

Project Edith – Dynamic pricing trial

Final Report – Demand Management Innovation Allowance Mechanism

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Executive Summary

Project Edith has demonstrated end-to-end capability for dynamic network pricing. Prices were generated daily from forecasts of network conditions, delivered via CSIP-Aus to four retail and aggregator partners, and applied to about 1,400 customers across Ausgrid's network area, with billing and guardrails tested. This system now underpins Ausgrid's sub-threshold tariff.

The trial proved the system works.

The trial provided clear evidence that customers respond to dynamic pricing at levels comparable to other forms of demand response. The size and reliability of that response varied considerably across events and customers.

The key test for dynamic pricing is firmness: a reliable response when the network is under stress.

Customers respond to dynamic prices, but not consistently.

There were events when customers provided a large response, and other events, sometimes the following day, when the same customers provided very little.

A customer's response depends on the charge available in their battery, whether their agent's algorithm incorporates the price signal, and the value of using the stored energy themselves. We will continue to improve our understanding of these variations as the trial goes to market.

The open question is whether the response is available when the network needs it.

The network is most stressed exactly when customers most want their stored energy for their own cooling, and when events can outlast a typical home battery, sized for around two hours of full discharge. Responsiveness declined during multi-hour events as batteries were exhausted. This is why duration guardrails now cap high-price events, and why growing battery numbers and sizes will improve firmness over time.

For now, network and wholesale prices mostly pull in the same direction. During import price events, dynamic network prices and wholesale price spikes generally reward the same behaviour, discharging to support the grid, so the two signals can stack.

Sustained heatwaves are the hardest test, since dynamic prices compete with the customer's own use.

The customer's willingness to support the grid depends on whether they require the stored energy for their own use. If the customer's battery is not oversized relative to their energy consumption needs, the network and wholesale prices offered must together outweigh the value a customer places on their own comfort on a hot day.

During the Edith trial, dynamic prices were capped at around $1.10/kWh, against reference values such as the NSW value of customer reliability at $38.53/kWh. The low cap was adopted to protect customers from excessive price risk while dynamic prices were being triggered relatively frequently.

The observed response was broadly proportionate to the price on offer. A central question for the next phase is where the cap should sit to secure a firm response while protecting customers from excessive exposure.

The response matched what was offered; prices were deliberately kept low.

In several cases, VPP customers didn't respond because the price signal wasn't incorporated into the VPP's algorithm. These integration issues arose because Project Edith was a trial that used off-market systems rather than production-level systems. Ausgrid expects these issues to be resolved as the underlying technology matures and the supporting systems are upgraded.

Consequently, the Edith results may understate the true level of customer willingness to respond.

Some non-responses were due to a systems issue, not a customer responsiveness issue.

The sub-threshold tariff will focus on improving price responsiveness during peak demand: calibrating the maximum price, refining guardrails, working with retailers to identify which customers are best placed to respond, and measuring aggregate network impact over longer periods with a larger fleet.

The next phase: firming the response at its peak.

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1 Introduction

1.1 Purpose of document

This report was prepared in accordance with clause 2.3(3)(viii) of the Australian Energy Regulator's Demand Management Innovation Allowance Mechanism (DMIAM). It describes the results of Project Edith, analyses them, and explains how they inform Ausgrid's rollout of dynamic network pricing (DNP).

Read this report alongside Ausgrid's DMIAM Annual Compliance Report 2025-26.

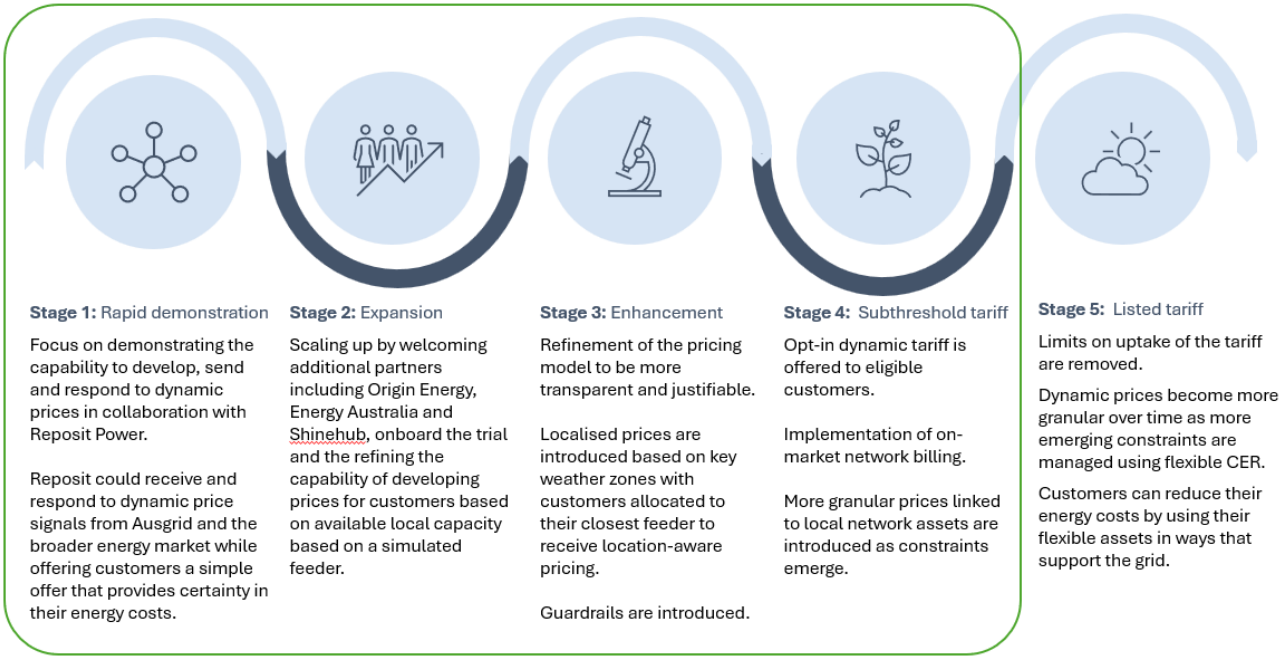
1.2 Overview of experiment

Project Edith trialled DNP, network tariffs that change based on forecast local network conditions. DNPs reflect the cost of using the network at different times and locations, providing price signals that can incentivise consumer energy resources (CER) to support the local network. Project Edith aimed to show that dynamic network prices can integrate CER into the energy market in a relatively low-cost, customer-friendly way, reducing the need for interventions that directly control customer assets.

Project Edith began in 2021 with 200 customers, a single aggregator partner (Reposit Power), and a simple weather-based algorithm. By June 2026, it had evolved into a comprehensive trial involving around 1400 customers across multiple retailer and aggregator partners, including Reposit Power, Origin Energy, Energy Australia, and Shinehub.

Figure 1 provides an overview of the program's stages and the green box shows the stages that have been completed.

Figure 1: Summary of completed and upcoming stages in the adoption of dynamic network prices



Dynamic prices are published in advance for each 5-minute interval of the following day. Ausgrid's pricing engine calculates and shares the next day's price schedule with participating agents via a CSIP-AUS communication platform at around 11 pm each evening.

As Project Edith was conducted off-market, normal billing arrangements applied to customers who participated in the trial. Most customers were on either a time-of-use tariff (EA025) or a demand tariff (EA116). Each month, Ausgrid calculated the network charges that would have been incurred on the dynamic tariff, and if the charges were lower than under the customer's usual tariff, Ausgrid reimbursed the difference to the customer's agent.

Ausgrid did not prescribe how, or whether, DNPs should be communicated to end-use customers. Instead, agents decided how to reflect dynamic prices in their virtual power plant (VPP) product and how much they passed savings back to consumers.

By reimbursing customers' network costs when they performed better under the dynamic price but not charging them extra when they performed worse, Ausgrid ensured no customers were worse off for participating in Project Edith. This "no worse off guarantee" allowed flexibility to trial different pricing arrangements, so Ausgrid could test many different price types without negatively impacting customers.

Following Project Edith's success, Ausgrid introduced DNPs as a sub-threshold tariff. To implement the sub-threshold tariff, Ausgrid needed to upgrade its billing systems to accommodate dynamic prices. Dynamic prices are now available on an opt-in basis to any Ausgrid residential customer whose retailer has registered as a partner retailer. As part of the process of moving to an on-market tariff, the no worse off guarantee has been removed.

1.3 Project Edith objectives

The Project Edith trial tested the ability of dynamic prices to:

- shape load and help the network be used more efficiently;
- support greater customer participation in wholesale electricity markets; and
- be useful for Ausgrid's customers and partners and gain market adoption (retailers, end-customers, other DNSPs, etc).

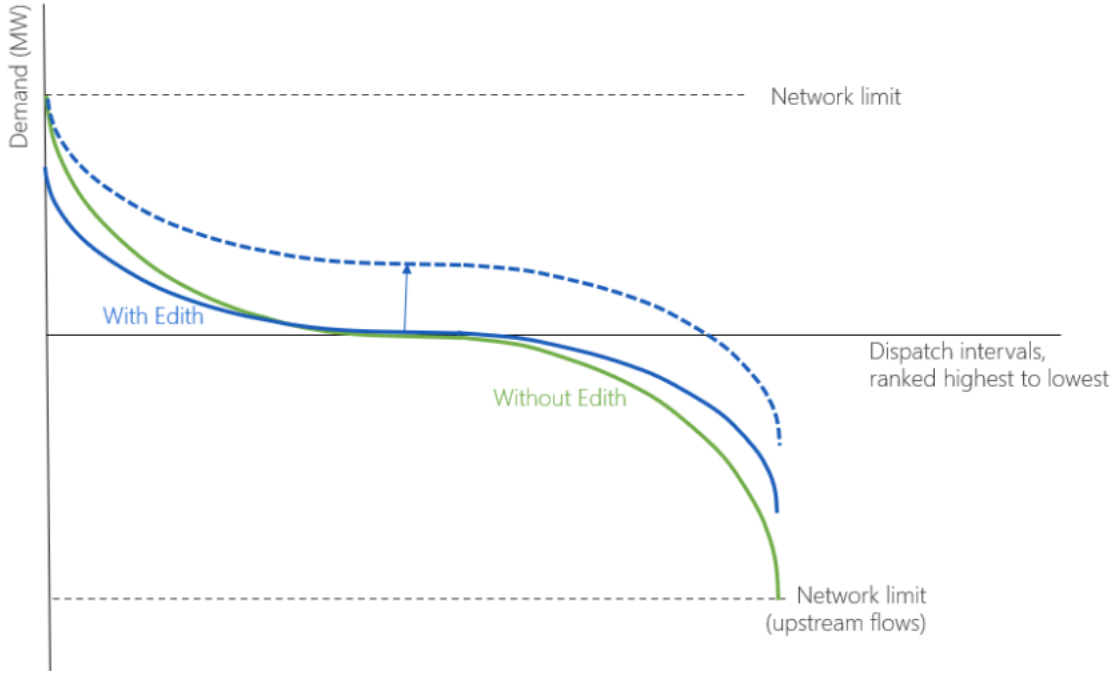
Ausgrid's reasons for exploring these objectives are described below.

1.3.1 Helping the network to be used more efficiently

Consumer energy resources (CER) are becoming an important—sometimes dominant—component of the energy supply mix, changing how energy flows across the network. At times, CER can cause flows that exceed the local distribution network's capacity. It is increasingly necessary to develop tools that enable the distribution system operator (DSO) to manage flows on the distribution network.

By actively managing load, operators can avoid the extreme peaks and troughs in demand that drive network investment. This also reduces distribution network costs for all customers, not just those with CER assets. Figure 2 shows how flattening the load profile can deliver more energy with the same amount of network assets.

Figure 2: Illustrative example - load duration curves at the feeder level, with and without Edith



With DNPs, well-placed customers can opt in to be paid to use their CER in ways that support the grid. Most network management tools (such as load shedding or dynamic operating envelopes) do not give customers choice. Consequently, dynamic pricing is likely to reduce the societal impacts of DSO active management.

1.3.2 Supporting wholesale market participation

Measures that support CER participation in the wholesale market provide whole-of-system benefits by reducing the investment in utility-scale resources needed to meet reliability standards. Traditional network tariffs create friction for customers wishing to use their batteries to support the grid. Since customers use their batteries to power their own homes as well as to participate in energy markets, network charges associated with imported energy need to be factored in when the customer (or their agent) decides whether to discharge in response to a wholesale market price.

The Edith tariff is designed to maximise customers' opportunities to engage in wholesale market arbitrage by minimising volumetric charges when the network is unconstrained.

1.3.3 Gaining market acceptance

For dynamic pricing to make a difference, it needs to move beyond the trial phase and be adopted by a meaningful number of customers. Edith's dynamic tariffs are designed as a load management tool. Consequently, they involve highly localised, variable prices with high fixed charges, yielding different consumer outcomes depending on local network conditions. These features increase the potential value for customers willing to adopt dynamic pricing. However, DNPs are more complex and more costly to implement than other tariff structures.

During Project Edith, the Ausgrid team engaged closely with stakeholders to understand the factors that support or inhibit the uptake of dynamic tariffs. The team changed the tariff design to avoid exposing customers to risks they could not manage.

2 Dynamic prices

2.1 Key characteristics

The Edith tariff comprises:

- A dynamic, two-way, energy-based price that applies only when demand is very high (or very low) at a particular network location.
- An anytime energy charge, which is a very low energy-based price that applies all the time, and
- A fixed charge to cover any remaining residual costs.

To participate in dynamic pricing, customers are subject to paired tariffs—an import dynamic tariff and an export dynamic tariff. The dynamic component of the Edith tariff applies when the network is expected to reach peak or minimum demand conditions.

During a peak demand event, customers would be charged for consuming energy and rewarded for exporting energy. These prices are symmetrical. For instance, if the dynamic price for load is 30c/kWh, the corresponding reward for energy exports will be 30c/kWh. During a minimum demand event (or solar soak event), customers would be charged for exporting energy and paid for consuming energy. Applying dynamic prices during minimum demand events enables dynamic solar sharing and helps increase the distribution network's capacity to host rooftop PV.

2.2 Scope of dynamic prices

The network models underpinning Project Edith enable bespoke pricing for each customer based on conditions at their specific connection point. Individualised pricing was considered overly complex, and unlikely to gain stakeholder acceptance given the fairness issues involved. Another disadvantage of individualised pricing is that it can create perverse incentives, since a customer's behaviour can cause voltage issues that they would then be paid to resolve.

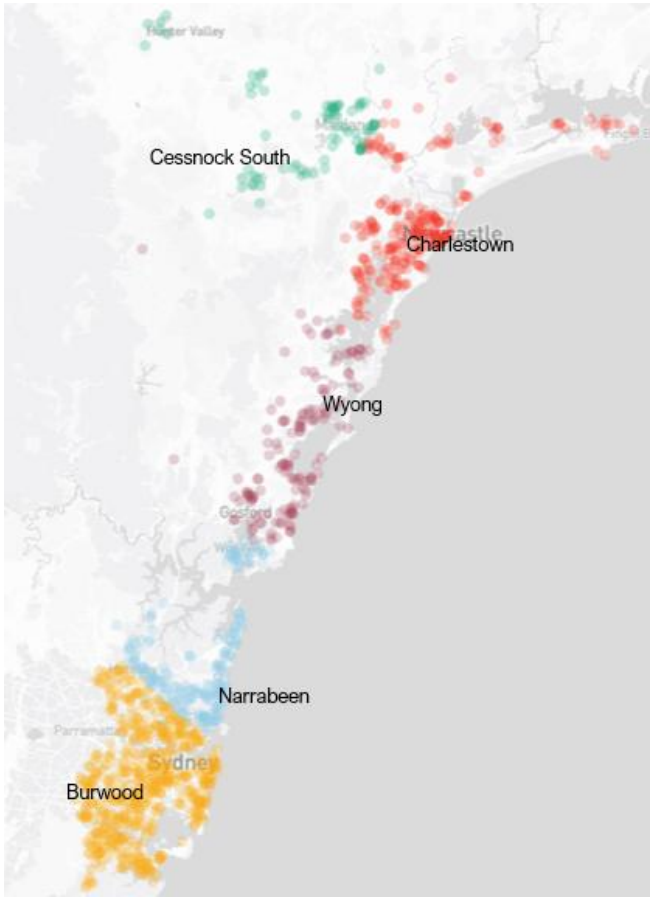
Given these issues, the Project Edith team decided to set prices at the distribution transformer level – which typically hosts 50 to 100 customers. This level of granularity was selected so dynamic prices can manage the key drivers of network costs.

Applying transformer-level pricing across Ausgrid's network would require more than 30,000 discrete prices, a transformative departure from current network pricing arrangements and substantially more complex than the status quo. Instead, the Project Edith team developed a pragmatic compromise that enables the gradual introduction of dynamic pricing, targeting network locations that need it most.

Customers were allocated to one of five regions based on their location, as shown in Figure 3. The five regions, each with its own dynamic price, ensure that all customers receive a dynamic price aligned with local weather patterns and, consequently, local electricity demand.

Temperature is a key determinant of electricity demand – peak demand on the distribution network typically occurs during very hot or very cold periods. Even within Ausgrid's distribution area, several sub-climates can create significant differences in temperatures experienced by customers.

Figure 3: Regional groupings and local reference nodes



Each region was assigned a local reference node, a representative distribution transformer used as the basis for setting prices for all customers in the region. Using a local reference node aligns with the National Electricity Market's wholesale pricing arrangements, where the regional reference price (RRP) reflects the nodal price at the regional reference node.

This approach builds capability to deliver dynamic pricing without the additional cost and complexity of managing thousands of individual prices. Going forward, Ausgrid proposes rolling out dynamic prices gradually, with localised prices for customers downstream of assets reaching their limits and regional prices for customers in unconstrained locations.

2.3 Structure of dynamic tariffs

The Edith tariff structure follows established national electricity rules and pricing principles. It should integrate smoothly into existing regulatory arrangements without requiring significant reforms or major structural changes to current frameworks.

2.3.1 Tariff components

Table 1 describes the components of the dynamic prices used during the Edith trial.

Table 1: Structure of dynamic tariffs

Tariff name	Components	Price	Measurement	Charging parameter
Residential Dynamic (load) *This tariff became EA974.*	Fixed	High to cover residual costs	cents/day	Access charge reflecting a fixed amount per day
	Metering Service Charge	Standard	cents/day	Metering service charge reflecting a fixed amount per day
	Anytime Energy	Low import charge	cents/kWh	Flat energy usage charge
	Dynamic Energy	Range from rewards to charges	cents/kWh	Charge is applied to 5-minute intervals when the forecast network headroom is less than 20% and gradually increases as headroom decreases.
Residential Dynamic (generation) *This tariff became EA975.*	Anytime Energy	No charge	cents/kWh	No export charge when network headroom exceeds 20%
	Dynamic Energy	Range from rewards to charges	cents/kWh	Charge is applied to 5-minute intervals when the forecast network headroom is less than 20% and gradually increases as headroom decreases.
	Metering Service Charge	Standard	cents/day	Metering service charge reflecting a fixed amount per day

The dynamic charges that apply during peak demand events are set using the import long-run marginal cost (LRMC) and assumptions about how often such events occur. Dynamic prices for generation during solar soak events are determined by export LRMC and assumptions about how frequently minimum system load events occur. Dynamic prices start at zero and increase as forecast network loading approaches network limits, as discussed in section 2.3.2.

Residual costs are recovered through a combination of the anytime energy charge and the network access charge (NAC). The anytime energy charge is a flat usage charge that always applies, including during dynamic price events.

In 2025-26, the anytime energy charge was set at a low level of 2.337c/kWh. The Edith tariff also had a relatively high daily NAC of 94.17c/day, which was used to recover all residual network costs not recovered by the anytime energy charge.

The anytime energy charge could conceivably be set to zero, with all residual costs recovered via the NAC. Ausgrid has not adopted this approach to date because it is likely to reduce customer and agent acceptance of dynamic tariffs. As the tariff is opt-in, it must offer value for money relative to the alternative network tariff structures available. It is also unclear whether a zero-usage charge supports long-term dynamic efficiency, as it may encourage consumers to waste electricity.

2.3.2 Reflecting local network conditions in dynamic prices

To link dynamic prices to local network conditions, the Edith team developed a network-loading metric, as shown in Figure 4.

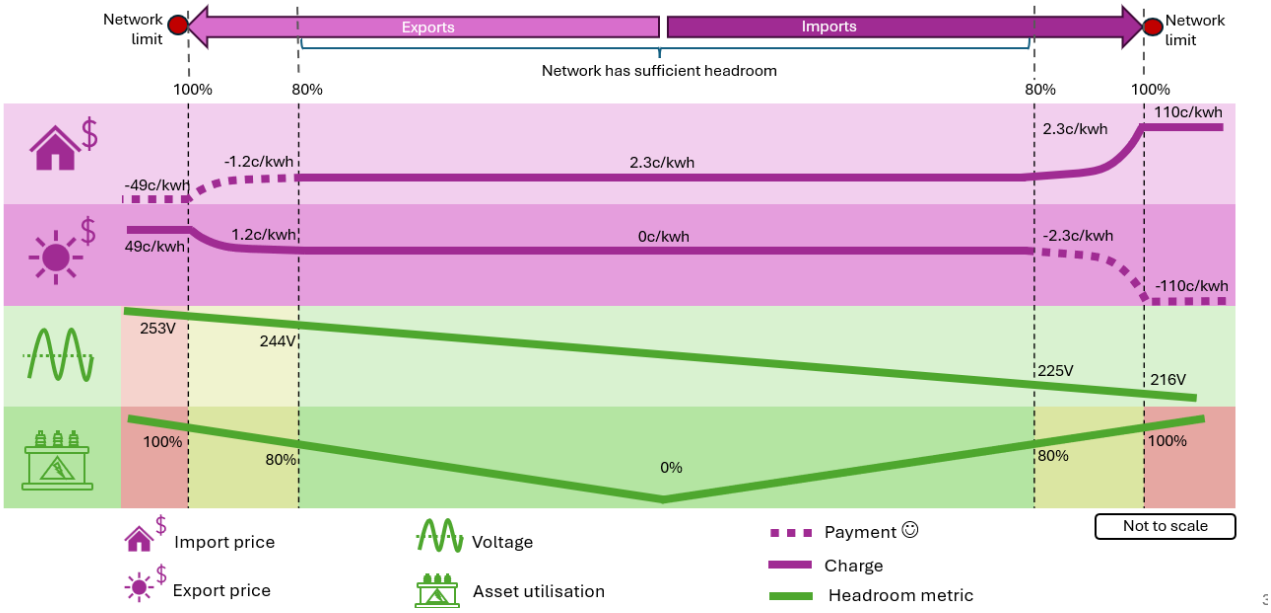
Figure 4: Dynamic prices as a function of network loading



In Figure 4 above, the blue lines show prices during a peak demand event, and the green lines show prices during a solar soak event. When network loading was below 80%, dynamic prices were zero. Prices increased along an exponential curve between 80% and 100% network loading and stayed at the maximum dynamic price above 100%.

Figure 5 illustrates how the network loading metric could incorporate thermal and voltage network limits to set dynamic prices. While this theory underpinned the Edith pricing model, practical constraints limited how widely it could be applied.

Figure 5: A conceptual application of network limits to dynamic prices



At the distribution transformer level, demand is naturally noisy, making it difficult to observe the impact of dynamic pricing if only one or two customers respond to dynamic prices on a given feeder. During the Edith

trial, customers were placed on a “representative transformer” rather than their own transformer, so there would be enough critical mass to observe the results.

Currently, under most conditions, Ausgrid’s network has surplus capacity, which limits opportunities to test dynamic prices. For the Edith experiment, Ausgrid wanted to influence the scale and number of dynamic price events to ensure the project generated data on how customers respond.

To address this issue, Ausgrid adjusted the properties of the representative transformers in the network model that drives the Edith price engine, for instance, by lowering a line's thermal capacity or reducing a transformer's size. This approach enabled Ausgrid to use realistic load forecasts on these simulated under-sized networks, so prices reflect real-world usage patterns for Edith and other customers, and to simulate network constraints, accelerating the types of situations and price dynamics that can occur.

Initially, we randomly allocated customers to simulated transformers. The Edith team subsequently refined the model so that customers were allocated to the simulated transformer in their local region (i.e. the local reference node discussed in section 2.2). Matching customers to their local weather conditions substantially affected price responsiveness. This is discussed further in section 3.1.3.

2.4 Guardrails

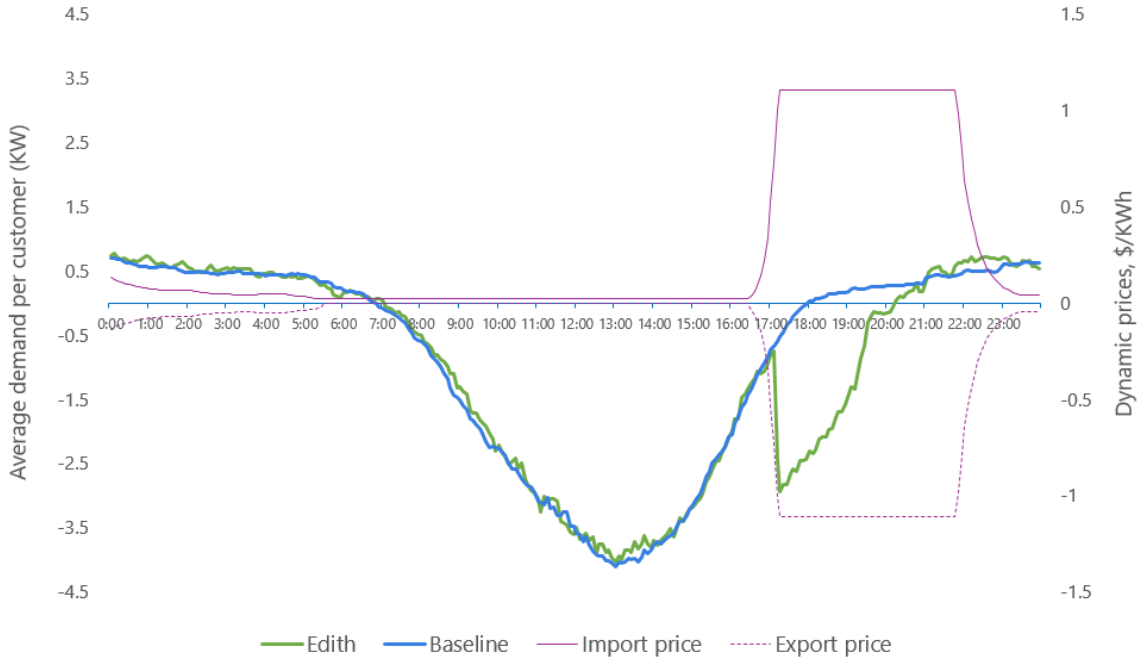
Over the course of the experiment, Ausgrid refined the dynamic price algorithm to ensure customers were not exposed to high dynamic prices they could not manage.

A customer's flexibility depends on the type of CER assets they own, how they operate them, and external factors such as wholesale electricity prices. When customers were exposed to high dynamic prices for an extended period, their response typically declined after a couple of hours.

Figure 6 below provides an example. Customers initially responded strongly to a high price event, but the customer response was not sustained as long as the network price peak:

1. The high network price (purple) was in effect between 5 pm and 10 pm, incentivising customers to reduce demand and increase exports.
2. At 5 pm, the Edith sites began to increase their exports (green), deviating from the baseline demand (blue).
3. Between 6:30 and 8 pm, the exports decreased, and the sites returned to baseline demand, presumably as the batteries no longer had charge. During this period, the average Edith customer would have paid the maximum dynamic price of $1.10.

Figure 6: Customer response to high prices tails off after around 2 hours

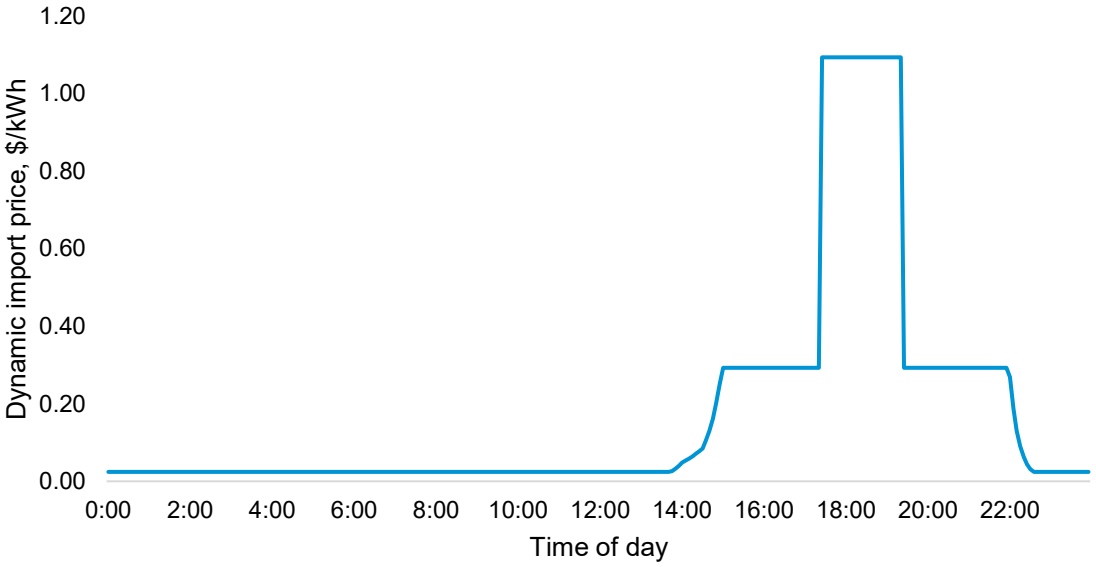


Note: Average Edith demand per customer vs baseline, all transformers, 19 December 2024.

Ausgrid consulted with its retail partners and the Project Reference Group to determine which guardrail would best protect customers from the risk of prolonged high prices. Based on this consultation, Ausgrid implemented a two-hour maximum limit on high dynamic price events, where a "high" price is defined as a dynamic price greater than the current peak time-of-use tariff.

Figure 7 shows an example of dynamic prices during a price event with the guardrails in place. Without guardrails, the dynamic price event would have lasted from 2 pm until after 10 pm. The guardrails limited the high-price event to 2 hours, from 5:20 to 7:20 pm. For the remainder of the high dynamic price event, the price was capped at the peak time-of-use price of 29c/kWh.

Figure 7: Dynamic import prices with guardrails



Note: Charlestown transformer, 10 January 2026

Ausgrid intends to keep the guardrail mechanism under review. The mechanism was appropriate in the context of Project Edith, given its use of simulated transformers and because price events were sometimes due to pricing-model glitches rather than real-world conditions.

However, if a network asset was genuinely at risk of overload for more than 2 hours, dynamic prices may be appropriate to signal this. Further, CER asset characteristics are changing rapidly, which affects how long customers can sustain their responses. As larger home batteries become more common, it may be appropriate to widen the guardrails so high prices can be sustained longer or remove the guardrails altogether. We may also stagger the pricing signals sent to retailers so battery responses can be spread across any event.

3 Results

Project Edith has demonstrated that the system can work by showing end-to-end capability for dynamic network pricing. Prices are generated daily from forecasts of network conditions, delivered via CSIP-Aus to four retail and aggregator partners, and applied to around 1,400 customers across Ausgrid's network area, with billing and guardrails tested. This system now underpins Ausgrid's residential dynamic tariff, introduced as a sub-threshold tariff.[1]

3.1 Consumer response to dynamic prices

The trial showed that, given the right circumstances, consumers can and will respond to dynamic prices. However, the size and reliability of that response varied considerably across events and customers. Refinements to the price signal and underlying systems can address some drivers of non-response, but customers' willingness to share stored energy with the grid may be limited, particularly during heatwaves.

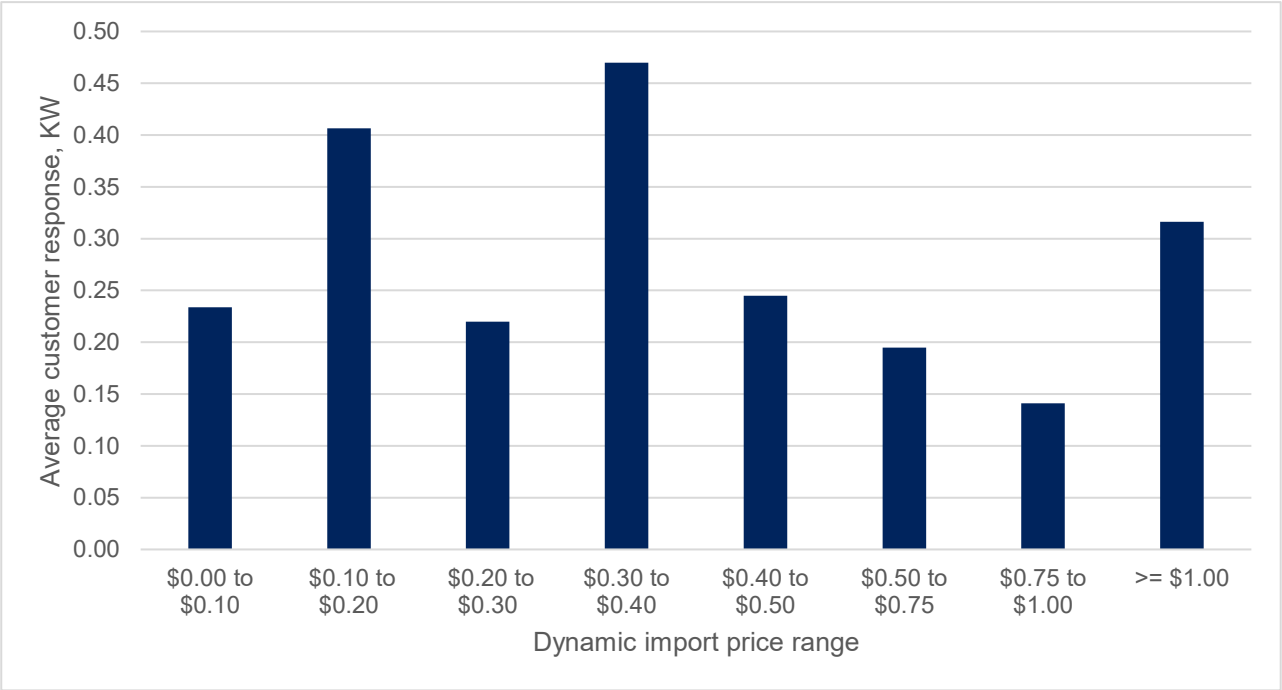
3.1.1 Evidence of a consumer response

The Edith trial results show that—subject to important caveats discussed below—dynamic prices can shape load on the distribution network. Figure 8 below shows the estimated average customer response (in kilowatts) for a given level of dynamic prices over 2025-26.

The estimated response shown below is **in addition to** the peak demand reduction that we would expect to see from Edith customers because they have rooftop PV and a battery. Over 2025-26, dynamic prices generated a modest response. Dynamic import prices above 30c/kWh were associated with an average demand reduction of around 304 watts per customer.

[1] See NER 6.18.1C.

Figure 8: Average customer response by price level, 2025-26



In the chart above, responsiveness is calculated using difference-in-differences analysis, which estimates the impact of dynamic pricing by comparing the load profiles of Edith customers against a control group with similar characteristics[2] both during and outside of dynamic price events. Customer responsiveness in 2025-26 was lower than in earlier stages of Project Edith. Several factors drove this outcome, as discussed below.

3.1.2 Factors affecting level of response

Several factors affected the level of customer response observed during the Edith trial. These include:

- Customers' own-use requirements
- Characteristics of the customer's retail product
- Interactions with wholesale market prices
- Technical challenges
- Capacity of CER assets

Impact of customers' own-use requirements

Over the course of Project Edith, Ausgrid refined its pricing model so dynamic price signals more accurately targeted periods of grid stress on customers' local distribution networks. As we got better at sending signals during real-life demand peaks, customer responsiveness declined. This makes sense because the times when the network is under most stress coincide with the times when consumers are most likely to want to use the energy stored in their battery themselves.

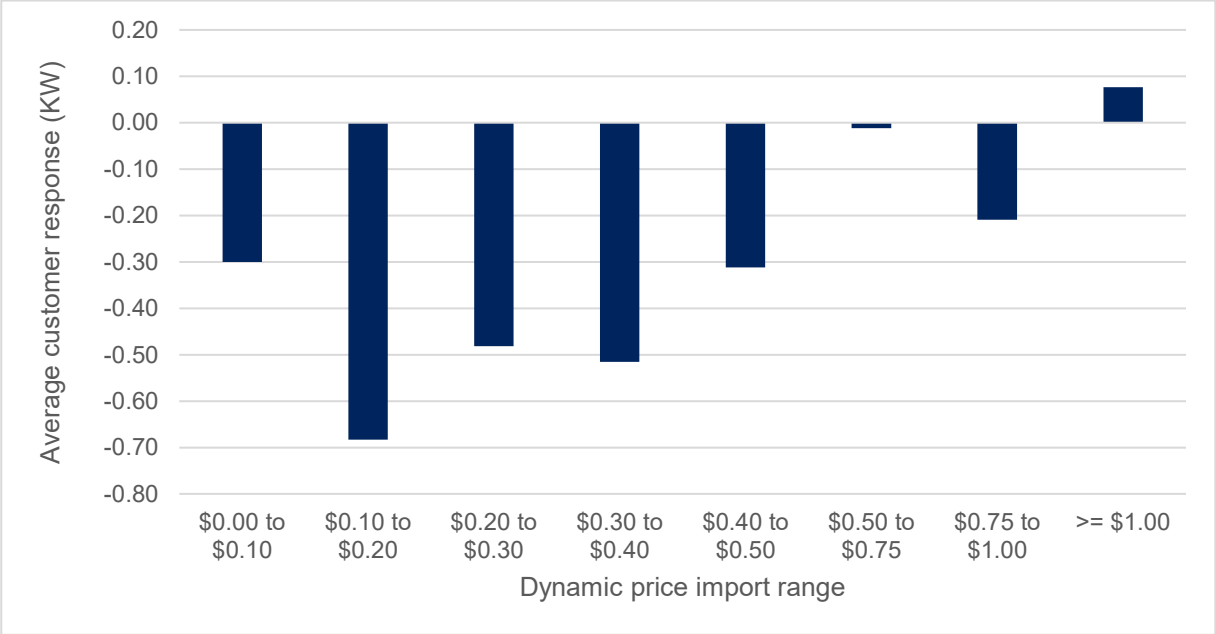
Outside a trial environment, dynamic prices are likely to trigger only a handful of times per year, since the grid is designed to provide a high level of reliability. For the trial, however, more frequent dynamic price events were needed to generate data for analysis. In the early stages of Project Edith, we deployed dynamic prices experimentally to assess whether the various interacting systems could send and respond to a price signal. Once this capability was established, the trial shifted to sending price signals under more realistic

[2] Such as having rooftop PV and battery.

conditions that directly reflected real-life network conditions. In the most recent summer, there were fewer high-price events, which typically coincided with high-demand conditions.

Figure 9 shows customer response on the hottest days, when the local temperature was 35C or greater. On these days, demand fell only slightly (80W) when dynamic prices exceeded $1/kWh. When dynamic prices were less than $ 1/kWh, the average Edith customer's observed demand was higher than we would have expected without dynamic prices – i.e. there was a negative response. These results suggest that it will be necessary to increase the maximum dynamic price/reward to encourage a customer response during heatwave conditions.

Figure 9: Average customer response by dynamic price level during hot conditions, 2025-26

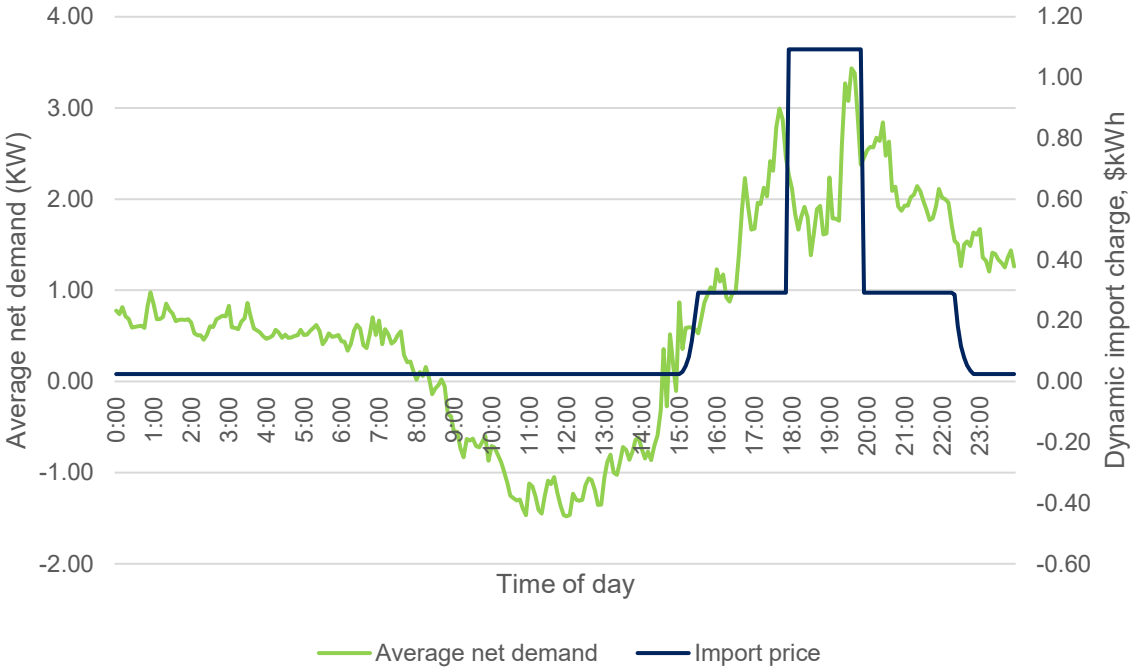


A customer's response depends on the charge available in their battery, whether their agent's algorithm incorporates the price signal, and the value of using their stored energy. The network is most stressed when customers most want their stored energy for cooling.

On peak-demand days, high-price events can outlast a typical home battery, which is often sized for around two hours of full discharge. Responsiveness typically declined across multi-hour events as batteries were exhausted, if any stored energy was available to start with. This effect will diminish if customers install batteries oversized for their demand on a peak demand day.

A subset of customers responded strongly, even during very hot conditions. Encouragingly, one cohort responded strongly on 10 January 2026, even though this day was one of the hottest of the summer. The figure below shows the average demand of the 62 Edith customers allocated to the Charlestown transformer on 10 January 2026. Customer demand appears suppressed throughout most of the maximum dynamic price event, with response levels tapering off toward the end of the period.

Figure 10: Instance of a strong customer response on a very hot day



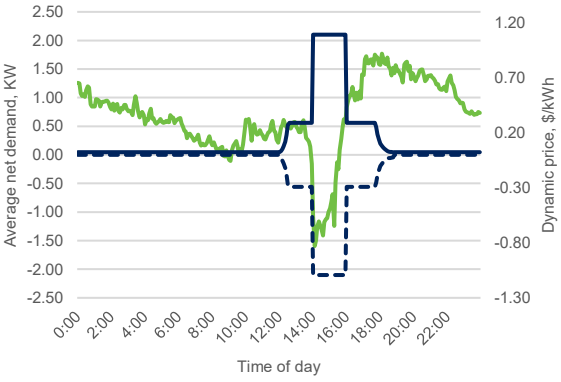
Note: Edith demand vs dynamic price, Charlestown 2 transformer, 10 January 2026, sample size 62.

There were also examples of inconsistent results, where the same group of customers exhibited quite different responses on consecutive days. The example below shows the response of a group of Edith customers allocated to the Cessnock South transformer on 23 and 24 February 2026.

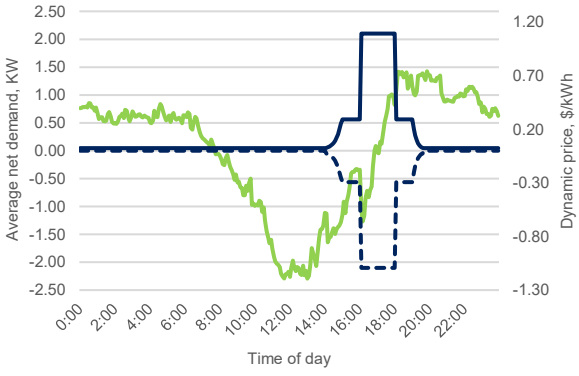
On 23 February, average net imports decreased by about 1 kW during the high-price event. The next day, the same group of customers responded far less, reverting to normal usage patterns after a few minutes.

Figure 11: Single customer cohort exhibits markedly different response on consecutive days

(a) 23 February 2026



(b) 24 February 2026



Note: Edith demand vs dynamic price, Cessnock South transformer, agent X, 23-24 February 2026.

Possible explanations for the difference in results include hotter temperatures (31.9C vs 34.5C), the build-up of heat within the housing stock over the course of the heatwave, and the fact that the second price event occurred later in the day, so the batteries may have been more depleted when the dynamic price event began. We will continue to improve our understanding of these variations as the trial goes to market. A key focus will be to explore options to incentivise customers to respond when the grid needs it most.

Characteristics of retail product

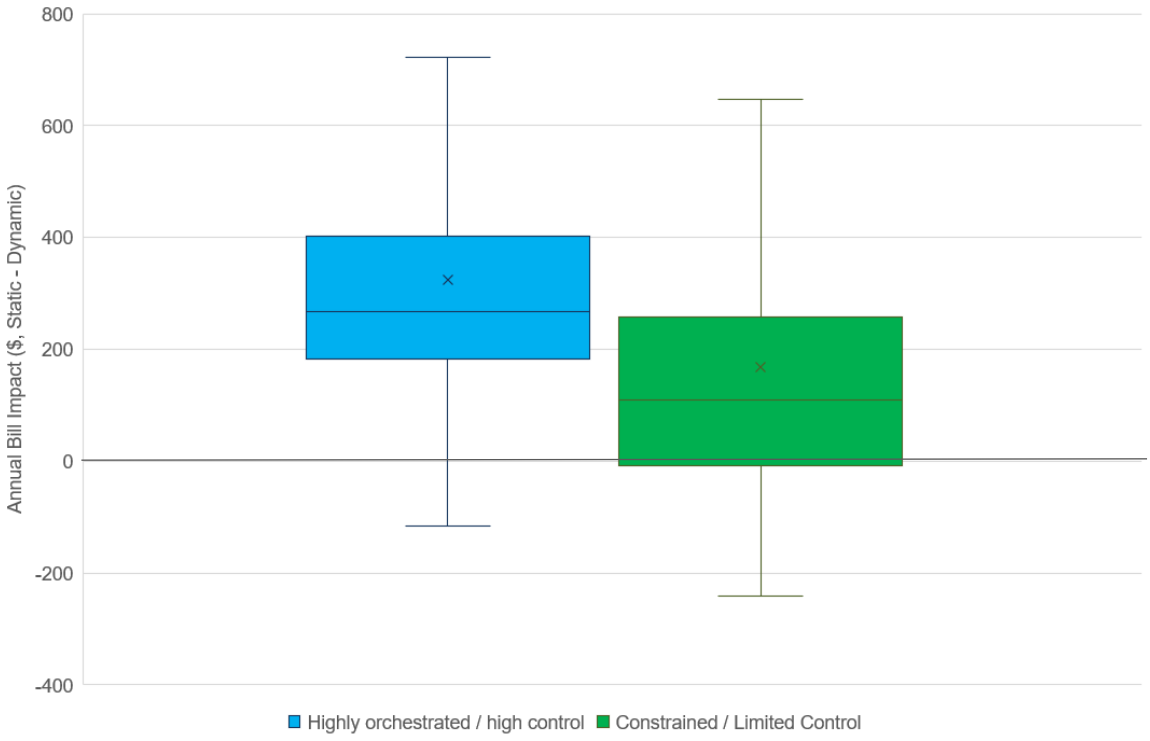
Responsiveness to dynamic prices, and hence customer outcomes, also varied with the extent of the VPP operator's control over customers' CER assets. Some VPPs gave the agent full control over customers' batteries and rooftop PV, while others provided only partial control. Examples of partial control include:

- Agreed payment per discharge, for example, $1/kWh
- Control over batteries but not solar exports
- Ability to discharge the customer's battery, but no ability to charge
- Annual caps on the amount of energy that could be discharged from the customer's battery
- Annual caps on the number of times the VPP could discharge the customer's battery.

Other restrictions that limit the VPP operator's ability to respond profitably to dynamic prices include fixed payments to customers for using their battery. For instance, if a VPP contract guarantees a payment of $1/kWh, the VPP agent would only trigger the VPP when the wholesale price plus dynamic price exceeds $1/kWh.

During Project Edith, greater orchestration was associated with higher network bill savings, but even VPPs with more limited orchestration still generated savings for most of their customers.

Figure 12: Annual network charge savings from dynamic tariffs by product type, 2025



For highly orchestrated VPPs, customers in the second and third quartiles achieved savings of $185 - $400 per annum. For more VPPs with more limited controls, customers in the second and third quartiles achieved savings between -$10 and $260 per annum.

Impact of wholesale market prices

Another factor influencing price responsiveness is the interaction between the wholesale market price and the network dynamic price. Most VPPs try to optimise against both price sets.

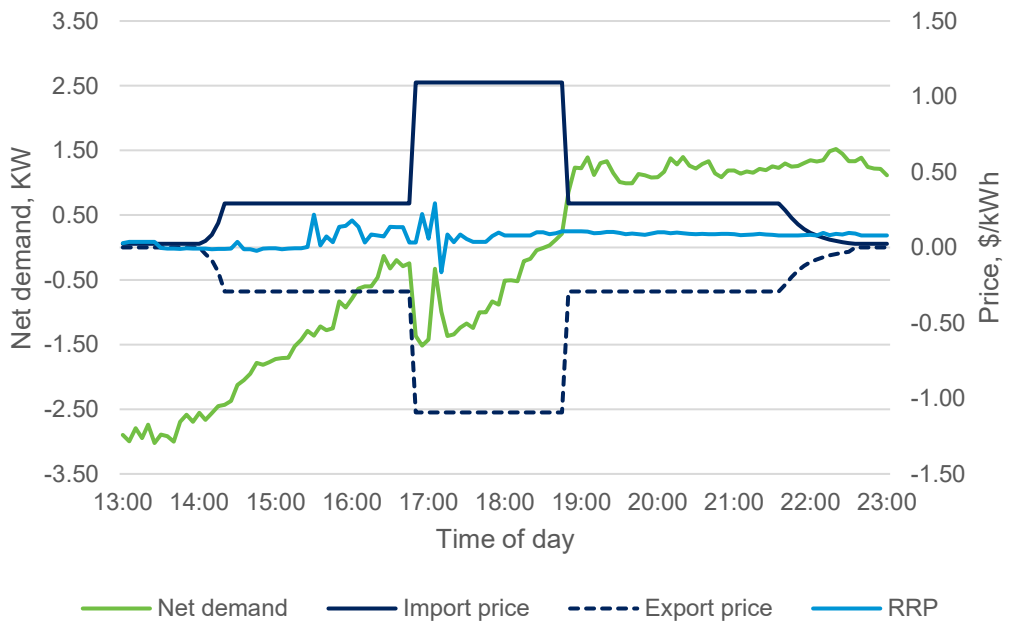
During the Edith trial, dynamic prices were capped at around $1.10/kWh, compared with a wholesale market price cap of $20.30/kWh in 2025-26. Hence, the wholesale market price signal could swamp the dynamic price signal.

In practice, there was little evidence of this. For now, network and wholesale prices mostly move in the same direction. During peak demand events, dynamic network prices and the wholesale market price generally reward the same behaviour (discharging to support the grid), so the two signals can stack.

However, timing can be an issue. Local network assets can have diverse load profiles, depending on downstream customer characteristics. If the local network peak occurs before the forecast wholesale market price peak, the VPP may withhold its response to the network price event, expecting a higher price later. Similarly, if the local network peak occurs later in the evening, customers' batteries may already be discharged from taking advantage of high wholesale market prices. Conversely, if customers' batteries are empty because they responded to a dynamic price event, they may be unable to take advantage of a subsequent wholesale market price event.

Wholesale market volatility also disrupted customer responses to dynamic prices.

Figure 13: Negative wholesale prices affect response during peak demand event



Note: Edith average net demand vs dynamic price and RRP, agent X, Burwood transformer, 9 January 2026.

On 9 January, Burwood hit 35C, triggering a maximum dynamic price event. Customers of agent A initially responded strongly when the dynamic import price (dark blue) reached $1.10/kWh. However, just after 5 pm, a brief period of negative wholesale prices (light blue) temporarily stopped customers from responding to the dynamic price. The response was disrupted even though the negative wholesale price was (on this occasion) much smaller than the positive dynamic export reward.

This chart also shows that the overall response tailed off after about an hour, likely because customers' batteries were drained by high air-conditioning loads.

During the Edith trial, dynamic prices were capped at around $1.10/kWh, compared with reference values such as the NSW customer reliability value of $38.53/kWh. The low cap protected customers from excessive price risk, while dynamic prices were triggered relatively frequently. A central question for the next phase is where the cap should sit to secure a firm response while protecting customers from excessive exposure.

Technical challenges

Technical challenges also affected Project Edith's results. At times, Ausgrid's price engine didn't send prices, so customers received the default anytime price instead of dynamic prices. There were also instances, particularly during summer 2025-26, when VPP customers didn't respond because the VPP's algorithm didn't properly interpret the price signal. These are integration issues that arose because Project Edith was a trial that used off-market workarounds rather than production-level systems. Ausgrid expects these business-to-business issues to resolve as the underlying technology matures and supporting systems are upgraded.

A further challenge is communication between the agent and the customer. At any given point in time, a significant proportion of CER assets are offline. Another factor limiting customer responsiveness is that not all CER assets are controllable by the relevant agent (e.g., the VPP operator). For instance, VPPs are often designed to give the relevant agent control of the customer's battery, but not their rooftop PV, which limits their ability to respond to solar soak events.

These technical issues mean that the observed levels of customer responsiveness likely understate the true scope for customers to respond to price signals.

Capacity challenges

As discussed previously, battery capacity also imposes limitations. During Project Edith, customer response often tailed off before the end of the dynamic price event, leaving customers exposed to high prices. This issue prompted Ausgrid to introduce guardrails (see section 2.4).

This limitation may diminish over time if customers invest in batteries oversized for their consumption needs during peak demand periods—or if it becomes more common for customers to participate in energy markets using their electric vehicles (i.e., Vehicle-to-Grid (V2G)).

If peak-demand/minimum-demand events last longer than CER assets can respond, new measures may be necessary. For instance, one option could be to subdivide customer cohorts to stagger the price signals issued within each price region. This would produce a smaller, longer-lasting response.

Technological change may also present new opportunities. For instance, as V2G becomes more common, EV consumers may find it worth responding to infrequent, high-value events like distribution network peaks. Given their large capacity, EV batteries could respond for longer than many household batteries.

In any case, the issue highlights the importance of ensuring dynamic price signals accurately target periods when the grid is under most stress. Although Project Edith was not a forecasting project, the trial showed that dynamic prices work only if forecasts are accurate. Alternatively, operators could set dynamic prices in real time rather than day-ahead. Appendix 1, section A1.2 discusses the pros and cons of these options.

3.1.3 Challenges in measuring customer responsiveness

To measure the effectiveness of demand-side measures such as dynamic pricing, we must establish a baseline for comparison. This is difficult because we do not know how the Edith customers would have behaved without exposure to dynamic pricing.

Initially, we constructed a relatively simple baseline by comparing the load profile of Edith customers with that of Ausgrid customers who met the following criteria:

- Residential
- Have solar and a battery,
- Five-minute data is available,
- Not already participating in Edith.

Because Project Edith was conducted in collaboration with VPP operators, the Project Edith team was concerned that some of the observed behavioural differences between Edith customers and baseline

customers might be due to Edith customers also being VPP customers. To address this, we worked with our partners to identify a non-Edith VPP cohort to use as a counterfactual. However, the cohorts still differed in underlying characteristics (for instance, the average size of CER assets) that could have affected the measured results.

The challenge was exacerbated by several factors, including:

- The introduction of regional price signals meant that Edith customers were more likely to face extreme forecasted weather conditions at the time of the dynamic price event than the general Ausgrid customer base;
- While Project Edith was underway, the Australian Government's Cheaper Home Batteries scheme led to rapid changes in the number and size of home batteries connected to Ausgrid's network.

As the project progressed, we refined our targeting of dynamic price events to align with peak demand conditions, including sending different price signals by location. The regional groupings sought to capture differences in local weather conditions, as temperature is a key driver of demand.

Initially, we did not split the control group into equivalent geographic regions. Before geographic segregation, Edith customers' load profiles and the baseline customers' load profiles were similar outside pricing events. After geographic segregation, Edith customers appeared to exhibit significantly higher demand than the control group on days with pricing events. We updated our methodology by splitting the control group into the same regional groupings as the Edith customers.

The rapid uptake of home batteries during 2025-26 also challenged our ability to measure customer responsiveness. The new batteries installed under the Cheaper Home Batteries scheme were substantially larger than those purchased before the scheme began. They were also unlikely to participate in a VPP, so relatively few new battery customers became Edith customers.

The emerging structural differences between the Edith cohort and the baseline cohort required a more sophisticated approach to calculating the counterfactual. Ultimately, we constructed the counterfactual using a difference-in-differences analysis, as described in Box 1.

Box 1 Difference-in-differences analysis

Difference-in-differences analysis constructs a counterfactual – i.e., an estimate of how the Edith customers could be expected to behave in the absence of dynamic pricing – by comparing the load profiles of the control and Edith groups on a normal day (with no dynamic pricing) and on a day with dynamic pricing.

To establish the control group, we allocated Edith customers to behavioural clusters based on the typical shape of their load profiles. We then calculated the proportion of Edith customers in each region in each behavioural cluster. The set of candidate NMIs for the control groups was created by identifying customers who:

- Had similar characteristics (e.g. residential customers with solar and a battery)
- Were in the same region (to ensure that the control group experienced similar weather conditions).

We then assigned each candidate NMI to a behavioural cluster based on their load profile. From this dataset, we constructed a control group that matched the local Edith cohort's proportions across behavioural clusters.

We adopted this approach because simply comparing Edith customers' behaviour before and after the dynamic price event would likely be affected by other factors that influence energy demand. This issue is especially challenging because dynamic price events are deliberately targeted towards extreme network conditions, when load behaves abnormally. Similarly, simply comparing the Edith cohort with the control group would likely be confounded by underlying differences between the cohorts, such as the size of their CER assets.

Ausgrid will monitor this methodology's effectiveness during the sub-threshold trial and refine it if necessary.

3.2 Customer impacts

Another core focus of Project Edith was understanding how dynamic pricing affects customer outcomes, both their overall bill and opportunities to participate in the wholesale market.

3.2.1 On average, Edith customers received lower network charges

We compared the network billing outcomes customers would have experienced under dynamic tariffs with those under their standard network tariff.

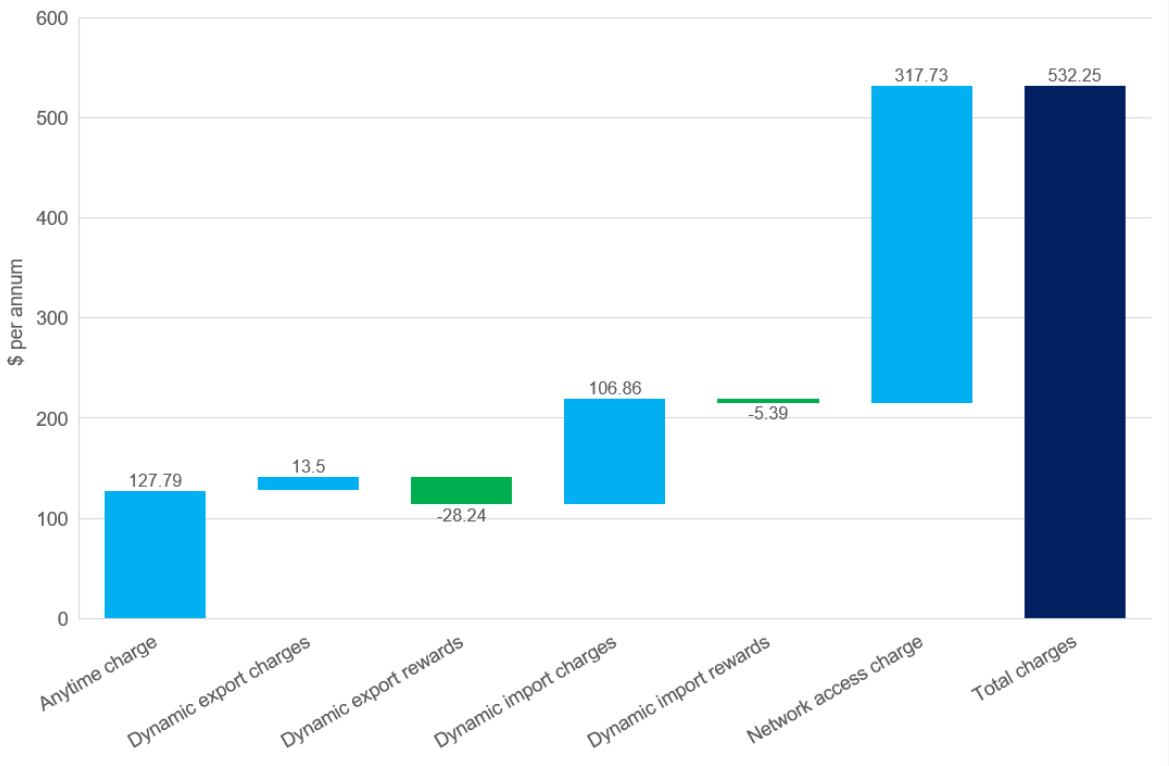
Overall, while Edith customers faced higher-than-normal network access charges of 94.17 cents per day in 2025-26, the higher fixed charges were more than offset by the very low anytime usage charge and the opportunity to earn rewards during dynamic price events.

During Project Edith, we discounted dynamic tariffs to encourage participation in the trial. On average, Edith customers paid 24% less in network charges than under their normal tariff, a saving driven by both the tariff design and how customers responded to the price signals. This higher-than-expected discount arose from uncertainty about the number and scale of dynamic price events (which depend on the weather) and how customers would respond to dynamic prices.

The uncertainty was compounded by the fact that dynamic prices are symmetrical, meaning customers can either incur charges or earn rewards during dynamic price events. The higher-than-expected discount reflects customers' success in earning rewards by exporting during peak-demand events and, to a lesser extent, by importing during solar soak events.

Figure 14 shows the breakdown of the average revenue recovered across the various dynamic tariff components for calendar year 2025. Over half of the accrued charges were due to the higher-than-usual network access charge.

Figure 14: Average network charges incurred by Edith customers, Jan-Dec 2025



While customers partially offset dynamic charges by earning dynamic rewards, overall customers were net payers during dynamic price periods. This outcome may change in future due to the introduction of the guardrails (see section 2.4). In 2025, the Edith pricing engine produced several extended-duration price events, which made it difficult for customers to sustain a response throughout the period.

These average results mask differences in individual customer outcomes. Overall, 80% of Edith customers were better off on dynamic charges than on their usual network tariff, and 20% were worse off.

3.2.2 Characteristics of customers that did and didn't do well

Customers who incurred lower network charges on the dynamic tariff typically had the following characteristics:

- Customers with higher levels of network imports tended to do better than small customers
- Customers with larger batteries tended to do better than customers with smaller batteries.

Table 2 breaks down the results by customer and battery size. In this table, a customer is better off if their annual network charge calculated using the Edith dynamic tariff is less than their annual charge calculated using their normal tariff.

Table 2: Annual bill impacts on Edith customers, 2025

% Better off	Battery Size		
Network Import Tier	Large (20+ kWh)	Medium (10-20 kWh)	Small (<10 kWh)
Large (≥25 kWh/day)	100%	100%	99%
Medium (10-25 kWh/day)	100%	96%	96%
Small (≤10 kWh/day)	38%*	74%	67%

* Small sample size – more data required.

Customers with higher daily network imports can benefit more from the dynamic tariff, as they can spread the fixed charge over greater volume and actively use their battery to avoid high-cost imports or earn rewards during constraints. These customers are more likely to use their batteries to participate in energy markets. Customers who use their battery to minimise reliance on the grid are less likely to benefit from a dynamic tariff, especially if they have low network imports and therefore low usage charges. In these cases, fixed charges can dominate bill outcomes.

As discussed in section 3.1.2, another factor that affected which customers did and didn't do well was the customers' retail product. Customers on highly orchestrated products with few limitations on how the VPP agent could use their battery tended to be more responsive and achieve greater savings than customers in VPPs with more limitations on using the customer's asset. These observations describe results within the context of the Edith experiment and should not be interpreted as commentary on retail products more generally.

In practice, no customers were worse off during Project Edith due to the operation of the no worse off guarantee (see section 1.2). These insights into which customers are best suited to dynamic tariffs will matter going forward, as the no worse off guarantee does not apply to the on-market sub-threshold tariff.

3.2.3 Impact on wholesale market performance

The discussion above describes how dynamic prices affected the network component of customers' bills. Dynamic tariffs also affect customers' ability to participate in the wholesale market. Traditional network tariffs can be a cost barrier that reduces the potential arbitrage value of a customer's battery.

Because customers use their batteries to power their homes and participate in energy markets, discharging their battery in response to high early-evening prices can mean the customer must import energy from the grid later in the evening. Network charges associated with imported energy need to be factored in when the customer (or their agent) decides whether to respond to the price signal. For instance, if a customer is on a network time-of-use tariff of 30c/kWh during peak periods, this adds a cost for imported energy equivalent to a wholesale market price of $300/MWh.

A key feature of the Edith tariff is that it is designed to "get out of the way" – i.e., to avoid creating barriers to customer participation in the wholesale market. When the network is unconstrained, the Edith network usage tariff is set at the low anytime rate. Removing network price signals during unconstrained periods is intended to reduce barriers to wholesale market participation.

The Edith team made several attempts to estimate the wholesale market value of the change in the Edith customers' load profile. However, the analysis was complicated by difficulties in quantifying the counterfactual (see section 3.1.3).

A simpler approach is to measure the network tariff "cost barrier" by measuring how frequently the opportunity cost of network charges exceeds the wholesale market price. This analysis assumes that customers must choose between:

- Using the energy stored in their battery to self-consume and
- Selling the energy stored in their battery into the wholesale market, with the consequence that they will subsequently need to purchase energy from the grid for their own consumption.

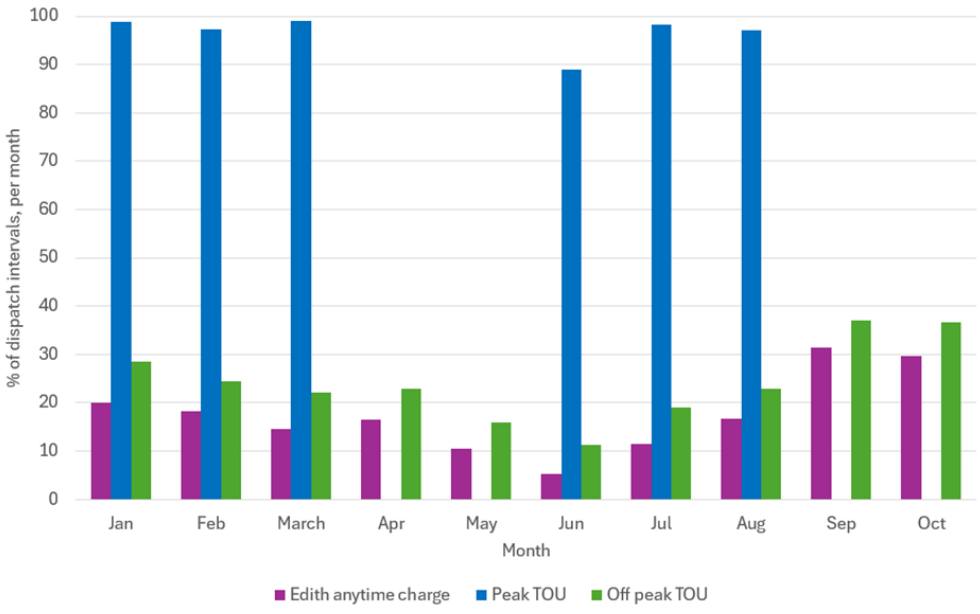
These assumptions mean customers face an opportunity cost if they use their battery for arbitrage, as they will need to pay network charges for the energy they subsequently draw from the grid. This analysis has a caveat: if a customer has invested in a battery larger than required for their own needs, they can still discharge part of its output without worrying about the opportunity cost of volumetric network charges.

Figure 15 below shows the proportion of dispatch intervals per month in 2025 where the New South Wales regional reference price (RRP) was:

- Less than $24.28 MWh (the threshold for where the opportunity costs associated with the Edith anytime charge may present a barrier to wholesale market participation)
- During peak months, less than $292.45 MWh (the threshold for where the opportunity costs associated with the TOU peak charge may present a barrier to wholesale market participation)
- During off-peak months, less than $51.54 MWh (the threshold for where the opportunity costs associated with the TOU off-peak charge may present a barrier to wholesale market participation).

Figure 15 shows that it would rarely be profitable for a customer to discharge their battery if doing so would require charging it during a peak TOU period. In effect, this figure shows peak TOU tariffs working as intended since they are designed to discourage energy consumption during the evening peak periods. However, TOU tariffs are a blunt tool because most evenings still have spare network capacity, even in summer and winter. Dynamic prices avoid this outcome because they apply only when and where needed.

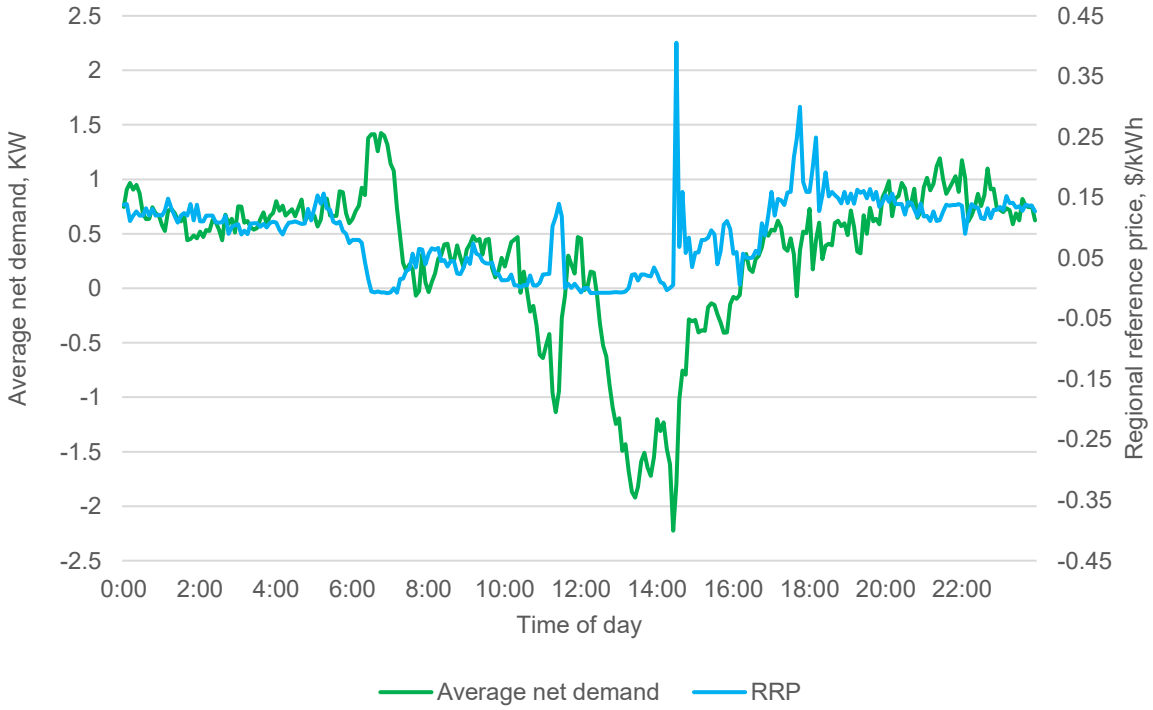
Figure 15: Percent of time that opportunity costs due to network charges exceed RRP, by type of charge (2025)



It is much less common for the RRP to be lower than the Edith anytime charge (or the off-peak TOU charge), as these charges are set at much lower levels. These low-RRP periods are when customers are likely to want to charge – not discharge – their batteries. Note that Ausgrid peak TOU rates do not apply in April, May, September or October.

The Edith team also observed instances of “mirroring” behaviour, in which Edith customers adjusted their net load in response to small changes in the RRP. In Figure 16 below, the dynamic price remained at the anytime price all day, except for a brief evening event (up to 6c/kWh). On this day, VPP operators reduced demand when the RRP rose, and vice versa (except during a period dominated by solar exports in the middle of the day).

Figure 16: Instance of average Edith customer’s demand “mirroring” RRP



Note: Edith average net demand vs RRP, Narrabeen transformer, 20 December 2025.

The mirroring behaviour is attributable to VPP operations rather than dynamic prices. However, the reduced friction associated with dynamic prices may have increased opportunities for VPP operators to respond to changes in the RRP.

4 Next steps

Ausgrid has built on Project Edith's success by deploying dynamic prices across its network as a sub-threshold trial tariff. Residential customers may opt in to Ausgrid’s dynamic tariffs (EA 974/975) so long as their retailer is participating in the trial.

The 2026-27 sub-threshold tariff is aligned with the Edith tariff, subject to price increases in line with Ausgrid’s broader tariff portfolio. However, Ausgrid has lifted the no worse off guarantee for the sub-threshold tariff. This change is likely to improve customer responsiveness, as customers and their agents were previously protected from the consequences of failing to respond. Section 3.2 provides insights into which customer types are well suited to dynamic tariffs.

The move from off-market trial to on-market trial marks a substantial step forward in deploying dynamic pricing. Most retailer and network billing systems are not set up to accommodate prices that change incrementally every 5 minutes. Ausgrid has upgraded its billing systems to enable dynamic pricing, but for the sub-threshold tariff to be successful, retailers will need to do the same. Ausgrid’s next phase will involve working with retailers to support uptake of the sub-threshold tariff.

Some retailers have indicated that the billing system upgrades required to support dynamic pricing are a barrier to uptake. Nonetheless, for dynamic pricing to move beyond the off-market trial phase, retailers will need to change their billing systems. To incentivise retailers to invest in the required billing system upgrades, the sub-threshold tariff remains benchmarked at a level that includes a discount. This discount also addresses the potential risk of customers being exposed to prices they can't respond to.

Going forward, Ausgrid will focus on making dynamic prices more widely available via the sub-threshold tariff and developing a plan to roll them out more broadly. Ausgrid will also explore options to improve customer responsiveness during peak and minimum demand events. This could include working with retailers to identify which customers are best placed to respond to dynamic prices and sharpening the price signals so that customers are more highly rewarded for responding to a dynamic price event.