumer archetypes in Chapter 4. An example of one of these archetypes, and of how the family in this example can participate in future two sided market arrangements given their ability, motivation and opportunity and the choices they have made, is presented in Figure ES 4.

Figure ES 4 Example of consumer archetype and how they can participate in a two-sided market – a family with two young children



Source: ACIL Allen.

Complementary measures to facilitate participation in a more mature two-sided market

The segmentation framework developed for this project characterises consumers to make a particular type of choice at a particular point in time based on their opportunity, ability and motivation. It also identifies a range of complementary measures that could support consumers to make choices that can facilitate their participation in a more mature two-sided market. These can be categorised broadly as:

- regulation
- incentives
- information, advice and non-financial support advice
- support services
- financial support.

The objective of providing complementary measures is to address the barriers to a consumer to make the choices required to participate in a more mature two-sided market. For example, if a consumer has low opportunity to install solar panels because they do not have the funds to do so, then the objective of the complementary measure is to provide financial support so that the opportunity to install solar panels is increased. That is, for that particular choice at that particular time, the consumer moves from having low opportunity to install solar panels to having high opportunity (assuming there are no other barriers).

The appropriate complementary measures vary for each consumer segment and each choice.

Initiatives that are the most appropriate for the different types of consumers

The initiatives that could facilitate consumers making each of the six decisions that have been identified for participation in a more mature two-sided market vary in terms of their efficiency (value for money) and effectiveness.

Some initiatives are low cost, such as awareness campaigns, while others are high cost, such as providing personalised information to households through a trusted source. However, while awareness campaigns may be effective for some consumers (those with high levels of ability and motivation), they may be ineffective for other consumers (those with low levels of ability and motivation). Providing personalised information to consumers may be highly effective for all consumers but would not be an efficient approach – some consumers will be able to make choices without this level of support, while others will be reliant on this level of support to choose.

The initiatives that could facilitate consumers making decisions to participate in a two-sided market also vary based on the actual choice to be made. For example, while direct Government investment in public housing is a relevant support for installing solar panels, it is not a relevant support for choosing a more innovative energy deal.

The complementary measures that would be appropriate for each consumer segment have been identified for each type of choice that can be made to participate in a two-sided market. These are set out in detail in Table 5.4 to Table 5.9 in Chapter 5. An extract from one of the tables is provided as Figure ES 5.

Figure ES 5 Example of the appropriate initiatives by consumer segment for one of the six choices to participate in a two-sided market

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Regulation									
Mandate move to a more innovative energy deal when a smart meter is installed	✓			✓	✓	✓	✓	✓	✓
Mandate minimum standards for information to be provided with offers	✓			✓	✓	✓	✓		
Remove barriers to consumers moving to a more innovative energy deal, such as the requirements for explicit informed consent	✓			✓	✓	✓	✓	✓	✓
Ensure consumer protections are retained and that market fees, hardship schemes and exemptions are appropriately applied under the new deals	✓			✓	✓	✓	✓	✓	✓
Incentives									
Feedback on outcomes that is general (e.g. through periodic energy bills)		✓	✓						
Feedback on outcomes that is specific and timely, such as daily or weekly information	✓			✓	✓	✓	✓	✓	✓
Reassign consumers with smart meters to cost reflective network tariffs	✓	✓	✓						
Information, advice and non-financial support									
Awareness campaign	✓	✓	✓						
General information		✓	✓						
Word of mouth communication / role models through technology-based media	✓	✓	✓			✓	✓		
Word of mouth communication / role models through traditional media	✓			✓	✓			✓	✓
Exemplars e.g. open houses, demonstration projects, etc.									
Proactively provide tailored information to the specific household	✓			✓	✓	✓	✓		
Proactively provide simple personalised information through a trusted source								✓	✓
Market-based tools and services to assist consumers to take action (e.g. comparator service)	✓	✓	✓			✓	✓		

Note: A tick indicates that the tool or service is considered to be appropriate for that type of household

Source: ACIL Allen assessment.

Key findings

The analysis in this report found that, of the nine consumer segments identified, only the Enthusiasts and Completers segments have the ability and motivation to participate in a more fully developed two-sided market. However, if only these consumers participate in the two-sided market, the benefits that will be derived will be limited.

Additional supports (or complementary measures) will be required to facilitate participation by consumers in the other segments in a more mature two-sided market:

— Consumers in the **Middle Australia** segment require less support than those in other segments – they need a "nudge" to encourage their participation in the two-sided market.

— Consumers in the **Dependent** and **Stuck** segments are motivated to participate in the two-sided market, but do not have the ability. Complementary measures may be required to address the ability barrier to facilitate their participation in the two-sided market, and thereby facilitate the realisation of the benefits associated with the two-sided market.

— Consumers in the **Complacent** and **Competent** segments have the ability to participate in the two-sided market but not the motivation. In the case of consumers in the Complacent segment, they also have the opportunity to participate in the two-sided market, so need complementary measures to address the motivation barrier. Consumers in the Competent segment may not have the motivation to participate in the two-sided market because they do not have the opportunity. Complementary measures may be required to address the barrier to participation.

— Consumers in the **Cautious** and **Hard to Help** segments do not have the ability or motivation to participate in the two-sided market. Complementary measures may be required to facilitate

their participation in the two-sided market, and thereby facilitate the realisation of the benefits associated with the two-sided market.

A range of potential complementary measures have been identified, which can be broadly categorised as regulation, incentives, information, advice and non-financial support, support services and financial support.

Of these five broad categories of measures, two are within the remit of the AEMC. The AEMC could provide incentives and regulate through the National Electricity Rules and the National Energy Retail Rules. All other types of measures are within the remit of other Government departments and agencies through policies and programs, including regulation through other regulatory instruments and other forms of incentives.

We assessed the appropriateness of initiatives through consideration of their efficiency (value for money) and effectiveness in supporting a consumer in participating in a two-sided market by making one of the six choices, and identified the most appropriate initiatives by consumer by choice. We note, however, that the appropriate measures in a particular context are highly dependent on the objectives of providing support. For example, whether the objective is to:

— maximise participation in the two-sided market
— facilitate participation by particular consumers in the two-sided market
— facilitate particular choices by consumers.

Until there is a clear objective for providing support and a clearer market design, it is not possible to make specific recommendations as to the most appropriate measures to implement to complement the development of a more effective two-sided market. However, the following guiding principles are provided to be considered while undertaking market design. These principles are provided by type of initiative.

Regulation

— Identify whether there are market and regulatory barriers to consumers moving to more innovative energy deals (e.g. the requirements for obtaining explicit informed consent[4]), have their load controlled or install battery storage (battery storage is a relatively new product so Governments will need to ensure that there are no inappropriate market or regulatory barriers to their efficient uptake).
— Assess whether the current consumer protections are sufficient to protect consumers under future two-sided market arrangements and revise as required (e.g. additional consumer protections may be needed if the cost to install solar panels is recovered through energy bill). Also ensure that market fees, hardship schemes and exemptions are appropriately applied under new deals.
— Explore the feasibility and merits (including through cost benefit analysis) of mandates that could facilitate increased participation into a two sided market. This include, amongst others, regulation to mandate the installation of smart meters, solar panels and batteries, minimum information standards and smart capability in new appliances.

[4] This is not suggesting that there should be no requirement for obtaining explicit informed consent. Rather, it is suggesting that there be other ways to obtain explicit informed consent from consumers that do not have trust in others to provide it even where it is in their best interests to do so.

Incentives

- Explore ways to provide consumers with feedback on outcomes that is more specific and timely, for instance through the provision of daily or weekly information on how much money has been saved due to a new deal, a change in the way they use their energy, the use of solar panels or batteries or as a result of load control.
- Explore ways to proactively advise consumers about high price periods in the lead up to those periods, and of the potential savings of having their load controlled or changing the way they use their energy.
- Assess the possibility of reassigning consumers with smart meters to cost reflective network tariffs.
- Explore additional initiatives to incentivise the desired outcomes for the relevant types of consumers.

Information, advice and non-financial support

- Consider developing programs to:
  - provide information through word of mouth communication and role models through technology-based media to engage Enthusiasts, Completers, Complacent, Competent and Middle Australia consumers. Relevant information should be provided to help consumers across all types of choices
  - provide information through word of mouth communication and role models through traditional-based media to engage Dependent, Stuck, Cautious, Hard to Help and Middle Australia consumers. Relevant specific information (that is user friendly) should be provided to help consumers across all types of choices
  - provide tailored information that is specific to consumers. An example of this could be creating a national advice program (via the phone or videoconference) that provides consumers with advice (by an energy expert) on the impact on their energy bills if they:
    - move to a more innovative energy deal
    - take action to change the way they use their energy
    - install smart appliances or have their load controlled
  - provide simple, personalised advice to Cautious and Hard to Help consumers through trusted sources.
- Consider developing tools to assist consumers to choose to a more innovative deal or battery storage.

Support services

- Ensure access to information and support/training for trusted sources so that this assistance can be accessed by trusted sources around Australia.
- Identify key community groups with presence around Australia who can support and assist consumers take action and jointly develop specific programs to help Cautious and Hard to Help consumers take action.

Financial support

- Explore improving access to liquid funds through loans for relevant segments and providing grants and subsidies to support the installation of smart meters, smart appliances, load control devices, solar panels and storage.
- Ensure the concessions regime is fit for purpose for the new more innovative energy deals.
- Consider direct Government investment to fund the installation of smart meters, smart appliances, load control devices, solar panels and storage, particularly in public housing.

— Consider providing targeted funding to community organisations to support households and small-medium sized businesses to make choices.

1 Introduction

In 2018, ACIL Allen was engaged by Energy Consumers Australia (ECA) to develop the *Supporting Households Framework*.[5] The *Supporting Households Framework* is a strategic framework to support policy-makers to consider the range of tools and services needed by different Australian households to effectively manage their energy bills. The strategic framework comprised three elements:

1. the range of choices or decisions that households may make to manage their energy bills
2. the different types of Australian households and their diverse motivations (or willingness), abilities and opportunities to manage their energy bills
3. the range of tools and services that could support different types of Australian households to make different types of decisions to manage their energy bills.

The application of the *Supporting Households Framework* was illustrated by reference to six different types of households or consumer archetypes. These consumer archetypes illustrated how the decisions by households can vary:

— depending on the type of decision to be made

— over time, as circumstances change.

In May 2020, ACIL Allen was engaged by the ECA to explore extending the *Supporting Households Framework* to small businesses and to frame the choices or decisions to be made by households and small businesses in an energy market design context. The objective was to assist the Energy Security Board (ESB) to incorporate a consumer voice into their decisions about the design of the National Electricity Market (NEM) post 2025.

That work identified that the *Supporting Households Framework* could be applied to small businesses with some changes to the factors used to segment consumers, and could be extended to energy market reform by considering the desired outcomes of the reform rather than specific choices that households could make to manage their energy bills. It also found that the detailed tools and services identified for households to manage their energy bills are not necessarily applicable to the broader energy market reform context, but the five broad categories of tools and services are considered to be relevant.

[5] The full report is available on Energy Consumer Australia's website at https://energyconsumersaustralia.com.au/wp-content/uploads/Supporting-Households-to-Manage-Their-Energy-Bills-a-Strategic-Framework.pdf

1.1 Application of the *Supporting Households Framework* to two-sided markets

The Australian Energy Market Commission (AEMC) and the Australian Energy Market Operator (AEMO) are developing policy that would facilitate a more fully developed two-sided market, on behalf of the ESB. A more fully developed two-sided market would:

- maximise participation in the market by requiring all entities that supply energy to, or consume energy from, the system submit bids, be scheduled and dispatched in the wholesale energy market
- allow consumers to choose if and how they participate directly in the wholesale energy market or operate through someone who does (for example, through a retailer or aggregator)
- require that the party best placed to provide forecasts of quantity and price does so
- place obligations on functions and activities, rather than participant categories or technologies.

The AEMC is now seeking to expand and extend the *Supporting Households Framework*, including the consumer archetypes, to consider the needs of consumers in the development of the two-sided market. The AEMC has engaged ACIL Allen to:

- determine the range of choices or decisions that households and small-medium sized businesses may make to participate in a more mature two-sided market and their opportunities to do so in this context
- consider what tools and complementary measures policy-makers and government can utilise to assist consumers who may not be in a position to take advantage of a more mature two-sided market
- assist the AEMC and the ESB to finalise the consumer archetypes best used for the two-sided market project.

1.2 Structure of this report

The remainder of this report is structured as follows.

- Chapter 2 provides background information as context for this report. In particular, it provides more detail on the *Supporting Households Framework* and the extension of that framework to small businesses and to frame the choices or decisions in an energy market design context.
- Chapter 3 discusses the application of the *Supporting Households Framework* to the development of a more effective two-sided market.
- Chapter 4 illustrates the application of the consumer segmentation framework to the two-sided market by reference to six different types of consumers.
- Chapter 5 identifies potential complementary measures to facilitate participation in the two-sided market for different consumer segments.
- Chapter 6 summarises the report findings and outlines its recommendations.

2 Background

This chapter provides background information as context for this report. More detail on the *Supporting Households Framework* is provided in section 2.1, and the extension of that framework to small businesses and to frame the choices or decisions in an energy market design context is provided in section 2.2. Information on the design of a two-sided market is provided in section 2.3.

2.1 Supporting Households Framework

As discussed in Chapter 1, in 2018, ACIL Allen developed a strategic framework for the ECA to support households to manage their energy bills. The strategic framework was informed by an extensive literature review, an independent review of the Commonwealth Government's Low-income Energy Efficiency Program (LIEEP) and consultation with stakeholders, including from government, businesses, consumer representatives and academia. Further detail on the development of the framework is provided in our report for the ECA that is available on the ECA's website.[6]

The strategic framework comprises three elements, as illustrated in Figure 2.1:

— the range of choices available to households to manage their energy bills, which are discussed in section 2.1.1

— the different types of Australian households and their diverse motivations, abilities and opportunities to manage their energy bills, which are discussed in section 2.1.2

— the range of tools and services that could support different types of Australian households to make different choices to manage their energy bills, which are discussed in section 2.1.3.

While the framework is quite complex with nine different types of households, six types of choices households can make to manage their energy bills and five broad categories of tools and services to support households to manage their energy bills, a key learning was that, when considering choices that consumers can make or energy policy initiatives, households can be categorised broadly into three groups:

1. those that have the ability and motivation to be able to make that choice / respond to that energy policy initiative
2. those that may need a "nudge" to be able to make that choice / respond to that energy policy initiative
3. those that need support to be able to make that choice / respond to that energy policy initiative.

[6] http://energyconsumersaustralia.com.au/wp-content/uploads/Supporting-Households-Framework.pdf

Figure 2.1 Elements of the strategic framework to support households to manage their energy bills

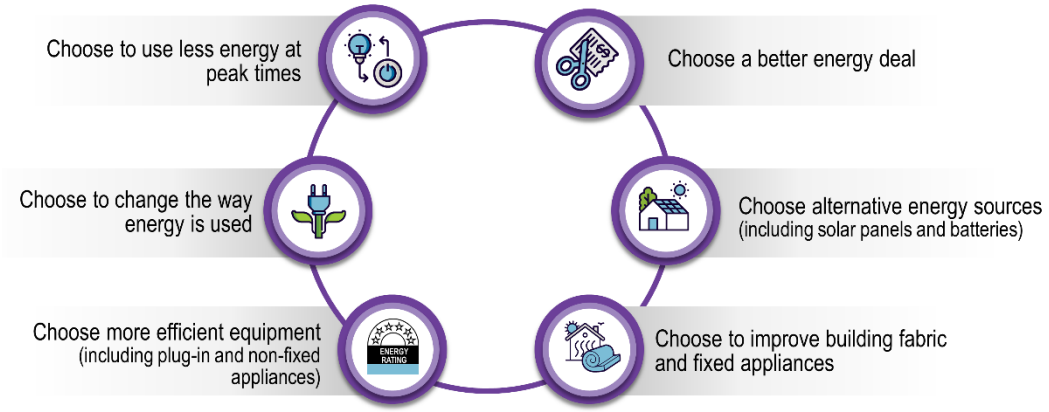
Source: ACIL Allen

2.1.1 Choices available to households to manage their energy bills

The strategic framework identified six types of choices available to households to manage their energy bills, as illustrated in Figure 2.2. Households can choose:

- a better energy deal, such as one with lower rates, a different structure or different payment arrangements
- alternative energy sources, for example by installing solar panels and/or batteries
- to improve the building fabric (ceiling, walls, windows, floors and doors) and fixed appliances, such as hot-water heaters and central air-conditioning units
- more energy efficient equipment and plug in appliances, such as fridges and TVs
- to change the way energy is used, such as turning the thermostat down for space heating or up for air-conditioning
- to use less energy at peak times, for example, by running the dishwasher and/or washing machine overnight rather than during peak times.

Figure 2.2 Choices available to households to manage their energy bills



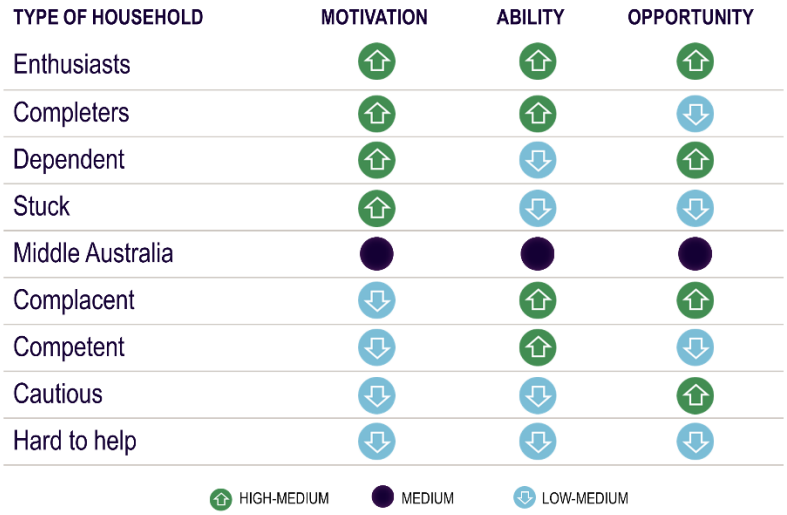
Source: ACIL Allen.

2.1.2 Different types of Australian households

The strategic framework categorised households based on three dimensions – their motivation, ability and opportunity to manage their energy bills – to identify nine different types of Australian households, as illustrated in Figure 2.3. Eight segments were identified by rating each of

motivation, ability and opportunity as either high-medium or low-medium[7], with a ninth segment in the middle representing households that were rated as medium on motivation, ability and opportunity. This segment was referred to as "Middle Australia".

Figure 2.3 Different types of Australian households



Source: ACIL Allen assessment.

The factors that influence a household's motivation, ability and opportunity to manage their energy bills are summarised in Table 2.1. The factors that are relevant vary by the type of choice that can be made. For example, whether a household lives in rental accommodation is relevant to improving the building fabric but not to installing more energy efficient plug-in appliances.

Table 2.1 Summary of factors that influence a household's motivation, ability and opportunity to manage their energy bills

Motivation	Ability	Opportunity
Attitude towards the behaviour, for example, the perceived costs and benefits, the importance of energy, and cultural considerations	Literacy, numeracy, problem solving and research skills	Type of housing
Alignment with choices made within the household's circle of influence	Language barriers	Home ownership status
Likelihood of success	Ability to self-advocate, negotiate	Scope to manage the energy bill – for example, to improve the building fabric or to install more energy efficient appliances
Unwillingness to create disharmony/conflict	Belief in the ability to succeed	Access to liquid funds
	Trust in others	
	Ability to influence behaviour of all household members	
	General interest in, and capability using, technology	

Source: ACIL Allen.

The factors that influence a particular household's motivation and opportunity to manage their energy bills will vary for each of the six choices that are available. For example, a particular household may have the opportunity to choose more energy efficient equipment but may not have the opportunity to choose to improve the building fabric of their home because they are a tenant.

The factors that influence a household's motivation and opportunity to manage their energy bills will also vary over time. For example, a household may not have the opportunity to improve the building fabric of their home in the short term because they are a tenant but will have the

[7] 2 x 2 x 2 = 8

opportunity if they purchase their own home. A household may not make certain choices when there are teenage children at home as there is an unwillingness to create disharmony, but will be willing to make those choices when they become empty nesters.

The ability of a household to manage their energy bills is less likely to change over time than their motivation and opportunity to act.

2.1.3 Tools and services to help households to manage their energy bills

There is a range of tools and services that can help households to manage their energy bills. These can be categorised broadly as:

— information, advice and non-financial support

— incentives

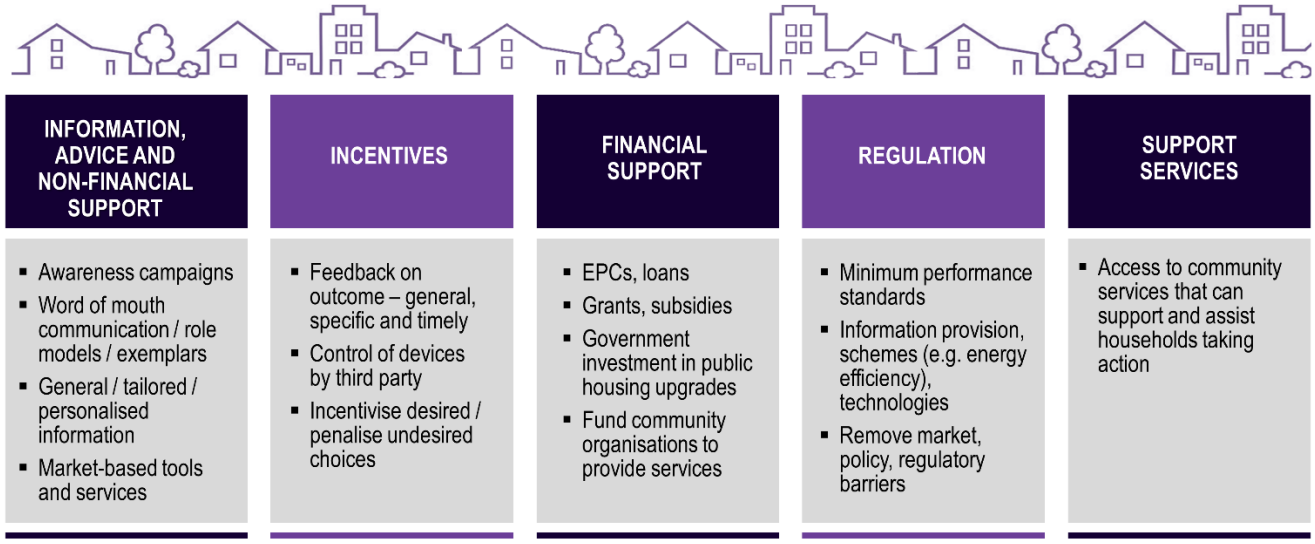
— financial support

— regulation

— support services.

Broad examples of the types of initiatives in each of these categories that are applicable to managing energy bills are illustrated in Figure 2.4.

Figure 2.4 Tools and services to help households manage their energy bills



Note: EPC = energy performance contract

Source: ACIL Allen.

2.1.4 Identifying the appropriate initiatives

We assessed the appropriateness of each of the initiatives for each of the consumer segments by considering their efficiency (value for money) and effectiveness.

Some tools and services are low cost, such as awareness campaigns, while others are high cost, such as providing personalised information to households through a trusted source. However, while low cost awareness campaigns may be effective for some households (those with high levels of ability and motivation), they may be ineffective for other households (those with low levels of ability and motivation).

Providing high cost personalised information to households may be highly effective for all households but would not be an efficient approach – some households will be able to make choices without this level of support, while others will be reliant on this level of support to make choices.

The tools and services that could help households to choose to manage their energy bills also vary based on the actual choice to be made. For example, while Government investment in public housing upgrades is a relevant support for improving the building fabric, it is not a relevant support for choosing the best energy deal.

The objective of providing the initiatives (tools and services) is to address the barriers to a household choosing to manage their energy bill.

For example:

1. If a household has low opportunity to buy a new more energy efficient appliance because they do not have the funds to do so, then the objective of the initiative is to provide financial support so that the opportunity to buy a new energy efficient appliance is increased. That is, for that particular choice at that particular time, the household moves from having low opportunity to buy a new energy efficient appliance to having high opportunity (assuming there are no other barriers).
2. If a household has low motivation to move to a better energy deal because the perceived time and complexity to choose a better energy deal are greater than the perceived benefits, then the objective of the initiative is to reduce the perceived time and complexity to choose a better energy deal and / or increase the perceived benefits. This may be by providing personalised information on the benefits associated with a better energy deal. That is, for that particular choice at that particular time, the household moves from having low motivation to change to a better energy deal to being motivated to make the change.

The objective of using tools and services is to increase the motivation to make a choice or increase the opportunity to make a choice.

The ability to use tools and services to increase the likelihood that households in the Enthusiasts segment will choose to manage their energy bills is limited as the households in these segments already have a high level of motivation, opportunity and ability to choose to manage their energy bills. Households in the Dependents segment also already have a high level of motivation and opportunity to choose to manage their energy bills. Initiatives targeted to these types of households need to address the ability barrier.

Households in the Middle Australia segment may need lighter forms of initiatives than households in other segments as the incremental increase in motivation and opportunity required for them to choose to manage their energy bills is less. That is, they may only need a “nudge” to make choices.

2.2 Broadening the application of the framework

In 2020, ACIL Allen was engaged by the ECA to assess whether the *Supporting Households Framework* could be extended:

— from households to small businesses

— from consideration of managing energy bills to informing energy market reform, in particular, the ESB’s post 2025 market design.

We considered each of the three elements of the framework in the context of small businesses and energy market reform:

— the applicability of the framework to small businesses, which is discussed in section 2.2.1

— rather than considering the choices available to households to manage their energy bills, we considered the energy market outcomes desired by households and small businesses, which are discussed in section 2.2.2

— rather than considering the initiatives that could support households to make different choices to manage their energy bills, we considered the policy levers to deliver these energy market outcomes, which are discussed in section 2.2.3.

2.2.1 Applicability of the framework to small businesses

When developing the *Supporting Households Framework*, the factors that influence a household's motivation, ability and opportunity to manage their energy bills were identified. These are summarised in Table 2.1.

Our consideration of how these factors may apply to small businesses was informed by research undertaken by the ECA on the priorities, goals, day-to-day challenges and attitudes and behaviours toward energy by small-medium sized businesses.[8]

The factors that influence a household's motivation to make choices relating to energy are similar to the factors that would influence a small business. However, in the case of small businesses, the motivational factors are applied to the person in the business making energy-related decisions rather than to the business *per se*. The way the motivational factors apply to a business will change over time as people come and go from that role.

There is an additional factor that will influence a small business's motivation to make energy-related decisions that is not relevant to a household – maintaining competitiveness.

Similarly, the factors that influence the ability of a household to make energy-related decisions also apply to small businesses, with the ability factors applied to the person in the business making energy-related decisions rather than to the business *per se*. The way the ability factors apply to a business will change over time as people come and go from that role.

The factors that influence the opportunity for a household to make energy-related decisions are similar to the factors that influence the opportunity for a small business to make energy-related decisions. While originally the factors were phrased in terms of the type and ownership of a household's home, for a business, the factors are phrased in terms of the type and ownership of the business's premises.

One of the factors in Table 2.1 was very specific to the choices to manage energy bills – it referred to the scope to manage the energy bill by, for example, improving the building fabric or installing more energy efficient appliances. In broadening the application of the framework, this factor has been rephrased as the scope to make energy-related decisions.

There is an additional factor that influences the opportunity for a business to make energy-related decisions, which relates to the way in which the business operates – the extent to which energy use is driven by the business *vis a vis* driven by the business's customers. For example, a hairdresser's energy use will be driven by its customers' demand for services. Accordingly, any energy-related decisions that are made by the hairdresser need to be considered in the context of when its customers will demand services.

[8] Forethought, *A Future Energy Vision, Consumer Expectations Research, Small-Medium Business Findings*, 2019.

The factors that influence the motivation, ability and opportunity of households and small businesses to make energy-related decisions are summarised in Table 2.2.

Table 2.2 Summary of factors that influence motivation, ability and opportunity of small-medium sized businesses to make energy-related decisions

Motivation	Ability	Opportunity
Attitude towards the behaviour, for example, the perceived costs and benefits, the importance of energy, and cultural considerations Alignment with choices made within the business's circle of influence Likelihood of success Unwillingness to create disharmony/conflict Maintaining competitiveness	Literacy, numeracy, problem solving and research skills Language barriers Ability to self-advocate, negotiate Belief in the ability to succeed Trust in others Ability to influence behaviour of all relevant people within the business General interest in, and capability using, technology	Type of premises Ownership status of the premise Scope to make energy-related decisions Access to liquid funds The way in which the business operates – the extent to which energy use is driven by the business *vis a vis* driven by the business's customers

Source: ACIL Allen.

2.2.2 Desired outcomes from energy market reforms

In broadening the application of the *Supporting Households Framework* from managing energy bills to energy market reform, we considered the outcomes desired by households and small businesses from that energy market reform. These are the high-level factors that would be considered by households and small businesses in making energy-related decisions.

We identified the desired outcomes by reference to consumer research undertaken by the ECA, the Western Australian Government's Distributed Energy Resources Roadmap, and the Electricity Network Transformation Roadmap developed by Energy Networks Australia (ENA) and CSIRO.

In 2019, the ECA conducted research on consumer expectations of a future energy vision. The research was conducted on households and small-medium sized businesses.

The household research identified that, for households, a better energy future consisted of five key elements[9]:

1. **Affordable** – lower prices was a key desire and fundamental to a better energy future.
2. **Simple** – a better future meant simplified, more comprehensible information. This extended to the source of energy and what options exist.
3. **Easy to manage** – apps, real-time information and smart homes were examples of technology to assist energy management, which would improve the lives of households into the future.
4. **Clean** – the ideal future involved adoption of more sustainable energy sources and an eventual shift to renewables.
5. **Inclusive** – empowering consumers through information and a platform to have a say if desired, was seen to contribute to a better future.[10]

[9] These elements were consistent across life stages and experiences, and provide a universal goal for the energy sector.

[10] Forethought, *A Future Energy Vision, Consumer Expectations Research, Household Findings*, 2019, page 27.

The research on small-medium sized businesses identified that the key elements of a better energy future for businesses were:

1. **Cheaper** – to be more competitive. Cheaper energy was desired by all businesses.
2. **More reliable** – so operations are not disrupted. While reliability was desired by all businesses, high energy-intensive businesses often had a stronger desire for this, as disruption had a relatively greater impact on profitability.
3. **Renewable** – to capitalise on long-term benefits. Businesses wanted to be able to completely rely on sustainable energy to take advantage of long-term savings, which was currently not possible for high energy-intensive businesses. In addition, businesses believed that broader energy technology, including energy saving solutions, were part of a better future.[11]

In December 2019, the Western Australian Government developed a Distributed Energy Resources (DER) Roadmap. The development of the roadmap was guided by three principles:

1. **Secure and reliable supply** – customers can connect to DER and DER supports the system in an efficient way.
2. **Value for money** – DER are active and delivering value throughout the electricity supply chain, reducing total costs.
3. **Customer participation** – customers are benefitting from DER, whether they have DER or not, and are protected.[12]

In 2017, the ENA and CSIRO published an Electricity Network Transformation Roadmap. The development of the Roadmap was guided by a balanced scorecard of customer outcomes. The outcomes were:

1. Customer choice and control
2. Lower bills for valued services
3. Fairness and incentives
4. Safety, security and reliability
5. Clean energy transition.[13]

> *Australia's electricity system must seek to achieve decarbonisation at least cost to customers without jeopardising power system security. Equally, it must incentivise and enable new customer choice and control, while providing appropriate customer protections and avoiding unfair impacts on vulnerable customers.[14]*

Drawing on these sources, we concluded that the outcomes desired by customers from energy market reform could be summarised under the following broad categories:

1. Value for money
2. Secure and reliable supply
3. Customer participation and engagement, that is, customers managing the way they engage with their energy use
4. (Environmental) sustainability.

---

[11] Forethought, *A Future Energy Vision, Consumer Expectations Research, Small-Medium Business Findings*, 2019, page 18.

[12] Western Australian Government, Energy Transformation Taskforce, *Distributed Energy Resources Roadmap*, December 2019, pages 38 and 41.

[13] Energy Networks Australia and CSIRO, *Electricity Network Transformation Roadmap: Final Report*, April 2017, page ii.

[14] Ibid.

2.2.3 Policy levers to deliver these energy market reforms

The tools and services that were identified in the *Supporting Households Framework* to help households to manage their energy bills were categorised broadly as:

- information, advice and non-financial support
- incentives
- financial support
- regulation
- support services.

These broad categories are equally applicable to energy market reform, although the details of the tools and services will vary depending on the particular reform or policy being analysed.

2.3 Development of a more effective two-sided market

In September 2020, the ESB issued a Consultation Paper on the post 2025 market design, including the development of a more effective two-sided market.

The Consultation Paper identified that the current market framework makes it difficult for consumers to participate in a way that can reward or value the reduction in, or shift of the timing of, their demand or use of DER. While large consumers with high energy demand and the ability to flex that demand have been able to respond to process and have the technology in place to allow them to respond, smaller consumers have been less able to participate, especially those that do not receive price signals reflecting changing market conditions.

The Consultation Paper noted that small consumers are able to respond to some price signals, such as time of use tariffs, and to access technology such as smart meters and DER. Accordingly, the capability of the demand side to respond to prices will continue to develop. The challenge is to ensure that all consumers are able to access this value.[15]

The objectives of the two-sided market were identified as to:

- support the most efficient balance of supply and demand
- enable all consumers to realise the value of their demand and supply.[16]

The consumer outcomes that are being sought from future two-sided market arrangements are:

- Provide choice and enable innovation – this refers to the way market arrangements can support the range of ways in which consumers may want to receive energy services in the future, regardless as to whether they want a single product or a bundle of products. Consumers should not have to participate or engage any more than they do today, unless they want to.
- Ensure consumers are treated equitably – many energy consumers have limited means, ability and/or interest in actively participating in markets for energy products and services. It is important that the market design provides choice and easy opportunities for consumers to engage whether they choose to do so, and have appropriate protections for consumers whether or not they engage.
- Create opportunities to lessen the 'energy divide' – regulatory frameworks may be able to complement and support community-based initiatives, such as community-based batteries that reduce local network congestion and improve network access for all types of consumers connected to that part of the network.

[15] Energy Security Board, *Post 2025 Market Design, Consultation Paper*, September 2020, page 88.

[16] Ibid.

— Provide incentives on third parties to partner with consumers – the two-sided market framework should be set up to encourage third parties to offer services to consumers that enable them to receive value for the flexibility of their demand or DER resources.[17]

New market models, products and services can raise new risks for consumers, particularly for those that may not have the means, ability or motivation to engage in those new market offerings. Complementary measures may be appropriate to support improved outcomes to these consumers. Additionally, complementary measures may increase the proportion of consumers that may be able to engage in two-sided market offerings, increasing value to those consumers directly, and reducing uncertainty and improving outcomes for all consumers at a system level.

Against this background, the purpose of this report is to provide a clear view of the:

— types of consumers who are more likely to be able to participate in, and thereby benefit from, a two-sided market (noting that all consumers will benefit from a more efficient market)
— protections that should be made available to all consumers, whether they are actively participating in the energy market or not
— consumers who may require assistance and the areas where they are likely to need that assistance.[18]

[17] Ibid, pages 88-89.

[18] Ibid, page 90.

Application of the framework to the two-sided market

3

This chapter outlines the application of the *Supporting Households Framework* to the development of an effective two-sided market.

3.1 Choices for participating in a two-sided market

In applying the *Supporting Households Framework* to the development of the two-sided market, the first consideration is the types of choices or decisions that consumers will make to participate in future two-sided market arrangements.

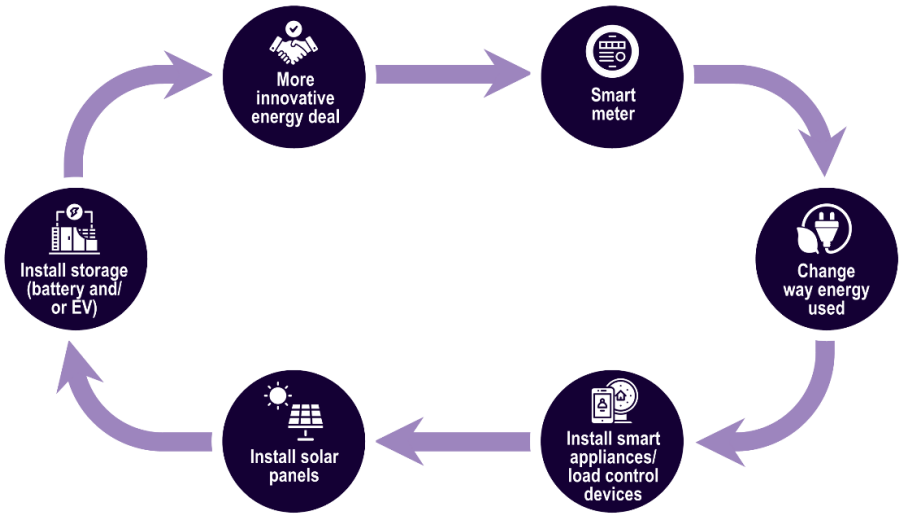
Based on our understanding of the development of an effective two-sided market, we have identified the following six choices that households and small-medium sized business consumers may make to participate in that market (see Figure 3.1):

- move to a more innovative energy deal
- install a smart meter
- change the way energy is used
- install smart appliances and/or load control devices
- install solar panels
- install storage in the form of batteries and/or electric vehicles.

Households and small-medium sized businesses do not need to make these choices in the sequence as presented in Figure 3.1. Some consumers may have already made some of these choices, although they may not be leveraging the full benefits associated with those choices. Other consumers may make some of the choices, but not others. For example, some may choose to move to a more innovative energy deal, install a smart meter and to change the way energy is used, while others may choose to move to a more innovative energy deal, install a smart meter and install solar panels.

Each of these choices is discussed further in the following sections.

Figure 3.1 Choices to participate in the two-sided market



Note: EV = electric vehicle

Source: ACIL Allen.

Choosing a more innovative energy deal

Prior to the development of a more effective two-sided market, consumers will be on what we would refer to as a traditional energy deal. Under a traditional energy deal, they have a relationship with their retailer to buy energy from the centralised system and to sell excess energy from their DER. They may have some form of load control device which controls their energy use during off peak times. The load control device typically controls the off peak water and space heating load and pool pumps.

The household or business consumer would have a separate relationship with an aggregator if they chose to participate and be rewarded for participating in some form of demand management program.

With the development of a more effective two-sided market, the household or business consumer would be able to enter into a single contractual arrangement with their "trader"[19] to facilitate greater participation in the energy market. In addition to facilitating the purchase of energy from the grid, the more innovative energy deal may provide a range of other services from a single provider including, for example:

- aggregation of demand response, to balance supply and demand for energy or to support the network, with the demand responding
  - automatically through load control devices, or
  - manually in response to price signals or other forms of information from the aggregator
- purchase of energy from local community-based solar panels
- export of excess energy generated, where solar panels are installed
- export of excess energy generated to a grid connected battery for later use

[19] Under a more mature two-sided market traders perform all trading of energy services within the market, on behalf of end users. This concept captures the diverse arrangements that exist today – including retailers, generators, different types of aggregators, and special arrangements for storage and other devices – but without necessarily having specific market rules and participant categories for each, as exist today. Traders buy and sell services, trading between themselves, with AEMO, with network operators, and with end users. (Energy Security Board, *Moving to a two-sided market*, April 2020, page 10).

— charging and discharging of batteries when demand for energy is low and high, respectively
— charging and discharging of batteries to support the network.

The key decision to be made by consumers is whether to choose to move from a traditional energy deal to one of these more innovative energy deals.

Choosing to install a smart meter

To be able to access the benefits associated with participating in the future two-sided market arrangements, a household or business consumer is likely to require a smart meter. A smart meter will facilitate cost-reflective tariffs that provide incentives for the consumers to make choices that facilitate a more efficient energy market – to be rewarded for making choices that enhance the efficiency of the energy market and to be penalised for choices that adversely impact the efficiency of the energy market.

A consumer may or may not already have a smart meter installed. Most consumers in Victoria have a smart meter installed following the mandatory roll out of smart meters in that jurisdiction. In other NEM jurisdictions, smart meters are installed for consumers with consumption above a threshold and are being installed on a new and replacement basis for consumers with consumption below a threshold.

Where a consumer does not already have a smart meter installed, the consumer may make a choice implicitly to install a smart meter as a pre-condition to move to a more innovative energy deal, or may make a choice explicitly to install a smart meter, either before moving to a more innovative energy deal, in conjunction with moving to a more innovative energy deal, or after moving to a more innovative energy deal.

Choosing to change the way energy is used

If a consumer has chosen a more innovative energy deal, that deal may include incentives for consumers to participate in the energy market by adjusting their demand for energy based on the wholesale electricity price – to reduce their demand for energy during times when wholesale electricity prices are high and/or to shift their demand for energy from times when wholesale electricity prices are high to when they are low.

The consumer may choose to control when its load is reduced or shifted in response to signals from the trader. These signals could be price or information signals.

The consumer may, for example, turn the thermostat down for space heating or up for space cooling, or run certain appliances or equipment when wholesale electricity prices are lower.

Choosing to install smart appliances and/or load control devices

Alternatively, the consumer may choose for its trader to have control over certain loads. The trader could control the loads through the use of smart appliances and/or load control devices.

The consumer may already have smart appliances and/or load control devices installed that could be accessed by the trader. Alternatively, the consumer could choose to install smart appliances and/or load control devices.

Choosing to install solar panels

The consumer may already have solar panels installed, in which case, it could sell any excess energy that is generated.

Under the more innovative energy deal, there may be greater incentives for a consumer to install solar panels. For example, the consumer may be able to store the excess energy generated in a

community-based battery for use later, or may be able to sell electricity to a neighbour, or may be provided with signals as to when to use less energy to enable more energy to be exported.

The consumer may then choose to install solar panels where it has not done so already.

Choosing to install storage in the form of batteries and/or electric vehicles (EVs)

For the purposes of the choices to be made, there are two forms of storing energy – through a fixed form of storage (a battery in the home) or a mobile form of storage (an electric vehicle).

The consumer may already have some form of storage, in which case, it could store energy for use later with any excess energy that cannot be stored exported.

Under the more innovative energy deal, there may be greater incentives for a consumer to install storage. For example, the trader may send signals to the consumer as to when to charge and discharge the storage device to facilitate the most efficient outcomes for the energy market, or enable others to store energy for later use by them.

The consumer may then choose to install storage where it has not done so already.

3.2 Consumer segmentation model

As discussed in section 2.1.2, we have previously developed a consumer segmentation model that categorised households based on three dimensions – their motivation, ability and opportunity to manage their energy bills – to identify nine different types of Australian households. Eight segments were identified by rating each of motivation, ability and opportunity as either high-medium or low-medium[20], with a ninth segment in the middle representing households that were rated as medium on motivation, ability and opportunity. This segment was referred to as "Middle Australia".

We have also previously formed the view that this model could be applied to small-medium sized businesses. The main difference between the application of the model to households *vis a vis* small-medium sized business consumers is that the model applies to the person in the business that makes the energy-related decisions rather than to the business *per se*, and so the factors that influence the categorisation of that business will change over time as people come and go from that role.

The factors that influence the motivation, ability and opportunity were summarised for households in the context of managing energy bills in Table 2.1 and for small-medium sized businesses in the context of energy market reform in Table 2.2. The following sections discuss these factors in more detail in the context of a two-sided market.

3.2.1 Dimension 1: Motivation

A consumer that has high motivation is in the action phase or late in the preaction phase of the behaviour change framework as set out by Ohnmacht et al.[21] A consumer that has low motivation is in the predecision phase of the decision-making framework.

A consumer's level of motivation to take action to manage their energy bill is influenced by the balance between the motivation to act and the inertia to not act. They will choose to act when the

[20] 2 x 2 x 2 = 8

[21] Ohnmacht, T., Schaffnerb, D., Weibela, C., Schada, H. 2017, *Rethinking social psychology and initiative design: A model of energy savings and human behaviour*, Energy Research & Social Science 26 (2017) 40–53

perceived benefits associated with the action are greater than the perceived costs. This will include consideration of factors such as[22]:

- attitude towards the behaviour:
  - the perceived financial outlay – upfront and ongoing
  - the perceived financial payoff – upfront and ongoing
  - the importance of energy use relative to other factors
  - the time to implement the action, including the time to search options
  - perceived complexity
  - desire for new technology
  - environmental consciousness
  - cultural considerations
  - other perceived benefits associated with the behaviour, including:
    - comfort
    - health and wellbeing
    - cleanliness
    - convenience
    - service
    - autonomy
  - in the case of businesses, maintaining competitiveness
- subjective norm – "keeping up with the Joneses"
- perceived behavioural control:
  - certainty of outcome
  - in the case of the household, the impact on family harmony (for example, behavioural change may be more difficult in households with teenagers)
  - in the case of businesses, the potential to create conflict within the business.

The consideration of perceived benefits and perceived costs will vary from consumer to consumer, from choice to choice, and will change over time. For example:

1. a household may become more focused on health and wellbeing benefits associated with managing their energy bill following the birth of a child
2. a business's attitude towards a particular behaviour may change with a change in the person that makes energy-related decisions within that business
3. the perceived financial outlay and payoff of a new water heater may change for a household when their existing water heater breaks down.

The segmentation of consumers is based on the net balance of these factors rather than the specifics of each factor. However, the nature of an initiative may vary based on the specifics of each factor. For example, the messaging of any communication campaign will vary depending on whether the key benefit associated with an action is, for example, the financial payoff, comfort, health and wellbeing, or environmental consciousness.

[22] For further details on the concepts underpinning these factors, please our report to the ECA.

3.2.2 Dimension 2: Ability

The ability of a consumer to take action to manage their energy bills will be influenced by a range of characteristics such as[23]:

- literacy, numeracy, problem solving and research skills
- language barriers
- ability to self-advocate / negotiate
- perceived self-efficacy / perceived personal efficacy
- trust in others (people and organisations)
- ability to influence household behaviour
- a general interest in, and capability using, technology.

When considering the ability of a business consumer, the characteristics are those associated with the person making the energy-related decisions within the business.

A consumer's literacy, numeracy, problem solving and research skills will impact its ability to take action. In particular, a consumer with low numeracy and research skills is unlikely to be able to research alternative energy deals and compare the impact of those offers to be able to identify whether to choose a more innovative energy deal.

A consumer with low perceived self-efficacy and perceived personal efficacy, and/or who does not trust any information provided by others, is unable to choose to take action to participate in the two-sided market.

A consumer's ability to choose to participate in a two-sided market depends upon the behaviour of all household members, in the case of a household, or others within the business, in the case of business. The energy account holder for a household or the person making the energy-related decisions within a business may have limited capacity to influence or direct the actions of others. This is particularly the case in shared households in which there is no clear leader in the household, and the perceived benefits of any choices are low as the energy bill is shared among the members of the household.

A consumer with low interest in, and capability of using, technology is unable to participate in the two-sided market through the use of technologies relative to consumers that have a high interest and capability of using technology. These consumers will be late adopters of new technology such as solar PV panels, battery storage, or accessing data from a smart meter via the internet to inform their choices for participating in the two-sided market.

The ability of a household to participate in the two-sided market is less likely to change over time than their motivation and opportunity to act. That said, the household composition may change so that, for example, there is greater influence over household behaviour, and literacy and numeracy skills may be positively impacted by further education or negatively impacted by an accident or illness.

The ability of a business to participate in a two-sided market will change as the person in the role that makes energy-related decisions changes over time.

The ability of a consumer will vary to some extent based on the type of choice that is to be made. A consumer that may rate low on its ability to make a technology-based decision (such as the choice to install load control devices) may rate more highly on its ability to make a decision that is not technology-based (such as the choice to move to an innovative energy deal).

[23] For further details on the concepts underpinning these factors, please refer to our report to the ECA.

3.2.3 Dimension 3: Opportunity

The opportunity for a consumer to take an action to manage its energy bill depends on a range of factors that influence their physical and behavioural flexibility such as:[24]

- scope to move to a more innovative energy deal
- whether the consumer has a smart meter installed
- whether the consumer has smart appliances or equipment or load control devices installed
- whether the consumer has solar panels installed
- whether the consumer has storage (either batteries or an electric vehicle)
- if a household, whether that household lives in their own home or in rental or public housing
  - if the household owns their own home, whether it is part of a multi-dwelling building (such as a flat or apartment)
- if a business, whether that business operates from their own premises or in rented premises
  - if the business owns their own premises, whether it is part of a multi-premise building
- access to liquid funds
- if a business, the way in which the business operates – the extent to which energy use is driven by the business *vis a vis* driven by the business's customers (e.g. a hairdresser's energy use will be driven by its customers' demand for services).

While some consumers may already be on an energy deal that facilitates participation in a two-sided market, others may not. While a consumer on a traditional energy deal has the opportunity to move to a more innovative energy deal, a consumer already on a more innovative energy deal does not have the opportunity to move from a traditional energy deal to a more innovative energy deal, although they have the opportunity to move to a better innovative energy deal.

Similarly:

- a consumer that already has a smart meter installed does not have the opportunity to install a smart meter
- a consumer that already has solar panels installed does not the opportunity to install solar panels, although they could choose to install more
- a consumer that already has storage installed does not have the opportunity to install storage, although they could choose to install more.

The opportunity to install solar panels, for example, is determined by the status of the ownership of the home (for a household) or a premise (business). If a household lives in their own home or a business operates from their own premise, they are able to choose to invest in solar panels, subject to access to liquid funds and whether the home or premise is part of a multi-dwelling building.

If a household lives in a multi-dwelling building (such as a flat or apartment) or a business operates in a multi-dwelling premise, the household's opportunity to install solar panels may be more limited as the decision may be subject to agreement by the strata management.

If a household lives in rental accommodation or a business operates in tenanted premises, it is dependent on their landlord to invest in solar panels. Similarly, households in public housing are dependent on the Government to invest in building upgrades.

Living in rental accommodation or operating from rented premises may also place a constraint on the purchase of smart appliances. There may be a reluctance to invest in smart appliances if the

[24] For further details on the concepts underpinning these factors, please refer to our ECA report.

tenant is likely to move in the short time and can avoid the costs to move an appliance by not investing in a smart appliance.

While some consumers may have significant opportunities for changing the way that they use energy, there are other consumers that may have no opportunities to change their energy usage, particularly in the case of businesses if the way in which energy is used is driven by their customers.

Access to liquid funds is required to be able to invest in smart appliances, solar panels and storage. Access to liquid funds is not required to choose to a more innovative energy deal. Access to liquid funds is considered to be a better indicator of opportunity (or lack of opportunity) for consumers than income as there are some consumers on low incomes with access to liquid funds (such as self-funded retirees) and other consumers on high incomes without access to liquid funds (such as young families with a large mortgage).

The opportunity for a consumer to act will vary over time. For example, a household may move from rental accommodation to live in their own home, in which case the opportunities to manage their energy bills increase. Alternatively, a business could install a smart meter and so reduce the scope for installing a smart meter.

The opportunity to act will also vary based on the type of choice that is to be made. A household in rental accommodation may rate low on opportunity for installing solar panels, but may rate high on opportunity for choices that relate to moving to a more innovative energy deal.

3.2.4 Consumer segments (types of households and small-medium sized businesses)

A rating of high-medium or low-medium on the three dimensions of opportunity, ability and opportunity results in the following eight consumer segments[25]:

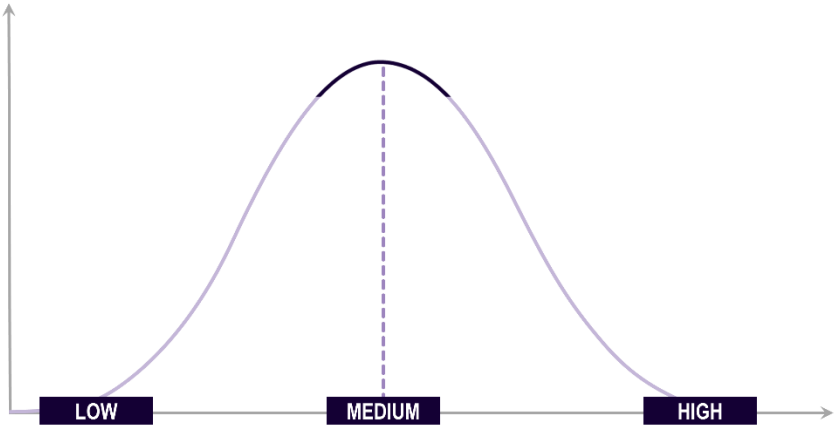
- **Enthusiasts** — consumers with a high level of ability and are enthusiastic about new ideas and technology. They are highly motivated to take action, particularly as it relates to technology (for example, installing smart appliances, solar panels and batteries) but may not pursue all opportunities (such as the best innovative energy deal for them) and so there are further opportunities for taking action to participate in the two-sided market.
- **Completers** — consumers with a high level of ability and motivation to participate in the two-sided market and so pursue all opportunities to participate in the market as those opportunities arise. Accordingly, there are no further actions that can be taken.
- **Dependent** — consumers that are motivated to take action to participate in the two-sided market and have opportunities to do so, but have a low level of ability and therefore depend on others to help them to take action.
- **Stuck** — consumers that are motivated to take action to participate in the two-sided market, but are stuck because they have a low level of ability and no opportunities to take action to participate.
- **Complacent** — consumers that have the opportunity to participate in the two-sided market and have the ability to take action, but are complacent with no motivation to do so.
- **Competent** — consumers that have the ability to take action to participate in the two-sided market (are competent) but have no motivation or opportunity to take action to participate.
- **Cautious** — consumers that have opportunities to participate in the two-sided market, but have low ability to take action to participate and so are not motivated to do so (are cautious).

[25] 2 x 2 x 2 = 8

— **Hard to Help** — consumers that have no opportunities to participate in the two-sided market. They have a low level of ability to seek out opportunities and are not motivated to do so. Accordingly, they are hard to help.

There will be a distribution of consumers across each dimension, as illustrated in Figure 3.2. There will be a proportion of consumers that lie in the centre of the distribution for a dimension, and a smaller proportion of consumers that lie in the centre of the distribution for all three dimensions. We have identified this as the ninth consumer segment and referred to it as "Middle Australia". The actual number of consumers that lie within this ninth consumer segment depends on how broadly "medium" is defined for each dimension.

Figure 3.2 Distribution of consumers across any dimension



Source: ACIL Allen.

A number of studies have similarly identified a middle group. In particular, the Smart Grid Consumer Collaborative identified a two dimensional model with all five consumer segments intersecting in the middle (50 per cent interested; 50 per cent aware).[26] A two-dimensional segmentation by the UK Department for Environment, Food and Rural Affairs based on willingness and ability for pro-environmental behaviour included one of their seven consumer segments at the middle of their willing to act and ability to act axes.[27]

If a consumer tends towards high or low on any one (or more) dimension(s), that household will fall outside the middle segment – it will lie within one of the eight other segments defined by a high-medium or low-medium rating.

From a practical perspective, the way in which initiatives are targeted towards Middle Australia, and the effectiveness of those initiatives, will be different to those in the other eight consumer segments.

For example, those with low-medium access to liquid funds may require grants or subsidies to motivate them to invest in actions to participate in the two-sided market, while those with medium access to liquid funds may only require loans or other form of incentive to motivate them to invest. In contrast, those with high-medium access to liquid funds do not need any additional funding to motivate them to invest in actions to participate in the two-sided market.

Later in the report, we identify that awareness campaigns are only appropriate to be considered for Middle Australia as well as those consumers with high-medium motivation and ability (Enthusiasts

[26] Smart Grid Consumer Collaborative 2017, *2017 State of the Consumer Report*.

[27] Department for Environment, Food and Rural Affairs 2008, *A framework for pro-environmental behaviours,* London, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69277/pb13574-behaviours-report-080110.pdf, Accessed 4 November 2020.

and Completers). The awareness campaign is likely to be more effective for Enthusiasts and Completers than for Middle Australia.

The presence of Middle Australia can be illustrated through consideration of energy deals. At the extremes of consumers are those that are on the best energy deal and those that remain on standing offer tariffs. There are other households that have the motivation, opportunity and ability to move to a better energy deal, but have not had the motivation, opportunity and ability to move to the best energy deal. They are on a market offer (not a standing offer) but are paying more than they would on the best energy deal.

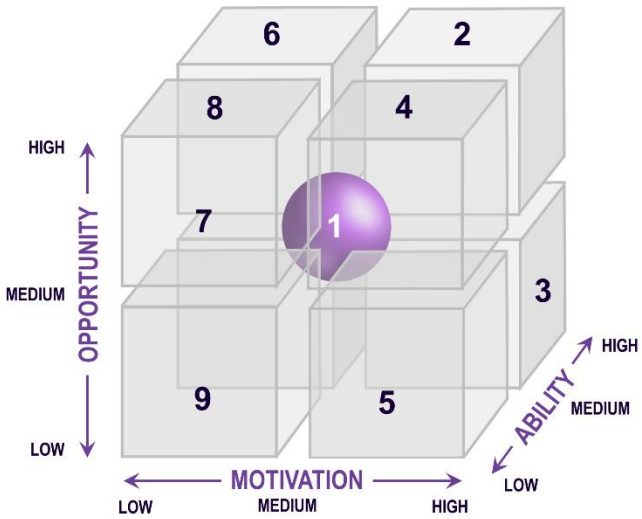
The resulting consumer segmentation model consists of nine segments as set out in Table 3.1 and illustrated in Figure 3.3.

Table 3.1 Segmentation model for consumers participating in the two-sided market

Type of consumer	Motivation	Ability	Opportunity
1. Middle Australia	Medium	Medium	Medium
2. Enthusiasts	High – Medium	High – Medium	High – Medium
3. Completers	High – Medium	High – Medium	Low – Medium
4. Dependent	High – Medium	Low – Medium	High – Medium
5. Stuck	High – Medium	Low – Medium	Low – Medium
6. Complacent	Low – Medium	High – Medium	High – Medium
7. Competent	Low – Medium	High – Medium	Low – Medium
8. Cautious	Low – Medium	Low – Medium	High – Medium
9. Hard to Help	Low – Medium	Low – Medium	Low – Medium

Source: ACIL Allen assessment.

Figure 3.3 Segmentation model for consumers participating in the two-sided market



Note: 1 = Middle Australia; 2 = Enthusiasts; 3 = Completers; 4 = Dependent; 5 = Stuck; 6 = Complacent; 7 = Competent; 8 = Cautious; 9 = Hard to Help

Source: ACIL Allen assessment.

Consumers will be assigned to different segments depending on the purpose for which the segmentation model is to be applied. For example, while a household living in rental

accommodation may rate low on opportunity to install solar panels, that same household may rate high on opportunity when access to a more innovative energy deal is being considered. The consumer may have scope for their demand to vary so that it can be aggregated as part of their trader's demand response, and this does not depend on their home ownership status.

There are thus six distinct consumer segmentation models, one for each of the types of choices that a consumer may make to participate in the two-sided market (as described in section 3.1):

1. moving to a more innovative energy deal
2. installing a smart meter
3. changing the way energy is used
4. installing smart appliances and/or load control devices
5. installing solar panels
6. installing storage in the form of batteries and/or electric vehicles.

The factors that influence motivation, ability and opportunity for each of the types of choices that a consumer will make to participate in the two-sided market differ. The factors that are relevant to each of the types of choices are summarised in Table 3.2.

The consumer segments for each type of choice are described in more detail, by reference to some of the factors that influence motivation, ability and opportunity, in:

- Box 3.1 – moving to a more innovative energy deal
- Box 3.2 – installing a smart meter
- Box 3.3 – changing the way energy is used
- Box 3.4 – installing smart appliances and/or load control devices
- Box 3.5 – installing solar panels
- Box 3.6 – installing storage in the form of batteries and/or electric vehicles.

In Chapter 4, the application of the consumer segment framework to the two-sided market is further illustrated by reference to six consumer archetypes.

3.3 Key findings

Of the nine consumer segments identified, Enthusiasts and Completers have the ability and motivation to participate in the two-sided market. However, if only these consumers participate in the two-sided market, the benefits that will be derived will be limited.

Additional supports will be required to facilitate participation by consumers in the other segments in the two-sided market. The additional supports (or complementary measures) that could be provided are discussed in Chapter 5.

Consumers in the **Middle Australia** segment require less support than those in other segments – they only need a "nudge" to encourage their participation in the two-sided market.

Consumers in the **Dependent** and **Stuck** segments are motivated to participate in the two-sided market, but do not have the ability. Complementary measures may be required to address the ability barrier to facilitate their participation in the two-sided market, and thereby facilitate the realisation of the benefits associated with their participation.

Consumers in the **Complacent** and **Competent** segments have the ability to participate in the two-sided market but not the motivation. In the case of consumers in the Complacent segment, they also have the opportunity to participate in the two-sided market, so need complementary measures to address the motivation barrier. Consumers in the Competent segment may not have the

motivation to participate in the two-sided market because they do not have the opportunity. Complementary measures may be required to address the barrier to participation.

Consumers in the **Cautious** and **Hard to Help** segments do not have the ability or motivation to participate in the two-sided market. Complementary measures may be required to facilitate their participation in the two-sided market, and thereby facilitate the realisation of the benefits associated with their participation.

Table 3.2 Factors that are relevant to each type of choice that a consumer may make to participate in the two-sided market

Factor	Type of choice that a consumer may make					
	Move to a more innovative energy deal	Install a smart meter	Change the way energy is used	Install smart appliances and/or load control devices	Install solar panels	Install storage (batteries and/or EV)
Dimension 1 – Motivation						
Financial outlay		✓		✓	✓	✓
Financial payoff	✓	✓	✓	✓	✓	✓
Importance of energy relative to other factors	✓	✓	✓	✓	✓	✓
Time to implement action	✓	✓	✓	✓	✓	✓
Perceived complexity	✓	✓	✓	✓	✓	✓
Desire for new technology		✓		✓	✓	✓
Environmental consciousness	✓	✓	✓	✓	✓	✓
Cultural considerations	✓	✓	✓	✓	✓	✓
Other perceived benefits such as comfort, health and wellbeing	✓	✓	✓	✓	✓	✓
For businesses, maintaining competitiveness	✓	✓	✓	✓	✓	✓
Subjective norm	✓	✓	✓	✓	✓	✓
Certainty of outcome	✓	✓	✓	✓	✓	✓
Impact on family / business harmony			✓	✓		
Dimension 2 – Ability						
Literacy, numeracy, problem solving and research	✓	✓		✓	✓	✓
Language barriers	✓	✓		✓	✓	✓
Ability to self-advocate/negotiate	✓	✓		✓	✓	✓
Perceived self-efficacy / perceived personal efficacy	✓	✓	✓	✓	✓	✓
Trust in others	✓	✓		✓	✓	✓
Ability to influence household / business behaviour			✓			

Factor	Type of choice that a consumer may make					
	Move to a more innovative energy deal	Install a smart meter	Change the way energy is used	Install smart appliances and/or load control devices	Install solar panels	Install storage (batteries and/or EV)
General interest in, and capability of using, technology		✓		✓	✓	✓
Dimension 3 – Opportunity						
Lives in own home / operates in own premises		✓		✓	✓	✓
Whether home / premise is a multi-dwelling building					✓	✓
Scope to move to a more innovative energy deal	✓			✓		
Scope to install a smart meter		✓				
Scope to change the way energy is used			✓			
Scope to install smart appliances and/or load control devices				✓		
Scope to install solar panels and/or storage					✓	✓
Access to liquid funds		✓		✓	✓	✓
If a business, the way in which the business operates			✓	✓		

Source: ACIL Allen.

Box 3.1 Examples of consumer segments – move to a more innovative energy deal

1. Middle Australia

The consumer is motivated to change to a more innovative energy deal to benefit from a more mature two-sided market, as long as the process is not too complex. The consumer has demonstrated the ability to change to a better energy deal and has the opportunity to change to a more innovative energy deal, but needs a nudge to do so.

2. Enthusiasts

The consumer is enthusiastic about new technology and over time has explored all the comparative websites to identify the best energy deals available. As the two-sided market developed, they quickly moved to one of the more innovative energy deals. However, a new deal has recently been announced which offers the ability to store excess energy in a community-based battery for later use, providing the opportunity to an energy deal that is more innovative again.

3. Completers

The consumer is highly motivated to source the best of the new innovative energy deals. They are continually monitoring for the best energy deals available and change as soon as a better energy deal is identified. As they are already on the best of the new innovative energy deals, there is no scope to move to a more innovative energy deal.

4. Dependent

The consumer is motivated to move to a more innovative energy deal – the recent advertising by traders indicates there are significant benefits for them by participating in the two-sided market. However, they do not have the ability to navigate the comparative websites to identify the best of the new innovative energy deals for them – the comparative websites were complicated enough before but are now even more complicated – and they do not trust the traders to be able to get the best deal by ringing around.

5. Stuck

The consumer is motivated to move to a more innovative energy deal so they can benefit from the two-sided market, but there do not appear to be any of those deals available in the area in which they live. However, even if they could, they do not have the ability to navigate the comparative websites to identify the best of the new innovative energy deals for them and they do not trust the traders to be able to get the best deal by ringing around.

6. Complacent

The consumer is not on an innovative energy deal so has the opportunity to move to one, and has the ability to navigate comparative websites to identify the best deal for them. However, the financial payoff is not justified given the magnitude of the energy bill relative to other expenses and so they are not motivated to do so.

7. Competent

The consumer has the ability to navigate comparative websites to identify the best of the new innovative energy deals for them and have already signed up to a new deal. The process to move to the best of the new innovative energy deals was time-consuming and complex, and so they are not motivated to move to a better energy deal in the short term.

8. Cautious

The consumer is not on a new innovative energy deal so has the opportunity to move to one, but they do not have the ability to navigate the comparative websites to identify the best deal for them and do not trust the traders to be able to get the best deal by ringing around. The perceived financial payoff is not justified given the magnitude of the energy bill relative to other expenses, and the perceived time and complexity associated with changing to an innovative energy deal, so they are not motivated to do so.

9. Hard to Help

The consumer lives in an area in which there are no innovative energy deals available. Even if they could move to a more innovative energy deal, they do not have the ability to navigate the comparative websites to identify the best deal for them and do not trust the traders to be able to get the best deal by ringing around. The perceived financial payoff is not justified given the perceived time and complexity associated with changing to an innovative energy deal.

Source: ACIL Allen.

Box 3.2 Examples of consumer segments – install a smart meter

1. Middle Australia

The consumer is aware of the benefits that could be derived by installing a smart meter and has made some initial enquiries, but has not prioritised taking further action. A nudge is required to do so.

2. Enthusiasts

The consumer is enthusiastic about new technology and so has a smart meter installed at their main premises. The consumer has recently commenced operations at a second premise at which a smart meter has not yet been installed. The consumer is in discussions with their trader to get a smart meter installed at their second premises.

3. Completers

The consumer is enthusiastic about new technology and so had a smart meter installed when solar panels were installed on their roof. As a result, there is now no opportunity to install a smart meter.

4. Dependent

The consumer has been hearing stories from others in their local community about the benefits of smart meters, and so is interested in getting one installed. However, the consumer does not know how or who to approach to get a smart meter installed.

5. Stuck

The consumer has been hearing stories from others in their local community about the benefits of smart meters. but does not know how or who to approach to get a smart meter installed. The consumer does not have the financial resources to pay the additional costs to get a smart meter installed.

6. Complacent

The consumer understands the benefits associated with installing a smart meter to facilitate participation in the two-sided market, but is concerned about the privacy of the data in the smart meter. Accordingly, the consumer has no desire to have a smart meter installed.

7. Competent

The consumer understands the benefits associated with installing smart meter to facilitate participation in the two-sided market. Despite privacy concerns about the data in the smart meter, a smart meter has already been installed on the premises as part of a rollout of smart meters in the area. Accordingly, there is now no opportunity to install a smart meter.

8. Cautious

The consumer does not have any interest in, or knowledge of, smart meters and the way in which it could facilitate benefits through participation in the two-sided market. A smart meter has already been installed on the premises as part of a rollout of smart meters in the area. Accordingly, there is now no opportunity to install a smart meter.

9. Hard to Help

The consumer is living in rental accommodation and so cannot unilaterally arrange for a smart meter to be installed. The consumer does not have any interest in, or knowledge of, smart meters to be able to advocate to the landlord to have one installed.

Source: ACIL Allen.

Box 3.3 Examples of consumer segments – change the way energy is used

1. Middle Australia

The consumer is aware that there are benefits of participating in the two-sided market by using their washing machine and dishwasher during off peak times when wholesale electricity prices are low rather than during peak times when wholesale electricity prices are high. They do this on some days, but on other days, it is far easier to just use the washing machine and dishwasher during peak times when wholesale electricity prices are high.

2. Enthusiasts

The consumer makes every effort to use less energy at peak times when wholesale electricity prices are high. Following recent developments in two-sided market arrangements, the consumer has been investigating whether the energy use could be changed to reduce or shift energy when wholesale electricity prices are high, and has identified some further opportunities to do so.

3. Completers

The consumer makes every effort to use less energy at peak times when wholesale electricity prices are high. Their energy use during peak times is minimal and so there is no further scope to reduce energy at peak times when electricity prices are high.

4. Dependent

The consumer has the opportunity to use less energy at peak times when wholesale electricity prices are high and is motivated to do so, but is not able to do so. They lack the skills to identify how they could reduce their energy use at peak times so as to be able to participate in the two-sided market.

5. Stuck

The consumer would like to be able to use less energy at peak times when wholesale electricity prices are high but does not have the opportunity or ability to do so. They lack the skills to identify how they could reduce their use of energy at peak times so as to be able to participate in the two-sided market. However, even if they could, the energy use is driven by their consumers' needs and so cannot be reduced or shifted without adversely impacting the business.

6. Complacent

The consumer has the ability and opportunity to use less energy at peak times when wholesale electricity prices, but is not motivated to do so. Maintaining harmony within the family is important and so the consumer is not interested in reducing their use of energy at peak times and potentially adversely impacting on the comfort and convenience for the family.

7. Competent

The consumer has the ability to use less energy at peak times when wholesale electricity prices are high, but they are not motivated to do so as the perceived financial payoff does not justify taking action. Additionally, their energy use is driven by their consumers' needs and so cannot be reduced or shifted without adversely impacting the business.

8. Cautious

The consumer has opportunities to manage their energy bill by using less energy at peak times when wholesale electricity prices are high, but the household does not have the motivation or ability to do so. They lack the skills to identify how they could reduce their energy use at peak times. The perceived financial payoff from, and inconvenience associated with, reducing their use of energy at peak times does not justify action being taken.

9. Hard to Help

The consumer does not have the motivation, ability or opportunity to use less energy at peak times when wholesale electricity prices are high. They lack the skills to identify how they could reduce their energy use at peak times and the perceived financial payoff from, and inconvenience associated with, reducing their use of energy at peak times does not justify action being taken. Even if they could use less energy at peak times, there is little scope to reduce their energy during peak times as their energy use is minimal during those times.

Source: ACIL Allen.

Box 3.4 Examples of consumer segments – install smart appliances and/or load control devices

1. Middle Australia

The consumer's appliances are a few years old – some have smart controls and some do not. They are aware that the smart controls could be used to participate in the two-sided market but have not investigated this in any detail.

2. Enthusiasts

The consumer is keen to install the latest appliances as they are released, with smart controls and apps that enable them to control their appliances wherever they are located. They actively research the latest innovations appliances and are aware of a new appliance that can be controlled remotely. As soon as they find a stockist in Australia, they will purchase it.

3. Completers

The consumer has installed the latest appliances in their home, all with smart controls. They have entered into a new innovative energy deal under which the trader controls the appliances so that they can benefit from developments in the two-sided market.

4. Dependent

The consumer has the opportunity to manage their load by installing appliances with smart controls and is motivated to do so to save money, but is not able to do so. They may lack the skills to choose the right appliances for them that have smart controls and/or the trust to allow the trader to control those appliances.

5. Stuck

The consumer is motivated to install appliances with smart controls as they love the new technology, but do not have the opportunity or ability to do so. They may lack the skills to choose the right appliances for them that have smart controls and/or the trust to allow the trader to control those appliances. However, even if they could, the consumer does not have the funds to install new appliances with smart controls.

6. Complacent

The consumer has the ability and opportunity to install load control devices, but is not motivated to do so. The perceived financial payoff and potential inconvenience associated with having the load controlled by their trader does not justify ceding control of their load to a third party.

7. Competent

The consumer has the ability to install new appliances with smart controls, but they do not have the funds to install any new appliances. Accordingly, the household has no motivation to install new appliances with smart controls.

8. Cautious

The consumer has opportunities to install load control devices, but does not have the motivation or ability to do so. They do not trust their trader to control their load, and the perceived financial payoff and potential inconvenience associated with having the load controlled by their trader does not justify taking any action.

9. Hard to Help

The consumer does not have the motivation, ability or opportunity to install appliances with smart controls. They lack the skills to identify the which appliances are appropriate for them, and the perceived financial payoff does not justify the perceived financial outlay. Notwithstanding, the consumer does not have the funds to install new appliances with smart controls.

Source: ACIL Allen.

Box 3.5 Examples of consumer segments – install solar panels

1. Middle Australia

The consumer is not an early adopter of new technology. They have been watching, with interest, as others in their neighbourhood have been installing solar panels. They have almost installed them on a number of occasions, but other priorities have taken precedence. With just a little nudge, they will probably be installed.

2. Enthusiasts

The consumer is enthusiastic about new technology and has already installed solar panels and battery storage. However, the experience to date with the battery storage indicates the potential to install more solar panels. The household has the funds available to invest in the additional solar panels.

3. Completers

The consumer is enthusiastic about new technology and would really like to install a solar panel on their rooftop – they have a desire for, and are capable of using, new technology. However, they are currently in rental accommodation and so are not able to do so.

4. Dependent

The consumer has not previously installed solar panels on their rooftop but would like to do so – all their friends have saved a lot of money by installing solar panels and selling some of the electricity produced. However, the household does not have the ability to negotiate a contract to have the solar panels installed or to operate the solar panels.

5. Stuck

The consumer has not previously installed solar panels on their rooftop but would like to do so – all their friends have saved a lot of money by installing solar panels and selling some of the electricity produced. However, the household is living in rental accommodation so cannot install the solar panels, and even if they could, they do not have the ability to negotiate a contract to have the solar panels installed or to operate the solar panels.

6. Complacent

The consumer has the ability and opportunity to manage their energy bill by installing solar panels, but is not motivated to do so. They do not have the desire to install the technology and do not perceive that the perceived financial outlay justifies the perceived cost and inconvenience.

7. Competent

The consumer has the ability to install solar panels on their roof, but they currently do not have the funds to pay for the solar panels and do not have a particular interest in having the technology installed on their roof. Their energy bills are small relative to other bills, and they would prefer to just keep buying electricity from their retailer.

8. Cautious

The consumer has not previously installed solar panels on their rooftop. They own their own home and have the liquid funds to purchase the solar panels but choose not to. They do not have the desire to install the technology and do not perceive that the perceived financial outlay justifies the perceived cost and inconvenience. They do not have the ability to negotiate a contract to have the solar panels installed or to operate the solar panels.

9. Hard to Help

The consumer is living in rental accommodation and is therefore not able to install solar panels on their rooftop. Even if they could, they do not have the desire to install the technology and do not perceive that the perceived financial outlay justifies the perceived cost and inconvenience. They do not have the ability to negotiate a contract to have the solar panels installed or to operate the solar panels.

Source: ACIL Allen.

Box 3.6 Examples of consumer segments – install storage (batteries and/or electric vehicles)

Middle Australia

The consumer has installed solar panels on their roof but has not yet installed battery storage. It is motivated to install battery storage but is waiting to find out more about the technology. The household has demonstrated the ability to install alternative sources of energy but is not an early adopter of new technology.

2. Enthusiasts

The consumer is enthusiastic about new technology and has already installed solar panels and battery storage. However, the household has not yet purchased an EV, which would provide another form of storage for the excess energy generated by the solar panels. The household has the funds available to purchase an EV.

3. Completers

The consumer is enthusiastic about new technology and has already installed solar panels on their roof and battery storage, and have recently entered into an arrangement under their new innovative energy deal to store any remaining excess energy in a community-based battery for later use by them. Accordingly, there is no requirement to install additional storage to meet their needs.

4. Dependent

The consumer has installed solar panels but not battery storage and would like to do so, so that they can use the excess energy that is generated by their solar panels rather than having to buy electricity through their trader. However, the consumer does not have the ability to understand how to operate the battery in a way that ensures they can use their excess energy.

5. Stuck

The consumer has installed solar panels but not battery storage and would like to do so, so that they can use the excess energy that is generated by their solar panels rather than having to buy electricity through their trader. However, they currently do not have the liquid funds to purchase the storage, and even if they could, they do not have the ability to understand how to operate the battery in a way that ensures they can use their excess energy.

6. Complacent

The consumer has the ability and opportunity to install battery storage, but is not motivated to do so. They do not have the desire to install the technology and the perceived complexity of operating the battery storage does not justify the perceived financial payoff.

7. Competent

The consumer has the ability to install battery storage, but they currently do not have the funds to pay for it and do not have a particular interest in having the technology installed in their premises.

8. Cautious

The consumer has previously installed solar panels on their rooftop. They own their own home and have the liquid funds to purchase battery storage but choose not to. They do not have the ability to understand how to charge and discharge the battery to maximise their returns from it. The perceived complexity of operating the battery outweighs any perceived financial payoff.

9. Hard to Help

The consumer is living in rental accommodation and has not been able to install solar panels. There are therefore no perceived benefits to install battery storage. Even if they could, they do not have the desire to install the technology and do not have the funds to pay for the battery storage. They do not have the ability to understand how to charge and discharge the battery to maximise their returns from it.

Source: ACIL Allen.

4 Consumer archetypes

This chapter illustrates the application of the consumer segmentation framework to the two-sided market by reference to six different types of consumers:

— a family with two young children
— a single mum with two teenagers
— Battler Bob
— a small manufacturer
— an accountant
— a hairdresser.

The consumer archetypes illustrate how the segmentation of a consumer depends on the choice that is to be made and that the choices do not need to be made sequentially. They also illustrate how different consumers can participate in future two sided market arrangements given their ability, motivation and opportunity and the choices they have made.

Figure 4.1 Consumer archetypes

Family with two young children

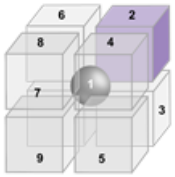
The Chan household has four members – John Chan (38) works part-time for the local council, Anne Chan (36) works full-time as a nurse, and they have two children – Harry (6) and Laura (4). They own their own home.

Ability = Medium (high side of medium)

1 Innovative energy deal

As the Chans have only recently installed their solar panels and battery storage, they have not yet fully considered the new innovative energy deals that are available with the development of a more mature two-sided market. As they are always seeking to ensure they get value, they are keen to explore the new deals that are now available.

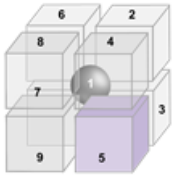
Motivation = High, Opportunity = High, Segment = Enthusiast



2 Install smart meter

The Chans recently installed solar panels, and were required to install a smart meter as part of that installation. The smart meter was installed as a means to an end.

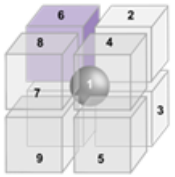
Motivation = Low, Opportunity = Low, Segment = Stuck



3 Change way energy used

The Chans are not interested in changing the way that they use energy. The perceived financial payoff does not justify the effort. They have installed solar panels so the energy they use is renewable in any case.

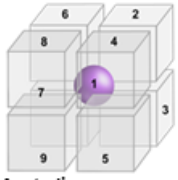
Motivation = Low, Opportunity = High, Segment = Complacent



4 Install smart appliances & / or load control

The Chans have some new appliances that have smart controls, which could be used to reduce demand. While this could be of interest to them if they could save some money, they have a busy lifestyle with two young children, so haven't explored the opportunity.

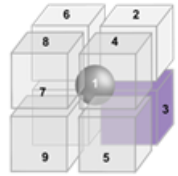
Motivation = Medium, Opportunity = Medium, Segment = Middle Australia



5 Install solar panels

The Chans are keen to protect the environment for the benefit of their children. The rebates for installing solar panels have been very appealing, so they have installed solar panels (with a smart inverter) on their roof.

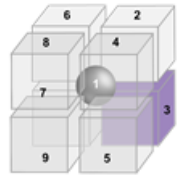
Motivation = High, Opportunity = Low, Segment = Completer



6 Install storage (battery & / or EV)

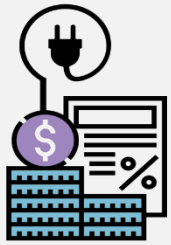
The Chans also have an EV to maximise their use of the energy produced by their solar panels. They are contemplating a deal in which they will sell electricity to their trader when wholesale prices are high.

Motivation = High, Opportunity = Low, Segment = Completer

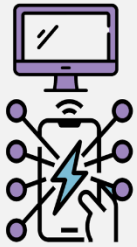


In a two-sided market the Chan household can …

CHOICES ALREADY MADE:	Innovative deal	Smart meter	Change energy use	Smart appliances/ load control	Solar panels	Battery (EV)
	✗	✓	✗	✗	✓	✓
MOTIVATION / ABILITY / OPPORTUNITY:	H M H	L M L	L M H	M M M	H M L	H M L

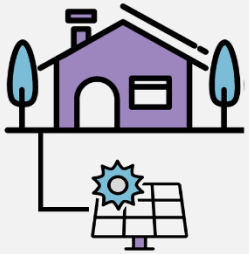


Access cost reflective tariffs.

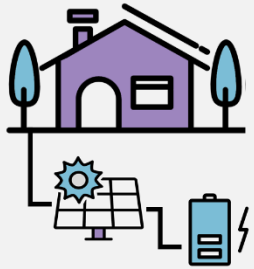


Access more innovative products and services, like energy management apps and online access to information about their use of electricity.

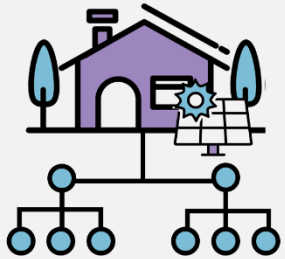
Monitor their energy use on a regular basis (even when they are not interested in changing the way they use their energy).



Consume the energy generated by their solar panels and export excess energy to the grid.



Consume the energy generated by their solar panels and store excess energy in their EV for later use.



Provide network support passively through their inverter settings.

Single mum with two teenagers

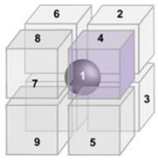
The Brown household has three members – Mary Brown (35) is a single mum who works full-time in the local supermarket and she has two teenage sons – Ethan (15) and Luke (13). They rent a unit.

Ability = Low

1 Innovative energy deal

Money is always tight so Mary is constantly looking at ways to save money. However, it is too complex to compare energy deals so hard to work out which is the best deal. Comparing energy deals is even harder now with the new innovative energy deals recently released.

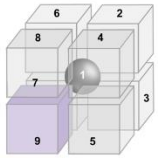
Motivation = High, Opportunity = High, Segment =Dependent



2 Install smart meter

Mary lives in an outer suburb of Melbourne – her rented unit has a smart meter that was installed as part of the mandatory roll out of smart meters in that state.

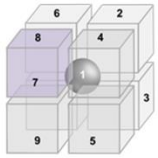
Motivation = Low, Opportunity = Low, Segment = Hard to help



3 Change way energy used

There are many ways that the Brown household could change the way they use energy to participate in the two-sided market. However would prefer to maintain harmony with her teenage sons rather than having an argument with them over the way energy is used.

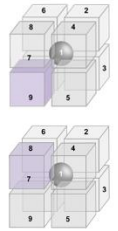
Motivation = Low, Opportunity = High, Segment = Cautious



4 Install smart appliances & / or load control

Mary knows little about the benefits and trade offs associated with having some of her load controlled by her trader, and doesn't have the funds to purchase appliances with smart controls.

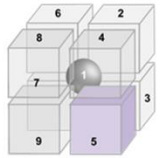
Motivation = Low, Opportunity = High (load control) / Low (smart appliances), Segment = Cautious (load control) / Hard to help (smart appliances)



5 Install solar panels

Mary's teenage sons are eco warriors and keen to save the world. They are not happy that they are not using a renewable source of energy, but the landlord will not install solar panels. One of the new innovative energy deals may solve the problem – they could effectively purchase energy from local solar panels.

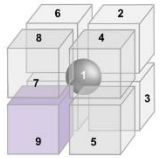
Motivation = High, Opportunity = Low, Segment = Stuck



6 Install storage (battery & / or EV)

With no solar panels installed on the roof of her rented unit, Mary has no interest in storage (batteries and/or EV).

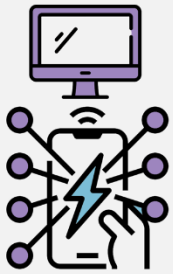
Motivation = Low, Opportunity = Low, Segment = Hard to help



In a two-sided market the Brown household could (with assistance)

CHOICES ALREADY MADE:	Innovative deal (X)	Smart meter (✓)	Change energy use (X)	Smart appliances/ load control (X)	Solar panels (X)	Battery (X)
MOTIVATION / ABILITY / OPPORTUNITY:	H L H	L L L	L L H	L L L (appliances) L L H (load control)	H L L	L L L

With some support and guidance to help her compare different deals, Mary could change to a different energy deal and access cost-reflective tariffs.



While Mary currently prefers to maintain harmony and not change the way energy is used around the house, when the boys leave home she could access more innovative products and services through her new energy deal (like energy management apps and online access to information about her use of electricity).

Monitor their energy use on a regular basis (even when they are currently not interested in changing the way they use their energy).

Battler Bob

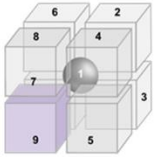
Bob (62) has been a battler his whole life. He has struggled to hold down jobs for any extended period of time and has moved in and out of different accommodation. He has now secured public housing accommodation and is on a pension.

Ability = Low

1 Innovative energy deal

Bob does not understand his energy bill – it is just too complex. Bob has been getting support from a trusted source through the local council who works with his energy trader to make sure that he is on the best energy deal for him based on his old-style accumulation meter. His trusted source has concluded that the savings to Bob of a deal based on smart metering data do not justify the cost of installing a smart meter.

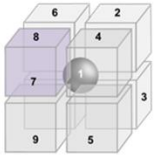
Motivation = Low, Opportunity = Low, Segment = Hard to help



2 Install smart meter

Meter? What meter? Bob has no interest in what kind of electricity meter is installed. He has no knowledge of "smart" meters and no interest in having one installed.

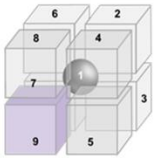
Motivation = Low, Opportunity = High, Segment = Cautious



3 Change way energy used

Bob uses very little energy. His load is "flat" as he is home most of the time and does not have any appliances that use a lot of energy. He does not have any concept of "demand" or how it can be reduced – it is all too hard.

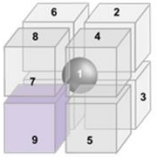
Motivation = Low, Opportunity = Low, Segment = Hard to help



4 Install smart appliances & / or load control

Bob has a range of old appliances that do not have any "smarts" but does not have the money to update them – they do the job. He has no interest in having big brother control any of his load.

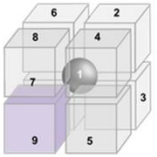
Motivation = Low, Opportunity = Low, Segment = Hard to help



5 Install solar panels

Bob does not have any interest in how his energy is sourced. As long as there's food on the table, beer in the fridge and he is not too cold, he is contented. As a tenant in public housing, he has no ability to install solar panels in any case.

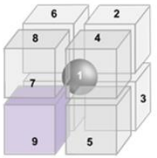
Motivation = Low, Opportunity = Low, Segment = Hard to help



6 Install storage (battery & / or EV)

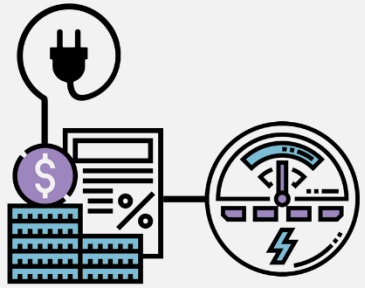
Bob similarly has no interest in, and no ability to, install storage (battery and/or EV).

Motivation = Low, Opportunity = Low, Segment = Hard to help

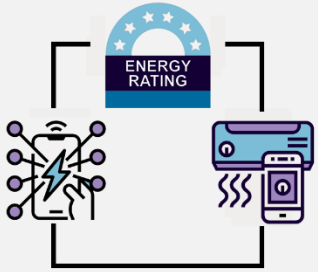


In a two-sided market Battler Bob could (with assistance)

CHOICES ALREADY MADE:	Innovative deal	Smart meter	Change energy use	Smart appliances/ load control	Solar panels	Battery (EV)
	X	X	X	X	X	X
MOTIVATION / ABILITY / OPPORTUNITY:	L L L	L L H	L L L	L L L	L L L	L L L



Have access to a smart meter through a program of direct government investment in public housing and select a more innovative energy deal that suits him through his trusted source. He could access cost-reflective tariffs through this new deal.



Get some smart appliances through government funds (organised by his trusted source) and have his trader reduce/delay consumption of energy during the more expensive time of day.

Small manufacturer

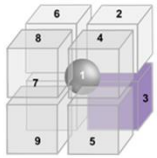
Alan runs a small, energy-intensive manufacturing business in the suburbs. The business is operated from premises that are owned by Alan. As energy costs are a significant cost input to the business, Alan takes responsibility for all matters relating to energy within the business.

Ability = High

1 Innovative energy deal

As Alan's energy costs are high relative to the cost of doing business, Alan is always looking to reduce energy use and costs so that he can remain competitive. He recently entered into a new innovative energy deal with a trader that includes a load control component.

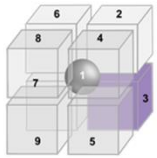
Motivation = High, Opportunity = Low, Segment = Completer



2 Install smart meter

Alan's business is of a size that a smart meter is installed. He has entered into an innovative energy deal that relies on the data from that smart meter.

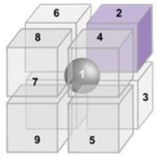
Motivation = High, Opportunity = Low, Segment = Completer



3 Change way energy used

To ensure that his business remains competitive, Alan is always looking for ways to save money. While his trader controls some of his load, he also receives text messages whenever there is an opportunity to make money by changing the way energy is used within the business.

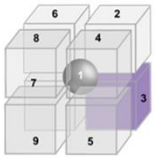
Motivation = High, Opportunity = High, Segment = Enthusiast



4 Install smart appliances & / or load control

Alan has recently entered into a new innovative energy deal that allows his trader to control his load, within constraints, as required. The potential cost savings for the business are substantial so it is a feature that is of interest to him.

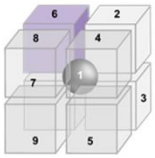
Motivation = High, Opportunity = Low, Segment = Completer



5 Install solar panels

Alan's business is highly reliant on a reliable and secure electricity supply – the time and cost to restart the business following an unplanned interruption is a significant impost on the business. He has installed back-up generation to mitigate the risk that his electricity supply will be interrupted and does not feel comfortable relying on an intermittent form of electricity supply.

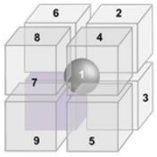
Motivation = Low, Opportunity = High, Segment = Complacent



6 Install storage (battery & / or EV)

As Alan does not have solar panels installed, he does not see any value in having batteries installed. He already has a back up generator installed that is used when there are any interruptions to supply.

Motivation = High, Opportunity = Low, Segment = Competent



In a two-sided market Alan can

CHOICES ALREADY MADE:	Innovative deal ✓	Smart meter ✓	Change energy use ✓	Smart appliances/ load control ✓	Solar panels ✗	Battery ✗
MOTIVATION / ABILITY / OPPORTUNITY:	H H L	H H L	H H H	H H L	L H H	H H L
	Access cost-reflective tariffs.	Access more innovative products and services, like energy management apps and online access to information about his business' use of electricity.	Monitor the business' energy use on a regular basis, receive information about when prices will be lower/higher, adjust the way energy is used as desired and get compensated for shifts in consumption to lower priced periods.	Purchase energy from local community-based solar panels through his trader.	Enter into an arrangement with his trader to install solar panels on the roof of his premises to sale to him and to other business close by.	Have his trader reduce/delay consumption of energy during the more expensive time of day (within the constraints of his business).

Accountant

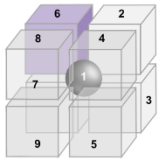
Soraya runs a small accountancy practice in the inner suburbs. Her practice operates in a tenanted building that includes similar like-minded small professional services businesses.

Ability = High

1 Innovative energy deal

As a good accountant, Soraya follows the advice she gives her clients and periodically checks her energy bills and comparator websites to ensure she is on a good enough deal. Her energy bills are not a significant cost of doing business, so the cost savings associated with being on a more innovative energy deal are not material.

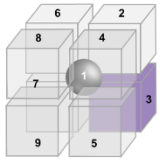
Motivation = Low, Opportunity = High, Segment = Complacent



2 Install smart meter

Soraya's business has a smart meter installed to ensure that she gets a credit for her fair share of the energy produced by the solar panels on the roof of the premises she rents.

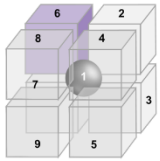
Motivation = High, Opportunity = Low, Segment = Completer



3 Change way energy used

While Soraya is keen to save money and protect the environment, she is not convinced that changing the way she uses energy will achieve either objective – she doesn't use a lot of energy and the energy she does use is from a renewable source.

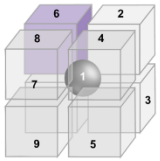
Motivation = Low, Opportunity = High, Segment = Complacent



4 Install smart appliances & / or load control

Soraya is not considering entering into an innovative deal that offers the option of load control. She doesn't use a lot of energy in the business, so the potential savings are not material. She is also concerned about the impact that load control would have on the operation of her business.

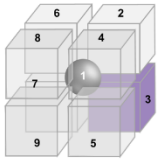
Motivation = Low, Opportunity = High, Segment = Complacent



5 Install solar panels

Soraya is concerned about the future of the planet. She specifically chose the building in which her firm is located because the landlord had installed solar panels on the roof of the building, which supply electricity to the tenants in that building.

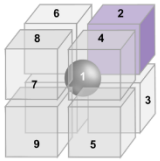
Motivation = High, Opportunity = Low, Segment = Completer



Install storage (battery & / or EV)

Soraya's business is able to use the energy as it is produced by the solar panels during the week, but does not use the energy produced over the weekend. The other tenants are in a similar position. They are interested in storing the energy produced over the weekend in a grid-connected battery for use later.

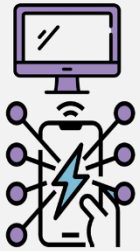
Motivation = High, Opportunity = High, Segment = Enthusiast



In a two-sided market Soraya can

CHOICES ALREADY MADE:	✗ Innovative deal	✓ Smart meter	✗ Change energy use	✗ Smart appliances/ load control	✓ Solar panels	✗ Battery
MOTIVATION / ABILITY / OPPORTUNITY:	L H H	H H L	L H H	L H H	H H L	H H H

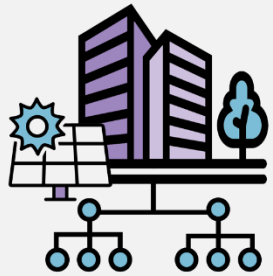
Access cost-reflective tariffs.



Access more innovative products and services, like energy management apps and online access to information about her use of electricity.

Monitor her energy use on a regular basis (even if she's currently not interested in changing the way she uses energy in her business).

Consume the energy generated by the solar panels on her tenanted building and export excess energy to the grid.



Provide network support passively through the solar panels' inverter settings.

Hairdresser

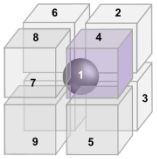
Muktar runs a busy hairdressing salon, with an apprentice to assist him. He operates from a shop in a suburban shopping strip alongside the types of shops that would be expected in a small shopping strip.

Ability = Low

1 Innovative energy deal

As energy costs are a significant cost of doing business, Muktar is motivated to reduce his energy costs. However, he is too busy to work through the complexities of the new innovative energy deals to choose one that would be best suited to his business.

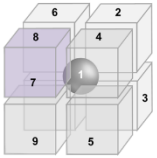
Motivation = High, Opportunity = High, Segment =Dependent



2 Install smart meter

Muktar does not have a smart meter installed. Energy costs are a significant cost of doing business, but that energy use is driven by his customers' demand for hairdressing services so there is little he can do to change his energy use. He does not see any benefit to his business to have a smart meter installed.

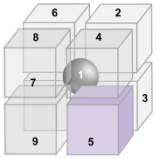
Motivation = Low, Opportunity = High, Segment = Cautious



3 Change way energy used

The way in which Muktar's business uses energy is driven by his customers' needs – he is not easily able to change the way in which energy is used. The perceived impact of changing the way energy is used on service, comfort and convenience do not justify any potential benefits.

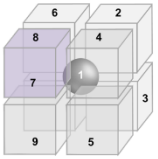
Motivation = Low, Opportunity = Low, Segment = Stuck



4 Install smart appliances & / or load control

Muktar has little knowledge or awareness of the extent to which the load in his business could be controlled by a trader to reduce his energy costs.

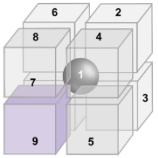
Motivation = Low, Opportunity = High, Segment = Cautious



5 Install solar panels

Muktar operates from a rented shop. His landlord has no interest in installing solar panels and it is not a high priority for him.

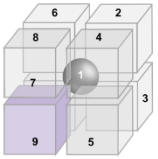
Motivation = Low, Opportunity = Low, Segment = Hard to help



6 Install storage (battery & / or EV)

Muktar's landlord also has no interest in installing storage (battery and/or EV).

Motivation = Low, Opportunity = Low, Segment = Hard to help

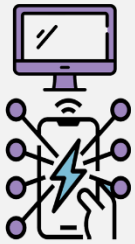


In a two-sided market Muktar could (with assistance)

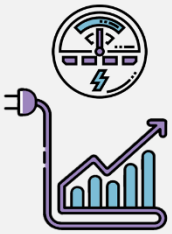
CHOICES ALREADY MADE:	Innovative deal	Smart meter	Change energy use	Smart appliances/ load control	Solar panels	Battery
	X	X	X	X	X	X
MOTIVATION / ABILITY / OPPORTUNITY:	H L H	L L H	L L L	L L H	L L L	L L L

Led by other businesses in his shopping strip, join forces to identify how they could participate in the two-sided market. They could approach the owners of the shopping strip to allow a trader to install solar panels and battery storage so that each of the businesses in the shopping strip could access locally generated electricity, with the building owner paid a rental for the roof space.

With help from a business association, select a more innovative energy deal that has the cost of the smart meter included in the deal. He could access cost-reflective tariffs through this new deal.



Access more innovative products and services through his new new energy deal, like energy management apps and online access to information about his use of electricity.



Monitor his energy use on a regular basis. While he has little scope to change the way he uses energy in his business, over time he could learn the changes that he could make to save money.

Source: ACIL Allen assessment.

5 Potential complementary measures

This chapter identifies the potential complementary measures, by consumer segment, to facilitate participation in a more mature two-sided market. The types of measures that could be considered are identified in section 5.1 and the initiatives that are appropriate for each consumer segment are discussed in section 5.2.

5.1 Types of measures

As part of the *Supporting Households Framework*, we identified the following five broad categories of complementary measures to support households to manage their energy use.

- regulation
- incentives
- information, advice and non-financial support advice
- support services
- financial support.

These same broad categories of measures are also applicable in the context of the development of an effective two-sided market. However, the types of initiatives within each category are specific to each of the choices that consumers may make to participate in a more mature two-sided market.

Of these five broad categories of measures, two are within the remit of the AEMC. The AEMC could provide incentives and regulate through the National Electricity Rules and the National Energy Retail Rules. All other types of measures are within the remit of other Government departments and agencies through policies and programs, including regulation through other regulatory instruments and other forms of incentives.

5.2 Initiatives by choice and by consumer segment

This section considers which types of initiatives would be appropriate to facilitate consumers making each of the six decisions that have been identified for participation in a more mature two-sided market. We have assessed the appropriateness of initiatives through consideration of their efficiency (value for money) and effectiveness.

As mentioned before, some tools and services are low cost, such as awareness campaigns, while others are high cost, such as providing personalised information to households through a trusted source. However, while awareness campaigns may be effective for some consumers (those with high levels of ability and motivation), they may be ineffective for other consumers (those with low levels of ability and motivation). Providing personalised information to consumers may be highly effective for all consumers but would not be an efficient approach – some consumers will be able to make choices without this level of support, while others will be reliant on this level of support to choose.

The sections below discuss in more detail each category of complementary measures. The initiatives recommended for each consumer segment for each type of choice are presented in tabular form in section 5.3.

5.2.1 Regulation

There are a number of ways in which regulation can support consumers to participate in a two-sided market, which are summarised by the type of choice in Table 5.1. While some of these potential regulatory measures could be implemented through the National Electricity Rules and National Energy Retail Rules, others would be implemented through other regulatory instruments.

Some of these potential regulatory measures are reasonably heavy handed – they are included to illustrate the range of regulatory measures that are possible rather than implying that they are appropriate.

Table 5.1 Potential regulatory measures to facilitate participation in a two-sided market

Type of choice	Potential regulatory measure
Move to a more innovative energy deal	– Mandate move to a more innovative energy deal when a smart meter is installed – Mandate minimum standards for information to be provided with offers – Remove barriers to consumers moving to a more innovative energy deal, such as the requirements for explicit informed consent[28] – Ensure consumer protections are retained and that market fees, hardship schemes and exemptions are appropriately applied under new deals
Install a smart meter	– Mandate installation of smart meters, given they are a key enabler to participating in a two-sided market – Where a smart meter is required to be installed to move to a more innovative energy deal, require that the cost of a smart meter be incorporated as part of the energy deal – Regulate secure and consistent arrangements for access and sharing of consumer data
Change the way energy is used	Nil
Install smart appliances and/or load control devices	– Mandate smart capability in new appliances – Mandate minimum standards on information to be provided, including impacts of load control – Mandate minimum standards for control of load by others – Remove barriers to load control
Install solar panels	– Regulate consumer protections if the cost to install solar panels is recovered through energy bills – Mandate installation of solar panels on new/renovated homes/premises – Facilitate long term lease of roof space for community solar panels accessed by those who cannot install solar panels – Mandate minimum standards for inverters as per recommendations by the Australian Energy Market Operator (including a requirement for smart inverters)

[28] This is not suggesting that there should be no requirement for obtaining explicit informed consent. Rather, it is suggesting that there be other ways to obtain explicit informed consent from consumers that do not have trust in others to provide it even where it is in their best interests to do so.

Type of choice	Potential regulatory measure
Install storage (batteries and/or EV)	– Regulate consumer protections if the cost to install storage is recovered through energy bills – Mandate installation of storage on new/renovated homes/premises – Facilitate long term lease of space for community battery storage accessed by those who cannot install storage – Facilitate storage through ride-share EVs – Mandate minimum standards for storage as per recommendations by the Australian Energy Market Operator

Source: ACIL Allen assessment.

While mandating standards, certain requirements and consumer protections will facilitate all consumers participating in the two-sided market, those consumers for which these types of initiatives are most appropriate are those that have low level of trust and literacy, numeracy, problem-solving and research skills (low ability) (Dependent, Stuck, Cautious and Hard to Help). They are also appropriate initiatives for Middle Australia and for households with a high ability level but have a low level of motivation (Complacent and Competent).

Initiatives that regulate the information provided to consumers could benefit those that have low ability or low motivation (Dependent, Stuck, Complacent and Competent). They are also appropriate initiatives for Middle Australia.

Regulation could be targeted to specific consumer segments or could be universal. If the regulation is targeted, only those that require the regulation to help them make choices to participate in the two-sided market will be subject to the regulation. If the regulation is universal, then all consumers will be subject to that regulation, regardless of whether they require the regulation to make the choices to participate in the two-sided market. In some cases, regulation can be effectively targeted to particular consumer segments, but in other cases, it may be more difficult.

5.2.2 Incentives

The incentives that could support consumers to participate in a two-sided market are summarised by the type of choice in Table 5.2.

Table 5.2 Potential incentives to facilitate participation in a two-sided market

Type of choice	Potential measure

Move to a more innovative energy deal	– Provide feedback on the outcome of moving to a new innovative energy deal, either:
	  – general, such as through periodic energy bills, or
	  – specific and timely, such as daily or weekly information on how much money has been saved on the deal, how much energy has been exported, how much of that later was imported etc.
	– Reassign consumers with smart meters to cost reflective network tariffs

Install a smart meter	Nil

Change the way energy is used	– Proactively advise consumers about high price periods in the lead up to those periods, and advise the potential savings by changing the way in which energy is used
	– Provide feedback on the outcome of changing the way in which energy is used, either:
	  – general, such as through periodic energy bills, or
	  – specific and timely, such as how much money was saved each time that energy was reduced in response to the proactive advice of high price periods

Type of choice	Potential measure
Install smart appliances and/or load control devices	– Proactively advise consumers about high price periods in the lead up to those periods, and advise the potential savings by having their load controlled – Provide feedback on the outcome of having the load controlled, either: – general, such as through periodic energy bills, or – specific and timely, such as how much money was saved each time that load was reduced or controlled – Initiatives to incentivise desired outcomes (through indirect financial benefits)
Install solar panels	– Provide feedback on the outcome of having solar panels installed, either: – general, such as through periodic energy bills, or – specific and timely, such as daily or weekly advice on how much energy was exported, how much energy was stored locally and used later, how much energy was used by others and how much money was saved – Initiatives to incentivise desired outcomes (through indirect financial benefits)
Install storage (batteries and/or EV)	– Provide feedback on the outcome of having storage installed, either: – general, such as through periodic energy bills, or – specific and timely, such as daily or weekly advice on how much energy was exported and how much money was saved – Reassign consumers with smart meters to cost reflective network tariffs – Initiatives to incentivise desired outcomes (through indirect financial benefits)

Source: ACIL Allen assessment.

These types of initiatives are discussed in the sections below.

Incentivising choices through providing information proactively

Consumers could be incentivised to choose to change the way energy is used or to install smart appliances and/or load control devices by proactively advising them about high price periods in the lead up to those high price periods, and advising them of the potential savings by changing the way in which energy is used or having their load controlled.

Consumers with high motivation and high ability (Enthusiasts and Completers) are most able to respond to this information. The information may also nudge consumers in Middle Australia, incentivise those consumers that have a high ability level but a low level of motivation (Complacent and Competent), and be specific enough for those with a high level of motivation but a low ability level (Dependent and Stuck) to make the required choices, assuming there is the opportunity to make the choice.

Consumers with low ability and low motivation (Cautious and Hard to Help) will not necessarily understand the information or have sufficient motivation to act upon that information without additional support.

Reassigning consumers with smart meters to cost reflective tariffs

If consumers with smart meters are reassigned to cost reflective tariffs, this may incentivise them to move to a more innovative energy deal, and to install storage if they have solar panels installed, assuming they have sufficient access to liquid funds (that is, they have the opportunity).

Consumers with high ability and high motivation are most likely to be incentivised in this way (Enthusiasts and Completers), while Middle Australia may be able to be nudged to make these choices. Consumers with low ability and/or low motivation are likely to require additional support to make these choices.

Feedback on outcomes

Once a consumer has made choices to participate in the two-sided market, feedback is required to reinforce the benefits of the choices that have been taken to avoid setbacks.[29] Positive feedback on the benefits of making choices provides an incentive to the consumers to continue to make the choices required to participate in the two-sided market.

Initiatives in this category include providing general feedback on outcomes (for instance, energy use and cost through periodic energy bills) and providing this feedback to consumers in a specific and timely manner, for instance:

- daily or weekly information on:
  - how much money has been saved on a more innovative energy deal, or by installing solar panels and/or storage
  - how much excess energy has been exported
  - how much energy has been stored and used later
  - how much energy was used by others in the local area
- how much money was saved when energy was reduced in response to high price periods, or each time the load was controlled.

For some consumers, such as those with a high ability level and high level of motivation (Enthusiasts and Completers), feedback through a periodic bill may be sufficient to maintain the propensity for further choices or to reinforce choices that have been made. However, for other consumers, more specific and timely feedback is required. This could be as simple as providing more frequent energy bills than quarterly or using more innovative approaches such as in-home displays, apps and prompts.

Initiatives to incentivise desired outcomes

Another approach to assist consumers to make choices to participate in the two-sided market is to implement initiatives that incentivise the desired outcomes (for instance, incentivise the installation of solar panels, batteries or smart appliances in rental properties through a program of tax incentives for landlords or incentivising solar power through the provision of competitive feed-in tariffs). Initiatives to incentivise desired outcomes invariably provide some form of financial support or some form of financial payment. However, the financial support is not always funded by governments.

Incentivising desired outcomes by providing indirect financial benefits may motivate those consumers with a high ability level (Enthusiasts, Completers, Complacent and Competent) to act to manage their energy bills, as they have the trust and skills to respond to the incentives.

5.2.3 Information, advice and non-financial support

The types of information, advice and non-financial support that could support consumers to participate in a two-sided market are summarised by the type of choice in Table 5.3. Some of the types of information and advice that could be provided to consumers are in the form of nudges. The types of nudges identified in Table 5.3 have been informed by Sunstein (2014)[30], who identified the ten most important nudges for policy purposes (these nudges are summarised in Box 5.1).

[29] Ohnmacht, T., Schaffnerb, D., Weibela, C., Schada, H. 2017, *Rethinking social psychology and initiative design: A model of energy savings and human behaviour*, Energy Research & Social Science 26.

[30] Sustein, Cass R. 2014, *Nudging: A very Short Guide,* 37 Journal of Consumer Policy 583.

Table 5.3 Potential information, advice and non-financial support that could facilitate participation in a two-sided market

Type of choice	Potential measure
Move to a more innovative energy deal	– Awareness campaigns, word of mouth communication / role models / exemplars – General / tailored / personalised information – nudge by proactively advising consumers of the impact on their energy bills if they move and take action – Comparator service (which will be more complex than the current service) – nudge by defaulting to new more innovative deals first – Proactively advise when local community-based solar panels and/or battery storage could be used
Install a smart meter	– Awareness campaigns and word of mouth communication / role models / exemplars to: – describe benefits – address concerns regarding privacy and data sharing – nudge consumers by proactively advising the proportion of consumers with smart meters and the benefits derived by consumers by moving to smart meters
Change the way energy is used	– Awareness campaigns and word of mouth communication / role models / exemplars to: – describe benefits – nudge consumers by proactively advising them after a high price day as to how much could have been saved if their load had been reduced, and how much was saved by others
Install smart appliances and/or load control devices	– Awareness campaigns and word of mouth communication / role models / exemplars to: – describe benefits – address privacy concerns – nudge consumers by proactively advising them after a high price day as to how much could have been saved if their load had been reduced or controlled, and how much was saved by others
Install solar panels	– Awareness campaigns, word of mouth communication / role models / exemplars – General / tailored / personalised information – Comparator service (for solar panels if not provided as part of innovative deal) – Nudge by proactively advising appropriate size of solar panels and how much could have been saved by installing them – Nudge by providing information on solar panels that have been installed in the local area
Install storage (batteries and/or EV)	– Awareness campaigns, word of mouth communication / role models / exemplars – General / tailored / personalised information – Comparator service (for batteries if not provided as part of innovative deal) – Nudge by proactively advising appropriate size of battery storage for solar panels and how much could have been saved by installing them – Nudge by providing information on storage (batteries and EVs) that has been installed in the local area

Source: ACIL Allen assessment.

Each of these types of information, advice and non-financial support is discussed in the sections below.

Box 5.1 Ten important nudges

Sunstein (2014) identified the ten most important nudges for the purposes of policy:

1. **Default rules** – default rules may be the most effective nudges. In many contexts, default rules are indispensable because it is too burdensome and time-consuming to require people to choose.
2. **Simplification** – many programs fail or succeed less than they might because of undue complexity. As a general rule, programs should be easily navigable, even intuitive.
3. **Uses of social norms** – one of the most effective nudges is to inform people that most others are engaged in certain behaviour. Such information is often most powerful when it is as local and specific as possible.
4. **Increases in ease and convenience** – resistance to change is often a product not of disagreement or of scepticism, but of perceived difficulty – or of ambiguity. If the goal is to encourage certain behaviour, reducing various barriers (including the time that it takes to understand what to do) is often helpful.
5. **Disclosure** – disclosure policies can be highly effective, at least if the information is both comprehensible and accessible.
6. **Warnings, graphic or other** – if serous risks are involved, the best nudge might be a private or public warning. Large fonts, bold letters and bright colours can be effective in triggering people's attention.
7. **Precommitment strategies** – committing to a specific action at a precise future moment in time better motivates action and reduces procrastination.
8. **Reminders** – a reminder can have a significant impact in overcoming some combination of inertia, procrastination, completing obligations, and simple forgetfulness. Timing greatly matters; making sur that people can act immediately on information is critical.
9. **Eliciting implementation intentions** – people are more likely to engage in activity if someone elicits their implementation intentions.
10. **Informing people of the nature and consequences of their own past choices** – private and public institutions often have a great deal of information about people's own past choices, that individuals often lack. If people obtain that information, their behaviour can shift.

Source: Cass R. Sunstein, Nudging: a very short guide, 37 Journal of Consumer Policy 583 (2014)

General information

General information initiatives include:

— awareness campaigns

— the provision of general information

— word of mouth communication / role models through technology-based media

— word of mouth communication / role models through traditional media

— exemplars (for instance, open houses and demonstration projects).

Information can be used to engage with consumers to increase their level of motivation to make a choice. That is, to move them from a low or medium level of motivation to a high level of motivation.

Awareness campaigns are generally a low cost means of communicating a simple message to a large number of consumers. However, the message from an awareness campaign is most likely to resonate with consumers that already have a high level of motivation (Enthusiasts and Completers) and may assist those with a medium level of motivation (Middle Australia) to increase their level of motivation.

General information is currently available on the types of choices that consumers will be required to make to participate in a two-sided market. Examples of this include websites that provide tips on how to change the way in which energy is used and online calculators about solar systems financial benefits and payback periods. However, many of these tools and services are only accessible to

those consumers with a high level of literacy, numeracy, problem-solving and research skills and a high level of trust, that is, to those with a high level of ability, and to those households that already have a high level of motivation and therefore will seek out the information (Enthusiasts and Completers).

All other types of households require more specific information (which we have identified as tailored information or simple personalised information and considered under the category of advice). These forms of communication are discussed in the next section.

Participation in the two-sided market can be exemplified through word of mouth communication and/or role models, and exemplars such as open houses.

The word of mouth communication and use of role models can be communicated through technology-based media, such as social media, for those consumers that have a high level of interest in and are capable of working with technology, that is, have a high ability level (Enthusiasts, Completers, Complacent and Competent). More traditional forms of media are required for those consumers that have a low level of interest in and capability of working with technology (Dependent, Stuck, Cautious and Hard to Help).

Middle Australia may include consumers that have strong literacy and numeracy skills but no interest in technology (for example, older Australians) and consumers with weaker literacy and numeracy skills but a strong interest in technology. Accordingly, word of mouth communication and the use of role models should be communicated to Middle Australia through both technology-based and traditional media.

Consumers that are the most likely to increase their level of motivation from attending open houses or similar events are those with a high ability level but a low level of motivation (Complacent and Competent) and those with a high level of motivation but a low ability level (Dependent and Stuck), as well as Middle Australia.

Those consumers with a high ability level and a high level of motivation have sufficient tools and services to act with the provision of general information (Enthusiasts and Completers). They may attend open houses but will not need to attend to trigger action.

Those consumers with a low ability level and a low level of motivation (Cautious and Hard to Help) are unlikely to have the motivation to attend open houses and if they do, have the trust and self-efficacy to act based on the learnings from an open house.

Advice

We have identified two types of advice/non-financial support:

— simple personalised information

— tailored information.

The provision of simple personalised information through a trusted source is required by those consumers with a low ability level and a low level of motivation (Cautious and Hard to Help). The trusted source is required to communicate the information because these consumers have a low level of trust and skills. Simple personalised information is required because these consumers have low literacy and numeracy skills. Unless the information is provided proactively in this way, these consumers will not seek out the information and increase their level of motivation to make a choice.

Tailored information is required by those consumers that have a high ability level but a low level of motivation (Complacent and Competent), and high level of motivation but a low ability level (Dependent and Stuck), as well as Middle Australia. These consumers either do not have the motivation to seek out the information but have the skills to understand the information, or have the motivation to seek out the information but will not necessarily understand the information and so

they are not able to act upon that information. The tailored information needs to be proactively provided to these consumers who may not otherwise seek the information.

Market-based tools and services

There are a range of tools and calculators that can help consumers to make the choices required to participate in a two-sided market. These include:

— comparator tools / websites that, for example, compare a household's energy bill with different energy deals

— benchmarking tools / websites that, for example, compare the energy usage of households

— investment tools / websites that, for example, set out the costs and benefits of installing solar panels or battery storage.

Consumers that have a high ability level (Enthusiasts, Completers, Complacent and Competent) will have the trust and the literacy, numeracy, problem-solving and research skills to access the various tools and calculators and other market-based tools and services. However, they are only likely to do so if they are motivated (Enthusiasts and Completers).

Information, support and education for trusted sources

Households that have a low ability level may need assistance from others to be able to make the choices required to participate in the two-sided market.

As discussed before, simple personalised information through a trusted source is required by those consumers with a low ability level and a low level of motivation (Cautious and Hard to Help). To enable trusted sources to provide simple personalised information to consumers in the Cautious and Hard to Help segments, they need to have ready access to the information required. This may be as simple as, for example, the annual bills that would have been paid under different energy deals being displayed on a consumer's energy bill. Trusted sources may also need support and education to help them provide relevant information to consumers in need.

Consumers that have a high ability level (Enthusiasts, Completers, Complacent and Competent) will have the trust and the literacy, numeracy, problem-solving and research skills to access market-based tools and services.

Those consumers with a low ability level may not have the trust and the literacy, numeracy, problem-solving and research skills to access market-based tools and services. They will need additional support. Those consumers with a high level of motivation (Dependent and Stuck) may have more trust in community groups than market-based services to provide them with the support and assistance to make the choices required to participate in the two-sided market. Those consumers with a low level of motivation (Cautious and Hard to Help) may need to access tools and services through community organisations referred to them by a trusted source.

5.2.4 Support services

Initiatives in this category relate to services provided by community organisations that can support and assist consumers to make the choices required to participate in the two-sided market.

As noted before, these services would most benefit those consumers with a low level of ability (Cautious, Hard to Help, Dependent and Stuck). Providing/enabling access to community organisations that can support these consumers can result in them making the choices required to participate in the two-sided market.

5.2.5 Financial support

Initiatives under financial support are those where funding is generally provided by governments, but could be provided by other agencies.

Initiatives in this category involve providing direct financial support to consumers to help them make choices to participate in the two-sided market and include:

- ensuring the concessions regime is fit for purpose for new more innovative energy deals
- providing grants and subsidies to support the installation of smart meters, smart appliances, load control devices, solar panels and storage
- providing loans to support the installation of smart meters, smart appliances, load control devices, solar panels and storage
- direct Government investment to fund the installation of smart meters, smart appliances, load control devices, solar panels and storage
- funding community organisations to support households and small-medium sized businesses to make choices.

The concessions regime is currently designed for traditional energy deals and may not provide the appropriate level of financial support for consumers on new innovative energy deals. The design of a fit for purpose concessions regime ensures that it is not a barrier to consumers moving to a more innovative energy deal, and could apply to consumers in any segment.

Consumers that do not have access to liquid funds to invest in actions that will facilitate them participating in the two-sided market are categorised as having low opportunity when the consumer segmentation is applied to choices that require access to liquid funds (such as installing smart meters, smart appliances, load control devices, solar panels and storage). This barrier to make choices to facilitate participation in the two-sided market could be addressed through providing access to funding.

The funding to households with a high ability level (Completers and Competent) could be provided through loans. Households with a low ability level (Stuck and Hard to Help) may not have the trust and the skills to repay a loan. A more appropriate funding approach for these households may be through subsidies or grants.

Financial support can also be provided in the form of:

- direct investment in smart meters, smart appliances, load control devices, solar panels and storage for households that live in public housing
- funding to community organisations to support them in the provision of services to consumers that have a low ability level who may need assistance from others to be able to make the choices required to participate in the two-sided market.

5.3 Summary of the appropriate measures by consumer segment

Table 5.4 to Table 5.9 summarise the measures that are considered to be appropriate for each type of consumer for each type of choice. As discussed in section 5.2, we have assessed the appropriateness of initiatives through consideration of their efficiency (value for money) and effectiveness in supporting consumers to participate in a more mature two-sided market by making one of the six choices.

The segmentation framework characterises consumers to make a particular type of choice at a particular point in time based on their opportunity, ability and motivation, and identifies the complementary measures that could support them to make those choices.

The objective of providing the complementary measures is to address the barriers to a consumer to make the choices required to participate in a more mature two-sided market.

For example, if a consumer has low opportunity to install solar panels because they do not have the funds to do so, then the objective of the complementary measure is to provide financial support so that the opportunity to install solar panels is increased. That is, for that particular choice at that particular time, the consumer moves from having low opportunity to install solar panels to having high opportunity (assuming there are no other barriers).

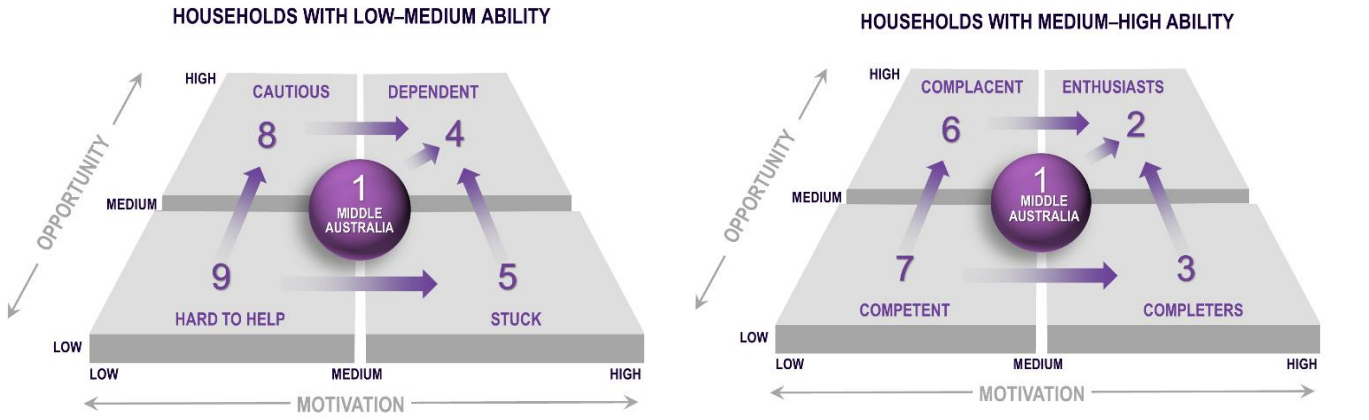
Another example is if a consumer has low motivation to move to a new innovative energy deal because the perceived time and complexity are greater than the perceived benefits, then the objective of the complementary measure is to reduce the perceived time and complexity to move to a more innovative energy deal and / or increase the perceived benefits. This may be by providing personalised information on the benefits associated with a more innovative energy deal. That is, for that particular choice at that particular time, the consumer moves from having low motivation to move to a more innovative energy deal to being motivated to make the change.

The objective of using complementary measures is to increase the motivation to make a choice or increase the opportunity to make a choice, as illustrated in Figure 5.1.

The ability to use complementary measures to increase the likelihood that consumers in the Enthusiasts segment will choose to participate in the two-sided market is limited as the consumers in this segment already have a high level of motivation, opportunity and ability to choose to participate in the two-sided market. Consumers in the Dependent segment also already have a high level of motivation and opportunity to choose to participate in the two-sided market. Initiatives targeted to these types of consumers need to address the ability barrier.

Consumers in the Middle Australia segment may need lighter forms of complementary measures than consumers in other segments as the incremental increase in motivation and opportunity required for them to choose to participate in the two-sided market is less.

Figure 5.1 Desired impact of recommended complementary measures



Source: ACIL Allen assessment.

Table 5.4 Complementary measures to facilitate consumers participating in the two-sided market, by type of consumer – initiatives to move to a more innovative energy deal

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Regulation									
Mandate move to a more innovative energy deal when a smart meter is installed	✓			✓	✓	✓	✓	✓	✓
Mandate minimum standards for information to be provided with offers	✓			✓	✓	✓	✓		
Remove barriers to consumers moving to a more innovative energy deal, such as the requirements for explicit informed consent	✓			✓	✓	✓	✓	✓	✓
Ensure consumer protections are retained and that market fees, hardship schemes and exemptions are appropriately applied under the new deals	✓			✓	✓	✓	✓	✓	✓
Incentives									
Feedback on outcomes that is general (e.g. through periodic energy bills)		✓	✓						
Feedback on outcomes that is specific and timely, such as daily or weekly information	✓			✓	✓	✓	✓	✓	✓
Reassign consumers with smart meters to cost reflective network tariffs	✓	✓	✓						
Information, advice and non-financial support									
Awareness campaign	✓	✓	✓						
General information		✓	✓						
Word of mouth communication / role models through technology-based media	✓	✓	✓			✓	✓		
Word of mouth communication / role models through traditional media	✓			✓	✓			✓	✓
Exemplars e.g. open houses, demonstration projects, etc.									
Proactively provide tailored information to the specific household	✓			✓	✓	✓	✓		
Proactively provide simple personalised information through a trusted source								✓	✓
Market-based tools and services to assist consumers to take action (e.g. comparator service)	✓	✓	✓			✓	✓		

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Provide easy access to information and support and education for trusted sources/organisations that provide support to consumers				✓	✓			✓	✓
Support services									
Provide access to community organisations that can be engaged by trusted source to support and assist households taking action				✓	✓			✓	✓
Financial support									
Ensuring concessions scheme is fit for purpose	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fund community organisations to provide services								✓	✓

Note: A tick indicates that the tool or service is considered to be appropriate for that type of household

Source: ACIL Allen.

Table 5.5 Complementary measures to facilitate consumers participating in the two-sided market, by type of consumer – initiatives to install a smart meter

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Regulation									
Mandate installation of smart meters, given they are a key enabler to participating in a two-sided market	✓			✓	✓	✓	✓	✓	✓
Where a smart meter is required to be installed to move to a more innovative energy deals, require that the cost of a smart meter be incorporated as part of the energy deal	✓			✓	✓	✓	✓	✓	✓
Regulate secure and consistent arrangements for access and sharing of consumer data	✓			✓	✓	✓	✓	✓	✓
Incentives									
Initiatives to incentivise the installation of smart meters (through indirect financial benefits)		✓	✓			✓	✓		
Information, advice and non-financial support									
Awareness campaign	✓	✓	✓						
General information		✓	✓						
Word of mouth communication / role models through technology-based media	✓	✓	✓			✓	✓		
Word of mouth communication / role models through traditional media	✓			✓	✓			✓	✓
Exemplars e.g. open houses, demonstration projects, etc.									
Proactively provide tailored information to the specific household	✓			✓	✓	✓	✓		
Proactively provide simple personalised information through a trusted source								✓	✓
Market-based tools and services to assist consumers to take action (e.g. comparator service)	✓	✓	✓			✓	✓		
Provide easy access to information and support and education for trusted sources/organisations that provide support to consumers				✓	✓			✓	✓
Support services									
Provide access to community organisations that can be engaged by trusted source to support and assist households taking action				✓	✓			✓	✓

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Financial support									
Loans		✓	✓			✓	✓		
Grants, subsidies, etc. that provide direct financial benefits to consumers					✓				✓
Fund community organisations to provide services								✓	✓

Note: A tick indicates that the tool or service is considered to be appropriate for that type of household

Source: ACIL Allen.

Table 5.6 Complementary measures to facilitate consumers participating in the two-sided market, by type of consumer – initiatives to change the way energy is used

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Incentives									
Feedback on outcomes that is general (e.g. through periodic energy bills)		✓	✓						
Feedback on outcomes that is specific and timely, such as daily or weekly information	✓			✓	✓	✓	✓	✓	✓
Proactively advise consumers about high price periods in the lead up to those periods, and advise the potential savings by changing the way in which energy is used or having their load controlled	✓	✓	✓	✓	✓	✓	✓		
Information, advice and non-financial support									
Awareness campaign	✓	✓	✓						
General information		✓	✓						
Word of mouth communication / role models through technology-based media	✓	✓	✓			✓	✓		
Word of mouth communication / role models through traditional media	✓			✓	✓			✓	✓
Exemplars e.g. open houses, demonstration projects, etc.									
Proactively provide tailored information to the specific household	✓			✓	✓	✓	✓		
Proactively provide simple personalised information through a trusted source								✓	✓
Provide easy access to information and support and education for trusted sources/organisations that provide support to consumers				✓	✓			✓	✓
Support services									
Provide access to community organisations that can be engaged by trusted source to support and assist households taking action				✓	✓			✓	✓
Financial support									
Fund community organisations to provide services								✓	✓

Note: A tick indicates that the tool or service is considered to be appropriate for that type of household

Source: ACIL Allen.

Table 5.7 Complementary measures to facilitate consumers participating in the two-sided market, by type of consumer – initiatives to install smart appliances and/or load control devices

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Regulation									
Mandate smart capability in new appliances	✓			✓	✓	✓	✓	✓	✓
Mandate minimum standards on information to be provided on smart appliances and load control devices, including impacts of load control	✓			✓	✓	✓	✓		
Mandate minimum standards for control of load by others	✓			✓	✓	✓	✓	✓	✓
Incentives									
Feedback on outcomes that is general (e.g. through periodic energy bills)		✓	✓						
Feedback on outcomes that is specific and timely, such as daily or weekly information	✓			✓	✓	✓	✓	✓	✓
Proactively advise consumers about high price periods in the lead up to those periods, and advise the potential savings by changing the way in which energy is used or having their load controlled	✓	✓	✓	✓	✓	✓	✓		
Initiatives to incentivise installation of smart appliances (through indirect financial benefits)		✓	✓			✓	✓		
Information, advice and non-financial support									
Awareness campaign	✓	✓	✓						
General information		✓	✓						
Word of mouth communication / role models through technology-based media	✓	✓	✓			✓	✓		
Word of mouth communication / role models through traditional media	✓			✓	✓			✓	✓
Exemplars e.g. open houses, demonstration projects, etc.									
Proactively provide tailored information to the specific household	✓			✓	✓	✓	✓		
Proactively provide simple personalised information through a trusted source								✓	✓
Market-based tools and services to assist consumers to take action (e.g. comparator service)	✓	✓	✓			✓	✓		

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Provide easy access to information and support and education for trusted sources/organisations that provide support to consumers				✓	✓			✓	✓
Support services									
Provide access to community organisations that can be engaged by trusted source to support and assist households taking action				✓	✓			✓	✓
Financial support									
Loans		✓	✓			✓	✓		
Grants, subsidies, etc. that provide direct financial benefits to consumers					✓				✓
Fund community organisations to provide services								✓	✓

Note: A tick indicates that the tool or service is considered to be appropriate for that type of household

Source: ACIL Allen.

Table 5.8 Complementary measures to facilitate consumers participating in the two-sided market, by type of consumer – initiatives to install solar panels

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Regulation									
Regulate consumer protections if the cost to install solar panels and/or storage is recovered through energy bills	✓			✓	✓	✓	✓	✓	✓
Mandate installation of solar panels and/or storage on new/renovated homes/premises	✓			✓	✓	✓	✓	✓	✓
Facilitate long term lease of roof space for community solar panels accessed by those who cannot install solar panels	✓			✓	✓	✓	✓	✓	✓
Facilitate long term lease of space for community battery storage accessed by those who cannot install storage	✓			✓	✓	✓	✓	✓	✓
Mandate minimum standards for inverters as per recommendations by the Australian Energy Market Operator (including a requirement for smart inverters)	✓			✓	✓	✓	✓	✓	✓
Incentives									
Feedback on outcomes that is general (e.g. through periodic energy bills)		✓	✓						
Feedback on outcomes that is specific and timely, such as daily or weekly information	✓			✓	✓	✓	✓	✓	✓
Initiatives to incentivise the installation of solar panels (through indirect financial benefits)		✓	✓			✓	✓		
Information, advice and non-financial support									
Awareness campaign	✓	✓	✓						
General information		✓	✓						
Word of mouth communication / role models through technology-based media	✓	✓	✓			✓	✓		
Word of mouth communication / role models through traditional media	✓			✓	✓			✓	✓
Exemplars e.g. open houses, demonstration projects, etc.									
Proactively provide tailored information to the specific household	✓			✓	✓	✓	✓		
Proactively provide simple personalised information through a trusted source								✓	✓

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Market-based tools and services to assist consumers to take action (e.g. comparator service)	✓	✓	✓			✓	✓		
Provide easy access to information and support and education for trusted sources/organisations that provide support to consumers				✓	✓			✓	✓
Support services									
Provide access to community organisations that can be engaged by trusted source to support and assist households taking action				✓	✓			✓	✓
Financial support									
Loans		✓	✓			✓	✓		
Grants, subsidies, etc. that provide direct financial benefits to consumers					✓				✓
Fund community organisations to provide services								✓	✓

Note: A tick indicates that the tool or service is considered to be appropriate for that type of household

Source: ACIL Allen.

Table 5.9 Complementary measures to facilitate consumers participating in the two-sided market, by type of consumer – initiatives to install storage

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Regulation									
Regulate consumer protections if the cost to install solar panels and/or storage is recovered through energy bills	✓			✓	✓	✓	✓	✓	✓
Mandate installation of solar panels and/or storage on new/renovated homes/premises	✓			✓	✓	✓	✓	✓	✓
Facilitate long term lease of roof space for community solar panels accessed by those who cannot install solar panels	✓			✓	✓	✓	✓	✓	✓
Facilitate long term lease of space for community battery storage accessed by those who cannot install storage	✓			✓	✓	✓	✓	✓	✓
Facilitate storage through ride-share EVs	✓			✓	✓	✓	✓	✓	✓
Mandate minimum standards for storage as per recommendations by the Australian Energy Market Operator	✓			✓	✓	✓	✓	✓	✓
Incentives									
Feedback on outcomes that is general (e.g. through periodic energy bills)		✓	✓						
Feedback on outcomes that is specific and timely, such as daily or weekly information	✓			✓	✓	✓	✓	✓	✓
Reassign consumers with smart meters to cost reflective network tariffs	✓	✓	✓						
Initiatives to incentivise the installation of storage (through indirect financial benefits)		✓	✓			✓	✓		
Information, advice and non-financial support									
Awareness campaign	✓	✓	✓						
General information		✓	✓						
Word of mouth communication / role models through technology-based media	✓	✓	✓			✓	✓		
Word of mouth communication / role models through traditional media	✓			✓	✓			✓	✓
Exemplars e.g. open houses, demonstration projects, etc.									

Complementary measure	Type of consumer								
	Middle Australia	Enthusiasts	Completers	Dependent	Stuck	Complacent	Competent	Cautious	Hard to Help
Proactively provide tailored information to the specific household	✓			✓	✓	✓	✓		
Proactively provide simple personalised information through a trusted source								✓	✓
Market-based tools and services to assist consumers to take action (e.g. comparator service)	✓	✓	✓			✓	✓		
Provide easy access to information and support and education for trusted sources/organisations that provide support to consumers				✓	✓			✓	✓
Support services									
Provide access to community organisations that can be engaged by trusted source to support and assist households taking action				✓	✓			✓	✓
Financial support									
Loans		✓	✓			✓	✓		
Grants, subsidies, etc. that provide direct financial benefits to consumers					✓				✓
Fund community organisations to provide services								✓	✓

Note: A tick indicates that the tool or service is considered to be appropriate for that type of household

Source: ACIL Allen.

6 Findings and recommendations

Section 6.1 summarises the key findings from the analysis in the previous chapters and section 6.2 outlines our recommendations.

6.1 Findings

The analysis in Chapter 3 identified that, of the nine consumer segments identified, only the Enthusiasts and Completers segments have the ability and motivation to participate in a more fully developed two-sided market. However, if only these consumers participate in the two-sided market, the benefits that will be derived will be limited.

Additional supports (or complementary measures) will be required to facilitate participation by consumers in the other segments in a more mature two-sided market:

- Consumers in the **Middle Australia** segment require less support than those in other segments – they need a "nudge" to encourage their participation in the two-sided market.
- Consumers in the **Dependent** and **Stuck** segments are motivated to participate in the two-sided market, but do not have the ability. Complementary measures may be required to address the ability barrier to facilitate their participation in the two-sided market, and thereby facilitate the realisation of the benefits associated with the two-sided market.
- Consumers in the **Complacent** and **Competent** segments have the ability to participate in the two-sided market but not the motivation. In the case of consumers in the Complacent segment, they also have the opportunity to participate in the two-sided market, so need complementary measures to address the motivation barrier. Consumers in the Competent segment may not have the motivation to participate in the two-sided market because they do not have the opportunity. Complementary measures may be required to address the barrier to participation.
- Consumers in the **Cautious** and **Hard to Help** segments do not have the ability or motivation to participate in the two-sided market. Complementary measures may be required to facilitate their participation in the two-sided market, and thereby facilitate the realisation of the benefits associated with the two-sided market.

A range of potential complementary measures have been identified, which can be broadly categorised as:

- regulation
- incentives
- information, advice and non-financial support
- support services
- financial support.

Of these five broad categories of measures, two are within the remit of the AEMC. The AEMC could provide incentives and regulate through the National Electricity Rules and the National Energy Retail Rules. All other types of measures are within the remit of other Government departments and agencies through policies and programs, including regulation through other regulatory instruments and other forms of incentives.

Some tools and services are low cost, such as awareness campaigns, while others are high cost, such as providing personalised information to households through a trusted source. However, while awareness campaigns may be effective for some consumers (those with high levels of ability and motivation), they may be ineffective for other consumers (those with low levels of ability and motivation). Providing personalised information to consumers may be highly effective for all consumers but would not be an efficient approach – some consumers will be able to make choices without this level of support, while others will be reliant on this level of support to choose.

Table 5.4 to Table 5.9 summarise the measures that are considered to be appropriate for each type of consumer for each type of choice.

However, the appropriate measures in a particular context are highly dependent on the objectives of providing support. For example, whether the objective is to:

— maximise participation in the two-sided market
— facilitate participation by particular consumers in the two-sided market
— facilitate particular choices by consumers.

6.2 Recommendations

Until there is a clear objective for providing support and a clearer market design, it is not possible to make specific recommendations as to the most appropriate measures to implement to complement the development of a more effective two-sided market. However, the following guiding principles are provided to be considered while undertaking market design. These principles are provided by type of initiative.

Regulation

— Identify whether there are market and regulatory barriers to consumers moving to more innovative energy deals (e.g. the requirements for obtaining explicit informed consent[31]), have their load controlled or install battery storage (battery storage is a relatively new product so Governments will need to ensure that there are no inappropriate market or regulatory barriers to their efficient uptake).
— Assess whether the current consumer protections are sufficient to protect consumers under future two-sided market arrangements and revise as required (e.g. additional consumer protections may be needed if the cost to install solar panels is recovered through energy bills). Also ensure that market fees, hardship schemes and exemptions are appropriately applied under new deals.
— Explore the feasibility and merits (including through cost benefit analysis) of mandates that could facilitate increased participation in a two-sided market. This includes, amongst others, regulation to mandate the installation of smart meters, solar panels and batteries, minimum information standards and smart capability in new appliances.

[31] This is not suggesting that there should be no requirement for obtaining explicit informed consent. Rather, it is suggesting that there be other ways to obtain explicit informed consent from consumers that do not have trust in others to provide it even where it is in their best interests to do so.

Incentives

- Explore ways to provide consumers with feedback on outcomes that is more specific and timely, for instance through the provision of daily or weekly information on how much money has been saved due to a new innovative energy deal, a change in the way they use their energy, the use of solar panels or batteries or as a result of load control.
- Explore ways to proactively advise consumers about high price periods in the lead up to those periods, and of the potential savings of having their load controlled or changing the way they use their energy.
- Assess the possibility of reassigning consumers with smart meters to cost reflective network tariffs.
- Explore additional initiatives to incentivise the desired outcomes for the relevant types of consumers. This could include, for instance:
  - For consumers with low opportunity living in rental accommodation or renting business premises (Completers, Stuck, Competent and Hard to Help), a program of tax incentives for landlords could be explored. Enhancing the tax treatment of smart meters, smart appliances, solar panels and batteries could provide a financial inducement to landlords to install them. Tax incentives could be provided through a number of existing federal, state or local government taxes including, for example, income tax, state land tax and council rates. Tax incentives are one of the most prominent factors that landlords consider when deciding to invest in their property. Currently, unless a landlord is replacing a broken item, upgrades are not deductible from income tax (i.e. they are treated as a capital expense that can be used to offset capital gains). A tax incentive which provides immediate relief could therefore be effective.
  - On-bill financing for rental properties. In this model, a property owner finances the fixture through a third-party provider. Therefore, they do not make an upfront payment but make repayments through charges on their property's energy bill. The energy saving can be greater than the amount of repayment, giving the investment a positive pay-off. On-bill financing models already exist in the Australian marketplace (such as solar leasing models offered by some energy retailers). These products are currently targeted at owner occupiers. However, on-bill financing for rental properties has been successful in the US and has been adopted in the UK and France. To overcome the split incentive, charges can be passed on to the tenant (either by the landlord if the energy bill is in their name) or otherwise levied directly on the tenant's bill.

Information, advice and non-financial support

- Consider developing programs to:
  - provide information through word of mouth communication and role models through technology-based media to engage Enthusiasts, Completers, Complacent, Competent and Middle Australia consumers. Relevant information should be provided to help consumers across all types of choices
  - provide information through word of mouth communication and role models through traditional-based media to engage Dependent, Stuck, Cautious, Hard to Help and Middle Australia consumers. Relevant specific information (that is user friendly) should be provided to help consumers across all types of choices
  - provide tailored information that is specific to consumers. An example of this could be creating a national advice program (via the phone or videoconference) that provides consumers with advice (by an energy expert) on the impact on their energy bills if they:
    - move to a more innovative energy deal
    - take action to change the way they use their energy
    - install smart appliances or have their load controlled
  - provide simple, personalised advice to Cautious and Hard to Help consumers through trusted sources. An example of this could be the extension of the ACT's Low Income

Energy Efficiency Program which assists low income households with education and support to reduce their energy bills. This service is funded by the ACT Government and delivered by St Vincent de Paul. Through this program, an Energy Efficiency Outreach Officer visits people in their home and provides a free assessment to determine the best ways to reduce their energy bills and make their household environment more comfortable. A similar program could be developed that provides consumers with education and support to make other relevant choices in a two sided market.

— Consider developing tools to assist consumers to choose to a more innovative energy deal or storage.

Support services

— Ensure access to information and support/training for trusted sources so that this assistance can be accessed by trusted sources around Australia.

— Identify key community groups with presence around Australia who can support and assist consumers take action and jointly develop specific programs to help Cautious and Hard to Help consumers take action.

Financial support

— Explore improving access to liquid funds through loans for relevant segments and providing grants and subsidies to support the installation of smart meters, smart appliances, load control devices, solar panels and storage.

— Ensure the concessions regime is fit for purpose for the new more innovative energy deals.

— Consider direct Government investment to fund the installation of smart meters, smart appliances, load control devices, solar panels and storage, particularly in public housing.

— Consider providing targeted funding to community organisations to support households and small-medium sized businesses to make choices.

Melbourne
Level 9, 60 Collins Street
Melbourne VIC 3000 Australia
+61 3 8650 6000

Sydney
Level 9, 50 Pitt Street
Sydney NSW 2000 Australia
+61 2 8272 5100

Brisbane
Level 15, 127 Creek Street
Brisbane QLD 4000 Australia
+61 7 3009 8700

Canberra
Level 6, 54 Marcus Clarke Street
Canberra ACT 2601 Australia
+61 2 6103 8200

Perth
Level 12, 28 The Esplanade
Perth WA 6000 Australia
+61 8 9449 9600

Adelaide
167 Flinders Street
Adelaide SA 5000 Australia
+61 8 8122 4965

ACIL Allen Pty Ltd
ABN 68 102 652 148

acilallen.com.au