Behavioural insights into Australian retail energy markets

Prepared for
Australian Energy Market Commission

11 March 2016

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Contents

Summary

When people make decisions, especially important ones like buying a house or car, they usually think very carefully about the pros and cons of the different options. For everyday decisions, however, such as what chocolate bar to buy or what drink to order in a cafe, the same people often choose a product instinctively, barely taking any time to consider their choice.

For many people, their energy supply might not be something that involves them carefully considering the options available to them; at the same time, choosing an energy supplier is not something that is yet instinctive to many consumers either. Building on the utility-maximising framework of traditional economics, behavioural economics captures the differences in how decisions are made in practice and uses insights from psychology to explain the effects of cognitive and behavioural processes on how consumers behave and on market outcomes.

Increasingly, regulators and competition authorities are also using behavioural economics when assessing the competitiveness of markets or the policies implemented when intervening in a market.

A wealth of empirical evidence supports the key insights from behavioural economics that identify consistent and predictable ways in which economic agents behave differently from the 'rational agent' on which economics had traditionally been predicated. Deviations from the rational agent are typically called behavioural 'biases', much in the same way as a statistical technique that consistently underestimates a true parameter is called 'biased'—i.e. biases are not necessarily bad; rather, they are consistent deviations from what is typically considered the optimal outcome.

To understand outcomes in a market, it is important to consider the demand-side behaviour that motivates those outcomes, as well as the supply-side response to consumers who exhibit behavioural biases. Behavioural insights provide explanations of why competition may be restricted in some markets, and why poor consumer outcomes may arise even in markets where there are several competing firms.

In many countries, energy is a product that has been liberalised fairly recently (none of the NEM markets was contestable before 2002).[1] Even in contestable markets, there may be price regulation of certain tariffs, or at least a regulatory body responsible for energy markets. Additionally, energy is not a tangible product that you can take home. When switching tariffs, the monetary savings are dissipated over the length of the contract. Many energy contracts default over time into 'evergreen' tariffs, which do not need to be renewed or 'replaced'. Also, consumers do not need to switch or actively purchase energy since it is a subscription product that will continue to be provided as long as bills are paid. These features can have a tendency to reduce consumers' interest in and engagement with the energy market, which in turn can lead them to be inert and use rules of thumb, rather than carefully considering available choices in this market.

As behavioural biases affect market outcomes, one might expect these biases to influence the five indicators of competitive market outcomes used by the

[1] Australian Energy Market Commission (2015a).

Australian Energy Market Commission (AEMC) to assess the competitiveness of retail energy markets in Australia:

1. customer activity;
2. customer satisfaction with market outcomes;
3. barriers to retail entry, expansion or exit;
4. independent rivalry between suppliers; and
5. retail pricing.

The AEMC commissioned Oxera to consider how behavioural insights can be applied to retail energy markets in Australia, and in particular the competitive market indicators tracked by the AEMC. To that extent, this report provides recommendations for how behavioural economics could be incorporated into the AEMC's analysis, although the specific analysis would require additional primary research, which is beyond the scope of this report.

Identifying the existence and scope of behavioural biases allows for a better understanding of the drivers of the competitive market indicators. We have looked at how behavioural economics influences the indicators used by the AEMC, and provide our conclusions below. It is important to be aware that behavioural biases are hypotheses that need to be empirically tested with Australian consumers in relation to the retail energy market.

Our conclusions on each of the competitive market indicators are as follows.

- **Customer activity**—switching rates are high in Australia relative to other countries, suggesting that, on the international spectrum, Australian consumers actively participate in the energy market. While, in general, behavioural biases tend to reduce switching because of the additional cognitive costs of engagement and selection of a new energy tariff, we find that the level of switching in the retail energy market is indicative of substantial consumer engagement in the market.
- **Customer satisfaction** with market outcomes—it is important not to rely too heavily on this since it is a stated-preference measure, and may be affected by factors unrelated to the competitive landscape of energy markets. Behavioural economics research suggests that satisfaction ratings may be biased due to consumers being over-optimistic about their existing energy tariff, or because they may overestimate the costs and hassle involved in switching.
- **Barriers to retailers entering, expanding or exiting** the market—the relatively high switching rate in Australia is likely to help limit the degree to which barriers to entry or expansion can be constructed as a result of customer inertia. The current level of customer activity means that suppliers that offer more competitive products should be able to acquire new customers and thereby grow their market share.
- The **degree of independent rivalry**, such that retailers are competing strongly with each other to attract and retain customers—if there is sufficient innovation and expansion of second-tier suppliers, this should be good evidence of robust rivalry among retailers for active energy customers. However, product and consumer segmentation may mean that there is less potential for rivalry for disengaged, inert customer segments.

- Whether **retail energy prices** are consistent with a competitive market—a significant amount of product differentiation in the Australian energy market indicates that a degree of price dispersion should be expected; however, because of product differentiation, there may be some segments of inactive consumers who are consistently charged a higher price.

Based on our findings, we would like to make the following recommendations for incorporating behavioural insights into the AEMC's analysis of the Australian retail energy market.

- While the AEMC's indicators cover the areas of how competition and customer outcomes can be assessed, including in a behavioural economics framework, **we recommend developing the consumer satisfaction indicator**. Customer satisfaction evidence should be used with caution when assessing the competitiveness of a market since customer satisfaction responses can be driven by events and perceptions unrelated to the competitiveness of a market. In particular, we would recommend benchmarking customer satisfaction against that in other industries, tracking changes in satisfaction over time, and testing whether changes in satisfaction follow from a change in the other competitive market indicators.

- The behavioural hypotheses listed in this report should be tested empirically to see their impact on engagement and switching. The most relevant **behavioural insights that may drive barriers to engagement should be tested empirically** to understand the magnitude of biases in Australian retail energy consumers' decisions. In particular, we recommend quantifying the drivers of customer inertia (e.g. salience, risk aversion, reference dependence, loss aversion, responsiveness to prompts) and time preferences (discount rate and present bias). This will give the AEMC evidence on the degree to which inactive consumers are disengaged, or whether consumer inactivity is due to search and switching costs being higher than the expected benefits from switching.

- If policy changes are considered, we recommend **testing policy changes to see whether they work with or against identified biases**. In particular, changes concerning the format, content or frequency of information provided to retail energy consumers should be tested experimentally and in the field, prior to being implemented. Additionally, for biases identified as barriers to engagement or switching, interventions should be considered that specifically address these biases.

- While stated-preference switching measures can be a cost-effective way to compare responses for switchers and non-switchers, **we recommend using revealed-preference data on switching and searching as the preferred measure of customer activity**. We understand that this should be available to AEMC from the Australian Energy Market Operator (AEMO) and from government-sponsored price comparison websites (PCWs). We recognise the importance of the AEMC's customer survey in collecting data on unobservable characteristics, and this survey should be continued.

- The evidence from the recommendations above could be combined to **create a framework for understanding or model of consumer behaviour in the energy market**. This approach should be designed to capture the impact of supply-side behaviour and interventions on the AEMC's competitive market indicators. This model will allow the AEMC to test scenarios of how market dynamics may develop, as well as the impact of interventions that the AEMC or the Australian Energy Regulator (AER) may be considering.

This report is structured as follows:

- section 1 gives an overview of behavioural economics;
- section 2 discusses applications of behavioural economics to retail energy;
- section 3 assesses the competitive market indicators with respect to behavioural insights; and
- section 4 concludes with a discussion of market dynamics if behavioural biases are present.

1 Behavioural economics: a primer

Behavioural economics has captured the attention of policymakers and regulators across many sectors. Policymakers are increasingly looking for lessons from behavioural economics to help them improve policy and find ways to improve consumer outcomes. Regulators and competition authorities can use insights from behavioural economics to better understand how consumers make decisions and how search and switching costs influence market outcomes.

1.1 What is behavioural economics?

All economic models rely on simplifying assumptions about how firms and consumers (economic agents) behave in order to help us understand the complex world in which we live. In this way, behavioural economics is not a shift in paradigm away from the rational agent model, but rather a development of the traditional economic model that accurately reflects cases where outcomes consistently differ from those generated in traditional economics.

To make economic models mathematically tractable, traditional economics stipulates that firms and consumers are 'perfectly rational'—the rational agent is often referred to as 'homo economicus'. This assumption is often a sensible and pragmatic one that assumes that the agent makes choices based on the following.

- **A set of stable preferences**: the preferences of homo economicus do not depend on the context of a decision. In particular, they are not affected by the way information is presented or framed. Preferences are also consistent over time, as consumers act according to their long-term interests and resist short-term urges that are detrimental in the long run.
- **Good recall and the ability to process information**: models with fully rational agents assume that agents are capable of remembering past experiences, collect relevant information, and use that information to the fullest extent possible to make their decisions.
- **Assessing costs, benefits and probabilities** associated with each outcome: rational agents are assumed to correctly assess the probabilities and, given the available information, have correct expectations of corresponding pay-offs in each scenario.
- **Own-utility maximising behaviour**: the agent is assumed to choose the best expected outcome for themselves among all the feasible options. The agent maximises their own utility only, without explicitly taking into account other concerns such as equity or social comparisons.

In many cases, the rational agent hypothesis is an accurate simplification of reality. In empirical studies considering firms' investment behaviour, this hypothesis has been found to be more accurate than the proposed alternatives.[2] There is also empirical evidence that corroborates rational expectations versus other models of price formation.[3] More generally, as empirical and theoretical approaches using the rational agent have generated valid predictions, in many cases it may be appropriate to assume rational agents.

[2] Jorgensen and Siebert(1968).
[3] Muth (1961).

Behavioural economics is motivated by dual system theory, which argues that people rely on two cognitive systems when making decisions: System I and System II.[4] System I is engaged in the large majority of decisions and makes decisions automatically, using 'rules of thumb' or heuristics. These decisions are embedded in our decision-making and do not require much effort. System I involves instinctive processing, rather than conscious thinking. A simple example may be attempting to check one's mobile phone for messages even if the battery is dead. Behaviour that is not 'perfectly rational', as described above, is typically a result of System I processing.

System II processing facilitates conscious, rules-based processing and requires more effort. It is used when making a thought-through, deliberate decision, such as would be made by a rational economic agent. The two cognitive systems are summarised and compared in Table 1.1.

Table 1.1 Two cognitive systems

System I (automatic)	**System II (reflective)**
Uses *heuristics* to make decisions that are:	**Uses *full deliberation* to make decisions that are**:
Uncontrolled	Controlled
Effortless	Effortful
Associative	Deductive
Fast	Slow
Unconscious (lack of self-awareness)	Conscious (self-aware)
Skilled (pre-learned)	Rule-following

Source: Oxera, adapted from Kahneman (2003), p. 1451.

The differences between System I and System II decision-making can be explained using a stylised example. Say that a consumer, Lisa, is interested in purchasing a new mobile phone:

- if she makes this decision using System I, she may choose a phone that is prominently advertised in a shop display at a conveniently located retail location and that may have an attractive design, but with relatively little consideration of value for money;
- if she chooses her new phone using System II, she considers the models that fit her requirements (e.g. price, camera quality, battery life, memory, compatibility with other electronics), and is likely to go to multiple shops or visit PCWs online. Only after carefully researching and weighing the pros and cons of each model does Lisa select the mobile she will purchase and from which retailer. Most likely, the phone Lisa selects using System II will be different, and better value for money, than the phone she selects using System I. However, it would take some time and effort for her to make a System II decision, much more so than making a System I choice.

Although System I does not involve the level of deliberation seen in System II, System I is efficient to use in many circumstances. In a setting with which a consumer is familiar, and for which they have been able to develop accurate heuristics, there is no need to indulge in a drawn-out deliberation over the options since the time and effort this takes carries an opportunity cost—i.e. the 'search cost' of considering a range of items before making a choice. For example, in a familiar cafe, a customer may have an instinctive, System I, response when asked what they want to drink—this will generally be a good

[4] See discussion on dual system theory in Kahneman (2003).

outcome for the customer, as they did not have to spend time and effort considering what to order and they will have a drink they like.

What dual system theory highlights is that making a well-informed, System II decision has costs (i.e. the time and effort spent making the decision) that are much higher than for a System I decision. Hence, even if the consumption outcome from a System I decision may be sub-optimal (i.e. Lisa's mobile does not represent best value for money), overall economic agents may be better off in some cases using System I rather than System II (i.e. the value of the additional time and effort Lisa would spend in making an informed choice of mobile phone is worth more than the slight improvement in value for money that Lisa receives from the phone she chooses using System II). That said, recourse to System I can be problematic if it generates systematic biases that lead to poor outcomes.

1.2 What are the key findings in behavioural economics?

The 'fully rational' approach found in traditional economics can be a useful staring point by offering an accurate simplification of reality and a basis for a useful, tractable framework for explaining market outcomes. This simple framework can be combined with insights from behavioural economics to better understand market outcomes.[5] For example, many economic models acknowledge the existence of search and switching costs and how they affect market outcomes; behavioural economics can offer insights into the drivers of these 'costs', and how they can be altered when information is presented in different ways.

Insights from behavioural economics can add to the traditional economic model of consumer and firm behaviour, by helping to understand:

- why certain anti-competitive conduct exists despite some indicators (e.g. number of firms) indicating otherwise;
- why market mechanisms, without any intervention, cannot always correct these distortions; and
- what remedies can be designed to address these problems.

Many of the findings from behavioural economics on the deviations from the traditional economic model are predictable. In particular, behavioural economics offers three key insights that have repeatedly been shown to be consistent with empirical evidence.

- **Preferences depend on context**. Preferences are determined by certain 'anchors' or reference points—for example, past or expected outcomes—and may be influenced by how information is presented or framed. People dislike losing what they perceive to own already (their 'endowment') more than they like making equivalent gains, and are more willing to take risks when a question is posed in terms of losses than in terms of gains, as discussed in Box 1.1.[6]

[5] The rational agent case can be considered as a bias-free case of a more generalised behavioural agent.
[6] See Kahneman and Tversky (1984).

Box 1.1 Willingness to take risks

In a study, a large sample of physicians were presented with two hypothetical dilemmas. In the first, 600 people are expected to die following the outbreak of a disease. In this scenario, adopting programme A would lead to 200 lives saved, and adopting programme B would lead to a one-third probability that 600 lives would be saved and two-thirds probability that no lives would be saved. 72% chose programme A (the safe option), and only 28% chose programme B (the risky gamble).

This dilemma was then reframed: if programme C is adopted, 400 people are expected to die, whereas if programme D is adopted there is a one-third probability that no one will die and a two-thirds probability that 600 people will die. Here, 22% chose programme C (the safe option), while 78% chose programme D (the risky option).

In fact, the two dilemmas posed are identical in terms of outcomes (outcome A = C and outcome B = D), but how the information was framed in terms of switching from gains ('saved lives') to losses ('deaths') led the physicians to reverse their choices. This reversal phenomenon breaches an assumption in traditional economics that preferences should not change when the description of the outcomes changes.

Source: Kahneman and Tversky (1984).

- **Decision-making involves taking shortcuts**. Conscious, fully rational deliberation of every single decision would be exhausting to apply to all day-to-day tasks. Instead, some decisions are made by taking mental shortcuts, known as 'heuristics', which allow agents to solve a complex problem in a relatively short time. Instead of gathering all the available information on a product they want to buy, individuals may make quick decisions based on a selection of the information they find, their memories of recent experiences, looking at what others are doing, or focusing on what they consider to be the most important criteria.

- **Choices over time can be inconsistent**. Consumers can face a conflict between their short-term urges and what would be best for them in the long term, resulting in 'time inconsistency'. Specifically, a time-inconsistent consumer makes a decision in the present anticipating making future decisions according to long-term interests (e.g. buying a gym membership and planning to exercise three times a week), but in future time periods, the agent fails to act as planned, forgoing longer-term benefits to satisfy short-term urges (e.g. consistently skipping exercise for other leisure activities).

A large number of empirical studies have demonstrated that individuals often behave differently from what would be expected from a 'perfectly rational' economic agent.[7] These deviations are often referred to as biases, in the same sense as this term is used in statistics—i.e. the bias is a systematic difference between an observed outcome and some ideal outcome (in the case of behavioural economics, the outcome expected from the rational agent model).

[7] For an overview of the empirical evidence, see DellaVigna (2009).

Box 1.2 Are behavioural biases bad?

Behavioural biases can move decisions away from welfare-maximising outcomes—for example, sub-optimal take-up of opt-in employer pension plans (i.e. the default option is not to be enrolled in the pension plan).[8]

However, in most cases, behavioural biases drive consumers to make prudent, cautious decisions. Indeed, this is quite important since full deliberation takes effort and is time-consuming; it is simply not possible to do this for every decision. Individuals need to use heuristics for many decisions, and behavioural biases explain the difference between a decision made via heuristics and one made by a fully deliberating agent.

In general, heuristic-based decisions will err on the side of caution, which is consistent with an evolutionary explanation that behavioural biases developed because they were advantageous for survival. Hence, it makes sense that consumers are present-biased (why forgo something today, if you might not be around tomorrow to enjoy it?), have status quo bias (if I've survived with one outcome, I'll probably continue to survive with the same outcome), or are reference-dependent and loss-averse (if I've survived with one outcome, but then it deteriorates, how do I know I'll still survive with the worse outcome?).

Moreover, in many circumstances, decisions made by heuristics may actually be nearly as good or even the same as optimal decisions made by a rational agent. Since individuals typically have risk-averse preferences, one way of considering how behavioural biases can be beneficial is that, by using heuristics, the decision-maker avoids a certain time and effort cost of deliberation. The benefit of the deliberation is risky, as the final choice reached may be the same or only marginally better than the option selected via heuristics: using full deliberation instead of heuristics involves a certain cost and risky benefits, as discussed in section 1.1. In this way, a heuristic—especially one that is cautious and generally averse to risk—may be a good decision-making tool.

Source: Oxera.

1.2.1 Behavioural biases

In this section we describe some of the more common types of bias that can affect consumers' perceptions, decision-making and choices. Being aware of these biases helps to understand market outcomes and design appropriate policies.

- **Heuristics**: mental shortcuts or rules of thumb enable agents to make day-to-day decisions relatively quickly and effortlessly. Heuristics can save a lot of time and effort, in particular when dealing with complex problems, but can sometimes be imperfect and open to exploitation by firms. Three types of common heuristics are:
  - availability heuristic: people assess the probability of an event happening based on information that is easily available in their mind, which tends to be recent information. For example, insurance purchases increase immediately after disasters such as floods and earthquakes, and then gradually decline when memory of these events fades;[9]
  - representativeness heuristic: consumers assess a problem and tend to design a solution given the degree of resemblance of the problem to another situation or stereotype. For instance, a consumer may take advice from a financial adviser because they like them, as opposed to basing their choice on an assessment of the quality of the advice;
  - herd behaviour: other people's behaviour can be used as a rule of thumb; consumers can save time and free-ride on what they perceive to be a

[8] Changing the default option such that employees are registered for employer pension plans by default (and would have to make an active choice to opt out) increases enrolment in employer pension plans substantially, just as would be expected by behavioural economics. See Choi et al. (2003).
[9] Chuah and Devlin (2011).

rational (or at least a non-catastrophic) decision by others. This may not always be optimal, for example if consumers hold faulty beliefs about why others behave as they do.

Consumers often resort to heuristics when they are provided with too little or too much information—the latter can give rise to **information overload**: overwhelmed by the available information, consumers do not know how to prioritise it and fall back to using heuristics, which may well result in them making no decision at all.[10]

- **Present bias**[11] is the tendency to place a high value on immediate rewards at the expense of one's long-term intentions. For example, today a consumer may be willing to give up a few hours tomorrow to shop around for a cheaper energy provider, saving money in the future, even though they would not give up their time today for the same task. Some consumers are aware of this bias—which leads to procrastination—and can mitigate its effects by pre-committing to decisions that are beneficial in the longer term.

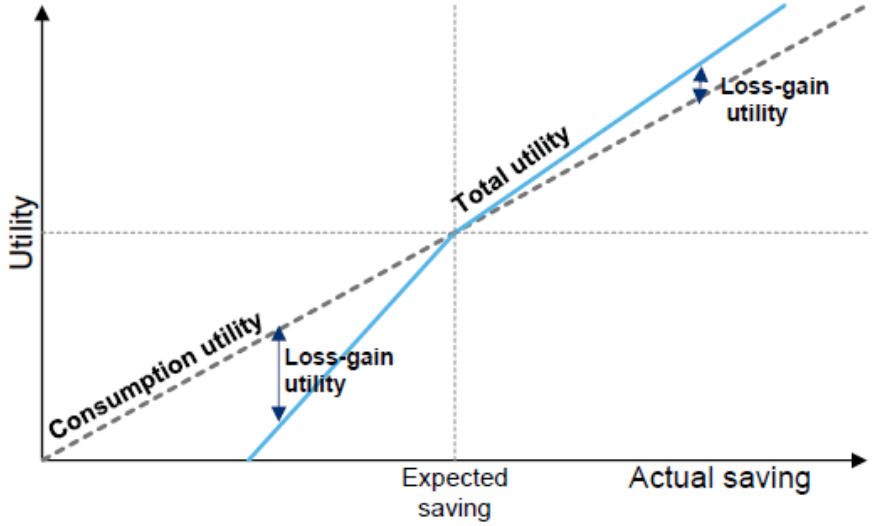
- **Reference dependence and anchoring**: consumers' appraisal of different options of a product may be affected by what is presented as an initial reference point or anchor. For example, when purchasing goods and services, consumers are often influenced by the base price and discount on an item. If a bottle of wine is initially priced at $10 and then reduced to $5, consumers may perceive that they are getting a better deal than if the wine were offered at $5 in the first instance. By showing a discount on a certain high base price, firms are attempting to move the consumer's implicit reference point to the base price, and consumers feel a gain from purchasing the product (even if the consumer might not have been willing to pay the base price).

  Anchoring can influence consumer perceptions even when the initial anchor is arbitrary or irrelevant. One study in the USA asked participants whether they would buy a product for a dollar amount that was equal to the last two digits of their US social security number (SSN). They were then asked about the maximum they would be willing to pay. The 20% of people who had the largest last two digits of their SSN were willing to pay three times as much than those in the 20% of people with the smallest last two digits. This experiment demonstrates anchoring, a process whereby a value provides a non-conscious reference point that influences subsequent value perceptions.[12]

- **Loss aversion**: consumers prefer to avoid losses rather than acquire an equivalent gain, partly due to what is known as the 'endowment effect'—i.e. people ascribe more value to their own goods simply because they own them. This in turn suggests that people often demand much more to give up an object than they would be willing to pay to acquire it.[13] Figure 1.1 illustrates the utility function of a loss-averse consumer; a perfectly rational consumer would have total utility equal to their consumption utility.

[10] For example, Iyengar and Lepper (2000) found that a smaller selection of jam varieties in a supermarket display resulted in more jam being bought than when there was a larger selection.
[11] Present bias is a specific example of time inconsistency, whereby an agent makes an optimal plan for their future decisions, and as time moves on, in each time period, the agent deviates from the decision set out in the optimal plan for that time period. More general time inconsistency is possible, in theory, but less intuitive. For example, an agent sets an optimal plan, but as time moves forward in each time period, they commit to deviating from the optimal plan for the next *t* time periods.
[12] Ariely, Loewenstein and Prelec (2003).
[13] Kahneman, Knetsch and Thaler (1990).

Figure 1.1 Total utility for loss-averse consumers (with reference-dependent preferences)



Note: One way of considering reference dependence and loss aversion together is that, without loss aversion, reference dependence results in symmetric utility uplifts/downshift for the same distance from the reference point. Adding loss aversion results in asymmetric reference dependence, where falling short of the reference point by an amount has a higher impact on total utility than exceeding the reference point by that same amount.

Source: Oxera.

- **Salience and shrouding**: consumers are more likely to engage in the purchasing process of tangible products that they care about: for other products, the decision-making process may not be as elaborate. An energy contract, as set out in a detailed information pack of documents outlining the product features, is much more abstract than a piece of furniture or food. People tend to be less responsive to information that is abstract and statistical than information that is salient and vivid.[14]

  When evaluating information, consumers may also choose to focus on the most salient parts: they can place more emphasis on the most accessible piece of information or ignore certain more complex elements. For example, people tend to focus on headline prices such as teaser rates for credit cards, which may lead them to select an inappropriate product given their usage.

- **Misperceptions**: when making decisions, agents may hold mistaken beliefs about pay-offs and associated probabilities. In general, consumers tend to overestimate probabilities of very unlikely events (e.g. winning the lottery) and underestimate probabilities of very more likely events (e.g. safe airplane travel).

  A common misperception is optimism bias, whereby a consumer over-/underestimates the chances of achieving a good/bad outcome relative to the objective probability of that outcome. For example, many believe that they are less likely than others to suffer from various misfortunes, including automobile accidents and adverse health outcomes.[15]

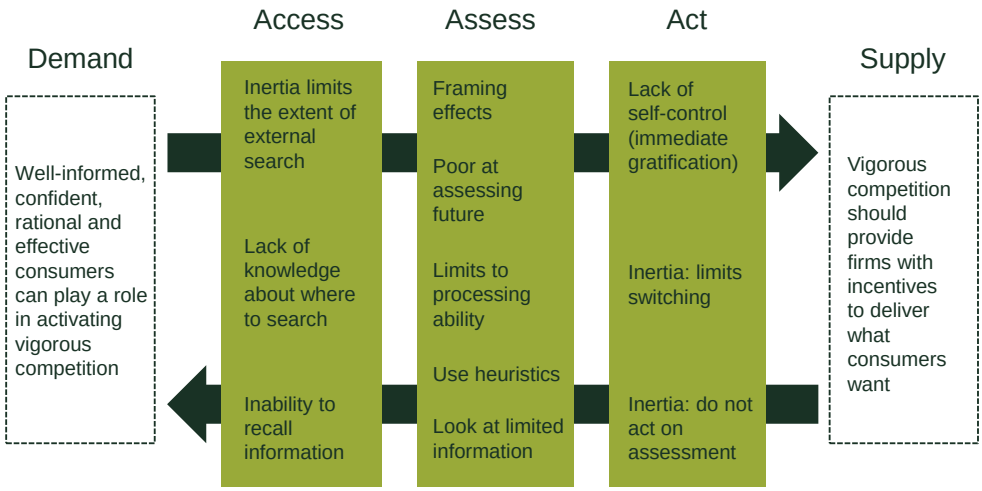
[14] Gilbert (2006) points out that objects we can see come to mind more readily, since they activate the visual cortex (the part of the brain responsible for processing visual information).
[15] Sunstein (2013).

Unrealistic optimism is often associated with the 'good news–bad news effect', whereby people give more weight to good news than to bad news. This finding is related to confirmation bias, which arises when people give extra weight to information that confirms their prior beliefs, and neglect information that contradicts those beliefs.

1.3 A framework for considering the impact of consumer biases

When considering consumer decisions and how they can be affected by behavioural biases, the 'Access, Assess, Act' framework, initially developed by the UK's Office of Fair Trading (OFT),[16] is commonly used. This framework (illustrated in Figure 1.2) focuses on the stages of consumer interaction with relevant information. In order to fully engage in a market, a consumer must be able to access relevant information, assess it and act on it. Behavioural biases affect each of these three stages of consumer activity.

Figure 1.2 Access, assess and act on information



Source: Based on Office of Fair Trading (2010a).

For example, in order for consumers to switch to a better energy tariff, they need to have easy *access* to information on alternative tariffs, be able to *assess* the tariffs against each other, and then *act* by switching to the optimal tariff within a reasonable timeframe, and without it taking a disproportionate amount of their time. However, poor market coverage by PCWs may make it difficult to access information of relevant tariffs; the complexity of tariffs may make it difficult for consumers to properly compare and assess alternative providers; and exit fees may make it costly for consumers to switch away from their current provider. In theory, there may be an incentive for firms to exacerbate consumer biases at each stage in the decision-making process to reduce the likelihood of switching—for example, hiding fees and restrictive terms and conditions to limit consumer access, and offering complex pricing structures to reduce consumers' ability to assess the value of the product/service.[17] Equally, firms that want to grow their customer base may have an incentive to reduce consumers' inertia and perceived barriers to switching.

1.4 Behavioural economics and energy

The literature on behavioural biases in the energy sector covers four main areas: energy consumption and conservation, investment in energy efficiency, pro-

[16] Now the Competition and Markets Authority (CMA).
[17] Office of Fair Trading (2010b).

environmental behaviour, and contract choice. Awareness of biases in each area is an important factor when designing effective policies and assessing competition in energy markets.

1.4.1 Incentivising energy conservation

Much of the energy-related literature finds that the main driver for customer engagement with their electricity plan is to save money.[18] However, due to cognitive capacity, customers are not always able to link their consumption of energy with their total bill.

Energy conservation policies provide information ex ante or ex post (feedback) and act as tools for consumers to be able to make financial savings via energy conservation. By increasing the salience of benefits from energy savings and consumer knowledge, feedback makes it more likely that consumers will change their patterns of energy usage to meet specific goals, such as energy savings.[19]

Ex ante feedback allows consumers to factor energy efficiency into the decision-making process. For example, the UK redesigned Energy Performance Certificates for electrical appliances and homes to make information easily understandable. To clarify how greater efficiency translates into benefits, the new certificates include a comparison between current and potential energy use, enabling consumers to account for the financial costs of energy usage when purchasing these items.[20]

Feedback is also important in facilitating savings on energy bills; a well-informed consumer is more likely to know how to optimally reduce consumption. There are several types of feedback for energy consumption data: direct feedback is immediate and most often communicated via a smart meter to an in-home display or smart phone, while indirect feedback is communicated in some way, for example through billing.[21]

Direct feedback is predominant in Sweden, where smart meter roll-out was completed in 2009. By October 2012, consumers were able to access hourly readings, which allowed bills to be based on actual rather than estimated consumption, facilitated consumer engagement (understanding how to reduce bills) and informed decision-making. This is also due to good customer understanding of the impact of shifting consumption from peak to off-peak periods and of the different billing components (network tariffs, taxes, etc.).[22] More generally, smart meters can be a strong enabler of demand-side participation: they allow consumers to be exposed to real-time pricing information, which educates consumer choice and consumption.[23]

Enhanced billing is a successful indirect feedback technique used to encourage and facilitate savings. It gives consumers feedback through charts, comparisons against average energy use, or other selected usage benchmarks.[24] Salience and framing are key to the success of these programmes. By giving customers an ‘ambient orb’ that glowed red when energy consumption in the network was

[18] IBM (2011) found that saving money was the largest influence behind the decision to make changes to energy usage (62%).
[19] See IBM (2011).
[20] Cabinet Office (2011).
[21] Darby (2006).
[22] European Environment Agency (2013).
[23] Australian Energy Market Commission (2012).
[24] European Environment Agency (2013).

high, an energy company in Southern California induced orb users to reduce peak energy demand by 40%.[25]

Another policy option to induce energy savings is to move to increasingly cost-reflective tariff structures; if consumers sign up to these tariffs, they can reduce their energy bill by adjusting their quantity and timing of energy usage.[26] However, for consumers to fully benefit from cost-reflective tariffs, they need to respond to price signals accordingly. This would involve appliances that respond to pricing signals and an appreciation by the consumer of different prices charged at different times. When selecting a tariff, complex cost-reflective tariffs will be more difficult to compare than simple, single-rate tariffs, potentially leading to information overload and subsequently disengagement with the energy market, and hence low take-up of cost-reflective tariffs.

1.4.2 Overcoming present bias in investing in energy-saving technologies

When making energy-efficient investments and purchases, people's decisions are often affected by present bias, which makes upfront costs much more salient relative to future energy savings.[27] Policies used to alleviate such biases include incentive schemes that remove upfront costs and thereby reduce procrastination.

Oxera consumer research in the UK looking at investment in energy-saving technologies is consistent with the existence of present bias in energy markets. Our research identified consumers' reluctance to incur an upfront cost for energy-efficient capital investments such as cavity wall insulation and loft insulation, despite this cost being substantially outweighed by the future benefits from savings on energy expenditure.[28]

1.4.3 Generating pro-environmental behaviour

Policies that promote pro-environmental behaviour in energy consumption are generally similar to those that promote energy conservation for other reasons. Overall, consumers in various countries have been found to display relatively strong status quo bias and reference dependence, and to suffer from limited cognitive capacity about energy consumption and therefore its environmental impact.[29] Ex ante (before a consumption decision is made) and ex post (after a consumption decision is made) information provision focusing on environmental concerns can prompt consumer engagement with the energy market, similar to financial motives, as discussed in section 1.4.1.

Social norms are effective in generating pro-environmental behaviour. In 2007 and 2008, researchers[30] left door hangers at more than 270 homes in California with different messages.

- Door hangers that compared energy demand with neighbours' consumption led to 10% additional energy savings relative to those that gave energy conservation tips only. The information comparing a household to neighbours introduced competition between households in energy conservation, as

[25] The reduction in demand was measured over several weeks. Thaler and Sunstein (2008), pp. 193–4.
[26] As examined in CSIRO (2015).
[27] Pollitt and Shaordshadze (2011).
[28] Oxera (2006), p. 23.
[29] Pollitt and Shaordshadze (2011).
[30] Schultz et al. (2007).

households experienced gains or losses compared with their neighbour's consumption, which, when made public, became a reference point.[31]

- Residents whose consumption was lower than average tended to increase consumption after receiving the hanger, but this effect was eliminated when a smiley face was drawn next to their consumption. Initially, consumers may have increased energy usage, as they might have felt a loss from making more effort than the average household. The smiley face essentially shifts back the reference point to low levels of energy consumption, as this mark of social approval shows the household that they are doing the right thing.

This finding was confirmed by another wide-scale experiment that compared households' energy consumption against that of their neighbours, thereby setting a reference point and creating a feeling of loss for households whose consumption had a larger-than-average impact on the environment. In this case, consumers who were made aware of neighbours' consumption reduced their energy consumption by 1.1–2.8%.[32]

Given consumer biases and the cost of active involvement with energy consumption, programmed devices that do not rely on active consumer reaction (such as pool pumps, or automated devices that reduce unnecessary consumption) are recommended over other technologies that require active consumer participation.[33] To generate appropriate changes, effective programmes and tools need to be simple, convenient, intuitive and accurate.

1.4.4 Energy contracts

Many consumers tend not to read contracts, for a variety of reasons (e.g. perception that terms and conditions cannot be challenged, commitment to purchase a product).[34] Additionally, most consumers who read a contract actually skim read or focus on key items such as headline price.[35] While it may be rational to do so—if costs from reading outweigh benefits—firms can exploit this behaviour by overloading consumers with information so that consumers are unable to access and assess the most relevant features of the product.

Limited cognitive capacity and time inconsistency also affect contract assessment and take-up. The presence of these biases means that even if consumers read or are given information about a contract, they may find it difficult to assess it or shop around.[36] There are two broad categories of policy interventions to address contract-related biases—policies aimed at reducing the impact of consumer biases; and policies aimed at restricting firms' behaviour. Having contracts that provide simple, relevant and consistent information and that is comparable across providers facilitates consumer engagement and reduces the impact of biases.[37] Mandating default options that firms must set has proven to be an effective tool in increasing the take-up of 'beneficial'

[31] See also Allcott and Mullainathan (2010).
[32] Allcott and Mullainathan (2010).
[33] Australian Energy Market Commission (2012); Accenture (2010); CSIRO (2015).
[34] 'Most people do not read […] contracts in detail before buying, or even click through to terms and conditions online, often because they assume that any standard contract is not negotiable, they rely on the reputation of the firm that they are doing business with, or they simply do not have enough time.' Office of Fair Trading (2011), p. 5.
[35] In a YouGov survey, 35% of consumers picked out key points to read in the contract and 30% gave it a quick skim read. Only 23% had a good read, while 10% did not read at all. Office of Fair Trading (2011), p. 27.
[36] Office of Fair Trading (2011).
[37] Australian Energy Market Commission (2012); Ofgem (2011).

contracts (such as pension schemes or cost-reflective electricity contracts), as consumers tend to stick with the default option.[38]

Additionally, firms can exploit consumer biases in a number of ways, for example by burying unattractive features of the contract in the small print, or by proposing deals with attractive teaser rates but higher rates afterward. In this spirit, the AEMC introduced a rule change in 2014 aimed at making firms disclose to consumers in the contract the conditions for variation of tariffs and charges.[39] The objective of the rule was to increase consumer awareness of price changes and to alleviate any misconceptions consumers may have around tariff evolution.

[38] Choi et al. (2003).
[39] Australian Energy Market Commission (2014a).

2 How might behavioural economics affect retail energy markets?

Certain features of energy as a product make careful consideration of behavioural biases important when assessing competitiveness in retail energy markets.[40] The behavioural biases listed below are hypotheses as to why consumer behaviour and market outcomes in the energy market are as observed. These hypotheses should be tested empirically to confirm their importance and explanatory power.

Many energy markets have previously had monopoly providers, and contestability of some energy markets has been introduced only recently. As a result, heuristics in these markets may be less effective than in other markets because consumers have not had the individual or collective experience necessary to form accurate heuristics. Additionally, as energy can be an evergreen product (a product that has no end date and does not need to be replaced, as is the case for standing offers), this also affects the consideration that consumers may give to energy and activity in energy markets.

2.1 Consumers have limited cognitive capacity

The choice of an energy plan could be daunting for consumers if tariffs vary along many dimensions. Even with access to information, they may be unable to assess the relevant information. Making a fully informed choice involves the following.

- **Understanding tariff structure**. Tariffs are composed of a fixed supply charge and a usage charge. The usage charge can be a single rate per unit of electricity consumed, a dual rate or a time-of-use rate (varying depending on the time of the day).
- **Deciding between a market and a standing offer**. Market offers usually involve discounts from a standard rate, but discounts are conditional on meeting certain conditions and are received during a predetermined benefit period. Fee evolution rules also vary from one contract to another.
- **Choosing a retailer**. In 2015, there were up to 21 retail brands in Victoria, 20 in New South Wales and 16 in South Australia.[41] If there are concerns about quality of service—for example, accuracy of billing or ease of contact with customer service—this makes a customer's decision about which retailer to choose even more difficult.
- **Choosing the most appropriate plan offered by the chosen retailer**. Retailers sometimes have several market offers available. Since offers are typically framed as percentage discounts from a retailer's standing offer, it may be difficult to compare market offers from different retailers that may each have different standing offers. Hence, a market offer with a 20% discount from one supplier may well be better (or worse) than a market offer with a 20% discount from another supplier, for example.
- **Estimating future energy usage**. Consumers may be unaware of their energy usage and have a difficult time estimating their likely future usage. In

[40] For a thorough discussion of how behavioural economics can be incorporated into competition analysis, see Oxera (2013).
[41] The three fully deregulated markets. There were 11 retail brands in South East Queensland, 4 in ACT, and 2 in Tasmania. See Australian Energy Market Commission (2015b).

particular for dual-rate or time-varying tariffs, it may be difficult for consumers to calculate how much energy they expect to use under each rate.

Processing all the information listed above takes effort and time on the part of the consumer. Even if a consumer is aware of available options and has time, linking charging methodologies to the total bill is also far from straightforward.[42] Survey evidence indicates that Australian energy consumers have limited trust in retailer-provided sources of information, such as telemarketing and door-to-door sales practices, and have low awareness of PCWs.[43] The combination of these factors means that consumers may analyse complex information to make a decision without much outside help. Consumers can be overwhelmed and find it difficult to prioritise criteria, especially when the impact on their energy bill is unknown.[44]

This process could lead to information overload, which, for some consumers, can occur even if they are assessing a seemingly manageable amount of information, as they may fail to discern which information is important or ignore some of it altogether.[45] Additionally, consumers may not search for information on additional tariffs if they are already overloaded with information from just a few tariffs. When faced with information overload, a customer may give up and make no decision at all, and as a result will remain on their current tariff, which may not be as attractive as alternatives in the market.

PCWs play a key role in mitigating information overload, in particular if PCWs have whole- or nearly whole-market coverage. By calculating consumer energy bills under different plans across the whole market, PCWs make price comparisons much easier. Alternatively, suppliers offer fact sheets summarising the main characteristics of selected plans. These fact sheets are easily comparable and facilitate price comparison across different plans.

Energy is a relatively simple product. Even with complex time-of-use or multi-part tariffs, energy should generally be more understandable to consumers than, say, financial services products. Hence, comparison between energy tariffs should be straightforward and accurate—if not directly by the consumer then via an intermediary such as a PCW. This means that searching for energy tariffs and switching can actually be made very simple, such that this could plausibly be a System I decision if consumers do use the intermediary tools available.

Time-of-use tariffs present an additional problem for consumers' cognitive capacity by increasing the complexity of tariffs at the point of choice and adding a dimension to the consumption decision once on a given tariff. At the point of consumption, smart devices and technology that enable consumption choices to be made automatically will be helpful. At the point of tariff choice, information offered by PCWs would need to be adapted to inform consumers about the potential savings as a result of certain changes to their consumption pattern without that information becoming overwhelming.

[42] For example, it may be difficult to calculate the total bill or to compare the effect of consumption changes under different plans (e.g. those made up of a fixed fee plus a usage charge with peak and off-peak rates).
[43] Australian Energy Market Commission (2013a) and (2015b).
[44] For example, single-rate or time-of use tariff, market or standing offer, higher discount with fees that can evolve at any moment, or no discount with fees that change every six months maximum, etc.
[45] After controlling for other observables, participants in the Big Switch experiment who were presented with two offers had a lower probability of switching than those presented with one offer. See Deller et al. (2012).

2.2 Consumers use heuristics when making decisions

As noted, it would be too exhausting to apply System II for all day-to-day tasks, which is why consumers resort to heuristics.

In the electricity retail market, individuals may choose their energy plan without exploring all options thoroughly: they tend to look at websites of retailers they know,[46] do not read contracts in detail,[47] and can display what is known as 'satisficing' behaviour. Satisficing involves searching until an option that meets certain threshold criteria is found, and that option is selected, even if better options may be available. By contrast, 'maximising' behaviour—a characteristic of fully rational economic agents—involves discovery of all options (assuming that there are no costs to searching), and selecting the one that maximises the agent's utility.[48]

When using heuristics, consumers also display availability bias: they may place a disproportionate emphasis on information that is most easily accessible and assume that it is representative of the market. In other words, consumers perceive that the information they have accessed is representative of the market as a whole, even if there may be good reason to believe that suppliers or plans considered have not been 'randomly' selected—for example, because a customer investigated a supplier from whom they received targeted marketing.

Because the exact assessment of all options is time-consuming, costly and may be expected not to be worthwhile, consumers use heuristics to make choices. While a useful shortcut to making quick decisions, heuristics can also lead to sub-optimal decisions: errors can be made in the calculation of prices and bills, and in judging product attributes and probabilities of pay-offs. The use of heuristics can be facilitated by retailers by making the choice process straightforward and intuitive, as well as highlighting information that will be easily processed via heuristics.

2.3 Time inconsistency

Consumers' preferences are inconsistent over time in two ways: their level of interest in energy bills and consumption varies at specific occasions;[49] and they are present-biased, since they place more weight on costs and benefits in the present than on costs and benefits at any point in the future.[50]

Research for the AEMC finds that, like many other goods and services, consumers' interest in energy is sporadic and typically triggered by certain events. While electricity bills are not a priority most of the time, consumers become more interested in learning about electricity at specific times.[51] These occasions include price increases, important electrical appliance purchases, or subscription to new electricity contracts.

[46] Australian Energy Market Commission (2013b), p. 15.
[47] Office of Fair Trading (2011), p. 5.
[48] If a search is costly then a maximising agent will continue to look until the marginal cost of searching is equal to the expected marginal benefit from discovering another option, relative to the set of options already discovered.
[49] As media attention on energy prices increased, consumers expressed more concerns about their ability to pay their bills. See Energy and Water Ombudsman NSW (2011).
[50] More generally, there is evidence that consumers display 'hyperbolic discounting', where the discount rate between two points in time decreases as the time difference increases. In other words, under hyperbolic discounting the further ahead in time a benefit will occur, the less valuable that benefit is, although the decline in value of that benefit slows as it gets pushed further into the future. See Frederick, Loewenstein and O'Donoghue (2002), section 4.1.
[51] Australian Energy Market Commission (2013b), p. 7.

By contrast, behaviour that would be time-consistent would involve consumers reconsidering their energy choices at regular intervals and engaging with energy markets. One way in which this can be done with little effort is for consumers to use PCWs and third-party services that provide alerts when, for example, the savings from switching energy tariff are above a certain threshold.[52]

Empirical evidence shows that consumers tend to display present bias.[53] There is evidence that this bias is correlated with demographic characteristics: present bias is a negative function of age, with greater present bias for younger people, and a positive function of income, and lower present bias for individuals with larger incomes.[54]

Present bias can lead to inertia in energy markets: even if people know that it is in their interest to switch or search for tariffs, they may put off searching since this involves time and effort costs in the present while savings from lower energy bills are only collected in the future. Additionally, if there are termination fees for exiting a contract with a supplier, this will exacerbate consumers' present bias as these costs are incurred upfront, with benefits from switching again only in the future. Time inconsistency is particularly visible when individuals repeatedly decide that they will 'search tomorrow', but when tomorrow becomes today, postpone this decision again.

Evergreen contracts or contracts with auto-rollover—both common in energy and financial services markets—reinforce present-biased behaviour by minimising the impact of potential engagement points that come at the end of a contract.[55] On the other hand, contracts with low 'teaser' rates or upfront incentives work to increase the present-term benefits of switching and, in so doing, take advantage of present bias to induce searching and switching. However, these types of contract may then be incorrectly assessed against other contracts that do not have these features but may be cheaper for consumers in the longer term.

2.4 Reference dependence

In energy, the reference point for a tariff can be based on factors such as past prices, past consumption, or expected price changes and expected future consumption. Reference-dependent consumers have two sources of utility: i) the 'consumption utility' from their actual consumption; ii) their 'loss–gain' utility that gives them additional utility if their consumption is greater than their reference point, and decreases their utility if their consumption is below their reference point.[56] For example, if a household's reference point for their saving from switching was A$120, an observed saving of A$140 would yield them greater utility than just the benefit from an additional A$20 in their pocket. However, if the reference point for savings from switching was instead A$160, the same A$140 would have a lower total utility value to the consumer as it is below the reference point.

In the latter case, consumers are less likely to switch because the consumption utility of their saving is reduced by the 'disappointment' that the saving is lower than expected. In the former case, consumers are more likely to switch, given

[52] In the UK, uswitch and moneysupermarket, two PWCs, can provide alerts when savings from switching energy provider reach a threshold level. In New Zealand, Saveawatt.co.nz intends to provide 'Frank', an automatic switching service that moves a subscriber to better energy offers as they become available and informs customers when a switch occurs.
[53] See DellaVigna (2009), section 2.
[54] Can and Erdem (2013), p. 3020.
[55] For example, see DellaVigna and Malmendier (2006).
[56] In breaking down utility in this way, we follow Koszegi and Rabin (2006).

the same level of actual gains from switching, due to the 'excitement' from savings that are better than expected.

Reference-dependent preferences make consumers vulnerable to anchoring effects since the appraisal of different options can be affected by what is presented as a default or 'standard' option, which anchors a customer's reference point. In the Australian energy markets, many of the discounts are presented as a percentage discount on standing-offer rates. This shifts the reference point to the standing-offer tariff,[57] and certain market offers can appear deceptively attractive for consumers who already benefit from discounts.

Consumers are more likely to purchase expensive contracts if the price is presented monthly rather than annually,[58] and they are more likely to buy add-on products if the prices of add-ons are displayed next to a large contract price.[59]

2.5 Loss aversion

Consumers whose utility depends on a reference point often display loss aversion. For loss-averse consumers, the marginal loss in utility for a loss relative to their reference point is greater than the marginal gain in utility for an equivalent gain relative to their reference point: a saving of, say, A$20 additional to the reference point has less absolute utility than a saving of, say, A$20 below the reference point.

Empirical studies have found the coefficient of loss aversion, or the ratio of marginal loss–gain utility for values above the reference point to values below the reference point, to be in the range of 2–3.[60] This indicates that comparatively small shortfalls in savings from switching below a customer's expectation can induce greater consumer inertia than additional consumer activity induced by similar 'excess' savings above a customer's reference point.

Similarly, loss aversion can be observed in consumers' general aversion to real-time and capacity pricing for energy.[61] The main reason for such resistance is the novelty and complexity of such tariffs, which create a perceived risk compared with the 'safe' current flat-rate tariffs. Consumers are unsure of the impact of cost-reflective tariffs on bills, and place more weight on the potential loss more than the potential benefits.

The existence of loss aversion affects the adequate timing for information provision. If information on contracting conditions is given to consumers late in the contracting process (once consumers have decided on the options of the contract), the disclosure has less effect than if the information had been provided at the start of the decision. Once the consumer has neared completion of their shopping journey, that consumer has adjusted their reference point to account for ownership of the new contract. Revealing problematic conditions may not cause consumers to re-evaluate their decision ex post, even if this might have caused them not to take it ex ante. A large benefit would need to arise from avoiding this clause in order to compensate for the loss generated from giving up this newly acquired contract.

[57] Many market offers are formulated as a percentage off the standing offer.
[58] Monthly differences seem lower than annual differences between two contracts.
[59] The price of an add-on does not seem large next to the price of the main contract. See Office of Fair Trading (2011).
[60] For example, see Abdellaoui, Bleichrodt and Paraschiv (2007), Table 1. More recent studies include Karle, Kirchsteiger and Peitz (2015), and Merkle (2014).
[61] CSIRO (2015).

2.6 Salience and shrouding

As noted earlier, energy is a not tangible product, and consumers typically have a low level of interest in it, despite using it every day. For example, orange juice or mobile phones are more salient products; consumers can touch and interact with these products, and they are of interest in and of themselves. By contrast, energy is a catalyst that allows the enjoyment of other goods and services, such as a charged mobile phone or refrigerated orange juice. Consistent with this intuition, according to market research by Newgate Research (2015), a third of customers in Australia are not interested in looking for a better deal on their energy tariffs.

The salience of a product is important for customers to engage with the purchase or renewal of the product. For example, when products are sold as add-ons—and hence less prominent due to being overshadowed by some other focal product—there is evidence that consumers are less likely to engage with the decision to purchase the add-on product.[62] For this reason, engagement in energy markets may be harder to foster than in markets with more prominent, tangible products.

Furthermore, since energy tariffs typically have multiple prices, some of these prices may have a larger impact on consumers than others. Evidence from economic experiments on eBay and in US supermarkets indicates that consumer demand is less elastic to adjusting certain parts of a product's price than to adjusting other prices of a multi-price product.[63] In particular, customers are less responsive to changes in prices which are shrouded—i.e. prices that firms have made less noticeable relative to other parts of a price (e.g. shipping and handling charges). As concerns energy tariffs, consumers may pay more attention to the usage charges of a tariff than the supply charge, or vice versa. This suggests that suppliers may focus their competition on, say, the usage price—if consumers focus more on this price—but may have more leeway in uplifting the standing charge if this price is less prominent in consumers' views. Additionally, the framing and presentation of the different prices of an energy tariff can influence which price consumers pay more or less attention to.

2.7 Perceptions of risk and probability

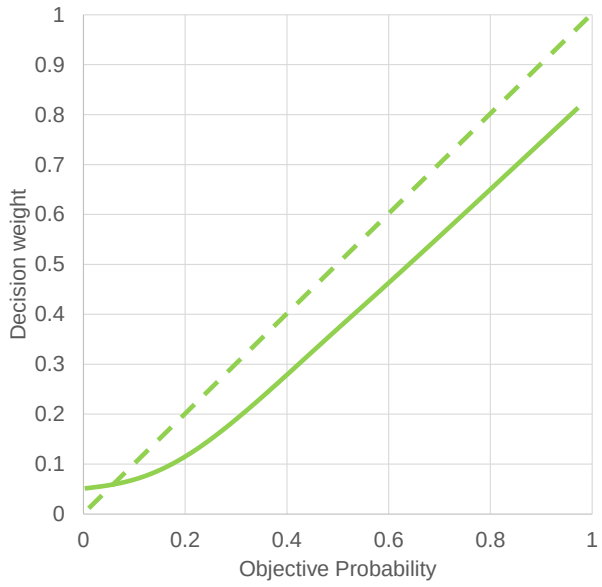
Consumers may have perceptions of risk in energy markets that diverge from the objective risk in this sector. Behavioural economics provides two key insights into how perceptions tend to differ from reality: consumers inaccurately assess the probabilities of events in their decision-making; and they may form expectations in ways that differ from the fully rational agent.

Consumers' assessments of probabilities often results in an overweighting of the likelihood of low-probability events and an underweighting of the likelihood of high-probability events, relative to objective probabilities.[64] These 'decision weights' are used by consumers when assessing options with some element of risk or uncertainty, and are positively correlated with the objective probabilities of the different outcomes in question.[65] Figure 2.1 shows a typical relationship

[62] Financial Conduct Authority (2014), p. 7.
[63] See, for example, Hossain and Morgan (2006), and Chetty, Looney and Kroft (2009).
[64] This phenomenon was identified by Allais (1953), when he asked individuals to choose between different lotteries. He found that individuals made inconsistent choices across lotteries depending on the probability and amounts chosen for different outcomes.
[65] The decision weights may not obey the axioms of probability. For a thorough explanation of decision-weighting of decisions under uncertainty, see Kahneman and Tversky (1979).

between the decision weights consistent with consumer behaviour in situations with uncertainty, and objective probabilities in those situations.

Figure 2.1 Stylised relationship between decision weights and objective probabilities



Source: Adapted by Oxera from Kahneman and Tversky (1979), p. 283.

What this decision weighting implies for energy markets is that consumers will consistently overweight a small risk—for example, the chance that they will have problems when switching energy supplier. Even in cases where the stated savings from switching are quite accurate—i.e. there is a high probability that the bills quoted to a customer who is considering switching are close to the actual bills they would pay under each tariff—consumers will underweight the likelihood of the savings being accurate.

Consumers using non-linear probability weighting may also be willing to pay a lot to reduce small risks. For example, they may prefer paying high fixed-rate tariffs to cheaper variable tariffs, even if the fixed-rate tariffs are disproportionately high compared with the actual risk coverage provided.

There is evidence that consumers do not always form rational expectations, which are 'best guesses' of unknown or future outcomes that use all available information.[66] For example, consumers adopting pro-environmental behaviour may sign up for a plan adapted to low levels of consumption, but actually consume more than the expectations that they had formed.

Instead, consumers may use different approaches in forming their expectations, one of which is the 'adaptive expectations' approach. Adaptive expectations involve forming expectations based on past realisations of a given outcome or measure—for example, the gains from switching energy tariff available to a customer. By contrast to rational expectations, adaptive expectations would not consider additional information aside from previous realisations of gains from switching.

More generally, consumers' perceptions and expectations of energy market characteristics may differ substantially from reality. For example, a UK study

[66] As discussed in Muth (1961).

showed that non-switchers estimate that switching will take longer than the time reported by actual switchers.[67] While the structural reasons for these differences may vary—e.g. overemphasis on irrelevant information, underemphasis on relevant information—these skewed perceptions can be important in explaining why consumer activity and engagement are different from what might be expected given the actual costs and benefits of switching.

2.8 Status quo bias

Research in behavioural economics finds that people place a higher value on what they already purchased or own (the 'endowment effect').[68] In the energy retail market, consumers do not own a physical object, but purchase services from a retailer and associate value with the retailer's brand. Values attached to brands vary significantly from one consumer to another, but are expected to be higher for established brands (incumbent retailers) and suppliers that invest more in advertising and brand-building activities. Experience with their current supplier leads some customers to place additional trust in their energy provider and to perceive a risk of loss when considering changing supplier.[69] Consumers switching provider 'lose' the services, brand value and trust attached to that company. Some may therefore prefer to keep the status quo than switch for uncertain benefits; in this way, status quo bias can help the initial players in the market retain their customer base.

Status quo bias presents a problem for the introduction of innovative products such as time-of-use tariffs. This is because consumers may set a very high threshold for expected benefits needed to adopt a technology. In time, increasing familiarity of consumers with such products would be expected to reduce the status quo bias. Network effects and social norms are likely to be helpful where adoption decisions of consumers influence the decisions of others, although this process may take years.

[67] Deller et al. (2012) found that 52% of non-switchers estimated that they would need more than 20 minutes to switch, while the switching process took less than 20 minutes for 75% of switchers.
[68] One of the most famous examples is a study by Kahneman, Knetsch and Thaler (1990), in which some participants were given a mug and offered the chance to sell it back, while others were asked how much they would pay for the mug. The required compensation for participants who owned the mug was approximately twice as high as the willingness to pay of the participants who did not own it. This result indicates that participants had modified their reference point to account for ownership of the mug.
[69] For example, a survey of UK energy customers found that 62% of customers trust their current energy supplier, but only 27% trust other energy suppliers. See GfK NOP (2015), p. 2.

3 Behavioural insights into the competitive market indicators in the Australian energy markets

Most behavioural economics research to date has focused on individual or consumer behaviour, and hence behavioural insights relate primarily to customer activity (appropriately, one of AEMC's competitive market indicators). However, as consumer activity and engagement are crucial factors for the functioning of a market overall, behavioural insights are relevant to each of the following five competitive market indicators used by AEMC in its assessment of the competitiveness of energy markets:

1. customer activity;
2. customer satisfaction with market outcomes;
3. barriers to retail entry, expansion or exit;
4. independent rivalry between suppliers; and
5. retail pricing.

The behavioural insights provided in this section are hypotheses concerning observations made in the Australian energy market: in order to determine the impact of behavioural factors, these would need to be tested empirically in the Australian energy market.

First, the effect of biased decision-making needs to be evaluated, which can be done by considering two questions.

- Are there adverse effects on competition?
- Is consumer behaviour substantially different from that of homo economicus?

If the answer to both questions is 'yes', the next step is to identify where in the access, assess and act framework consumers are facing difficulties that drive the adverse effects on competition.[70] Once these point(s) are identified, hypotheses need to be formed about the behavioural mechanisms for the problems, based on previous studies and industry knowledge. In some cases, these mechanisms may be due to firm behaviour, such as price shrouding or overloading customers with information, which takes advantage of consumers' biases. In others, consumer disengagement or heuristics-based decision-making will drive poor outcomes, even in the absence of undesirable practices by firms. These hypothesised mechanisms can then be tested using experimental techniques and customer surveys, or by reviewing firms' policies, marketing and decision-making.

If there are adverse effects on competition, but consumers' behaviour is broadly in line with what would be expected of a rational agent, there is little reason to investigate behavioural hypotheses further. It is important to keep in mind that the rational agent approach is meant to be a simplification of actual consumer behaviour, and there are many cases where this is a close approximation.

On the other hand, if consumer behaviour is substantially different from that of homo economics, but there are no adverse effects on competition, there is little reason for concern since behaviourally biased decisions may still lead to good (albeit sub-optimal) outcomes. Again, many decisions are made using System I

[70] The access, assess and act framework was discussed in detail in section 1.3.

heuristics, which is practical and saves the time and effort of making a fully deliberated, System II choice.

Below, we assess each of the competitive market indicators individually in light of behavioural economics. We report our recommendations for the AEMC in section 3.6.

3.1 Customer activity

In this section we present survey evidence[71] relating to the AEMC's competitive market indicators. Where the level of the indicator is low, the relevant potential behavioural biases are discussed. As noted, these biases would need to be tested empirically to determine the role (if any) that each plays in customer activity in the Australian energy market.

Customer activity in the electricity retail market can be observed using different indicators. While switching and total take-up of market offers remain the most tangible outcomes of customer activity, other relevant measures include awareness of the possibility of switching and the percentage of consumers who have investigated switching or are interested in getting a better deal.

The first indicator of customer activity is **awareness of retailer choice**. Survey evidence shows that customer awareness is high: 89% of households and 94% of businesses are aware they can choose their retailer. 77% of households know that they can choose their electricity plans. For users of PCWs, awareness of choice of retailer is 97% and awareness of choice of electricity plan is 88%. This provides evidence that consumers are aware that they can switch providers if they want to. This high degree of awareness suggests that consumers are not materially biased in their access to information on retailer choice in this market.

However, the number of customers **interested in looking for a better deal** is lower—39% report an interest in switching but are not currently looking. This evidence can be explained by present bias: while customers know they should be looking for better deals that will benefit them in future, they place too much weight on the value of time they have to spend searching. Furthermore, around one-third of customers express no interest whatsoever in switching. This total lack of interest may be partly explained by the fact that energy is not a salient product and therefore does not feature prominently in people's everyday thinking. It may also be that some of these consumers have incorrect expectations about how much they can save by switching.

At the same time, around half of consumers report that they are confident they can **research the market for a better deal** and find the right information to make their choice. However, there is a very low awareness of PCWs: only 1% of consumers were aware of the relevant state-specific independent PCW without any prompting, while 18% became aware with prompting. The limited use\awareness of PCWs confirms that there is scope to simplify tariff search by promoting PCW use.

Consumers are often not confident that they can gather the necessary information to allow them to make the correct choice, and a significant number do not trust that they are able to process this information. Furthermore, consumers may use information that comes easily to mind (availability bias) and search for offers from well-known providers or firms used by their friends. If,

[71] Unless stated otherwise, survey evidence is based on Newgate Research (2015).

instead, consumers make a habit of using PCWs, consumer access to the market and selection of products could improve significantly.

Self-reported annual switching rates in Australia are 23% for residential customers and 29% for small businesses.[72] Overall, these rates are substantially higher than in other countries.[73] What this suggests is that Australian consumers are more engaged with the energy market and have less difficulty acting in this market than in other countries.

However, as seen in Table 3.1, there is still a gap between savings that Australian consumers say would be sufficient for them to switch and potential savings for customers on market offers. This is consistent with there being a number of customers for whom switching would be beneficial, even considering the costs and disbenefits they may have from switching, since the savings from switching exceed the minimum savings necessary to switch (which implicitly values a customer's costs of switching).

Table 3.1 Savings from switching by state

	Minimum savings necessary to switch[1] (A$)	Potential savings for customers choosing market offers (A$)	Difference (A$)
	[A]	[B]	[C] = [B] - [A]
Australian Capital Territory	234	327	93
New South Wales	194	617[2]	423
South Australia	214	396	182
South East Queensland	230	252	22
Tasmania	n/a	n/a	n/a
Victoria	201	529[3]	328

Note: These represent the average of the sample surveyed by Newgate Research. Potential savings are calculated as the difference in total annual expenditure between the highest and lowest flat-tariff market offer. (For consumption level details, see Australian Energy Market Commission (2015b), Appendix C.) Potential savings vary depending on the distribution network zone in New South Wales and Victoria. [2] This value is the midpoint of the two distribution network zones in New South Wales, which have a potential saving range of A$516–A$717.
[3] This value is the midpoint of Victoria potential savings, which are in the range of A$491–A$566.

Source: Australian Energy Market Commission (2015b), Newgate Research (2015), and Oxera calculations.

Consumer expectations of savings from switching are often used as an anchor: if savings are below that expectation, the consumers may see switching as a loss rather than a gain. Furthermore, the high savings required to switch may be a sign of consumers' assessment of the costs of switching such as exit fees,[74] or their value of the time spent searching for offers and switching. A survey focusing on why consumers have not switched, and matching the reasons to the potential gains from switching for these consumers, could be used to identify whether consumers have not switched because of high search and switching costs, or because of disengagement from the energy market.

[72] This is slightly higher than data recorded by the Australian Energy Market Operator (AEMO), which reports annual switching across NEM in 2015 at 19%. In this section, we use switching data collected via AEMC's survey rather than AEMO data because switching data in other countries is typically collected via survey as well. Assuming that any deviations in stated preferences from revealed preferences are consistent across geographies, the AEMC survey data is more comparable to switching data collected elsewhere.
[73] Annual switching of 23% in Australia is higher than anywhere in the EU, except Belgium. See European Commission (2013).
[74] Termination charges range from A$0 to A$187. See Australian Energy Market Commission (2015b), p. 118.

Direct customer approaches by suppliers—for example, door-to-door sales or telesales—can be another driver of activity in the energy market. Such approaches may lower the perceived or actual costs of switching by facilitating the switching process (especially when companies offer to pay for termination fees). Companies that directly approach customers give discounts compared with what consumers currently pay, thereby generating a direct measurable gain relative to a known reference point.

Direct approaches may also act as a prompt that highlights the benefits of switching and frames these in a way that overcomes the present costs to the consumer of switching. However, direct approaches are typically limited to advertising a specific supplier's market offers, which may not always be the best available in the market. Additionally, if a consumer is disengaged with the market, an easy heuristic to fall into could be to acquiesce to the suggestions of a salesperson, without considering more thoroughly the options available in the market.

Another indicator of consumer activity is the **take-up of market offers**. This varies significantly by jurisdiction, from 12% (Tasmania) to 89% (Victoria) (AEMC, 2015b). In contrast to cheaper market offers, more expensive standing-offer tariffs target customers who are less engaged and have a lower propensity to switch. These characteristics may be a result of a number of behavioural biases, such as status quo bias.

Box 3.1 Standing offers and customer activity

Standing offers allow an easy default option for consumers who are disengaged or find selecting an energy tariff too difficult or not worthwhile. In general, including a default option in a market allows consumers to disengage from the market, but still receive a product—in other words, the opportunity cost of engagement is higher, and subsequently customer activity and engagement will be lower.

Not all customers who are on standing offers will be disengaged; some may be on a standing offer transitionally—for example, when they move into a new property. Others may be engaged with the market, or at least consider engaging, but their expectation is that the gains from switching will be too low to be worth the time, effort and risk. Finally, some customers may be genuinely disengaged with the market, do not consider switching, or have never switched.

Not having a default option or standing offer in the energy market would result in much worse outcomes for some customers than having a default option. Absent a default option, customers could have their energy cut off if they do not engage in the market; thanks to a default offer, even if consumers pay more, their energy supply is not disrupted. Overall, it is likely to be impractical and socially undesirable to remove default options owing to the risks and poor outcomes this could induce for some customers.

Customer activity and take-up of market offers can be instigated in an environment with standing offers through careful framing of products and scheduling effective nudges for customers. For example, requiring energy suppliers to inform standing-offer customers of their available market offers, or to provide annual reminders to check out options in the energy market, can induce greater customer activity. Framing information on customers' bills, as well as the name of the tariff itself, can further motivate customers to engage with the market.

Source: Oxera.

3.1.1 Regional differences

Evidence collected by the AEMC suggests that there are significant differences in customer activity across jurisdictions. Table 3.2 and Table 3.3 detail the consumer indicators by jurisdiction for electricity markets and gas markets respectively.

Table 3.2 Regional differences in customer activity (electricity)

	Victoria	NSW	SA	SEQ	ACT	Tasmania
Residential customers aware of retailer choice	96%	89%	93%	89%	72%	16%
Residential customers investigating switching in the last 12 months	36%	33%	25%	25%	19%	12%
Average switching rate in the last calendar year	27%	15%	16%	16%	1.50%	0%
Small customers on market offers	89%	67%	84%	70%	22%	12%
Number of retail brands	21	20	16	11	4	2

Source: Australian Energy Market Commission (2015b).

Table 3.3 Regional differences in customer activity (gas)

	Victoria	NSW	SA	SEQ	ACT	Tasmania[2]
Residential customers aware of retailer choice	96%	88%	90%	86%	54%	n/a
Average switching rate in the last financial year	28%	12%	15%	10%	n/a[1]	n/a
Small customers on market offers	87%	75%	82%	75%	21%	n/a
Number of retail brands	10	6	5	2	3	2

Note: [1] ACT gas switching data is combined with NSW. [2] AEMC has informed Oxera that the Tasmanian gas market is too small for meaningful statistics.

Source: Australian Energy Market Commission (2015b).

The variation across states may be partly due to states with more energy suppliers having greater choice, which induces greater customer activity than in jurisdictions with fewer suppliers. However, some of the variation in customer activity measures within the jurisdictions with many competitors may be driven by behavioural factors. The substantial difference in switching rates between Victoria and any other jurisdiction may be due to policies in Victoria inducing greater consumer activity, or to consumers in Victoria being more engaged with energy markets and carefully deliberating their choice of energy tariff on a regular basis.

In markets with few competitors, as markets open and greater choice becomes available, it takes time for consumers to feel educated and empowered to make the right energy choice. Consumer biases such as limited cognitive capacity, loss aversion, divergence of perceptions from reality and status quo bias, may be more present in jurisdictions that are still opening up because consumers are just starting to consider shopping around.[75] The possibility of comparing offers with a wide range of options remains new, and customers cannot base their decisions on past experience to assess the actual risks, costs and benefits from switching.

[75] In newly deregulated markets, biases act as a barrier to consumer engagement. However, biases are present in other markets when consumers shop around because consumers cannot fully process all characteristics of all options.

3.2 Customer satisfaction with market outcomes

Consumer satisfaction indicators relate to several aspects of the market, from opinion on the level of choice available, to satisfaction with current services. Ease of switching and the outcome of the switching decision are also evaluated.

Since customer satisfaction is a stated-preference measure, it can be difficult to corroborate, and may be shifted by events or opinions that are unrelated to the competitiveness of the energy market. As such, *customer satisfaction should be treated with caution, and not relied upon too heavily for competition analysis*.

Table 3.4 lists some of the findings in this area and the behavioural biases that might explain the findings. We present behavioural biases that are hypotheses of likely drivers of customer satisfaction measures—as noted, these would need to be tested empirically to understand the degree to which they affect Australian energy customers.

Table 3.4 Summary of customer satisfaction evidence and potential behavioural explanations across the NEM

Indicator	Survey evidence (2015)	Potential bias to be tested
Satisfaction with level of choice	56% of residential and 47% of business customers are either somewhat or very satisfied with the level of choice available in their jurisdiction	Satisfaction with available choice is positively correlated with the number of retailers in each state, which is consistent with minimal impact of behavioural biases
Satisfaction with electricity retailer and value for money	69% of customers are satisfied with their electricity retailers (AEMC, 2015) 54% of residential consumers rated the value for money of their electricity company above 7 Only 37% of small businesses rated value for money above 7	**Status quo bias**: high levels of satisfaction with electricity retailers and value for money could indicate status quo bias if consumers are on a worse-than-average deal **Misperceptions**: value-for-money ratings correspond to a consumer's perception of whether they are getting good service for the money they are paying. Are households on various plans correctly assessing their situation? Are businesses getting worse value for money than households? Comparing ratings with actual value for money of different offers may determine the materiality of biases
Satisfaction with switching	Most consumers who switched energy provider or plan were happy with the outcome of their decision owing to bill reductions, interesting incentives, and/or better customer service	This finding is consistent with behavioural biases having a minimal impact
Ease of switching	Switching energy provider is deemed relatively simple, but still more onerous than for other services such as insurance, banking or communications	**Misperception**: the difficulty of switching energy provider may be overstated, and should be corroborated against objective measures of the difficulty of switching, such as the average time taken to switch. If these measures also suggest switching to be quicker and easier for other services, this may be a measure that is not materially affected by biases **Time inconsistency**: before switching, the 'present' time and effort costs of switching may seem large to consumers.

Indicator	Survey evidence (2015)	Potential bias to be tested
		However, in hindsight, after a consumer has switched, the switching decision seems easy, since the assessment of this past decision is no longer subject to present bias

Source: Oxera, based on Australian Energy Market Commission (2015b).

3.2.1 Regional differences

Retailer satisfaction is broadly similar across NEM jurisdictions, and satisfaction with choice varies depending on the level of competition in each state. This is consistent with low impact of behavioural biases on these measures, although there may be an anchoring effect for customers in jurisdictions with fewer competitors being less satisfied with the level of choice because other states have more competitors.

Consumers in each jurisdiction are likely to evaluate retailers based on different reference points. One way to assess whether retail and choice satisfaction is reference-dependent would be to compare ratings for individuals who have recently changed retailer, or who are in markets with very different levels of choice. Table 3.5 summarises the key differences in satisfaction measures by jurisdiction.

Table 3.5 Regional differences—satisfaction

	Victoria	NSW	SA	SEQ	ACT	Tasmania
Residential customers satisfied with the level of choice	0.63	0.6	0.59	0.48	0.33	0.23
Residential customers satisfied with retailer	0.67	0.74	0.69	0.62	0.67	0.6
Number of retail electricity brands	21	20	16	11	4	2

Source: Australian Energy Market Commission (2015b).

Overall, customer satisfaction may be a difficult measure to correct for behavioural biases. This is because it is difficult to discern whether satisfaction scores are based on genuine consumer preferences, or are due to biases in consumer perceptions. As there is no revealed-preference benchmark for satisfaction (by contrast to the other competitive market indicators), analysis of this measure would need to focus on changes over time or relative to a benchmark, assuming that the effect of any biases in satisfaction reporting would remain constant over time or across comparators.

3.3 Barriers to entry, expansion and exit

Consumer inertia due to behavioural biases can be a key source of barriers to entry, expansion and exit. Specifically, if consumers are not active and engaged in energy markets, the costs per acquisition for suppliers may be high, and few consumers may choose attractive tariffs offered by more-efficient challenger firms, instead remaining on costly default tariffs with less-efficient incumbents. Moreover, incumbent firms may structure their products, pricing and marketing communications in a way that would discourage engagement and switching by consumers, in order to limit market share gain by new players.

If consumers are not active due to behavioural biases, this can pose a barrier to expansion for challenger firms, and may even discourage entry into the market.

Additionally, this will prevent the exit of less-efficient incumbent firms that would normally be pushed out of the market.

Overall, the high level of switching energy supplier—a key measure of customer activity—in Australia compared with other countries is consistent with there not being substantial barriers to entry or expansion due to low customer engagement in the majority of the NEM jurisdictions.[76] While switching is by no means the only measure of consumer activity or engagement, it is a key part of consumers placing demand-side competitive pressure on suppliers, and is measured in many other contestable energy markets.

3.3.1 Regional differences

AEMC has surveyed retailers in each of the states and territories in their jurisdictions, asking about the barriers to entry and expansion. These results are listed alongside domestic switching rates in the same jurisdiction—key measures of customer activity—for electricity retailers in Table 3.6 and for gas retailers in Table 3.7.

Table 3.6 Switching and barriers to entry/expansion in retail energy markets

	Annual switching rate	Barriers to entry	Barriers to expansion
Victoria	27%	3.5	3.5
NSW	15%	3.5	3
SA	16%	3	3
SEQ	16%	3	3
ACT	2%	2	2
Tasmania	0%	2	2

Note: Barriers to entry/expansion ranked on a scale of 1–5, with the higher score denoting easier entry/expansion, and a lower score indicating more difficult entry/expansion.

Source Oxera analysis of Australian Energy Market Commission (2015b) and K Lowe Consulting and Farrier Swier Consulting (2015).

[76] Annual switching of 23% in Australia is higher than anywhere in the EU except Belgium. See European Commission (2013). Australian Energy Market Commission (2015b), p. iii finds no major barriers to entry and expansion in Victoria, New South Wales and South Australia, but substantial barriers to entry in Tasmania and Queensland.

Table 3.7 Switching and barriers to entry/expansion in retail gas markets

	Annual switching rate	Barriers to entry	Barriers to expansion
Victoria	28%	4	3.5
NSW	12%	3	3
SA	15%	4	3.5
SEQ	10%	3	3
ACT	n/a[1]	3	3
Tasmania	n/a[2]	2	1

Note: Barriers to entry/expansion ranked on a scale of 1–5, with the higher score denoting easier entry/expansion, and a lower score indicating more difficult entry/expansion. [1] ACT gas switching data is combined with NSW. [2] AEMC has informed Oxera that the Tasmanian gas market is too small for meaningful statistics.

Source Oxera analysis of Australian Energy Market Commission (2015b) and K Lowe Consulting and Farrier Swier Consulting (2015).

While statistically significant conclusions cannot be drawn from the evidence above, these observations are consistent with more difficult entry/expansion in markets with less active customers. Due to regulatory and policy differences across these jurisdictions, there may be other reasons why barriers to entry/expansion are rated as per above; however, a comparison of customer activity and barriers to entry/expansion of the same jurisdiction over time (assuming no major changes in regulation) is likely to show a positive correlation between the two factors. That said, while consumer activity and low barriers to entry/expansion are positively correlated, it may be difficult to show a causal link between the two. On the one hand, new, attractively priced entrants can stimulate customer switching; on the other hand, a market with engaged consumers who switch often will be attractive to new entrants that want to grow their customer base.

3.4 Degree of independent rivalry

Similar to the links between behavioural insights and barriers to entry/expansion, customer activity can play a role in determining the degree of independent rivalry. In particular, if consumers fail to engage with the energy market and to choose more appropriate tariffs, providers may not feel compelled to improve their product offering or reduce their prices in order to retain their customers.

At the same time, retailers being able to retain their consumer base may not necessarily be a sign of bias if no better offers are available. However, low customer engagement and switching over time can lead to fewer attractive offers in the market than if customer activity were more robust, and subsequently even less reason to switch. This, in turn, can allow incumbents to maintain high market shares.

As firms may be well aware of customer behaviour and biases, markets with particularly unengaged consumers may be prone to tacit coordination between suppliers. This can show up via tacitly maintained high prices—i.e. if few consumers switch to attractive tariffs, a supplier would be unlikely to offer cheap tariffs since they would see decreased profits on their own customers who move from a higher-margin to a lower-margin product. Alternatively, tacit collusion may occur via market-sharing—energy suppliers do little marketing of their tariffs and do not aggressively pursue customers of other suppliers.

Innovation can also be an indicator of effective competition, with more innovation in terms of products or pricing suggesting a greater degree of independent

rivalry. In a competitive market, retailers should attempt to induce consumer activity by offering new products and pricing schemes in order to attract customers. On the other hand, if there is limited innovation, this may be a sign of a lack of rivalry between suppliers. If consumers are inert and competition between suppliers low, there will be no incentive to introduce new products since incumbent suppliers benefit from consumers' disengagement with the market.

The overall degree of independent rivalry in the NEM is increasing, as second-tier retailers are growing their market shares,[77] especially in markets that are fully contestable, again due to robust levels of customer activity. While the top 1–3 market players tend to have a majority of the market in each region in the NEM, substantial discounts are offered, suggesting that suppliers compete fiercely for customers who are willing to switch.

What may be the case, however, is that, due to their differentiated product offering, suppliers are able to segment their customer base, with customers less-prone to switching remaining on higher-priced standing offers. This is consistent with the evidence of the top 1–3 suppliers in each NEM region having a total market share of 65% or more, but at the same time deep discounts of up to 30% are available as well.

3.4.1 Regional differences

On a region-by-region basis, there is some evidence that higher switching rates do occur in markets that are less concentrated and have higher-percentage discounts available. In markets where contestability is limited or has only recently been introduced, suppliers may have less incentive to discount, and any new entrants may not have been in the market sufficiently long to attract a large customer body. Table 3.8 and Table 3.9 indicate the switching rate and measures of rivalry, by region, for electricity and gas retail markets respectively.

Table 3.8 Switching and independent rivalry between suppliers in electricity markets

	Annual switching rate	Market concentration (HHI)	Maximum conditional discounts
Victoria	27%	1,630	1–30%
NSW	15%	2,991	1–20%
SA	16%	3,116	1–20%
SEQ	16%	3,895	3–12%
ACT	2%	9,165	1–16%
Tasmania[1]	0%	9,991	n/a

Note: [1] Only flat-rate electricity tariffs offered in Tasmania as of February 2015, and no conditional discounts are available. Australian Energy Market Commission (2015b), p. 226. Barriers to entry/expansion ranked on a 1–5 scale, with a higher score denoting easier entry/expansion and a lower score indicating more difficult entry/expansion.

Source Oxera analysis of Australian Energy Market Commission (2015b).

[77] Australian Energy Market Commission (2015b), p. iii.

Table 3.9 Switching and independent rivalry between suppliers in gas markets

	Annual switching rate	Market concentration (HHI)	Maximum conditional discounts
Victoria	28%	2,212	3-20%
NSW	12%	4,293	1-12%
SA	15%	3,269	1-13%
SEQ	10%	5,085	1-6%
ACT	n/a[1]	9,232	1-16%
Tasmania	n/a[2]	5,392	n/a[3]

Note: [1] ACT gas switching data is combined with NSW. [2] AEMC has informed Oxera that the Tasmanian gas market is too small for meaningful statistics. [2] Only flat-rate gas tariffs offered in Tasmania as of February 2015, and no conditional discounts are available. Australian Energy Market Commission (2015b), p. 226. Barriers to entry/expansion ranked on a 1–5 scale, with a higher score denoting easier entry/expansion and a lower score indicating more difficult entry/expansion.

Source Oxera analysis of Australian Energy Market Commission (2015b).

3.5 Pricing

As regulation in the NEM does not significantly restrict product differentiation, and there are in fact many differentiated offers in these markets, one would also expect to see substantial differences in prices. However, some price dispersion may also be driven by differences in the ability of different customers to take advantage of the opportunities offered by product and price differentiation. This in turn is driven by differences in behavioural biases in consumers' decision-making.

Energy suppliers—just like providers of credit cards and telecoms products—often offer 'acquisition products', where a low-priced retail product offering is used to attract customers in the hope that they remain beyond product expiry and yield a higher margin to the supplier in the future. This can provide engaged, savvy consumers with low-priced market offers, but also means that such consumers may be cross-subsidised by less engaged consumers.

Biases relevant to prices are mainly linked to limited cognitive capacity: consumers may not be able to understand the structure of their tariffs and the conditionality of discounts. Consumers may also be subject to status quo bias, wherein they are less likely to take up an attractive offer from another supplier than from their present one. Furthermore, consumers' tendencies to procrastinate make it less likely that they switch tariff at the end of the term of an acquisition tariff. Further research could investigate how long consumers stay on a supplier's offer after the discount period ends—if consumers typically stay on offers for a long time, this suggests that behavioural biases may be allowing high prices to be charged to inactive consumers without a strong demand-side response.

3.5.1 Regional differences

Price levels and total bills vary across regions depending on factors including customer engagement, wholesale costs, transmission costs, distribution costs, offers from retailers and governmental policies. However, the spread between standing offers and market offers can be indicative of how well suppliers are able to segregate active from inactive consumers.

Table 3.10 compares AEMO data on switching rates between 2012 and 2015 with data on the spread between standing offers and market offers. There is little discernible correlation between the price spread and switching rate, which suggests that further primary research into pricing dynamics and switching behaviour over time should be conducted.

Table 3.10 Electricity switching rates and spread between standing and market offers in NEM markets (%)

	Victoria		NSW		SA	
	Switching rate	Spread	Switching rate	Spread	Switching rate	Spread
2015	25	22	17	15	15	12
2014	27	16	15	11	16	7
2013	29	14	18	11	17	7
2012	26	9	19	7	19	12

Note: Price–spread data was available for Victoria, NSW and Southern Australia only. AEMC survey data on switching was not available for earlier years; hence AEMO switching data has been used here instead. Price–spread data is taken as at July of each year, while switching data is outturn, annual data.

Source: St Vincent de Paul (2015), p. 27, and information provided by AEMC.

3.6 Recommendations

AEMC's competitive market indicators cover a wide variety of market outcomes and should be expected to capture the characteristics identified by behavioural insights. The set of indicators accounts for consumer behaviour, firm behaviour as well as market outcomes. Behavioural economics can be introduced into AEMC's analysis of these indicators via an analysis of how customer activity depends on behavioural biases present in energy customers and suppliers' strategies in response to these biases.

Below we provide several recommendations for how behavioural insights could be better incorporated into AEMC's assessment of competition in retail energy.

3.6.1 Developing the customer satisfaction indicator

Improvements can be made to how the AEMC assesses customer satisfaction. We would caution against using customer satisfaction evidence at face value: customer satisfaction is recorded by stated-preference surveys. It can be volatile and can vary even when the fundamentals of a market do not change. It can be influenced by events and factors that are unrelated to the competitive functioning of the energy market—for example, press coverage or awareness of environmental concerns. Additionally, the level of customer satisfaction may be misleading given that some industries may have consistently worse levels of satisfaction than others, regardless of the state of competition.

In light of this, we would recommend that AEMC focus on the changes in customer satisfaction over time as the measure of merit, rather than the levels. Additionally, these changes should be benchmarked against changes in customer satisfaction in other industries in Australia, so that changes in satisfaction that are idiosyncratic to the energy market can be identified. Finally, any idiosyncratic changes in customer satisfaction in the energy market should be compared against the timing of notable changes in the other competitive market indicators: if these occur simultaneously or shortly after one another, this would indicate that customer outcomes may be affected by changes in the competitive landscape.

3.6.2 Empirical testing of suspected barriers to engagement

Features that could dampen consumer engagement and activity in retail markets were listed in section 2. In particular, the behavioural factors that energy consumers might exhibit include salience (section 2.6); risk aversion (section 2.7); reference dependence (section 2.4); loss aversion (section 2.5); and responsiveness to prompts (section 4.3.3).

We would recommend testing empirically the magnitude and effects of these biases, and understanding the degree to which they could reduce engagement in the market. Ideally, this would be done via incentivised experiments, in a laboratory setting or in the market, where subjects are actual energy customers from the relevant jurisdiction(s). As these factors are hypotheses, some of these may in fact have little to no effect on Australian energy consumers' market engagement.

Additionally, we would recommend a study of Australian energy consumers' time preferences, which would capture consumers' discount rates and present-bias factors, as discussed in section 2.3.[78]

3.6.3 Testing of policy changes

We recommend that AEMC test any changes to rules or market interventions prior to implementation.[79] Economics identifies how interventions in a market can have unintended consequences, and how finessing an intervention may be key to that intervention's success. Also, if specific biases are identified as barriers to engagement, as per section 3.6.2, remedies that target these biases should be considered and tested.

In particular, changes to information provision—be it the medium, content, formatting or frequency—can have substantial impacts on consumer behaviour, and new materials should always be tested prior to introduction into the market. These materials should be tested to identify their effectiveness at achieving their stated objective (e.g. check that the wording of a prompt meant to increase engagement actually does so), but also to identify any unexpected consequences (e.g. the wording of a prompt may increase engagement, but also focus customers' attention on one price in the tariff schedule).

3.6.4 Revealed- versus stated-preference data

It is our understanding that outturn data on customer switching is available from the AEMO, and that data on customer searching may be available from government-sponsored PCWs. We would encourage the AEMC to use this data in its assessment of customer activity, since this data may not have the same risks of sampling, recollection, or mis-reporting as the stated-preference survey data currently used by AEMC.

That said, the AEMC customer survey is still a crucial data source, as it allows for a deeper analysis of customer characteristics and views, as well as collection of data on unobservable characteristics. The survey is also a cost-effective method of collecting data that allows a comparison of customer characteristics across different populations.

[78] For an example of how to measure discount rates and present bias, see Hardisty et al. (2013).
[79] For a discussion of policy interventions and testing, see section 4.3.

3.6.5 Understanding the effect of shocks on consumer behaviour in the energy market

Finally, we recommend that the evidence collected as per the recommendations above be used to create a framework or model of consumer behaviour in the energy market to assess the impact of shocks to the market on the competitiveness indicators. The purpose of this model or framework would be to test how the energy market may change in response to supplier behaviour, or market interventions. This framework or model would be a tool that allows a holistic view of the biases considered and measured. We would recommend a micro-simulation model in order to capture customer heterogeneity and outcomes on specific sub-groups of interest, such as vulnerable groups or inactive consumers.

4 Dynamics of markets under behavioural economics

Behavioural economics brings insights to market dynamics concerning supplier behaviour, competition analysis and policy interventions. While much of this report has focused on consumers' biases and suppliers' rational responses to biased consumer behaviour, there is an evolving literature concerning how firms may also have biased decision-making. Additionally, some approaches to competition analysis may need to be reconsidered in a market that develops in a behavioural pattern that incentivises business practices that are disadvantageous to consumers or separates active from inactive consumers. Finally, any policy interventions meant to promote competition or improve consumer outcomes need to be carefully considered against potential biases that may lead to unintended consequences.

4.1 Behavioural economics and supplier decision-making

Energy suppliers will generally be well aware of consumer behaviour, including consumers' behavioural biases, even if these are not referred to as such by suppliers. As such, suppliers may attempt to use consumers' biases to their own advantage, through marketing, product offering, cross-selling, etc.

These initiatives need not be bad for consumers—if incentives of consumers and suppliers are aligned, suppliers' 'use' of consumers' behavioural biases can be beneficial to both groups. For example, if an energy supplier also provides an energy-efficiency product, such as radiator thermostats, but discounts this product for its own energy customers, this gives an additional incentive for customers of that supplier to purchase a useful product that they may otherwise neglect to buy. It is only in cases where consumers' incentives differ from those of suppliers that suppliers acting on consumer biases can lead to poor outcomes for consumers.

Based on the access, assess, act framework discussed in section 1.3, one way of considering whether an outcome for consumers is good or bad is to examine whether consumers have difficulties at any of the three stages in the framework. If these difficulties are caused by suppliers' behaviour, this might indicate that suppliers are taking advantage of consumers' behavioural biases.

In general, firms are considered to be profit-maximising and 'rational', and so biases on the part of energy suppliers have rarely been considered. For larger firms, this assumption is reasonable, as they have professional management whose responsibility it is to think through business decisions and maximise shareholder value. As a result, there is likely to be more System II thought that goes into a large firm's decision than into an individual person's decision. For small and medium-sized enterprises (SMEs), these have been approached as being behaviourally biased just like consumers, since non-professional managers (especially owner-managers) may make decisions for their business in a similar way to how they make decisions for themselves. That said, even in a large corporation, System I behaviour can occur—for example when managers chase market share, or focus on short-term returns at the cost of longer-term profitability.

Box 4.1 Behavioural insights into firms' behaviour

Even sophisticated, professional managers and decision-makers may be subject to behavioural biases. As a result, these individuals' business decisions made on behalf of their firm may well be subject to some of the same biases as consumer behaviour. There is some evidence that firms may deviate from fully rational profit-maximising behaviour, and a number of behavioural insights are particularly important in explaining this.

1. **Limited cognitive capacity**: many firms evolve in a complex, ever-changing and uncertain environment, where they also have to take into account competitors' behaviour. In the energy market, uncertainty can be linked to the volatility of input prices for producers, to changes in network tariffs, or to evolution in regulation. Small firms can find it difficult to stay up to date with regulation, especially when there are major changes in the market. Without being able to gather or process the relevant information, these firms cannot fully optimise their decisions.

   Firms also fail to optimise their profits when they include sunk costs in their optimisation decisions. Energy projects involve significant capital investments. Many firms find it difficult to let go of a bad investment, and keep developing projects that are not viable, which can sometimes directly influence consumer prices.

2. **Heuristics**: optimising may be extremely costly in time and other resources, and therefore firms sometimes rely on rules of thumb when making decisions. For example, an easy solution to avoid constantly re-optimising is to mimic the behaviour of the most profitable firm in the market. In the energy market, firms can imitate each other's actions by copying newly developed features that make contracts attractive to consumers, such as high discounts or incentives, as has been observed in Victoria, South Australia and New South Wales. A by-product of this use of heuristics is an increased level of competition in the market compared with a situation in which firms simply optimise their profits.

   Another example of the use of heuristics by firms is when market players apply punishment strategies to other players. Rivals monitor the market and competitor behaviour to assess whether another firm obtained an advantage in what they may consider to be an 'unfair' way. In the energy market, 'unfair behaviour' could involve giving extremely high discounts to induce switching and then raising rates after customers switch. In some such cases, other market players retaliate by starting a price war that will induce short-term negative consequences across all suppliers.

3. **Reference dependence**: instead of trying to reach the maximum possible profits, many firms target average or higher-than-average profits: companies compare themselves to competitors. If companies expect their profits to be average relative to their competitors, profits that are worse than the industry average can be felt as a loss, even if they have increased from previous years, while profits above the industry average can be seen as a gain, even if they are worse than recent performance for that firm.

4. **Status quo bias**: like individuals, firms are used to doing things in a certain way and there can be organisational reluctance before making a change. In the retail energy markets, incumbents seem to have taken a certain time to react to liberalisation. Recently, suppliers implemented a set of new marketing techniques aimed at retaining their customer base, which, along with other factors, led to a drop in some switching rates—however, NEM markets have been liberalised, some with high switching rates, for some time.[80]

Source: Oxera, based on Armstrong and Huck (2010).

As a result, the dynamics of a market with behaviourally biased consumers can involve some concerns on the part of regulators and competition bodies that may not hold for homo economicus. Specifically, demand-side behaviour should be scrutinised—especially limited engagement and activity—as well as suppliers taking advantage of the resulting inertia, even in cases where a market is contestable and there are multiple competitors.

4.2 Behavioural economics and competition

Behavioural economics offers an explanation for why certain outcomes occur, and as such does not change the key findings of competition economics. Market power, abuse of dominance and well-functioning markets are still relevant

[80] Australian Energy Market Commission (2015b), p. ii.

concepts in the behavioural framework, as are standard measures of market definition, market concentration and pricing pressure. Behavioural economics does, however, introduce several additional considerations when analysing the competitive drivers in a market, or identifying solutions to poor competition.

Demand-side behaviour is important for the functioning of a market. Traditional competition approaches focus on the supply side, and this type of analysis is still relevant in a behavioural setting. However, what behavioural economics does show is that demand-side behaviour should also be analysed. Indeed, a number of concepts highlight ways in which suppliers can exert inordinate influence on consumers, despite other players existing in a market. Drip pricing—whereby consumers are not shown the full costs of a product upfront, but rather have costs added on throughout the customer journey to purchase a product—can lead to poor consumer outcomes.[81] More generally, once a customer has begun to engage with a supplier, that supplier may enjoy a point of sale advantage in selling either the product of interest, or in cross-selling other products to the consumer.[82] Much like market power, point of sale advantage is a question of degree, and is only a competition concern if a supplier has a sufficiently high point of sale advantage that it leads to barriers to entry or expansion for others.

Additionally, findings from behavioural economics show that **sophisticated consumers may not protect unsophisticated consumers** if suppliers can successfully differentiate products in a way that separates sophisticated consumers (consumers who are well informed and engaged with a market) from unsophisticated/naive consumers (consumers who are not well informed and disengaged or impulsive when making choices in a particular market).

Traditional economics suggests that the existence of sophisticated consumers would shield less-sophisticated consumers from being taken advantage of by suppliers, since suppliers would produce a product offering that targets sophisticated consumers but also captures some of the demand from unsophisticated consumers. In this approach, the greater the number of sophisticated consumers, the more protected unsophisticated consumers are.[83] However, if sophisticated consumers can be targeted separately from unsophisticated consumers, with little to no chance of unsophisticated consumers selecting products meant for the sophisticated consumers, then unsophisticated consumers are no longer protected, even if the number of sophisticated consumers increases.[84]

Undesirable practices may continue despite increasing the number of competing firms, since some practices (e.g. price shrouding) are a firm's commercially optimal response if other firms are already pursuing this approach. Price shrouding makes some prices less salient to consumers and can lead to consumers making biased choices because they do not appreciate the shrouded element of the price when making their decision. Several behavioural studies indicate that even if firms enter a market where prices are shrouded, offering a clear and comprehensive price is not an effective strategy, but rather the shrouding equilibrium is maintained.[85] To some degree, price shrouding and consumers' limited cognitive capacity drive competition in markets to focus on

[81] See, for example, London Economics (2010).
[82] For a discussion of point of sale advantage, see Financial Conduct Authority (2014), sections 4 and 5.
[83] See, for example, Varian (1980).
[84] See, for example, Armstrong and Zhou (2011).
[85] Gabaix and Laibson (2006), and Heidhues, Koszegi and Murooka (2011).

specific dimensions (e.g. introductory rates in financial services, branding in clothing, or unit prices for energy tariffs).

4.3 Behavioural economics and policy

Policy responses and competition remedies should take consumer biases into account in two ways. Targeted policy responses should provide proportionate remedies for the effects of biases—or firms' manipulations of biases—which lead to particularly poor consumer outcomes. Also, policymakers should more generally consider the effects of proposed policies in markets with behaviourally biased consumers, as some policies may have unintended negative consequences due to behaviourally responses. In particular, policymakers should test interventions planned in markets, as discussed in Box 4.2.

Behaviourally conscious policy responses can be designed to help agents exercise their true preferences and correctly evaluate costs and benefits, or to incentivise certain behaviours that are in the consumer's best interest. Such policies have the advantage of inducing better results for consumers who are particularly affected by behavioural biases, but preserving the options in the market that more sophisticated and engaged consumers may value.

Box 4.2 Testing interventions

Predicting the consequences of interventions in a market can be difficult, especially if consumers display particularly biased behaviour. Unintended consequences of policy changes can be severe, as there is risk of worsening consumer outcomes, decreased competition and increased regulatory instability—i.e. when additional interventions take place to counteract the original poorly designed policy. This can have knock-on effects on related industries—for example, increased regulatory risk in retail energy can increase risk in energy generation, leading to reduced investment, potential problems with generation capacity, carbon footprint, etc.

The Federal Reserve in the USA, for example, had considered requiring mortgage brokers to disclose commission levels to potential customers. However, trials of this policy indicated that consumers were giving too much consideration to information on commissions relative to the total price of the mortgage (partly due to commissions being displayed in dollar amounts, but interest rates as percentages which would need additional computation to find the dollar amount). Consumers ended up paying more for their mortgages when commissions were revealed than they would have done otherwise.[86] Eventually, this policy was not implemented because of this adverse outcome for consumers, which may very well not have been considered by policymakers prior to testing the policy.

Hence, it is important for policymakers to test the effects of a proposed policy prior to rolling it out to the entire market. This can be done in a number of ways.

- **Field experiments**—these include randomised-controlled trials (RCTs) where a policy is applied to a randomly selected group of actual market participants; and staggered introduction, where a policy is rolled out piecemeal to new groups of market participants. In these cases, the outcomes of interest are compared between the treatment group (i.e. those for whom the policy applies) and the control group (i.e. a randomly selected sample group for whom the policy does not apply). RCTs in particular are the 'gold standard' of empirical evidence of policy impacts as they test the causality of a policy in the actual setting in which it would be implemented.
- **Laboratory experiments**—where a field experiment is unfeasible or too costly, online and physical social science laboratories can be used. Laboratory experiments can include incentives for experiment participants, in order to mimic the actual incentives of the market in question. While a laboratory setting will always be slightly different from a real-world setting, there are examples where laboratory evidence was corroborated by field trials.[87] Experiments can also imply causality when participants are randomly allocated to treatment and control groups.

[86] Lacko and Pappalardo (2004).
[87] Camerer (2011).

- **Natural experiments**—in some cases, there may have been a similar policy previously implemented in a way where agents were randomly (or almost randomly) assigned to a treatment and a control group. If so, valid inferences can be drawn from the resulting differential effects between the two groups and plausibly extrapolated to the policy in question.

Source: Oxera.

4.3.1 Policies that work with biases and policies that counter biases

Some policies are intended to alter the decision-making environment such that consumers' biases will precipitate good consumer outcomes. By contrast, other policies aim to correct or counter consumers' biases.

For example, people tend to under-save for their retirement and are passive savers (i.e. often taking up the default option provided). Chetty et al. (2014) found that while increased subsidies for retirement contributions do not increase the amounts saved for retirement, default policies that raise retirement contributions if individuals take no action lead to significant increases in wealth accumulation. This second policy is intended to work with a known bias to improve outcomes, and uses the fact that people are mostly passive savers to correct for the fact that they do not save enough for their retirement.

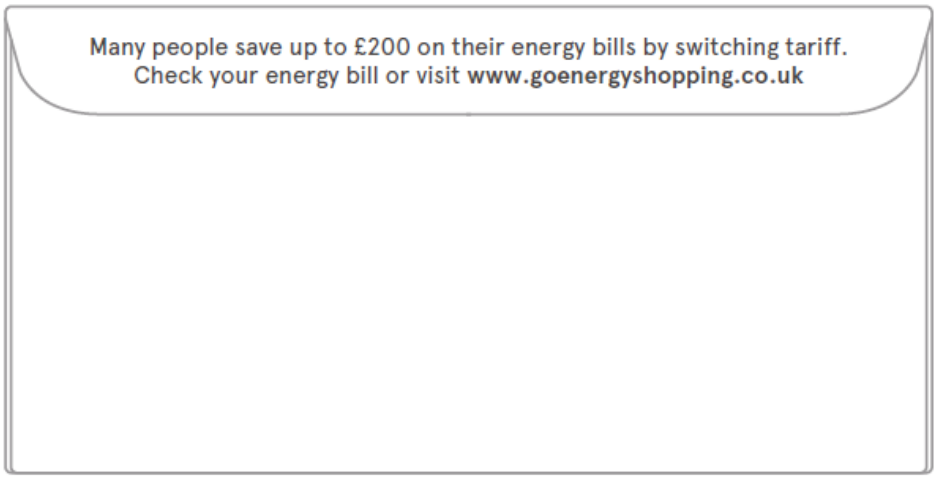
Appropriately framing information can work with consumer biases to yield a good outcome in retail energy markets. Consumers may see 'standard tariffs' or 'standing offers' as good products they should purchase due to the labelling of these offers, even though these tariffs have high rates compared with market offers. This labelling can nudge some consumers to disengage from the market or even avoid switching to a differently named tariff that may be cheaper. Instead, giving a less attractive name to standing offers may frame the offer in a way that makes it look undesirable, inducing consumers to engage with the market and switch to a cheaper tariff.

Policies meant to counter biases induce consumers to make good choices by incentivising them to reach the same decision as though they were not subject to a bias. For example, smokers over-consume cigarettes due to time inconsistency: for a present-biased smoker, from today's perspective, the utility from smoking today is larger than the disutility from the future negative impact on their health. Graphic warnings on cigarette packages are intended to attract the attention of smokers to consider more accurately the future consequences of smoking, decreasing the effect of smokers' present bias when considering to smoke or buy cigarettes.

In the context of competition policy, many interventions have attempted to engage consumers and increase shopping around by combining both of these tools. The Behavioural Insights Team in collaboration with the UK Department for Work and Pensions tested the efficacy of prompting consumers to switch their energy supplier by providing relevant information on letters sent to recipients of the Winter Fuel Allowance. Prompts were placed on the outside of the envelopes (see Figure 4.1), and in the period after the letters were sent out, the number of people visiting the government-sponsored PCW advertised on the envelopes increased by up to 20%.[88]

[88] Behavioural Insights Team (2015).

Figure 4.1 Illustration of message on the outside of envelopes



Source: Behavioural Insights Team (2015).

In another experiment in the UK energy market,[89] the more complex the available contracts were (in terms of the number of available tariffs, single or dual commodities, linear or non-linear contracts), the more people ended up with an offer that was not the cheapest available. Using a generic warning that the consumer is not on the cheapest tariff does not necessarily lead to better choice; on the other hand, using a 'smart nudge' which automatically identifies the best tariff and uses this as the default choice improves consumer outcomes.

4.3.2 Disclosure

Product disclosure is information provided to the consumer, typically during or after a transaction, about the functionality and/or cost of the product.[90] Effective disclosure can help improve consumer choice, first by providing the information of the key aspects of the product in a way that is both engaging and comprehensible, and second by assisting consumers in comparing across different products.

Key features of effective disclosure should be:

- compelling summary disclosure, where the attributes of a product that are most important are presented in a manner that is engaging and consistent across products to facilitate comparison;
- consumer engagement—one of the purposes of disclosure is to engage customers, and as such disclosure can help to draw the attention of consumers through methods such as providing eye-catching content—even if uninformative—and using reminders to direct attention to the appropriate information at the right time; and
- presenting information so as to help consumers to process and understand the content. Effective methods for doing this include:
    - placing the most important pieces of information in places where consumers are expected to focus their attention;

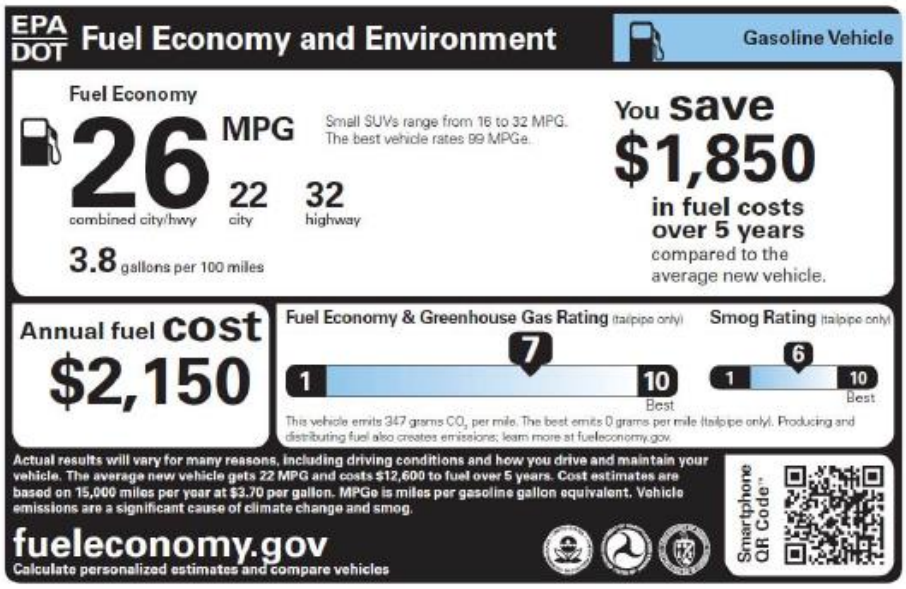
[89] Sitzia et al. (2012).
[90] For a thorough review of effective disclosure that takes behavioural insights into account, see Oxera (2015).

- using simple language whenever possible and simple short messages;
- presenting images that summarise the information contained in the text.

For products with complex fee structures or fees charged as percentages or according to usage, an example estimate based on 'typical' usage is useful for informing consumers about the actual costs of the product. Since in the Australian energy market it is typical for market offers to be formulated as percentage discounts from standing offers, including a dollars and cents discount for typical usage (or based on a customer's own past usage) may improve customers' assessment of specific market offers.

Figure 4.2 provides an example of how typical usage costs can be clearly communicated.

Figure 4.2 Environment Protection Agency fuel efficiency label



Source: Environmental Protection Agency (2011), p. 3.

In Australia, the AER requires retailers to produce standardised facts sheets for all available standing and market offers. [91] The guidelines require the retailer to publish an Energy Price Fact Sheet on its website for all contract offers that are generally available to consumers and small businesses. The Energy Price Fact Sheets must be easily accessible on the website and must be easy to read.[92] While retailers have discretion on the design, the example given by AER is shown in Figure 4.3.

[91] AER (2015).
[92] Saint Vincent de Paul (2015).

Figure 4.3 Example of Energy Price Fact Sheet

CitiPower Distribution Zone (NMIs Starting With 610)	Units[&]	Billing Rate* Ex GST	Billing Rate* Inc GST	Rate After POTD** 30% Inc GST
Residential GD (Single Rate)[^] (E3CPR-MAT1)				
Daily Supply Charge[#]	c/day	74.75	82.225	Not Applicable
Anytime Consumption - First 11.2 kWh per day	c/kWh	22.64	24.904	17.433
Anytime Consumption - Balance kWh per day	c/kWh	24.64	27.104	18.973
Residential GD and Controlled Load (Hot Water and Heating)[^^] (E3CPR-MAT2CL)				
Daily Supply Charge[#]	c/day	74.75	82.225	Not Applicable
Anytime Consumption - First 11.2 kWh per day	c/kWh	22.64	24.904	17.433
Anytime Consumption - Balance kWh per day	c/kWh	24.64	27.104	18.973
Controlled Load Consumption	c/kWh	13.63	14.993	10.495
Residential GH/GL (Peak and Off Peak)[^^^] (E3CPR-MPK1OP1)				
Daily Supply Charge[#]	c/day	74.75	82.225	Not Applicable
Peak Consumption	c/kWh	29.70	32.670	22.869
Off Peak Consumption	c/kWh	13.63	14.993	10.495
Residential Hour of Power Flexible Pricing Tariff[%%] (E3CPR-MCFP1)				
Daily Supply Charge[#]	c/day	91.80	100.980	Not Applicable
Peak Consumption	c/kWh	27.08	29.788	20.852
Shoulder Consumption	c/kWh	22.49	24.739	17.317
Off Peak Consumption	c/kWh	14.49	15.939	11.157
Feed-in Tariff Rates* (PF1, TF1, GF2)**				
Premium Feed-in Tariff (PFIT) - All Exports	c/kWh	-60.00	Exported	Not Applicable
Transitional Feed-in Tariff (TFIT) - All Exports	c/kWh	-25.00	Exported	Not Applicable
General Feed-in Tariff (GFIT2) - All Exports	c/kWh	-6.50	Exported	Not Applicable

Source: dodo.com.

However, the key component missing from these factsheets is some indication of 'typical' cost or bill. Most consumers may not know their peak and off-peak consumption, and it is therefore quite challenging to get a quick estimate of the total cost. If consumers are provided with a total cost estimate based on 'typical' energy usage, this can go a long way in helping them make meaningful comparisons across suppliers.

4.3.3 Prompts

Informational prompts are used in a number of sectors to encourage consumers to engage with a decision and mitigate heuristics and behavioural biases that affect decision-making.[93] There is evidence that these kinds of prompts can be effective at improving consumer outcomes.

In the UK, retail energy suppliers are required to note on a customer's bill whether the supplier offers a tariff that would be cheaper for the customer than their current tariff.[94] Additionally, for tariffs with a fixed price for a specified period, suppliers are required to notify customers shortly before the end of the period that their fixed price is coming to an end, and what their energy price will change to when that happens.[95]

There are also mandated prompts in telecoms and financial services. For example, EU regulation requires mobile providers to send a text message to customers when they cross national borders to inform them of roaming charges

[93] In some sense, prompts are a subset of disclosure, as they involve presenting information to consumers about a product, its cost or attributes. However, the differentiating characteristic of prompts is that they can be provided to customers at times other than when choosing a product—for example, based on usage or expected usage of an existing product. This allows the information included in prompts to be provided at times and in contexts when a consumer may particularly benefit from being reminded of a special feature or cost of their product.
[94] Ofgem, 'Understanding energy bills'.
[95] Ibid.

they may incur.[96] Providers are further required to send a text message when data-roaming usage reaches a certain level.[97] Prompts provided to payday loan customers can reduce payday loan take-up, although there are large differences in the effectiveness of specific prompts.[98] This indicates that the specific design of a prompt, its content, medium and format are critical to a prompt being effective in nudging consumers to consider whether they are making good choices.

4.3.4 Proscriptive remedies

These remedies are more interventionist and involve banning certain forms of business practice or product, or at least restricting product features, pricing or marketing activities that exploit consumer biases. In some cases providing information, framing or prompting a consumer decision may be insufficient to achieve a desired beneficial outcome for consumers. In these cases consumer decisions around a practice, product or feature may be influenced by behavioural biases to the degree that additional information or re-framing the decision may not mitigate the adverse effects of the relevant behavioural biases.

If an energy market is contestable, consumer activity and engagement will be key to driving healthy competition in the market. Consumers can interpret price regulation, or even the very existence of a regulator, as a signal that they are protected in the energy market, and hence do not need to engage with or be active in this market. In this way, price regulation can reduce consumer activity, which in turn may create barriers to entry into or expansion in the market, since it may be difficult to acquire consumers who perceive that they are protected by regulation and hence need not engage with the market or switch.

Using an example from the health sector, Gul and Pesendorfer (2001) show that bans reduce the opportunity to make consumption choices due to addiction, thereby improving welfare. In their model, consumers succumb to their addiction even if the addictive product is highly taxed: consumption is compulsive and differs from what the individual would have chosen if a pre-commitment mechanism had been available. While a tax simply makes it more costly for 'addicts' to consume the good, a fully prohibitive policy such as a ban enforces a result that would have occurred had the individual been able to commit to the optimal (zero) consumption.

One radical approach to encourage switching and overcome status quo bias is to cut power supply for customers who do not switch to market offers by a certain date, instead of placing them on a 'standard' tariff. This option was considered by CRE, the French energy regulator, in 2015 and 2016 during the removal of regulated tariffs for high-volume gas and electricity customers. The initial plan was to place clients who had not switched onto a transitional offer, and to cut off their energy supply if the customer had still not signed up for a market offer six months after the introduction of the transitional tariff.[99] During the first wave of removal of regulated tariffs in 2015, many customers did not complete the switch within the allowed six months and the transitional offer was extended by another three months to avoid numerous cuts. Arrangements for

[96] European Commission (2012), p. 20.
[97] Ibid.
[98] Bertrand and Morse (2011).
[99] http://www.cre.fr/infos-consommateurs/s-informer-sur-la-fin-des-tarifs-reglementes-pour-les-conso.-pro, accessed 16 March 2016.

customers whose tariffs disappeared on 1 January 2016 are currently being debated.[100]

[100] http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=629&id_article=2728, accessed 16 March 2016. The most likely option is that the CRE will place clients on transition tariffs that are significantly higher than market offers and that increase as time passes.

5 Bibliography

Abdellaoui, M., Bleichrodt, H. and Paraschiv, C. (2007), 'Loss Aversion under Prospect Theory: A Parameter-Free Measurement', *Management* Science, **53**:10, pp. 1659–74.

Accenture (2010), 'Understanding Consumer Preferences in Energy Efficiency', March.

Allais, M. (1953), 'Le comportement de l'homme rationnel devant le risque: Critique des Postulats et Axiomes de l'Ecole Americaine', *Econometrica*, **21**:4, pp. 503–46.

Allcott, H. and Mullainathan, S. (2010), 'Behavioural Science and Energy Policy', February, working paper.

Ariely, D., Loewenstein, G. and Prelec, D. (2003). '"Coherent arbitrariness": stable demand curves without stable preferences', *Quarterly Journal of Economics*, **118**, pp. 73–105.

Armstrong, M. and Zhou, J. (2011), 'Paying for Prominence', *The Economic Journal*, **121**:556, pp. 368–95.

Armstrong, M. and Huck, S. (2010), 'Behavioural Economics as Applied to Firms: A Primer', *Competition Policy International*, **6**:1.

Australian Energy Market Commission (2012), 'Power of choice—giving consumers option in the way they use electricity', 23 March.

Australian Energy Market Commission (2013a), 'Review of Competition in the Retail Electricity and Natural Gas Markets in New South Wales, Supplementary Report: Increasing consumer engagement', 31 October.

Australian Energy Market Commission (2013b), 'Supplementary report: increasing consumer engagement. Review of Competition in the Retail Electricity and Natural Gas markets in New South Wales', 31 October.

Australian Energy Market Commission (2014a), 'National Energy Retail Amendment (Retailer price variations in market retail contracts) Rule 2014', 23 October.

Australian Energy Market Commission (2014b), '2014 Retail Competition Review', 22 August.

Australian Energy Market Commission (2015a), 'Annual energy retail competition review', infographic, 30 June.

Australian Energy Market Commission (2015b), '2015 Retail Competition Review', 30 June.

Australian Energy Regulator (2015), 'AER Retail Pricing Information Guideline', September.

Authorité de la concurrence, 'Communiqués de 2016', http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=629&id_article=2728, accessed 16 March 2016.

Behavioural Insights Team (2015), 'Update report 2013-2015'.

Bertrand, M. and Morse, A. (2011), 'Information disclosure, cognitive biases, and payday borrowing', *The Journal of Finance*, **66**:6, pp. 1865–93.

Cabinet Office (2011), 'Behaviour change and Energy Use', July.

Camerer, C. (2011), 'The promise and success of lab-field generalizability in experimental economics: A critical reply to Levitt and List', 30 December.

Can, B. and Erdem, O. (2013), 'Income groups and long term investment', Economics Bulletin, **33**:4.

Chetty, R., Friedman, J.N., Leth Petersen, S., Nielsen, T.H. and Olsen, T. (2014), 'Active vs Passive decisions and crowd-out in retirement savings accounts: Evidence from Denmark', *Quarterly Journal of Economics*, **129**, pp. 1141–219.

Chetty, R., Looney, A. and Kroft, K. (2009), 'Salience and Taxation: Theory and Evidence', *American Economic Review*, **99**:4, pp. 1145–47.

Choi, J.J., Laibson, D., Madrian, B.C. and Metrick, A. (2003), 'Optimal Defaults', *American Economic Review Papers and Proceedings*, **93**, pp. 180–85.

Chuah, S.H. and Devlin, J. (2011), 'Behavioural economics and financial services marketing: a review', *International Journal of Bank Marketing*, **29**:6, pp. 456–69.

CRE, 'La fin des tarifs réglementés de vente pour les consommateurs professionnels: s'informer et anticiper', http://www.cre.fr/infos-consommateurs/s-informer-sur-la-fin-des-tarifs-reglementes-pour-les-conso.-pro, accessed 16 March 2016.

accessed 11 March 2016.

CSIRO (2015), 'Australian Consumers' Likely Response to Cost-Reflective Electricity Pricing', June.

Darby, S. (2006), 'The effectiveness of feedback on energy consumption. A review for DEFRA of the literature on metering, billing and direct displays', April.

DellaVigna, S. (2009), 'Psychology and Economics: Evidence from the Field', *Journal of Economic Literature*, June, **47**:2, pp. 315–72.

DellaVigna, S. and Malmendier, U. (2006), 'Paying Not to Go to the Gym', The *American Economic Review*, June, **96**:3, pp. 694–719.

Deller, D., Giulietti, M., Jeon, J. Y., Looes, G., Moniche, A., Waddams Price, C. (2012), 'Who switched at "The Big Switch" and Why?'.

Energy and Water Ombudsman NSW (2011), 'Annual report 2010/11'.

Environmental Protection Agency (2011), 'New Fuel Economy and the Environment Labels for a New Generation of Vehicles', Report, May.

European Commission (2012), 'Regulation (EU) no 531/2012 of the European Parliament and of the Council of 13 June 2012 on roaming on public mobile communications networks within the Union', 30 June.

European Commission (2013), Consumer Market Monitoring Survey', http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/market_monitoring/index_en.htm, accessed 11 March 2016.

European Environment Agency (2013), 'Achieving energy efficiency through behaviour change: what does it take?'.

Financial Conduct Authority (2014), 'General insurance add-ons: Provisional findings of market study and proposed remedies', March, Market Study.

Frederick, S., Loewenstein, G. and O'Donoghue, T. (2002), 'Time Discounting and Time Preference: A Critical Review', *Journal of Economic Literature*, **40**, pp. 351–401.

Gabaix, X. and Laibson, D. (2006), 'Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets', *Quarterly Journal of Economics*, **121**:2, pp. 505–40.

GfK NOP (2015), 'Energy market investigation', report for the Competition and Markets Authority, February.

Gilbert, D. (2006), *Stumbling on Happiness*, Knopf.

Gul, F. and Pesendorfer, W. (2001), 'Temptation and self-control', *Econometrica*, **69**:6, pp. 1403–35.

Hardisty, D.J., Thompson, K.F., Krantz, D.H. and Weber, E.U. (2013), 'How to measure time preferences: An experimental comparison of three methods', *Judgement and Decision Making*, May, 8:3, pp. 236–49.

Heidhues, P., Koszegi, B. and Murooka. T (2011), 'Deception and consumer protection in competitive markets', *Anthology on Pros and Cons of Consumer Protection*, pp. 44–76.

Hossain, T. and Morgan, J. (2006), '…Plus Shipping and Handling: Revenue (Non) Equivalence in Field Experiments on eBay', *Advances in Economic Analysis & Policy*, **6**:2.

IBM (2011), Global Utility Survey, http://www-03.ibm.com/press/us/en/pressrelease/35271.wss, accessed 10 February 2016.

Iyengar, S.S. and Lepper, M.R. (2000), 'When Choice is Demotivating: Can One Desire Too Much of a Good Thing?', *Journal of Personality and Social Psychology*, **79**:6, pp. 995–1006.

Jorgensen, D.W. and Siebert, C.D. (1968), 'Optimal Capital Accumulation and Corporate Investment Behaviour', *The Journal of Political Economy,* November-December, **76**:6, pp. 1123–51.

Kahneman, D., Knetsch, J.L. and Thaler, R.H. (1990), 'Experimental Tests of the Endowment Effect and the Coase Theorem', *Journal of Political Economy*, **98**:6, pp. 1325–48.

Kahneman, D. (2003), 'Maps of Bounded Rationality: Psychology for Behavioural Economics', *American Economic Review*, November, **93**:5.

Kahneman, D. and Tversky, A. (1979), 'Prospect Theory: An Analysis of Decision under Risk', *Econometrica*, March, 47(2), pp. 280–86.

Kahneman, D. and Tversky, A. (1984), 'Choices, Values and Frames', *American Psychologist*, **39**:4, pp. 341–50.

Karle, H., Kirchsteiger, G. and Peitz, M. (2015), 'Loss Aversion and Consumption Choice: Theory and Experimental Evidence', *American Economic Journal: Microeconomics*, **7**:2, pp. 101–20.

K Lowe Consulting and Farrier Swier Consulting (2015), 'AEMC 2015 Retail Competition Review: Retailer Survey', report for the AEMC, May.

Koszegi, B. and Rabin, M. (2006), 'A model of reference-dependence preferences', *The Quarterly Journal of Economics*, **71**:4, pp. 1133–65.

Lacko, J.M. and Pappalardo, J.K. (2004), 'The Effect of Mortgage Broker Compensation Disclosures on Consumers and Competition: A Controlled Experiment', Federal Trade Commission Bureau of Economics Staff Report, February.

London Economics (2010), 'The impact of price frames on consumer decision making', a report prepared for the OFT in association with Steffen Huck and Brian Wallace, University College London, May.

Merkle, C. (2014), 'Financial Loss Aversion Illusion', November.

Muth, J.F. (1961), 'Rational Expectations and the Theory of Price Movements', *Econometrica*, July, **29**:3, pp. 315–35.

Newgate Research (2015), 'Consumer Research for 2015 Nationwide Review of Competition in Retail Energy Markets', Research Report, June.

Office of Fair Trading (2010a), 'Behavioural economics and competition policy', presentation by Amelia Fletcher, OFT behavioural economics seminar, 22 April.

Office of Fair Trading (2010b), 'What does Behavioural Economics mean for Competition Policy?', March.

Office of Fair Trading (2011), 'Consumer contracts', February.

Ofgem (2011), 'What can behavioural economics say about GB energy customers?', March.

Ofgem, 'Understanding energy bills', https://www.ofgem.gov.uk/information-consumers/domestic-consumers/understanding-energy-bills, accessed 11 March 2016.

Oxera (2006), 'Policies for energy efficiency in the UK household sector', report prepared for Department for Environment, Food and Rural Affairs, January.

Oxera (2013), 'Behavioural economics and its impact on competition policy', report prepared for the Netherlands Authority for Consumers and Markets, May.

Oxera (2015), 'Review of literature on product disclosure', report prepared for the Financial Conduct Authority, 29 October.

Pollitt, M.G. and Shaordshadze, I. (2011) 'The Role of Behavioural Economics in Energy and Climate Policy', December, CWPE 1165 & EPRG 1130.

St Vincent de Paul (2015), 'The NEM - still winging it: Observations from the Vinnies' Tariff-Tracking Project', September.

Schultz, P., Nolan, J., Cialdini, R., Goldstein, N. and Griskevicius, V. (2007), 'The Constructive, Destructive and Reconstructive Power of Social Norms', *Psychological Science*, **18**:5, pp. 429–34.

Sitzia, S., Zheng, J. and Zizzo, D.J. (2012), 'Complexity and Smart Nudges with Inattentive Consumers', Centre for Competition Policy Working Paper, Issue 12-13.

Sunstein, C.R. (2013), *Simpler: the future of government*, Simon and Schuster.

Thaler, R.H. and Sunstein, C.R. (2008), *Nudge*, Yale University Press.

Varian, H. (1980), 'A Model of Sales', *The American Economic Review*, **70**:4, September, pp. 651–9.

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