

# Peak demand reduction scheme – Rule 2 consultation paper

## Flow Power submission

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## About Flow Power

Flow Power is an electricity retailer that works with energy customers throughout the National Electricity Market (NEM). Together with our customers, Flow Power is committed to our vision of creating Australia's renewable future.

We empower customers to take meaningful action. By providing energy knowledge and innovative technology, we are delivering smarter ways to connect customers to clean energy to make our renewable future a reality. We provide our customers with:

- + Engineering support, access to live data and transparent retail tariffs that reward demand flexibility and encourage electricity usage at times of plentiful renewable output.
- + Hardware solutions that equip customers with greater information, visibility and control over energy use.
- + Access to renewable energy, either through distributed solar and storage installed on site, or through a power purchase agreement with utility-scale wind and solar farms.

We believe that by equipping customers with these tools, we can lower costs for all energy users and support the transition to a renewable future.

## Overview of submission

The key points we would like to make regarding the NSW Office of Energy and Climate Change's consultation paper are:

- + While we are strongly supportive of moves to increase support for commercial and industrial demand response, the PDRS should not funnel customers into the wholesale demand response mechanism. Instead, activities should reward all customers that demonstrate the ability to provide firm demand reductions.
- + Future activities should reward residential customers have greater access to information about their energy use and exposure to variable prices. Both information and price signals are fundamental to greater participation and responsiveness from residential customers.

We've provided some additional comments on various aspects of the consultation paper below.

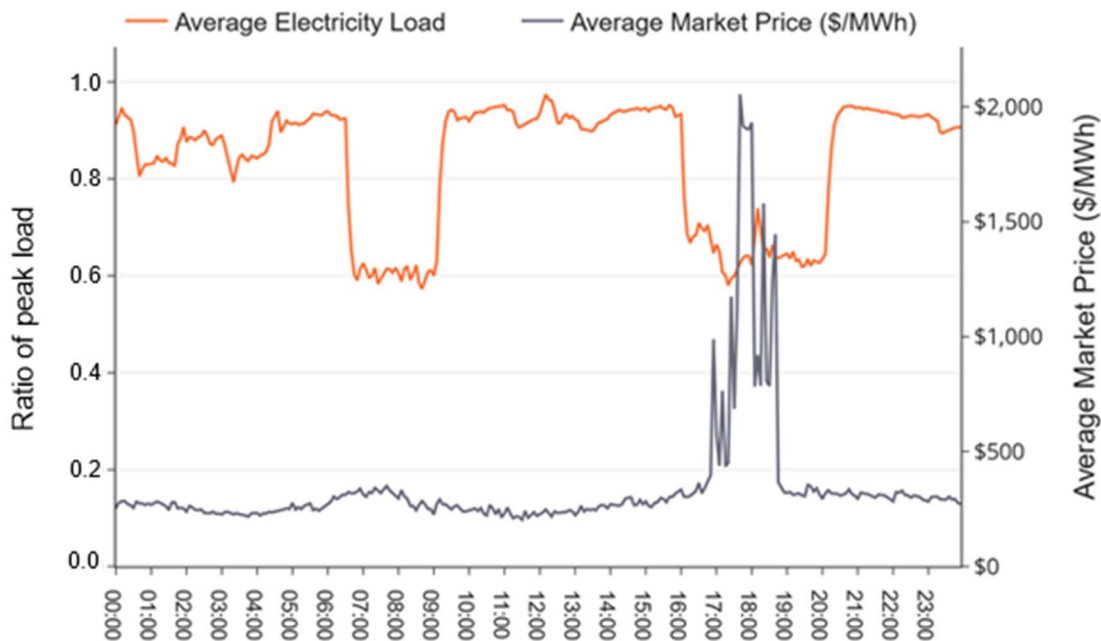
## Commercial and industrial customer demand response

We are strongly supportive of the NSW government's focus on commercial and industrial demand response. The demand-side of the market hold some significant opportunities for improving the energy transition . By improving energy performance of large consumers (including demand response, load shifting and energy efficiency), the energy transition can be faster, cheaper, smoother and more reliable.

Flow Power has been highly successful in working with a diverse range of energy customers and supporting their development demand flexibility. Unlike other retailers, we pass through incentives to all our customers to encourage them utilise their demand flexibility and use electricity at times of low prices and high renewable output. The tariff structure of all our products is designed to engage customers further with the wholesale market; not only providing them with opportunities to achieve financial savings but to also improve the carbon-intensity of their electricity usage.

With our engineering teams and technological solutions, we equip our customers with the tools they need to start using energy in smarter ways. Demand flexibility improves outcomes for our customers and improves market wide outcomes by moving load out of peak periods into otherwise low demand periods, improving reliability and integrating grid-scale renewables.

For example, the graph below shows how a Flow Power customer adjusted their energy use to shift energy use out of the peak windows in the morning and evening. This was implemented with minimal interruption to their operations and delivered significant cost reductions.



However, as explained below, Flow Power does have reservations about the proposal to only support demand response through the wholesale demand response mechanism through the PDRS activity.

## Wholesale demand response comes in multiple forms

A final decision to introduce a wholesale demand response mechanism into the National Electricity Rules by the Australian Energy Market Commission (AEMC or Commission) was made in June 2020. The mechanism was introduced primarily to provide large energy users with more options for capturing the value of demand response. The scheme also took steps to integrate this demand response into central dispatch. Ultimately, the mechanism was intended to inform the development of a more two-sided electricity market, informed by the decisions of electricity consumers and suppliers. Notably, the Commission suggested the wholesale demand response mechanism would be replaced by a two-sided market:<sup>1</sup>

*"The wholesale demand response mechanism will eventually be outgrown by the market because it is reliant on the use of centrally determined baselines. If the move to a two-sided market is made, this reform should replace the wholesale demand response mechanism."*

However, the Commission was very clear that the wholesale demand response mechanism would have a limited role in the future of demand side participation. The final determination highlighted how centrally determined baselines (as used in the wholesale demand response mechanism) can lead to distortionary behaviour. This occurs because of the incentives arising from paying a customer to reduce demand from a baseline level. In practice, this could lead to customers keeping demand relatively high in peak periods to maximise their paid demand response, instead of exploring more regular load shifting to reduce consumption in peak windows.

While the wholesale demand response mechanism can facilitate reductions in peak demand, it does not support the broader range of activity these energy users can undertake to reduce their energy use in peak windows. For example, activities like load shifting, where energy use is brought forward, will likely encounter difficulties in establishing acceptable baselines.

Lastly, the wholesale demand response mechanism is only allowed to include participating customers if those customers do not have exposure to the spot price in those intervals.<sup>2</sup> This means that the large customers who have some form of exposure to the spot price for electricity are ineligible for participation in the wholesale demand response mechanism. These customers, while not participating in the wholesale demand response mechanism, have strong incentives to respond to variations in the wholesale price. This includes reducing energy use in peak demand periods.

## Activity should be open to more participation

We are supportive of the inclusion of customers using wholesale demand response mechanism in a PDRS activity. However, there is very limited participation in the wholesale demand response mechanism, and the AEMC have suggested it is not an enduring market mechanism due to its reliance on baselines. The

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<sup>1</sup> AEMC, *Wholesale demand response mechanism – final determination*, p. iv, available [here](#).

<sup>2</sup> See Clause 3.8.2A(f) of the final rule.

consultation paper suggests “the WDRM is the most accessible way for large users to access the spot market.”<sup>3</sup>

We strongly believe eligibility should be expanded to commercial and industrial customers who opt for price signals through their retail supply as a driver for providing demand response. The activity should be expanded to include an activity that credits commercial and industrial customers that:

- + Can demonstrate they have a retail arrangement that encourages reductions in energy use in peak periods, such as exposure to the spot price for electricity.
- + Can demonstrate the capability to reduce demand on call, before each summer.
- + Are registered in AEMO's demand side participation portal.

This would greatly increase the pool of eligible customers in NSW, lead to a faster development of these resources and support more innovative approaches. Part of the rationale for this activity is for the NSW government to lead greater adoption of the wholesale demand response mechanism. Instead, we think the NSW government should consider how it can promote greater consumer engagement with demand side participation more broadly.

## Activities should reward increasing access to energy data

The activities supported under the PDRS have focussed on specific loads or assets like battery storage. While Flow Power supports this focus, we also encourage the NSW Government to consider activities that provide NSW consumers with the tools and incentives to engage in demand response and demand management.

Through our experience as a demand management business, energy retailer and engineering advisory company, we have a long track record of working with energy consumers to develop and reward better energy performance. In our experience, improving energy performance is achieved through:

- + **Visibility and data:** Most customers have limited understanding on where, when, and how they use electricity. Therefore, the first step to improving energy performance is to increase this understanding by increasing visibility of energy use and providing energy data in an accessible manner. This data is often what underpins subsequent decisions and investments made by customers to improve their energy performance.
- + **Time and experience:** Changing the energy performance of consumer often takes time and experience. Customers need to develop their own understanding and trust in the benefits of more demand flexibility. Energy performance improvements should be thought of as a journey of continued improvement instead of upgrades that simply happen at a point in time. We consistently see customers who use time and experience to increase their energy sophistication and find new ways to improve their energy performance.

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<sup>3</sup> NSW Office of Energy & Climate Change, *Peak demand reduction scheme – Rule change 2 consultation paper*, p. 18.

- + **Price signals:** Incentives and price signals are key to rewarding better energy performance. Price signals create the business case for making investments and operational decisions that improve energy performance. They also provide the reward for effective improvements in energy performance.
- + **Technology:** Advances in technology provide tools that can unlock energy performance improvements. Smart meters and smart home devices are increasingly ubiquitous, and provide a low-cost avenue for increasing available data, visibility of energy use and options for control. Continued improvements and rollouts of these technological solutions will unlock further gains in energy performance.

While PDRS support for batteries will be important for driving greater uptake of distributed storage, there should be greater consideration of the tools that precede larger investments like batteries. The case study below demonstrates the savings to households who make simple changes to when they use electricity .

### **Case Study: New South Wales household demand flexibility**

Using the New South Wales electricity market, Flow Power prepared a case study showing how linking households to better market information and more reflective market price signals can change their behaviour. By making small changes in household electricity consumption habits, these customers are able to their cost outcomes and energy system reliability.

#### **Washing machine**

- If 10% of New South Wales households use their washing machine in the early evening and are able to shift this to the middle of the day, this would reduce peak demand by more than 330MW,
- This simple change in the time this household does their washing – from early evening to middle of the day - saves 0.02 tonnes of CO<sub>2</sub> per year per household.
- If 50% of NSW households did this, it would save 28,000 tonnes of CO<sub>2</sub> per annum, equivalent to the emissions of 6,200 petrol cars or 31 million pounds of coal burned.
- On a retail tariff linked to the spot market, this change could save each household \$50 p.a.

#### **Electric vehicles**

- If all electric vehicles in NSW (10,798 registered in 2022) charged during the day rather than the evening peak, then it could shave up to 80 MW off peak grid demand.<sup>4</sup> The effect on the grid from timing of EV charging will have an ever-increasing impact as this sector grows.
- Although they still require the same amount of energy to charge their car, simply changing the time they charge from evening to the middle of the day, when more renewables are in the grid, means the household's carbon footprint is reduced by 5.7%.

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<sup>4</sup> Assuming an average charging load of 7kW per car.

- If all NSW EV owners did the same, it would save the equivalent of 3,600 tonnes of CO<sub>2</sub> per annum, comparable to removing an additional 850 cars off the road (or 63,000 trees growing for ten years).
- On a retail tariff linked to the spot market, this change in behaviour could save each household \$500 annually.

### Recommended activities

Office of Energy & Climate Change should consider activities that reward:

- + **Transitioning NSW customers from flat, fixed tariffs onto variable prices.** Moving customers onto retail products with price signals encourages them to move energy use out of peak periods, reducing state-wide peak demand. It's also important for maximising the value of distributed storage assets.
- + **Increasing the information available to customers.** This could be through hardware solutions that offer access to real time data or the provision of real time data from a smart meter. These activities would reward greater information provision to customers to increase their understanding of when they use energy. Increasing this awareness is an important step for greater engagement and leads to more information decisions down the track, including investments in things like batteries, EVs and other forms of distributed energy resources.

### Conclusion

Flow Power actively works with a range of NSW energy users. We work with our customers to develop demand response capabilities and reduce energy consumption in peak periods. We encourage the NSW government to use the PDRS as a tool to support as many NSW energy users as possible to start developing demand response capabilities.

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Yours sincerely,

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Flow Power