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Keeping up with the competition

Global trend to demand response

Wholesale demand response brings benefits to consumers and reduces energy prices. A rule change currently being considered by the Australian Energy Market Commission is supported by a wide range of consumer groups, but opposed by incumbent energy companies. Demand response is being introduced in major markets such as the USA, EU and China, where similar patterns of support and opposition have been observed.

Discussion paper

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Summary

Wholesale demand response is a proven technology that is used around the world to reduce electricity consumption during demand peaks. It sees energy consumers sell reductions in demand at specific times, receiving payment, cutting their cost of energy and also reducing the price paid by all consumers.

Demand response has many benefits including increasing competition, reducing the cost of electricity and improving grid reliability. The International Energy Agency states that the reliability services from demand response are also valuable in managing the safe retirement of coal-fired power stations.

While proposals have existed in Australia since the 1990s, only now has the Australian Energy Market Commission (AEMC) has released a draft rule change that would allow wholesale demand response in Australia. This is based on a rule change request by The Australia Institute, Public Interest Advocacy Centre and Total Environment Centre in August 2018. This proposal would allow participating consumers to contract demand response services to a third party.

The Australian Energy Council (AEC), which represents all the major generators and retailers, opposes this reform. The AEC has proposed its own rule for wholesale demand response which would see energy retailers remain as the gate-keepers of demand response. While wholesale demand response would still enter the National Electricity Market, consumers would not be free to contract with a third party demand response aggregating firms without permission from their retailer.

The ACCC has rejected the AEC 'gate-keeper' model, because it is anticompetitive and would harm the interests of energy consumers.

The three biggest electricity markets in the world are moving to open up markets to demand response competition: China, the United States of America and the European Union.

While the Federal Government support the ACCC's recommendations in general, it has been largely silent on wholesale demand response competition since former Energy Minister Josh Frydenberg spoke supportively in 2017.

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Introduction

Wholesale demand response is a proven technology that is used around the world to reduce electricity consumption during demand peaks, when this is cheaper than increasing generation. Australia currently has limited demand response participation in the National Electricity Market (NEM), even though it has been on the national regulatory agenda since the NEM was designed in the 1990s.

The rules for the NEM are set by the Australian Energy Market Commission (AEMC). The AEMC is currently considering a proposal for wholesale demand response reform based on a rule change request by The Australia Institute, Public Interest Advocacy Centre and Total Environment Centre in August 2018 (referred to as the *pro-competition rule*).[1] The AEMC published a draft ruling on 18 July 2019, currently open for comment including a hearing to be held on 6 August.

Wholesale demand response works to reduce peak demand, pressure on infrastructure and prices. Unsurprisingly, it is supported by electricity consumer groups as diverse as the Australian Competition and Consumer Commission (ACCC), BlueScope Steel, the Australian Industry Group, the National Irrigators Council and the Australian Council of Social Services. In June 2019, The Australia Institute sponsored an open letter (Figure 1) published in the *Australian Financial Review* calling for the AEMC to make a rule that 'avoid[s] retailers remaining gatekeepers of the demand response market'. The signatories included representatives from these organisations.

Figure 1: open letter from industry and consumer organisations supporting reform

Wholesale demand response vital

Industrial, agricultural and household consumers are paying too much for electricity. Reliability is under pressure and Australia lacks a durable policy for appropriate emissions reduction in the electricity sector.

One of the best ways to address this energy trilemma is to cut peak demand, through wholesale demand response– paying energy users to reduce demand, instead of turning on more expensive generators, when demand and wholesale prices are high.

In 2017 the Finkel Review recommended a wholesale demand response mechanism. The COAG Energy Council then directed the Australian Energy Market Commission to recommend a mechanism to be in place by summer 2018-19. The commission is considering a model that would allow aggregators to sell demand response in the wholesale market, which is consistent with the commission's own advice.

Effective uptake of demand response will reduce prices, increase competition and improve reliability as coal power ages and retires, and renewables grow.

There is widespread support for a mechanism that is:

- Dispatchable by AEMO and transparent to the market;
- Saleable by consumers directly and through aggregators, rather than only through retailers as at present;
- On an equal footing with generation in the wholesale market.

The central choice before the AEMC is whether this mechanism will improve competition for demand response. We urge the AEMC to make a rule based on its Reliability Frameworks Review competitive option (1A) and avoid retailers remaining gatekeepers of the demand response market. All stakeholders have a responsibility to support the work of the AEMC in making this long-overdue reform.

John Nowlan (BlueScope Steel), Jeff Angel (Total Environment Centre), Jonathan Hunyor (Public Interest Advocacy Centre), Ben Oquist (The Australia Institute), Rob Sindel (CSR), Innes Willox (Australian Industry Group), Steve Whan (National Irrigators Council).

Source: *Australian Financial Review*, 24 May 2019, p.34

[1] Public Interest Advocacy Centre, Total Environment Centre & The Australia Institute (2018) *Wholesale demand response energy market mechanism : rule change request*

By contrast, wholesale demand response reforms are resisted by parties in the energy system that benefit from demand peaks, mainly energy generators and retailers. For these parties, adoption of demand response would be a new source of competition, particularly for Australia's big three energy companies that make up 65% of the retail electricity market.[2]

Energy retailers, represented by the Australian Energy Council (AEC) have proposed an alternative rule on demand response in the NEM (referred to as the *gate-keeper rule*). This proposal, explained further below, would not increase competition and work in the interests of consumers and has been rejected by the ACCC. It is also opposed by industry and agricultural industry bodies, as well as consumer advocates who represent households. It appears to be an attempt to obstruct or at least slow down demand response reform.

A similar dynamic has occurred in other countries where demand response has been introduced, increasing competition for incumbent energy companies. In the USA, the incumbent energy retailers tried to use 'lawfare' against the national rule-making agency when it ruled to open up the market. The final section of this report looks at demand response reforms in international energy systems.

[2] AEMC (2019) *2019 Retail Energy Competition Review*, Final report, xiii

Pro-competition rule

Demand response ultimately benefits electricity consumers. This is why there is considerable and diverse support for a pro-competition rule change to allow wholesale demand response in the NEM.

To make use of demand response, the pro-competition rule would allow participating consumers to contract demand response services to a third party. The services could be as simple as lowering electricity use at a designated time (when energy demand is peaking). In response the consumer is rewarded by cash or credit which can go towards lowering their total electricity bill. They are also likely to become more aware of energy management technologies and find there are further savings they can make.

In addition, all consumers would benefit from demand response competition because it lowers the wholesale price of energy during peak events when the price is high. Also consumers, networks and the system operator benefit from demand response competition because it improves reliability.

Australia benefits from demand response because it lowers emissions in the most polluting sector by avoiding energy generation, which remains skewed towards gas and coal on the NEM. Demand response can also provide resources that can replace reliability functions that were historically provided by synchronous coal-fired power stations, many of which have retired and are due for retirement soon.

Gate keeper rule

The AEC rule proposal shares important characteristics with the pro-competition rule. For example, on the wholesale market side, demand response would compete with generation in the spot market. Demand response could be scheduled by AEMO and thus contribute both to reducing wholesale prices and improving reliability.[3]

Like the pro-competition rule, the AEC model would see the creation of new market participant category. In the AEC's rule, this is called a 'Demand Response Aggregator' (DRA). The DRA could be the existing retailers or new, third party companies. This is where the AEC rule creates a gate-keeping function, that is opposed by the ACCC and consumer organisations.

Under the AEC model, the customer would not be free to contract with a third party DRA without permission from their retailer. The DRA and retailer would enter into negotiations. The retailer would then 'negotiate in good faith' with the DRA acting on behalf of the customer.[4] This means that the retailer is effectively a gate-keeper, controlling which of its customers are able to contract with a DRA for demand response activities.

The point of a competitive wholesale demand response market is that if retailers offer services that are not as good as a DRA offers, then customers would freely choose to contract with the DRA. The retailer would lose business and the DRA would gain business. However, the AEC rule request states that its proposed arrangements 'will allow retailers and DRAs to negotiate mutually beneficial arrangements'.[5] The key argument in the gate-keeper rule proposal from the AEC is that retailers can be trusted to sell the new wholesale demand response service to their own customers, even when this is unprofitable for them.

[3] Australian Energy Council (2018) *Demand Response Mechanisms (Rule change request)*

[4] Ibid p.2

[5] Ibid p.4

ACCC opposes retailers as gatekeepers

In June 2018, the ACCC published the *Retail Electricity Pricing Inquiry Final Report*. A whole chapter was devoted to demand response and related issues.[6] The ACCC noted that electricity consumers are at risk of being exploited if retailers retain the power to constrain demand response competition. The ACCC objected to the AEC's proposal along the following lines:

- 'The ACCC strongly supports the development of a wholesale demand response mechanism, given its potential to constrain the pricing of generation businesses, limit the need for additional generation and lead to lower prices.'
- 'under the current arrangements, demand response…was likely hindered' by retailers
- 'third-party suppliers of demand management services should be able to directly bid in the market'
- 'We are therefore strongly opposed to the Australian Energy Council's rule change request.'

Large energy company retailers are already using contracts to stifle competition from demand response and energy efficiency. In December 2018, Enel X, a leading provider of demand response, made a submission to the AEMC in which is stated that 'many business customers have retail contracts that inhibit or explicitly prohibit their ability to engage in any demand response activities with a third party' and proceeded to provide what it claims are quotes from two such contracts.[7]

[6] See chapter 8 'Demand response and stand-alone power systems', in ACCC (2018) Retail Electricity Pricing Inquiry—Final Report June 2018, pp.200-211

[7] Enel X (2018) Submission to Australian Energy Market Commission, *Wholesale demand response mechanism*, p. 3.

Global trend to demand response competition

Reform and market progress in energy is not uniform, but the trend is clearly towards more demand response and more competition.

According to the International Energy Agency (IEA), demand response has increased 4% globally in 2018. The IEA argues that demand response is required, to help reach the Paris 2°C goal, because it is a cost effective way of providing reliability services that enable coal-fired power plants to retire.

The IEA reports that the potential for global demand response is significant, equivalent to total annual US electricity demand. According to the IEA, 'existing markets need to be opened to new business models such as [demand response] aggregation'.[8] This is more evidence that regulators around the world are shunning the gate-keeper concept proposed by Australia's energy companies, and rejected by the ACCC.

The three biggest electricity markets in the world are moving to open up to demand response competition: China, the USA and the EU.

China

China is the world's biggest electricity market. If it can fully mobilise the benefits of demand response competition, limiting coal and gas usage and facilitating the retirement of coal, that would have major global benefits.

Historically, China has focused on aggregation of large industrial users, at a scale unimaginable in the NEM. One pilot in Jiangsu delivered load reductions of over 3,520 MW (greater than Loy Yang A and B in Australia which can generate 3,300 MW).[9]

A 2019 report by the IEA documents how China is undergoing a generational transformation of its power system. There are four pillars in its electricity reliability and flexibility strategy: demand response; generation; grids; and storage.[10] Policy makers support demand response and this is being cascaded through the regulatory

[8] Manuera (2019) Demand response International Energy Agency https://www.iea.org/tcep/energyintegration/demandresponse/

[9] International Energy Agency (2019) China Power System Transformation, p.46

[10] Ibid p.11

and economic systems.[11] Reform and planning will see the introduction of energy markets, targets for energy efficiency and renewable energy and digitalisation and grid strategies.

According to the IEA, China is heading for 'mass enrolment of demand response, enabled by digitalisation and the effective integration of energy efficiency through intelligent end-use devices'.[12]

The Australian government is collaborating with the Chinese government through the Australia-China Science and Research Fund to support this transition, including with demand response technologies.[13] The University of Sydney and Tianjin University host the new Australia-China Joint Research Centre for Energy Informatics and Demand Response Technologies.[14]

United States of America

In 2011, the US Federal Energy Regulatory Commission (FERC) ruled that electricity markets under its jurisdiction must be opened up to wholesale demand response competition. This meant that third-party aggregators could compete with generators and be paid the equivalent price when 'negawatts' of demand response are sold.

In 2012, the big energy companies, represented by the Electric Power Supply Association, took the FERC to court, to block the reform with 'lawfare'. This was finally resolved by the Supreme Court in 2016, ruling in favour of FERC's authority to open up the market to competition. This failed litigation has contributed to weak growth in demand response in American markets.

In addition to wholesale demand response, there are established markets for emergency and frequency demand response. This has led to good technological capability and market awareness of demand response laying the foundations for future growth, if regulations are reformed and a stable wholesale market established.

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[11] Ibid p.28

[12] Ibid p.59

[13] Australian Government (2019) *Australia-China Science and Research Fund–Joint Research Centres*, Department of Industry, Innovation and Science https://www.industry.gov.au/funding-and-incentives/science-and-research/collaborating-with-china-on-science-and-research/australia-china-science-and-research-fund-joint-research-centres

[14] The University of Sydney (2019) *How Australia and China are collaborating on energy efficiency* https://sydney.edu.au/news-opinion/news/2019/06/17/how-australia-and-china-are-collaborating-on-energy-efficiency.html

In 2017, there was about 18.3 GW of demand response capacity enrolled on networks in America.[15] Around one third of this is the aggregation of large numbers of residential or small consumers. It is notable that only 0.7 GW of capacity enrolled is 'behavioural' meaning the consumer gets a message and then decides whether to manually reduce demand.

American consumers are becoming producers of energy and thus competitors to conventional energy companies. They are investing in the array of technologies that can be used to provide smart, dispatchable demand response; solar PV, electric vehicles home batteries, and smart thermostats and appliances that can be remotely controlled.

The current capacity of flexible, energy resources owned by American households is already about 50 GW and is predicted to reach around 88 GW by 2023.[16] That is a considerable resource that can be deployed to increase reliability and reduce prices, if it is able to compete against conventional generation.

European Union

The EU is in the process of opening up wholesale electricity markets to demand response. On 22 May 2019, the EU Member States in the Council approved legislation for a new electricity market design for EU countries.[17] This takes effect on 1 January 2020 and will be implemented within 18 months.

The EU's new energy policy encourages households and businesses to become active market participants.[18] The central vehicle for this will be through third-party, aggregation that allows, for example, wholesale demand response to be sold into the market and dispatched by system operators as portfolios of many thousands or even millions of consumers and devices.

The EU has applied the same principle proposed by the ACCC in the *Retail Electricity Pricing Inquiry Final Report*, that the big retailers must be prevented from using their market power to stifle competition. In 2019 the Brattle Group reported to the AEMC that 'while the precise role of aggregators would be defined separately by each

[15] Smart Electric Power Alliance (2018) 2018 *Utility Demand Response Market Snapshot*

[16] Holden (2018) *US Will Have 88 Gigawatts of Residential Demand Flexibility by 2023* <https://www.greentechmedia.com/articles/read/88-gigawatts-by-2023-u-s-residential-flexibility-on-the-rise

[17] Ostrovskis et al. (2019) *EU Impact - Issue 5/2019* DLA Piper https://www.dlapiper.com/en/uk/insights/publications/2019/07/eu-impact-issue-5/

[18] Brown et al. (2019) *International review of demand response mechanisms* p.35.

Member State, the [EU] proposals ensure that contracts between customers and aggregators can be made without the consent of the customer's retailer'.[19] There is no credible reason why this couldn't work in Australia.

[19] Ibid. p.36.

Conclusion

The three largest electricity markets in the world – China, the USA and the EU, are moving to wholesale demand response competition. Will Australia follow?

The argument that incumbent energy companies should be allowed to control the sale of services that undermine their interests to their own customers would be unimaginable in most industries. It would be like the taxi industry maintaining the best way to increase competition is to ensure all orders for passenger transport, including ride-sharing companies like Uber, must go to the taxi company first.

In July 2018, the federal government said it would support the ACCC's recommendations in general,[20] and announced in August it would implement a default price, underwrite new generation and direct the ACCC to report on prices, profits and margins in the NEM, half yearly until 2025.[21] While these are promising signs, the government has been largely silent on the important issue of wholesale demand response competition since former Minister for the Environment and Energy, Josh Frydenberg, supported demand response strongly in 2017.[22]

[20] Morrison (2018) *Final report of the ACCC Retail Electricity Pricing Review* http://sjm.ministers.treasury.gov.au/media-release/072-2018/

[21] Morrison (2018) *Driving power prices down* http://sjm.ministers.treasury.gov.au/media-release/089-2018/

[22] Lipson (2017) *Power prices: App allowing consumers to "trade" electricity usage for savings a possibility for Australia*, ABC TV Lateline https://www.abc.net.au/news/2017-07-13/household-electricity-trading-app-may-be-funded-by-government/8707010