

public interest
ADVOCACY CENTRE

Submission on Moving to a Two-Sided Market

20 May 2020

About the Public Interest Advocacy Centre

The Public Interest Advocacy Centre (PIAC) is an independent, non-profit legal centre based in Sydney.

Established in 1982, PIAC tackles barriers to justice and fairness experienced by people who are vulnerable or facing disadvantage. We ensure basic rights are enjoyed across the community through legal assistance and strategic litigation, public policy development, communication and training.

Energy and Water Consumers' Advocacy Program

The Energy and Water Consumers' Advocacy Program (EWCAP) represents the interests of low-income and other residential consumers of electricity, gas and water in New South Wales. The program develops policy and advocates in the interests of low-income and other residential consumers in the NSW energy and water markets. PIAC receives input from a community-based reference group whose members include:

- NSW Council of Social Service;
- Combined Pensioners and Superannuants Association of NSW;
- Ethnic Communities Council NSW;
- Salvation Army;
- Physical Disability Council NSW;
- St Vincent de Paul NSW;
- Good Shepherd Microfinance;
- Affiliated Residential Park Residents Association NSW;
- Tenants Union;
- Solar Citizens; and
- The Sydney Alliance.

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The Public Interest Advocacy Centre office is located on the land of the Gadigal of the Eora Nation.

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Problem definition

The ESB notes that:

Twenty years ago, when the national electricity market (NEM) began, the designers envisaged it would eventually share the characteristics of other commodity markets. That is, once technology was more advanced, there would be active participation in the market from both the supply and demand side. However, technology at the time meant the market needed to place a greater emphasis on the supply side so generation could be dispatched to meet demand.”¹

PIAC agrees that there has been a greater emphasis on the supply side in order to balance supply and demand in the NEM. Technologies and business models have developed considerably in the 20 years since the original development of the NEM and yet this reliance on supply-side solutions has remained. This is manifest in unnecessarily high costs for both real time operations and in longer-term planning of the NEM, with these costs ultimately being borne by consumers, contributing to the current financial pressures many consumers face.

This can be seen by the underutilisation of Demand Response (DR) in the wholesale market. Despite having been the focus of reforms for many years and recommended in the Parer review in 2002, and by the AEMC ten (and again, 16) years later there remains a dearth of demand-side participation in energy markets.

DR remains underutilised in the wholesale market due to the absence of a means for consumers to undertake wholesale DR without a retailer and the lack of wholesale DR undertaken by retailers and generators themselves. In the NEM’s ancillary service markets, however, where demand response aggregators are able to provide services independently of retailers, the use of DR is growing and has been shown to bring down the costs of ancillary services dramatically, particularly in more concentrated markets such as South Australia.

This deficiency needs to be addressed in a way that does not require substantive changes to the traditional retailer or generator business models. Requiring such changes would impose significant burdens and costs for established businesses to change their systems and may change their risk profile – ultimately making the reform process more complicated and slower than necessary.

Instead, PIAC encourages the ESB to focus on creating new avenues to market for new parties that can operate in parallel with the traditional retailer and/or generator relationships, in a similar manner to the Wholesale DR rule change.

Criteria for assessing design choices

The ESB has proposed the assessment framework for the two-sided market reform will consider the benefits and risks of the various design elements in terms of:

¹ ESB, *Moving to a Two-Sided Market*, April 2020, 1.

- its ability to deliver a reliable system and support system security
- competition and market signals
- appropriate risk and cost allocation
- competitive/technology neutrality
- information asymmetries
- cross-market integration
- regulatory and administrative costs.

PIAC supports these criteria but notes there are important, detailed aspects to each that must be considered further.

For instance, the appropriate allocation of risk and cost must consider this allocation across a number of elements such as: between consumers and industry; between consumers that choose to participate in the two-sided market and those who cannot or choose not to participate; and between extant market participants and new entrants.

The consideration of information asymmetries must consider the potential asymmetry between established market participants and new entrants; participants that are more vertically integrated (and hence may be able to internally hedge against price risk) and those that are not; and between end-users and market participants.

The ESB has stated that “participants in a two-sided market are very aware of the relationship between their actions and the market outcomes.”² On the contrary, many end-users, in particular many households, would not have a sufficient understanding of the relation between their individual actions (such as their energy usage or whether or not to invest in a DER system) and broader market outcomes. To expect households to gain this level of understanding and accept the potential financial consequences risks negative consumer outcomes.

This highlights the need for a more nuanced approach to which end-use energy consumption or production should be required to participate in a two-sided market – this is discussed further along with necessary consumer protections below.

Harm-based consumer protections

PIAC supports a system where the protections offered to consumers are commensurate to the potential harm they may face should something go wrong – the higher the potential harm, the stronger the protections offered. This should not depend on the particular model of provision but should instead reflect the nature of energy as an essential service. Similarly, risks of lower harm need only be met with proportionately lower protections.

Applying this principle of harm-based protections to a two-sided market requires an appreciation of the range of different energy uses and the range of different potential harms that could occur from its interruption or loss. Failing to do so may expose consumers to unnecessary risks if the protections are inadequate or underutilise the opportunities of more flexible energy use if there are excessive restrictions on participation.

² ESB, *Moving to a Two-Sided Market*, April 2020, 6.

An example of how harm-based protections could be applied is demonstrated below in relation to household demand response (DR) and is discussed in further detail in PIAC's submission to the AEMC's consultation on consumer protections.³

Potential harms from household demand response

The potential harm to households from any particular DR event depends on a number of factors including:

- The energy end-use being affected by the DR event (e.g. whether it is heating/cooling load or battery storage) and its duration.
- Characteristics of the household itself, such as whether there are medical conditions that impact its energy needs.
- The context of when and where the DR event occurs, such as whether it is on an extreme weather day.

Very broadly, harms could be categorised as either:

- Financial harms; in terms of choosing an appropriate offer, payment conditions or warranty terms. For instance, if there is information asymmetry between potential DR providers and households regarding the value of the DR load, households may not be well-placed to properly compare competing offers and judge which is most suitable for them.
- Inconvenience; from the unavailability of some appliances during a DR event. For instance, there may be potential impacts to the household's amenity from temporary loss of controlled load hot water.
- Harms to health and wellbeing; from the unavailability of some appliances during a DR event. For instance, there may be potential impacts to an individual's health from losing full access to heating or cooling devices during extreme weather events.

Flexible and inflexible loads

Balancing the level of protection required against maximising the opportunity of services such as DR cannot be done while considering end-uses of electricity as uniform or homogenous. Instead, it is essential to take into account the diversity of potential uses and the implications to the consumer of losing or postponing each.

For instance, household energy usage sits on a spectrum from flexible/discretionary loads, which have no impact to the household's health and wellbeing, to inflexible or essential loads, which have the potential to impact the household's health and wellbeing (see Figure 1).

³ PIAC, [National Energy Consumer Framework Review Issues Paper 1: New Energy Products and Services](#), February 2020, 2-4.

	Flexible loads		Inflexible loads
Examples	<ul style="list-style-type: none"> • Home battery • Pool pump 	<ul style="list-style-type: none"> • Electric hot water systems • Smart appliances • AC on day 1 of a heatwave for typical household • EVs – from, say, 100% to 50% of state of charge 	<ul style="list-style-type: none"> • AC on day 4 of a heatwave for typical household • AC for temperature-sensitive consumers • EVs – last 10% of charge • Lights and refrigeration
Potential harms	<ul style="list-style-type: none"> • No impact on health or wellbeing from deferring this energy use • Potential for financial harm 	<ul style="list-style-type: none"> • Inconvenience to household from deferring this energy use but little or no potential impact to their health and wellbeing • Potential for financial harm 	<ul style="list-style-type: none"> • Potential material impact to health and wellbeing from deferring this energy use • Potential for financial harm

Figure 1 Types of household loads and potential harms

It is worth noting from Figure 1 that air-conditioning (AC) can sit at various points on the spectrum from flexible to inflexible loads. This depends on a range of factors governing the context of its use including the type of household and the circumstances at that time.

For instance, the impact to a household’s health and wellbeing from reducing their AC load for an hour may be negligible on the first day of a heatwave, especially if the house has good thermal insulation and is well sealed, meaning there is only a small and potentially unnoticeable change in indoor temperature during the DR event. However, this may not be the case if it is the fourth day of a heatwave or if the house has poor thermal insulation. The potential impact on the health and wellbeing can be high at any time if anyone in the household is particularly temperature sensitive, such as those suffering from thermo-regulatory illness, the elderly or young children.

PIAC’s submission to the AEMC’s consultation on consumer protections discusses this in further detail and proposes a tiered approach to consumer protections.⁴

Consumers and the changing energy market

Until the last decade, energy consumers across Australia could very broadly be categorised into ‘haves’ and ‘have nots’; they could either afford energy, and the tools to limit their usage if they so desired, or they could not.

Since then, deregulation, emergence of competition, innovation (particularly in relation to behind-the-meter energy technology), and escalation of energy prices have created the need for consumers to be thought of differently to just these two groups: in addition to social advantage, a

⁴ PIAC, [National Energy Consumer Framework Review Issues Paper 1: New Energy Products and Services](#), February 2020, 4-8.

consumer’s level of engagement with the energy market now has a material impact on their energy outcomes.

An engaged consumer may be able to minimise their energy bills through a combination of retail churn, behind-the-meter technologies, and ongoing engagement in the form of paying their bills on time to access discounts. Conversely, a consumer that is not engaged, or is financially disadvantaged, is likely to consume more energy from the grid, purchased from a retailer to whom they pay a higher price by not accessing the cheapest deals.

Considering that levels of engagement and advantage are not mutually inclusive, PIAC considers that consumer outcomes should be thought of in four categories, for the purposes of consumer protections and promoting competition that works for all consumers (see Figure 2).

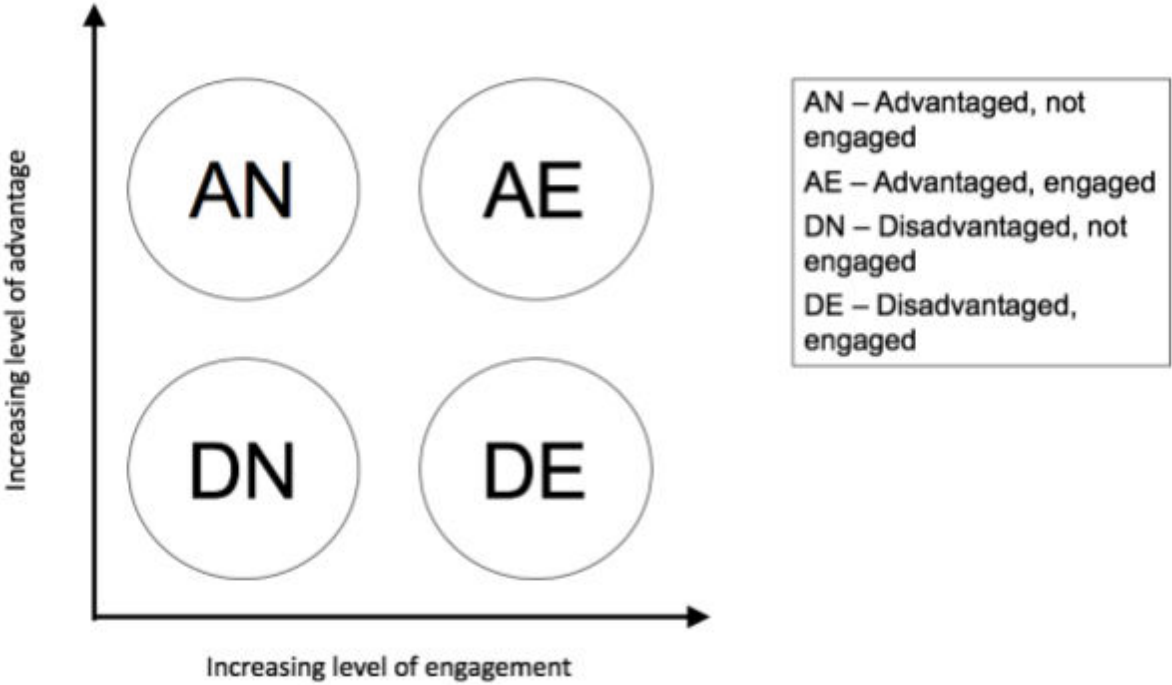


Figure 2: Contemporary consumer cohorts

Advantaged/able, not engaged (AN)

This group is disengaged from the energy market. While they do experience higher bills through suboptimal retail contracts and a lack of demand side participation, their relative social advantage means that they are usually able to withstand the financial detriment associated with these contracts. On the other hand, while these consumers are more able to withstand the detriment associated with their lack of engagement, they still experience inefficiently high bills in a way their engaged counterparts are not. Many are at risk of falling into the DN group if their circumstances change, and consumer protections need to cater to this risk.

Disadvantaged/vulnerable, not engaged (DN)

This group is likely to have the worst outcomes. The combination of energy market disengagement and relative social disadvantage means that these consumers are unable or

unlikely to take advantage of new energy technology or beneficial market contracts from energy retailers. They may use large volumes of high-priced energy that they are unable to afford. Competition frameworks should support them having the opportunity to benefit from engagement, but it is critical that supporting frameworks, including protections and concessions, should not require them to be engaged or assume that is an option for them. Hence the goal should be to move people from the DN cohort to the AN cohort, while giving them the opportunity to move to the AE cohort but not obliging them to do so.

Advantaged/able, engaged (AE)

This group is the only one broadly getting good outcomes today. The combination of energy market engagement and relative social advantage means these consumers are likely to be on favourable retail energy contracts, and choose (and can afford) to be adopters of energy technology such as solar PV, energy storage and demand management systems. Competitive opportunities for these consumers should be encouraged, while recognising they are, by and large, least at risk of disadvantage.

Disadvantaged/vulnerable, engaged (DE)

While this group still requires similar support to the DN cohort, their willingness to engage means they are able to ameliorate some impacts of disadvantage through engagement with the energy market, if presented with the opportunity to do so. The goal for this group should be giving them the opportunities to benefit from competition in the same way that the AE cohort has, while affording them the protections available to the DN cohort.

We recommend the ESB consider outcomes for consumers in relation to their engagement with the energy market in addition to their social advantage.

PIAC's submission to the AEMC's consultation on consumer protections discusses this in further detail and proposes a tiered approach to consumer protections.⁵

A proposed way forward

With respect to designing a two-sided market, PIAC cannot support proposals that would require households to "bid in" - or in other ways complicate or compromise - their inflexible, essential energy needs as described above in Figure 1. These needs should always be able to be met with appropriately simple and affordable energy services.

PIAC agrees with the ESB that any proposed two-market design and implementation must "allow consumers to choose if and how they participate in the market or whether they operate through someone who does (for example through a retailer or aggregator)."⁶

As noted above, PIAC recommends the ESB focus on creating new avenues to market for new parties that can operate in parallel with the traditional retailer and/or generator relationships. This is the same approach taken for the Wholesale DR rule change.

⁵ PIAC, [National Energy Consumer Framework Review Issues Paper 1: New Energy Products and Services](#), February 2020, 4-8.

⁶ ESB, *Moving to a Two-Sided Market*, April 2020, ii.

PIAC recommends that any new trader in a proposed two-sided market design (be they the end-user directly, an agent acting on their behalf, or an aggregator acting for multiple end-users) should be:

- able to bid in their contracted load, generation, storage or DR in parallel to the end-user's traditional retailer relationship for energy supply.
- able to participate in the widest range of markets possible, such as ancillary service markets, in addition to the wholesale spot market.
- exposed to the market prices (both positive and negative where they exist) for the services they provide.
- exposed to any penalties, causer-pays provisions or similar arrangements for failing to deliver the services within technical or other parameters required.
- allowed to internally optimise their behaviour across their portfolio of assets they operate and the markets they participate in to respond to their exposure to the market prices, penalties, causer-pays provisions or similar arrangements above.

Metering and connection points

PIAC appreciates that having a new agent such as a trader acting in the two-sided market in parallel to the traditional retailer for that end-user may require changes to metering and other arrangements. This should not necessarily be complicated or expensive and should not prevent such a reform from occurring. For instance, a model called the 'Single Net Meter Model' was developed and examined during the AEMC's Multiple Trading Relationships rule change. The AEMC commissioned a consultant to assess the model:

The concept is best explained using a single meter (with a single measurement element) that has a bi-directional flow feature and is located upstream of the tee point where the consumer's circuits meet. This feature has one register for recording the flow of electricity (active energy, kWh) in one direction and a second register for recording the flow of electricity (active energy, kWh) in the other direction. That is, the meter can produce two data streams (export kWh and import kWh). By treating these two data streams as commercially unique, the consumer has the opportunity to engage one electricity retailer A using the data stream from register number 1 and a second electricity retailer B using data stream from register number 2.⁷

Locational charging for two-sided markets

The ESB states that

... locational marginal pricing is a necessary feature of a two-sided and formal ahead market... Given the decreasing relevance of the distinction between generators and consumers at a connection point, a two-sided market would not draw a distinction between load and generator

⁷ Phacelift, *Metering Arrangements to Support Multiple Trading Arrangements*, October 2015, 16-17.

locations concerning congestion. It would signal the marginal cost and value of electricity to all traders every five minutes, wherever they are located.⁸

While PIAC agrees with the economic efficiency of having all traders in a two-sided market being exposed to locational prices, this is not true for the end-users themselves. Consumers, especially households, have repeatedly expressed a strong preference against involuntary locational pricing.⁹ Further, exposing end-users to locational pricing would not be economically efficient as in most cases they have no realistic means to respond to the locational price signal.

Instead, any locational price signal should be borne by the trader who would be better equipped to manage and respond to this signal, either by financially hedging with an external party or internally hedging against its portfolio of assets and markets.

⁸ ESB, *Moving to a Two-Sided Market*, April 2020, 23-24.

⁹ While consumers have expressed a preference against involuntary locational prices, they broadly support the use of voluntary locational rebates.