Regulatory sandbox application – revision 2

Community Power Network

July 2025

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Ausgrid

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Message from the CEO

We are pleased to submit this application to trial a new concept called a 'Community Power Network' under the Australian Energy Regulator's regulatory sandbox and ring-fencing waiver arrangements.

Why we are submitting this application

At Ausgrid, our aim is to enable the most cost-effective access to safe and reliable power for all electricity consumers in our network area. Rooftop solar and distributed storage are changing the potential options available to do this.

While these two technologies can deliver significant benefits, three key challenges remain:

1. **Inequitable access:** Many customers – particularly those without suitable roofs, capital or landlord permission – are unable to access the benefits of rooftop solar and storage.
2. **Cost pressure:** Ways need to be found to lower the cost of the energy transition. New transmission is not the only pathway; distribution networks have existing capacity that can support more renewables with significantly less investment. By being smarter about utilising the infrastructure we have already built, we can get there much more cost effectively.
3. **Australia needs to go faster:** To meet Australia's carbon emissions targets, the rate at which renewables are added to the grid needs to triple in the next five to ten years. Utility-scale renewable deployment is lagging due to supply chain constraints and social license issues, yet, we are not maximising solar potential in the grid's edge, particularly on commercial and industrial buildings under the current market arrangements.

If we don't try new approaches to this transition, we risk only benefiting a few while creating inefficiencies and instability across the grid. At Ausgrid our goal is to enable outcomes that benefit everyone connected to our network.

What is a Community Power Network?

The Community Power Network is an accelerated deployment of rooftop solar and community storage into an area. This would be planned and orchestrated by Ausgrid involving both Ausgrid and commercially owned assets.

It will create a market for surplus rooftop power, which will be pooled in local storage. This electricity will be redistributed during the evening peak to benefit all customers in the area. The storage will be strategically placed across the network to also deliver grid support and avoid or defer upgrades.

Our central hypothesis is that: ***the coordinated deployment and orchestration of distributed storage by the network operator can deliver the lowest cost of electricity to all customers***, not just those able to install their own assets.

Our proposal targets four sources of value:

1. **Leveraging cheap energy sources:** Rooftop solar is the cheapest energy source and this model maximises its usage in the network.
2. **Reducing network charges:** Lessen the required upstream assets to distribute power through local generation and grid balancing.
3. **Lowering asset costs:** Collective investment, scale and efficient procurement to lower the capital cost for the storage assets bought.
4. **Shifting orchestration value:** Share the benefits of orchestration between wholesale market participants and customers connected to the network.

We estimate benefits of $22.9m can be created for the 32,000 customers in the pilot areas.

However, all innovation comes with a level of risk. The principle we have applied in developing our proposal is that customers should receive the upside generated in the pilot but not be exposed to any downside.

We value feedback received

Over 90 stakeholders have helped shape our views during the development of this proposal. We thank these stakeholders for their feedback.

Yours sincerely,

Marc England
Chief Executive Officer

Pilot Details at a Glance

Benefits

- Customer savings pool estimated at $22.9m generated (cumulative over 5 years) which will be equitably shared amongst all customers in the proposed locations
- This equates to $150-$200 per customer per annum for a typical house once fully operational
- Additional savings accrue to solar owners from higher feed-in tariffs than currently exist
- 421,054 tonnes of CO_2 removed from energy generation (equivalent of 8,350 cars)

Planned Storage and Solar Deployment

- 130MWh (65MWh in Botany-Mascot and 65MWh in Charmhaven) of additional storage to base case
- 70MW (50MW in Botany-Mascot and 20MW in Charmhaven) of additional solar to base case

Key Financials

- $84m of batteries added to the network
- $76m investment by commercial markets entities in additional rooftop solar
- $18m investment in grid and battery management capability
- $9m investment in community engagement and project delivery
- Asset investment underwritten by Ausgrid, with no losses recovered from customers if the pilot doesn't achieve a positive return and has to be unwound

Proposed Locations

- Botany-Mascot in Sydney (2 zone substations)
  - 17,000 customers, 68% in apartments, 50% renters
  - circa. 112MW of potential solar (65MW on C&I, 25MW on small business, 22MW on residential)
  - 9% current uptake rate of solar, generating 5% of current consumption
- Charmhaven on the Central Coast (1 zone substation)
  - 15,000 customers, 6% in apartments, 32% renters
  - circa. 73MW of potential solar (9MW on C&I, 6MW on small business, 58MW on residential)
  - 32% current uptake rate of solar, generating 33% of current consumption

Main Roles and Responsibilities

- Local spatial energy planning led by Ausgrid
- Retailers retain customer relationship and billing continues as usual
- Batteries owned and directly controlled by Ausgrid for the pilot (this is for simplicity in the pilot. If proven successful, other ownership models with dynamic tariff signals will be explored as a long-term solution)
- Solar owned and operated by third parties (property owners, commercial solar, retailers etc.)
- Ausgrid will only step into solar ownership and operation if commercial markets do not respond
- Dividend pool and equitable distribution of the customers' benefits managed by Ausgrid
- Specialist committee led by RACE for 2030 and UNSW with community consultation to create a formula for the equitable distribution of the dividends to customers (AER to approve)
- Ideally dividend to customers paid via retailers (TBC)

Timing

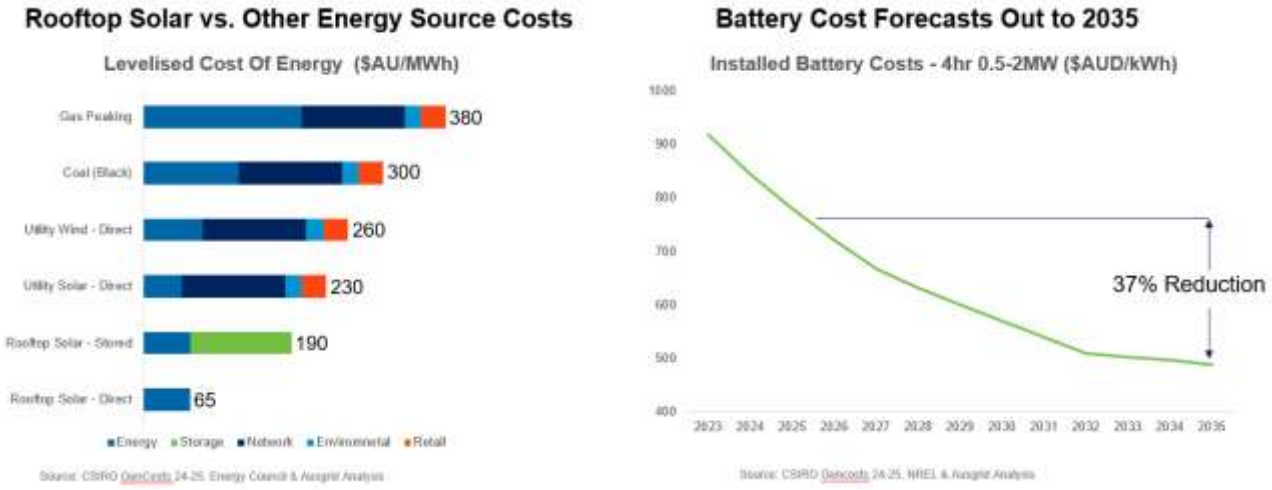
- Pilot duration of 5 years (plus 1 year extension if required)
- Proposal initially submitted May 2025
- Decision anticipated Q4 2025 (subject to AER processes)
- Spatial energy planning and partnership contracts to commence immediately upon AER approval
- Start construction mid 2026
- First wave of solar and storage assets in place and being managed by mid-2027
- First dividend payment review June 2028 with payment shortly after
- Pilot conclusion latest 2031 (with regular reviews along the way and learnings shared)
- After conclusion, the pilot may be unwound, modified or scaled up depending on outcomes

1 The Need for Change

The energy system is undergoing a profound transformation.

Gone are the days when electricity could only be produced by large-scale generators and delivered to customers through thousands of kilometres of poles and wires. Rooftop solar now offers a low-cost alternative, generating electricity at less than a quarter of the cost of a typical residential tariff. Even when storage is added to shift energy for use in the evening, rooftop solar remains a commercially compelling option for customers.

Figure 1.1: The Levelised Cost of Energy and Rate of Decline in Costs of Batteries



Many customers are also motivated by non-financial benefits, such as decarbonisation and energy independence, which strengthen the case for investing in solar and storage to meet part of their energy needs. These clear benefits will result in a continued customer-led trend to adopt these technologies.

However, the current way solar is being rolled out creates a number of issues for the energy sector.

Issues with the current roll out of solar and storage that we are trying to address

Customer Equity - Only those living in suitable buildings with access to the required capital can access the benefits of rooftop solar and storage today. Those in apartments, rentals and of lower socio-economic circumstances find it harder to capture these benefits. This issue is exacerbated by individual rebate schemes where all customers/taxpayers subsidise assets for a select group. If solar and storage are to be a major part of our energy ecosystem going forward, this must be addressed.

Lowest Costs - The current uncoordinated roll out of solar and storage does not ensure the right assets are always in the right locations and installed at the most efficient scale. Rooftop solar has the potential to deliver over 30% of community demand with Ausgrid's existing network and has the potential to reduce the amount of new transmission assets required to connect remote generation projects. We need to be smart and invest prudently in assets so we do not pay more than is needed and can get the most from the network we have, keeping network tariffs to a minimum for customers.

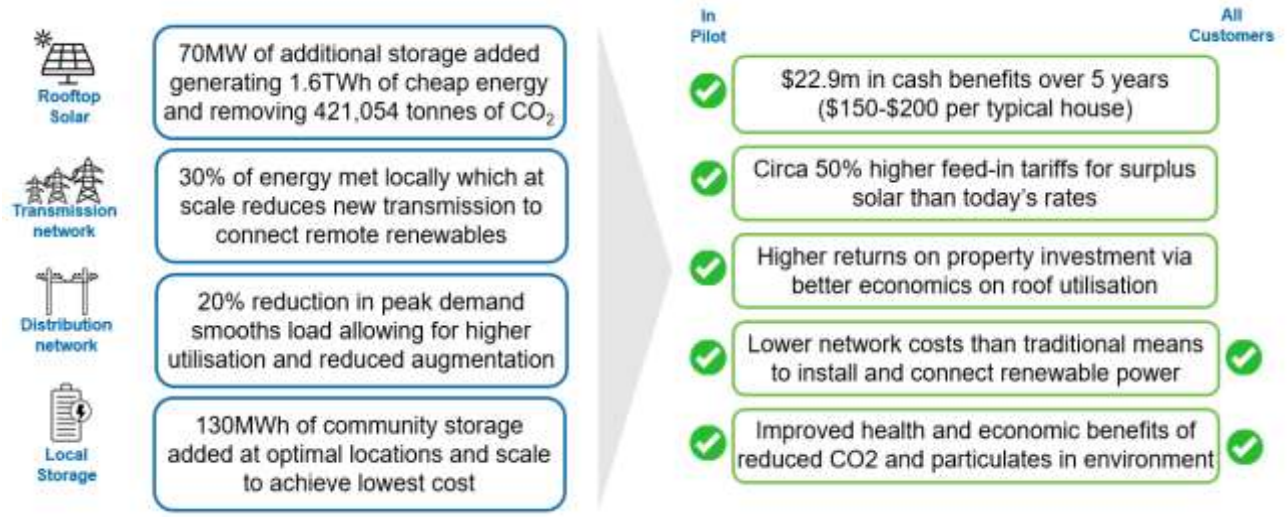
Speed of Transition - Large scale renewable projects and the transmission lines required to connect them to load centres are facing significant cost and social licence headwinds which have resulted in NSW decarbonisation targets being under threat. Renewables connected to distribution networks can do more to help decarbonise the grid. Harnessing the full potential of rooftop solar with appropriately orchestrated storage will create a parallel pathway to decarbonisation, helping us stay on target to meet Australia's emissions targets.

2 The Potential Benefits for Customers

The Community Power Network addresses the issues discussed in the previous section by activating and sharing currently untapped potential local solar generation. It employs an innovative approach to engage commercial and industrial rooftops, lower network costs and share the benefits with all customers across the local community, regardless of whether they have solar and storage or not.

The estimated financial benefits that will be generated for customers in the proposed trial areas are $22.9m in dividends. This equates to an ongoing $150-$200 per annum for a typical house or 10% of annual electricity costs, plus feed-in tariffs for those producing surplus solar that are around 50% higher than typical rates seen today. The value streams delivered by the concept are outlined in the sections below.

Figure 2.1: Summary of Value Streams and Benefits for Customers



2.1 Specific Value Streams Generated

2.1.1 Leveraging Cheap Energy Sources

The Community Power Network creates a commercially sustainable market for local surplus rooftop solar. It intends to introduce an additional 70MW across the pilot areas which is projected to generate 1.6 TWh over the lifespan of the solar arrays. This is cheap, clean energy that is generated and consumed locally and will therefore attract a lower network tariff to reflect the assets required to distribute it, lowering the average cost of energy for customers in the pilot areas.

2.1.2 Reducing Future Network Tariffs

The Community Power Network adds storage to the network which creates network benefits that at scale we expect will reduce overall network costs and future network tariffs for customers.

By flattening peaks and troughs in grid demand, Community Power Network batteries can reduce or defer costly network augmentation. For example, Ausgrid is currently planning to replace switchgear in the Botany (FY28) and Mascot (FY31) substations with a total cost of $30m. These assets are located within the proposed area for the pilot. If the pilot can flatten demand and provide additional network resilience as expected, these upgrades may be able to be deferred or reduced. This would lower the capital investment in the grid and reduce the charges recovered from all customers over time.

In addition, the Community Power Network will trial an innovative local solar marketplace that will offer feed-in tariffs that make installing solar attractive – particularly on large commercial and industrial premises. By storing surplus daytime generation and redistributing it within the community later in the day, the model is expected to meet up to one-third of local energy demand.

An increase in locally supplied power will reduce the amount of new large-scale renewable generation needed (and the transmission infrastructure required to connect it). If the Community Power Network was successfully rolled out after the proposed trial, this could help defer, reduce and/or avoid future transmission projects. Each new transmission project adds hundreds of millions of dollars to network costs. Avoiding one or two of these projects over the course of the energy transition could materially lower consumer network tariffs. Our estimates show that the costs to build and connect generation under the Community Power Network model is 20% cheaper than using traditional network designs. Further detail on this is provided in Appendix A.7.

2.1.3 Lowering Capital Spent on Storage Assets

The Community Power Network will optimise the size, number and locations for storage across the community which will lower the capital costs incurred.

Ausgrid will unlock capital efficiencies by developing what we term a 'Spatial Energy Plan'. This plan will consider all existing and forecasted customer needs, including any solar, storage, electric vehicle and other new electrification technologies added by customers. This will be used to assess capacities and issues such as load constraints and voltage rises forecasted in the local network.

The Spatial Energy Plan will determine the appropriate amount of storage that is required to be installed at each location to balance the grid and deliver the Community Power Network concept. Ausgrid will utilise efficiently sized batteries installed in the most efficient way and ultimately deliver grid benefits at the lowest possible cost to customers.

The Spatial Energy Plan will be published and updated at least annually so that commercial entities can see where they can most easily connect new assets and obtain the most benefits from them. The Spatial Energy Plan will show grid capacity for additional solar and required storage along each low-voltage distribution feeder, except for where this level of granularity would expose individual customer data protected under privacy legislation or create security issues.

2.1.4 Shifting Orchestration Value

Orchestrating the Community Power Network storage directly allows it to capture the benefits that the batteries generate.

What sets this concept apart is that the Community Power Network is operated like a regulated business, with all benefits – beyond a regulated return – passed through to customers. This shares more of the value created through generation and energy arbitrage with customers.

The Community Power Network will manage the procurement, storage and sale of the community's surplus solar. It aggregates the value generated with additional benefits from wholesale market participation, ancillary markets and avoided networks costs – into a shared pool of value for all customers in the community.

Ausgrid is only proposing a regulated level of return for operating these as a network asset. The rest of the benefits will be passed to customers in full. Importantly, Ausgrid is also underwriting this project, so there is no downside risk to customers in the pilot from participating.

This approach enables all customers in the community to capture the benefits of sophisticated battery management strategies – without needing to own a battery or be exposed to the risks of wholesale market volatility.

2.2 Benefits Summary for Customers Within the Community Power Network

Inside the pilot areas, the benefits to customers are much more direct and tangible.

All customers in the community will receive a share in the estimated $22.9m dividend. This can be used to offset power bills, addressing the equity issue noted earlier in this document – since the dividend payment is not reliant on a customer owning solar or storage.

Customers that provide surplus solar into the community will also benefit from higher feed-in tariffs for their power. This is particularly relevant for large commercial and industrial customers who typically would not receive any payment for surplus solar. Feed in tariffs are estimated to be circa 50% higher than current rates.

These direct financial benefits are broken out for typical customer archetypes in Table 2.1 and Table 2.2.

The batteries spread across the grid also make the local network more resilient. This means it would be more likely that customers could connect new generation and loads, such as EV chargers or electrified industrial processes, to the grid without triggering costly network augmentation, saving customers time and money and enabling a faster transition to a decarbonised world.

The batteries also store two to four hours of power that can be replenished daily without the need for a grid connection (from local solar). In the case of extreme network outages, there is the potential the network could be configured to allow the community to use the community storage with an emergency level of power and improve power supply resiliency. Note though, that technicalities of the network mean the community batteries cannot simply power the community through a grid-wide black out. Additional work would be needed to make this possible, which is not envisaged as part of this pilot.

2.3 Benefits Summary for Customers Outside the Community Power Network

The additional 70MW of solar added to the grid removes 421,054 tonnes of CO_2 from the generation of electricity required to collectively power all customers over its expected lifetime of 16 years, which is the equivalent of 8,350 cars. Using the Australian Energy Regulator's (**AER**) value of emissions reduction, this translates to $42.6m in benefits, reflecting avoided climate and health impacts and broader economic gains.

As noted above, the flattening demand can reduce the spend required on transmission assets and local network augmentation, resulting in a lower future spend on the network. Therefore, deploying the Community Power Network approach at scale could materially reduce overall network costs and help lower future network tariffs for all customers.

In total, we have attributed around $1 per customer per year as the benefits that all customers receive as a result of these long-term indirect benefits. More detail on this estimation is provided in Section 4.2.

Table 2.1: What the Community Power Network Means for Different Customer Types – Residential and Small Commercial

Customer archetype	How they participate	How they benefit*
 No solar	• Automatic eligibility and sign on for benefits • All interactions via retailer as per normal (may need a new platform to receive dividend - TBC)	• Estimated $150-$200 per annum dividend payment to offset electricity bills. • No upfront investment or changes to customer behaviour required
 Existing solar	• May need new plan with their retailer to access higher feed-in tariffs but otherwise no change • In the background the Community Power Network underwrites the higher feed-in tariffs for Retailers • All interactions via retailer as per normal (maybe a new platform to receive dividend - TBC)	• Receive a higher feed-in tariff for solar (by 2-4c per kWh or 50% increase) • Annual dividend payment to offset bills • Total benefits of $175-$250 per annum (slightly higher than no solar case)
 Installs new solar	• Install solar and access a retail plan with a feed-in tariff • Higher feed-in tariffs support oversizing solar • All interactions via retailer as per normal (maybe a new platform to receive dividend - TBC)	• Improved return on investment for their solar system and better use of available roof space • Earn approximately $125 per year for each additional kilowatt of solar capacity installed • Dividend payment as per existing solar customers
 Solar and storage owners	• Customer largely becomes self-sufficient and generates their own benefits • Can still sell surplus solar as above or participate in innovative retail and orchestration products	• Customers store and consume all their own solar • Benefit from lower electricity costs in return for the capital outlay for the assets • Higher feed-in tariff will apply for any surplus solar • Possible dividend payment if deemed equitable

* Benefits are based on modelling and forecast assumptions. While these are based on reputable sources and real-world expert opinions, the results of the pilot may vary significantly and the financial benefits quoted may vary once the concept is fully tested.

Table 2.2: What the Community Power Network Means for Different Customer Types – Large Commercial & Industrial

Customer archetype	How they participate	How they benefit*
 Landlord or business who doesn't want to own solar on their property	• Solar operator leases roof from owner • Operator makes a bid to supply power via a reverse auction process • If successful, a Power Purchase Agreement is made with the Community Power Network • Solar operator builds and operates the solar • Surplus solar sold to Community Power Network, operator is still free to sell power elsewhere too	• Better returns from property for no outlay ($16,000 per MW installed using a $3 per m² annual lease fee) • Annual dividend payment if the business pays electricity bill in the Community Power Network
 Business or landlord that wants to save on energy costs by installing solar on their property	• Property owner gets a quote from installer • Property owner submits a bid to supply solar • If successful, a Power Purchase Agreement is made with the Community Power Network • Installer builds system for owner • Surplus solar sold to Community Power Network	• Reduced energy costs • Generate $440,000 profit per MW installed above self-consumption needs (over 16 yr lifespan) • Annual dividend payment

3 Proposal Overview

3.1 Overview of the Concept

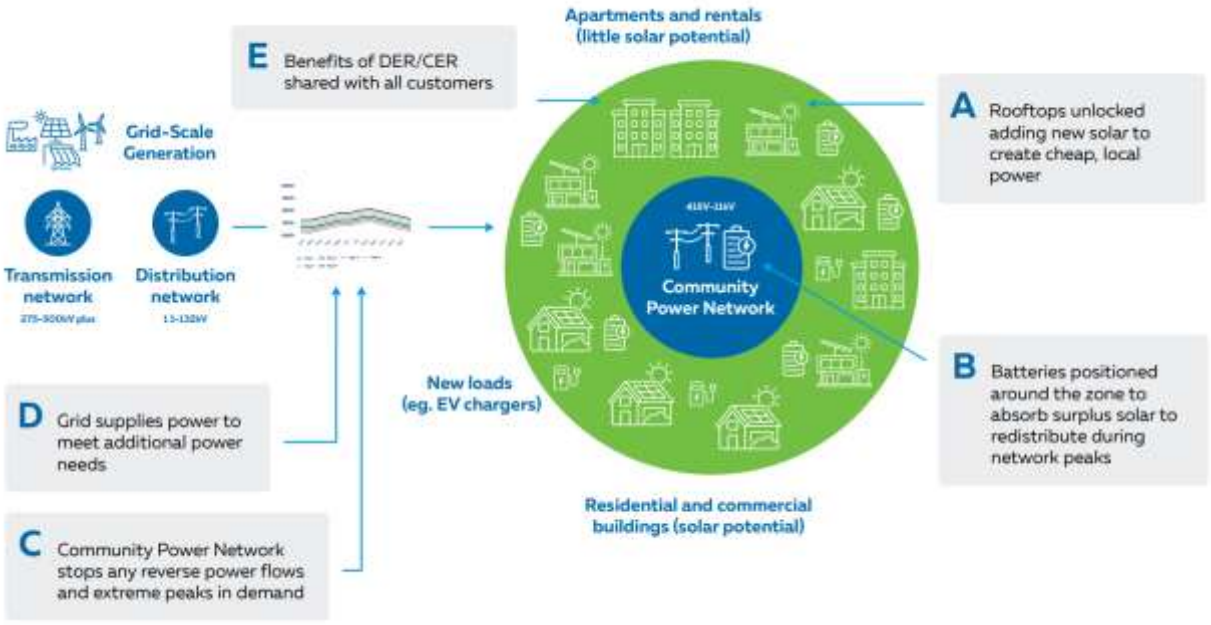
At its core, the concept takes a community-based approach to powering homes and businesses by pooling surplus solar energy generated during the day. This energy becomes a shared resource, redistributed during the evening peak, with the benefits shared among all customers and businesses in the community, regardless of whether they personally own solar, storage or other new energy technologies.

The Community Power Network orchestrates batteries to achieve three things:

1. Create a profitable local market for surplus solar, using its batteries to store power when not commercially viable to sell it on the wholesale market. This will unlock untapped roof space, especially on large commercial and industrial roofs, with local owners capturing the benefits of generating cheap, carbon-free power that the network will then share with their neighbours;
2. Smooth out the peaks and troughs on the network. This can avoid significant network costs to connect new generation and loads and ultimately reduce the cost of electricity in the future. This happens behind the scenes for customers, who are free to generate and use energy when needed and to support EVs, electrified homes and smart retail products; and
3. Share the benefits generated equitably with all customers in the community. All revenues and cost savings are accrued centrally, and after costs are netted off, the remaining benefits are equitably shared with all customers in the Community Power Network catchment as an annual dividend – even if that customer does not have solar and storage assets of their own.

Figure 3.1 illustrates how the Community Power Network will operate and the elements are described in more detail on the following page.

Figure 3.1: Key Elements That Make up the Community Power Network Model



The Community Power Network will purchase all surplus solar from locals at a price designed to make installing additional solar commercially sustainable. This will be done via customers' retailers in most cases or via direct Power Purchase Agreements for some large commercial systems installed for the primary purpose of feeding the pilot. The higher feed-in tariffs will incentivise new rooftop solar – particularly from commercial and industrial property owners (see Box A in Figure 3.1).

Surplus solar will be stored in local batteries and discharged during the evening peak (Box B), flattening local demand on the grid. In addition, batteries will perform short, rapid discharges throughout the day to manage short-term fluctuations. This will result in a smoother load profile, improving grid utilisation as electrification grows, and ultimately lowering the costs of the network on a per unit basis for all customers (Box C). The batteries will be metered so energy flows can be captured and assigned financially as part of the process.

We estimate a typical community could deliver at least 30% of their total energy needs locally, with the rest coming from the grid as it does today (Box D).

Batteries will generate revenue by discharging during peak price periods and participating in commercial energy trading to maximise their utilisation. Because the supporting network infrastructure is smaller and more localised, Ausgrid will apply a lower network charge to electricity generated and consumed within the community. All resulting benefits – network savings, trading revenue, and wholesale arbitrage – will be pooled by the Community Power Network.

The costs of running the pilot will be subtracted from these benefits, after which the remaining profits will be added to a dividend pool that is distributed equitably to all customers in the local community, regardless of whether they own their own solar and battery (Box E). Ausgrid will only receive a return on Community Power Network assets equivalent to regulated levels. Ausgrid is committed to running the trial in the most efficient manner possible and ensuring value is provided to customers. To this end Ausgrid is committing to underwrite the process so that should the dividend pool never become positive, Ausgrid will bear this loss, and not attempt to recover this from customers.

Ausgrid aims to encourage the commercial market to install additional solar and maintain this as a purely commercially driven market. If commercial markets fail to respond to market signals Ausgrid may supplement installations. More detail on this mechanism is provided in Section 3.4.2.

For simplicity in the trial, Ausgrid proposes to own the batteries directly. This will significantly reduce interoperability and cybersecurity risks and ensure seamless integration into our network management systems. Should the concept prove successful, other ownership methods will be explored and this is covered in greater detail in the following sections of this document.

What the trial is trying to achieve and what it is not trying to do is summarised in Figure 3.2 below.

Figure 3.2: What the Community Power Network (CPN) is and is not

What the Community Power Network is…		What it isn't…
Locally-consumed solar is the cheapest form of energy and is **encouraged in the Community Power Network** so the surplus can be shared among everyone.		Ausgrid trying to move into generation. *We will use the CPN to **incentivise commercial markets** to maximise rooftop solar in the zone.*
Surplus solar is **stored locally in the right locations** to stabilise the grid and be consumed later when utility-scale electricity is more expensive.		A monopoly on storage by Ausgrid. *We will add **sufficient storage to make the CPN work** but will not restrict other entities installing storage in the pilot regions.*
The CPN **shares the benefits of its cheap solar** with all connected customers, even those without their own solar.		Ausgrid becoming a retailer. ***Commercial energy traders will operate** the batteries to get **maximum value** from them.*
Local storage can also **help reduce connection costs and manage peak loads** from new electrified loads to reduce network upgrades.		A lot of **rules and controls over customer**-owned assets. *The CPN will **create flexibility** to better allow customers to do more.*

3.2 Selecting the Right Scale for the Pilot

For the Community Power Network concept to be successful, it must include both buildings with suitable rooftops for generating surplus solar and customers who are unable to install their own solar or storage. A mix of customer types is also important, as diversity in energy usage patterns helps spread demand throughout the day and improves the ability to align local generation with local consumption.

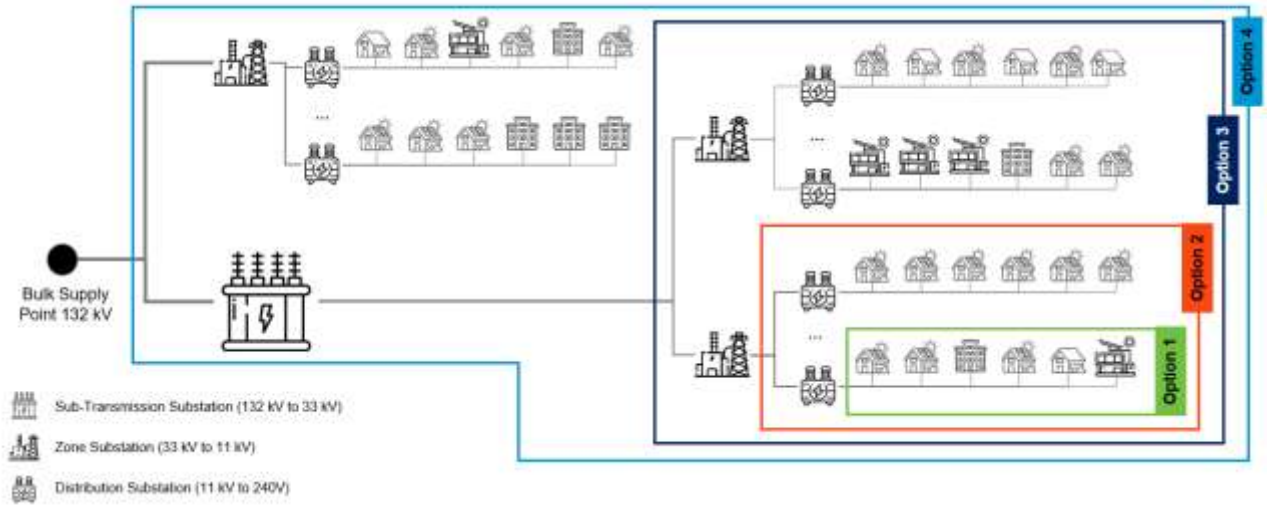
For this reason, a larger customer base is preferrable for a pilot area – greater participation increases diversity and enhances the effectiveness of the model.

Countering this desire for a larger area and diversity is the added cost and complexity of the network required to serve a larger zone that will include more sophisticated assets such as transformers, switchgear, and higher-voltage infrastructure.

Ausgrid examined four options to determine the appropriate size, being the area serviced by a:

1. Distribution Substation – 415V only, 0.5-1.5km of poles and wires, 30-175 customers
2. Zone Substation – 415V-11kV, 50-500 Distribution Substations, 5,000-30,000 customers
3. Geographic Region – 415V-11kV, 2-5 Zone Substations, 10,000-100,000 customers
4. Bulk Supply Point – 415V-132kV, 5-20 Zone Substations, 50,000-250,000 customers

Figure 3.3: Potential Options for the Size of the Pilot Zones



Ausgrid considers the second option – a Zone Substation footprint – to be the optimal scale for a Community Power Network. It offers a good balance: sufficient diversity of customer types to support the model, while relying on a relatively simple and compact network.

Our pilot areas are based around this sized footprint.

3.3 Selecting the Right Location(s)

The key factors for selecting locations for the pilot were:

1. **Opportunities to harness surplus solar:** areas with significant untapped rooftop solar potential and a high proportion of customers unable to install their own solar or storage
2. **Diversity of customer types:** a mix of residential, commercial, and industrial customers to help balance energy demand and maximise use of locally generated energy.
3. **Grid constraints and investment timing:** existing or forecast grid issues requiring augmentation that the Community Power Network may be able to help defer, reduce or avoid
4. **Alignment with broader electrification goals:** opportunities to support transport and industrial electrification, particularly in areas with strategic infrastructure such as ports or freight corridors.

Mixed industrial-residential areas around inner Sydney and Newcastle were investigated; with Mascot-Botany area being deemed most appropriate.

- Mascot-Botany has circa 112 MW of untapped rooftop solar potential (65 MW on industrials)
- 68% of all residents live in apartments, and 50% of residents are renters, higher than peer suburbs
- The region includes two adjacent zone substations, which have both been included to provide significantly more diversity across customers without involving more complex network assets
- The substations serving this area have circa $30m of switchgear upgrades planned, which this pilot could help defer or reduce. These projects are currently progressing through our approvals process. Network risk will be monitored versus pilot progress to refine the switchgear project scope without risking customer reliability of service
- Botany has a port and a significant heavy vehicle footprint. Learnings on how the pilot could help assist in the electrification of these facilities would be useful for progressing decarbonisation

An AER sandbox requirement is to consider scalability. We also assessed some more residential zones in our network and found that Charmhaven on the Central Coast would increase learnings on the concept's applicability to areas other than industrial-high density residential ones.

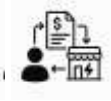
- Charmhaven has circa 73 MW of untapped rooftop top solar (58 MW on residential)
- 32% of residents are renters, highest of all peer parts of the network
- Charmhaven already experiences reverse power flows at times which the pilot could resolve

Figure 3.4: Proposed Geographic Boundaries for the Pilot Locations

3.4 Roles and Responsibilities Within the Community Power Network

This section describes the roles of all participants in the energy ecosystem under the Community Power Network model.

Table 3.1: The key elements that make up the Community Power Network concept

Element	What is it…	Who does it…
 **Spatial Energy Plan**	Model of the optimal amount and locations of storage required to balance the grid and customer assets	Ausgrid will perform this task as the only entity with full network visibility and an existing mandate to manage the network
 **Additional Solar**	Residents and businesses super-sizing their solar systems, feeding surplus solar into the Community Power Network at attractive feed-in rates	Individual customers and businesses will continue to build and operate solar (with Ausgrid as a solar operator of last resort)
 **Community Storage**	Incremental storage added to the grid to enable the Community Power Network concept to operate	Ausgrid will own and orchestrate the storage for the pilot. If successful, a broader range of ownership options will be considered
 **Community Energy Trading**	Purchasing surplus solar from the community (via their retailers) and selling in the wholesale energy markets	Certified retailer who partners with Ausgrid to make the financial transactions needed to manage the energy flows in the Community Power Network
 **Customer Interactions**	Supplying energy, purchasing/rebating customers for surplus solar and handling all elements of customer billing	Retailers continue to maintain these relationships with customers
 **Dividend Distribution**	Equitable division and distribution of the dividend created across all customers	Ausgrid will work with subject matter experts to help define equitable division of the dividend. Dividend payment method to be finalised, but preferred via retailers

3.4.1 Calculating the Optimum Amount and Location for Storage Required

An uncoordinated roll out of solar, batteries and other loads such as EV chargers can create grid imbalances, leading to unnecessary network augmentation and potential overinvestment in infrastructure – costs that are ultimately borne by the community through higher electricity prices. To avoid this, we need a dynamic roadmap that tracks loads, solar, storage, and new customer connections across the network, identifying constraints that additional storage can address.

Ausgrid is the only entity with a view across all customers, detailed network information (including current constraints) and options to add network capacity via augmentation (approved plans and contingency options). We are also aware of commercially sensitive information from entities wishing to add new businesses and technologies in certain locations. Some of these location and network details cannot be provided to other entities due to confidentiality and network security reasons.

As a result, Ausgrid is uniquely positioned to develop the spatial energy plan that can be broadly used to understand how much of each technology is appropriate for each part of the network.

3.4.2 Ownership and Operation of Solar

The Community Power Network creates a market to attract customers and commercial entities to install more solar. This means that we expect commercial and residential customers to continue to own and operate solar as they do now, just in greater numbers, receiving higher feed-in tariffs.

Surplus solar is critical to testing the Community Power Network concept. If the commercial market does not respond to the incentives created, Ausgrid will make up any shortfall as the 'solar owner of last resort'. In this case, Ausgrid will install and own solar and will be paid by the Community Power Network for its generation in the same manner as any other solar operator. This arrangement will operate outside the regulated framework and be fully self-funded, with no cost impact on customers. Ausgrid would consider activating this mechanism if solar installations fell 20-30% below targeted levels.

Innovation #1 of the Proposal: Making a local market for surplus solar

A key innovation in this concept is how local storage is sized, located and operated to enable it to absorb all local surplus solar within the community. This prevents excess energy from contributing to minimum demand events – particularly during midday periods – and avoids the need to sell into the wholesale market when prices may be zero or even negative.

To facilitate this, the Community Power Network will run a series of reverse auctions. Large customers and retailers will be invited to submit bids outlining the price they require to justify the business case for oversizing or installing new solar systems. Successful bidders will enter long-term Power Purchase Agreements with the Community Power Network – typically aligned with a system's lifespan – allowing them to sell surplus energy at the agreed bid price. We are assuming 16 years of lifespan.

Small business and residential customers will benefit if their retailers participate in the reverse auction process. Retailers who secure Power Purchase Agreements can use these arrangements to hedge their financial exposure and, in turn, offer better feed-in tariffs to their customers. This keeps billing and retail relationships simple and familiar for customers, while ensuring the benefits of higher feed-in tariffs are shared across the community.

3.4.3 Orchestration of Batteries

The central pillar to the Community Power Network is how the batteries are operated. Orchestration of the batteries allows for the creation of the market for local surplus solar, flattens grid demand reliably enough to defer or eliminate network upgrades and contributes to the dividend pool.

The Community Power Network batteries are focused on providing the highest returns for customers, not their owner. During daytime peaks, solar will be purchased at rates that may exceed prevailing wholesale market prices – ensuring local solar owners receive a fair return and continued support for their investment in rooftop solar.

Conversely, the batteries will discharge during times of peak demand on the distribution network – not just during wholesale market price spikes. While these peaks sometimes align, our primary goal is to smooth out local network demand to avoid or defer costly network upgrades. As such, battery operation is optimised to eliminate localised network peaks, delivering long-term savings for all customers, while still generating good returns on solar sold in the evening on a daily basis.

For these reasons, orchestration of the batteries is a fundamental role of Ausgrid as the Community Power Network operator. For the pilot, orchestration will be done via direct instructions to batteries to ensure that desired behaviours are achieved and the benefits that can delivered can be tested. This will also help define what behaviours, and mechanisms would work to drive commercially owned batteries to behave similarly so that if the pilot is successful, future dynamic tariffs and other such mechanisms could utilise the learnings in orchestrating commercially owned batteries.

Innovation #2 of the Proposal: Making A More Efficient Grid

In the Community Power Network, the batteries are orchestrated first and foremost to get more from the grid, not to extract profits from the energy markets for the battery owner – profits which ultimately are paid for by customers.

By ensuring the battery capacity and orchestration can shave peaks and avoid minimum demand issues, the concept can reduce the amount of augmentation required to meet future network needs. It can also create the headroom to enable new loads such as data centres to connect and significantly lift the overall utilisation of the network, reducing the tariffs required per kWh that all customers need to pay.

The concept also enables circa 30% of community's energy demand to be generated by local renewables. At scale, this reduces reliance on large-scale, remote renewables and the costly transmission infrastructure required to connect them to the grid. Together, these outcomes lower overall network investment and help drive down long-term energy costs for consumers.

3.4.4 Ownership of Batteries

The Community Power Network concept is designed to be flexible and agnostic to battery ownership models. For the purposes of pilot, Ausgrid proposes a simplified approach in which all batteries are owned by Ausgrid. This model offers several advantages during the trial phase: it enables control over battery makes and models, allows direct orchestration to optimise performance, and minimises network security risks that could arise from the integration of numerous third-party assets.

If the pilot proves successful, other ownership models can be considered as part of a broader scale up strategy.

3.4.5 Executing Trades on Energy Markets

Ausgrid will determine the energy movements required of the Community Power Network batteries and send appropriate commands to the batteries. In parallel, Ausgrid will have an appropriately accredited partner to make corresponding trades for the net energy absorbed or distributed into the network by the batteries. The trading partner will buy surplus solar from retailers and Power Purchase Agreement holders and sell it into the wholesale market. When the batteries have capacity, the partner will also conduct other trading activities to get the full value from the batteries for customers. They will be dealing with retailers, commercial businesses and the wholesale market, not individual customers.

This partner will be decided by a tender during the initiation phases of the pilot. We envisage the same partner will be used in all the pilot regions.

3.4.6 Interactions with Customers

The model is designed to be simple for customers, with all the complexity of trading on energy futures and managing the grid completed by entities who specialise in these activities. Customers will continue to buy their energy through their normal channels. Customers may need to sign onto new products that retailers develop to incorporate the benefits of the higher feed-in tariffs in the pilot regions, but otherwise their interactions will be as they are today.

The annual dividend payment, described in Section 3.4.7 below will also ideally be passed to customers via their retailer as a rebate on their electricity bill, which would be the simplest mechanism for customers and maintain retailers as the primary point of contact for customer electricity payments. Alternatives are described below.

3.4.7 Dividend Distribution

Benefits generated by the community assets are all pooled and will be shared back to the community in a fair and equitable manner as a dividend, offsetting their electricity bills. The definition of equitably distribution is detailed further in the call out below and in Section 4.4 and Appendix A.2. As noted above, our preferred method for this to be shared back to customers will be for Ausgrid to pay the retailers of each customer the appropriate funds and they then pass back to customers as a rebate off their electricity bill. Ausgrid will work collaboratively with retailers to explore whether existing billing systems can support this process. If this proves unfeasible, Ausgrid has investigated digital platforms specifically designed to facilitate benefit sharing in community-owned renewable projects, enabling direct payments to customers. This would require customers to sign up to the payment process.

Innovation #3 of the Proposal: Delivering equitable benefits to all customers

The Community Power Network model will pool the benefits it accrues from solar and storage assets, net off the costs of the assets and the costs of running them, and the remainder will become a dividend to be distributed to customers annually. This provides Ausgrid with the ability to distribute the dividend equitably among different customer types so a person in an apartment, a homeowner with their own solar and batteries and commercial business all receive an equitable share.

Ausgrid is engaging RACE for 2030 and UNSW to lead a research initiative aimed at developing a clear definition of equitable benefit distribution across customer groups in the pilot locations. This will include community consultation, socio-economic analysis and input from the AER. Ausgrid will play a key role in this process and is committed to ensuring an equitable outcome for customers.

3.5 Measures of Success

For customers, the main measure of success of the pilot will be the size of the dividend they receive. From a network perspective, the key metric will be the level of demand smoothing the pilot can achieve as this is what will enable upstream network cost reductions and higher grid utilisation.

The full set of metrics we propose to measure are detailed below in Figure 3.5. Ausgrid is also commissioning UNSW and RACE for 2030 to conduct a qualitative independent assessment of the impact on communities of the pilot. The report(s) generated by UNSW will become part of the shared learnings from the pilot.

Figure 3.5: Measures of Success for the Pilot

For Customers…

- Reduced electricity prices for customers
  Size of CPN Dividend
- Equitable access to benefits for all
  Benefits by customer archetype in CPN vs. BAU
- Faster transition to renewables
  Carbon intensity of power consumed in CPN vs NEM
- Lower grid costs per kWh
  Total network tariffs in CPN vs. NEM

For the Grid and Market Stability…

- Faster transition to renewables
  Carbon intensity of power in CPN vs NEM
- Lower network costs
  Peak vs. Mean Daily Demand from NEM for CPN
  Reduction in Peak Demand vs. BAU for CPN
- Wholesale Market Stability
  Reverse power flow events from CPN avoided
- C&I Rooftop Solar Market Activation
  Percentage of solar provided by commercial market

3.6 Proposed Pilot Timing

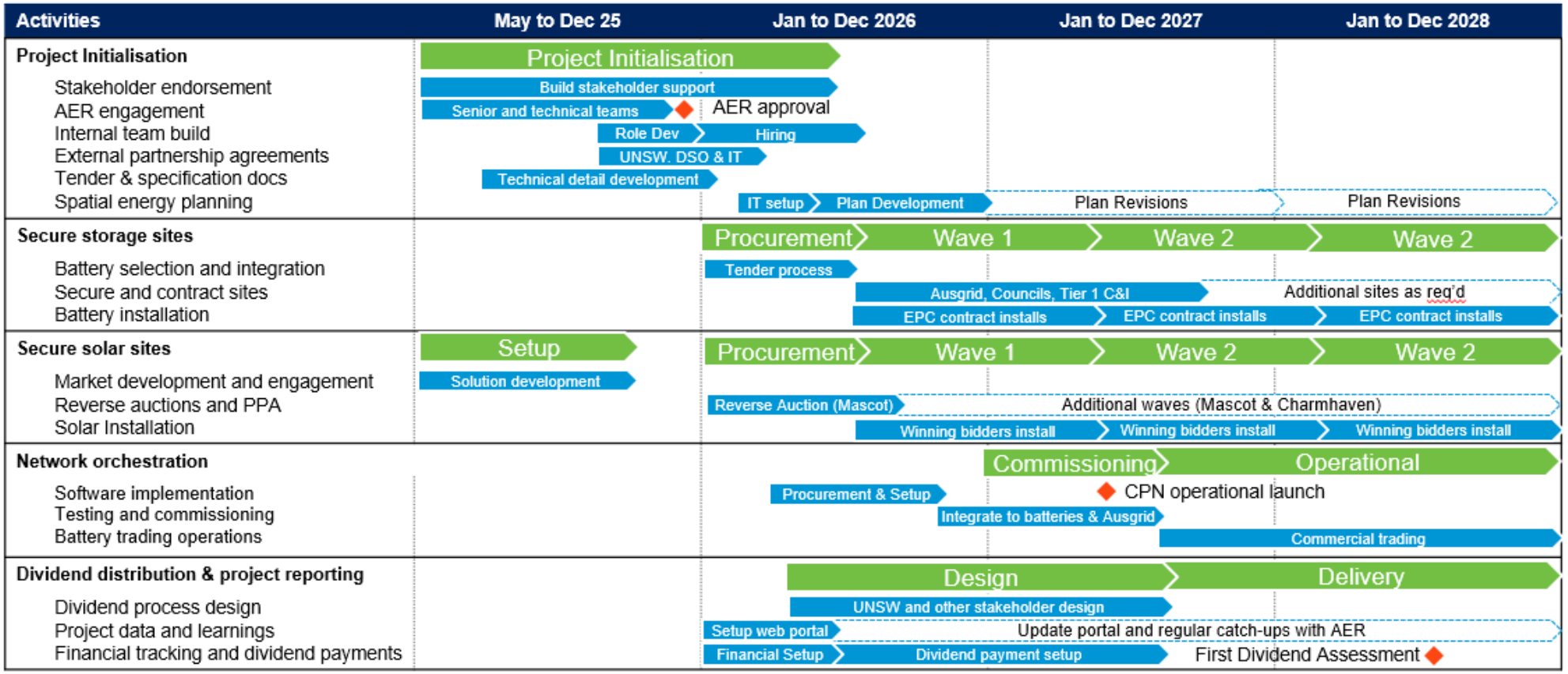
The sandbox mechanism allows for a five-year pilot, with the option to extend for another year if required. Ausgrid intends to use the full duration if required to install its targeted levels of solar and storage, however progress and achievement of desired outcomes will be monitored as the trial progresses, enabling learnings and benefits to be assessed during the pilot rather than only at the end of the five-year period. If the trial can be conclusively proven to be successful or not in under five years, then we will work with the AER to determine next steps rather than simply wait for the full period to end.

The pilot consists of four phases:

1. **AER Approval Process and Stakeholder Consultation**
   Developing and refining our concept based on stakeholder feedback and the AER assessment process to gain approval to proceed
2. **Project Planning and Initiation**
   Stand-up full project team, select and contract partners, develop initial Spatial Energy Plan, run tenders for asset construction and commence detailed planning processes for initial sites
3. **Build**
   This phase will consist of 6-12 month waves. The first wave will deliver enough assets to enable the Community Power Network to begin operations, with subsequent phases adding more until the full potential is reached or the pilot concludes.
4. **Operate**
   After the first wave of building, the Community Power Network will begin operations, orchestrating the batteries and begin to generate benefits for the community. On the anniversary of commencing operations, the dividend pool will be reviewed and, if above a suitable threshold (taking into account the cost of distributing), it will be shared with customers.

The phasing of the above is depicted below in Figure 3.6, up to the point of the first dividend assessment. Beyond this point, the pilot enters a steady operational rhythm of building and operating assets.

Figure 3.6: Gantt Chart of Proposed Tasks and Timing (Now to 1st Dividend Assessment)



3.7 Exit Strategy

In this section, we discuss potential options for the Community Power Network post the pilot's conclusion.

Pathway 1: Transitioning beyond the trial phase if the pilot is successful

We have explored options within the existing framework to extend the Community Power Network beyond the maximum trial period (5 years) should the pilot prove successful. There are existing mechanisms to support this, including the AER's ability to recognise new activities as a 'distribution service' through its classification process as part of the regulatory determination process. The National Electricity Rules defines a distribution service as one 'provided by means of, ***or in connection with***, a distribution system' (emphasis added). We are confident that the Community Power Network concept aligns with this definition and can be classified as a distribution service in the AER's next regulatory determination for Ausgrid for the 2030-34 period.

We plan to regularly report to the AER on the progress of the Community Power Network pilot, including providing data on key targets and the benefits being generated and shared with customers. We intend to share this information annually, potentially alongside our regulatory reporting, which ordinarily occurs in October each year. We expect that this data will help the AER determine whether the activities of the Community Power Network should be classified as a 'distribution service.'

Pathway 2: Exit and transfer to a commercial entity

If the pilot proves unsuccessful, we will take action to exit the concept in a way that ensures compliance with our ring-fencing and regulatory obligations and ensure that customers no longer pay for any assets associated with the trial. Ausgrid will take full responsibility for covering any shortfall between the proceeds from selling the assets procured under the pilot, and the undepreciated asset value.

This would involve Ausgrid selling its interest in the solar (if owned as a solar owner of last resort), batteries, and any other supporting equipment related to the Community Power Network to a third-party through an arm's length transaction. The proceeds will create a disposal value that will reduce the value of the:

- Community Power Network asset base to zero; and
- Standard control services (SCS) Regulated Asset Base (RAB) by the remaining value of the amount capitalised to that RAB.

To the extent that sales proceeds do not cover the undepreciated values remaining, Ausgrid will adjust the asset bases accordingly so that customers both inside the trial and outside the trial do not continue to pay depreciation or return on asset beyond the trial period.

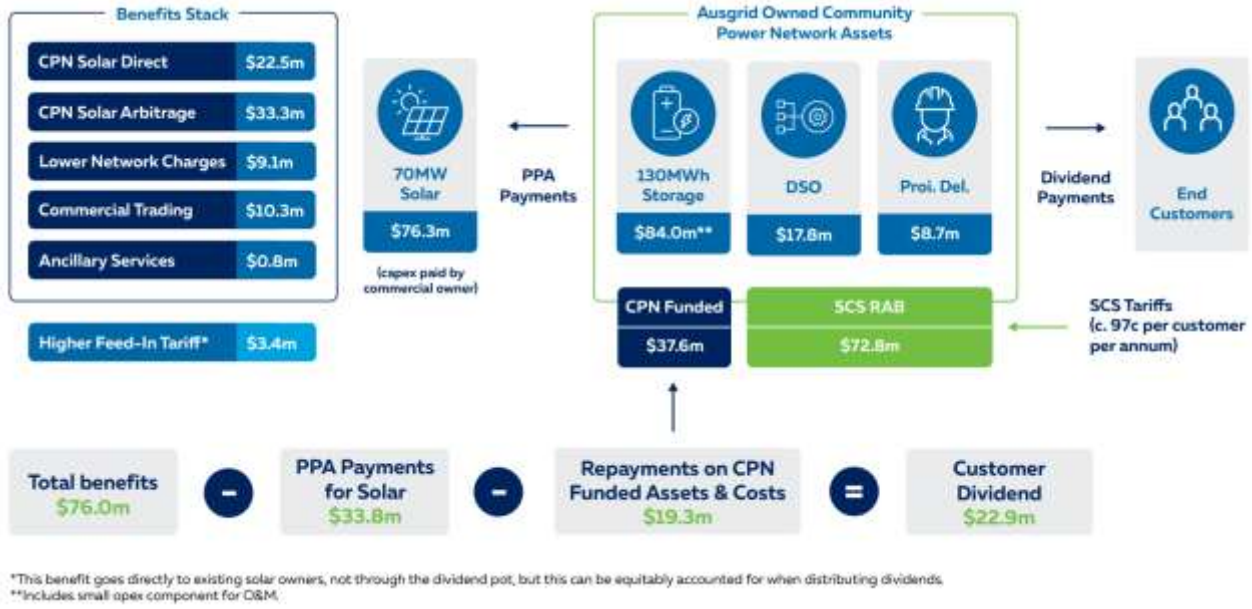
The contractual obligation to pay the guaranteed offtake price for excess solar sold to the Community Power Network would transfer to the transaction's counterparty. To ensure the continued payment of these offtake rates, we would sell the pilot's core assets as a bundle. This bundling is critical to maintaining the promised feed-in tariffs to commercial entities and individuals that install additional solar.

This exit strategy means that there is no downside for customers, only potential upside, despite Ausgrid only receiving a regulated level of return.

4 Funding and Financials

Figure 4.1 provides a summary of the funding required, its source and the overall benefits and costs that generate the dividend for customers in the pilot. The key funding and cash flow components of the pilot are discussed below.

Figure 4.1: Summary of funding and financial flows for the Community Power Network pilot



*This benefit goes directly to existing solar owners, not through the dividend pot, but this can be equitably accounted for when distributing dividends.
**Includes small opex component for O&M.

4.1 Key Cost Components within the Pilot

We estimate the total costs required to establish and operate the pilot for five years at $186.7m, which includes costs incurred by Ausgrid and commercial and private partners that engage in delivering the components of the pilot. There are four main cost components:

1. **Solar** – Our modelling shows that an incremental 70MW of solar (50MW in Botany-Mascot and 20MW in Charmhaven) will be sufficient to enable the expected benefits. This is estimated to require $76.3m of funding, modelled from research into actual estimates provided by commercial solar installers and forecasts from the Commonwealth Scientific and Industrial Research Organisation (**CSIRO**), Bloomberg NEF (**BNEF**) and other reputable sources of energy cost forecasts.
2. **Storage** – 130MWh of battery storage (65MWh in Botany-Mascot and 65MWh in Charmhaven) is required to ensure sufficient capacity to meet the pilot's objectives. This is estimated to require $84m of funding, modelled from research of Community Battery projects delivered by Ausgrid, estimates from battery suppliers and forecasts from CSIRO and BNEF and other reputable sources.
3. **Distribution System Operations (DSO)** – To build and maintain the Spatial Energy Plan and orchestrate the Community Power Network batteries, Ausgrid will require dedicated software, a small team of engineers and an independent partner certified to trade energy on wholesale markets. This has been estimated to require circa $3.2m per annum, with some additional one-off setup costs and totals $17.8m over the five years of the pilot.
4. **Project Delivery** – A key part of the pilot will be engaging local communities, capturing and sharing learnings and tracking benefits, running reverse auctions for solar capacity and other tenders required to deliver the pilot. This will require a dedicated team that has been estimated to require circa $1.7m per annum, totalling $8.7m over the five years of the pilot.

4.2 How the Costs Will Be Funded

The Community Power Network funding is proposed to come from three sources, based on the benefits attributable to each via the operations of the pilot. These are:

1. **Commercial Entities and Private Property Owners:** Commercial entities and private property owners will be able to invest in installing additional solar on their properties for a financial return. This is expected to account for $76.3m of the total funding required.
2. **General Ausgrid Customer Base:** The Community Power Network generates benefits that all of Ausgrid's customers will receive as described in Section 2.3 and with more detail to justify these benefits described in Section 4.2 and Appendix A.7. To avoid the customers within the Community Power Network funding benefits captured by all customers, a proportionate amount of the costs for the pilot will be assigned to all customers via standard network tariffs. This accounts for $72.8m in funding.
3. **Community Power Network Self-Funding:** The remainder of the costs for the pilot are funded directly out of the benefits that the pilot generates. This equates to $37.6m in funding.

The breakdown of funding sources by asset type is detailed in Table 4.1 below and described in more detail below.

Table 4.1: Our proposed budget for the Community Power Network pilot FY26-30 ($m, real FY25)

Community Power Networks TOTEX Summary	Capacity	Commercial & Private Investment	Dedicated Pilot Funding	Standard Control Services RAB	Total
Mascot-Botany					
Solar	50	$ 54.0	$ -	$ -	**$ 54.0**
Battery	65	$ -	$ 35.8	$ 6.2	**$ 42.0**
DSO		$ -	$ -	$ 10.7	**$ 10.7**
Project Delivery		$ -	$ 5.2	$ -	**$ 5.2**
Emissions Benefits Adjustment to SCS RAB		$ -	($ 30.1)	$ 30.1	**$ -**
Mascot-Botany Subtotals		**$ 54.0**	**$ 10.9**	**$ 47.0**	**$ 111.9**
Charmhaven					
Solar	20	$ 22.2	$ -	$ -	**$ 22.2**
Battery	65	$ -	$ 35.8	$ 6.2	**$ 42.0**
DSO		$ -	$ -	$ 7.1	**$ 7.1**
Project Delivery		$ -	$ 3.5	$ -	**$ 3.5**
Emissions Benefits Adjustment to SCS RAB		$ -	($ 12.5)	$ 12.5	**$ -**
Mascot-Botany Subtotals		**$ 22.2**	**$ 26.7**	**$ 25.9**	**$ 74.8**
Community Power Network Grand Total		**$ 76.3**	**$ 37.6**	**$ 72.8**	**$ 186.7**

4.2.1 Solar Funding

The Community Power Network offers feed-in tariffs for surplus solar that are designed to cover the cost of installing and operating a solar system, while providing a reasonable return. This creates a clear business case for customers to oversize existing systems or install new systems specifically to supply the pilot. Based on this, it is expected that all solar capacity will be funded and installed by private and commercial customers without the need for additional incentives.

If, the commercial market does not respond to market incentives and Ausgrid needs to act as the "solar owner of last resort as described in Section 3.4.2, then Ausgrid will fund the installation and operational costs of the solar as an unregulated asset and receive a feed-in tariff under the same mechanism as other commercial participants.

To be clear, Ausgrid does not wish to enter the solar market. This mechanism would only be activated to ensure the pilot has sufficient local surplus solar to properly test the Community Power Network model. Any tariffs Ausgrid receives would be no higher than those paid to commercial participants of similar projects.

4.2.2 Battery Funding

The storage added to the pilot by the Community Power Network will largely be used to generate the benefits for customers within the pilot zone and therefore the majority of their funding is directly from the pilot.

As described previously however, they do flatten grid demand and create the opportunity to reduce or eliminate transmission projects to connect new large-scale renewable zones to the grid. This reduces network costs for all customers and so a portion of funding is allocated to all customers via increased regulated payments.

Further analysis is detailed in Appendix A to estimate the difference in costs between installing firmed renewable generation capacity via the Community Power Network and via large scale transmission projects. This analysis suggests a Community Power Network is over 20% cheaper to build.

To reflect the above, 85% of battery costs are funded by the Community Power Network, with the remaining 15% funded by all customers.

4.2.3 Distribution System Operator (DSO)

The DSO is fundamental to generating the benefits for all customers. It will be responsible for enhancing the granularity of information available on both network hosting capacity and expected grid constraints and will drive the orchestration of batteries, creating the local market for solar and grid smoothing. Ausgrid anticipates that the learnings from this function in the pilot will one day be incorporated into dynamic pricing and other future business-as-usual functions performed by Ausgrid that will benefit all customers.

Therefore, costs associated with the DSO are proposed to be 100% funded by all Ausgrid customers.

4.2.4 Project Delivery

Project delivery involves supporting the pilot and the AER's objectives of capturing and sharing learnings. These are all specific costs to the pilot and therefore, project delivery is proposed to be 100% funded from the benefits generated within the Community Power Network.

4.2.5 Emissions Benefits Funding Adjustment

Emissions benefits are generated from the addition of 70MW of incremental renewable generation. The benefit this creates has been calculated using the AER's Value of Emission Reductions (**VER**) metric, which represents the economic value to the community from CO_2 equivalent avoidance as outlined in the AER's *Valuing Emissions Reduction Guidance Note*.

The VER metric uses a CO_2 intensity for generating a kWh of energy via the grid, which reduces each year as the grid gets closer to 100% renewables under the base case scenario. We can use this to calculate how much CO_2 the pilot's rooftop solar would have avoided and convert this to a benfits figure via the VER carbon pricing table (which also varies each year).

The additional 70MW of solar is forecast to generate 1,557 GWh of power over the estimated 16 year lifespan of the systems. The will eliminate 421,054 tonnes of CO_2 from being produced. This generates $57.1m in benefits, with a Net Present Value of $42.6m.

As lower emissions benefits all of Ausgrid's customers, the $42.6m of the funding required for the pilot will be funded by all Ausgrid customers.

Table 4.3: Key metrics feeding into the calculation of emission benefits

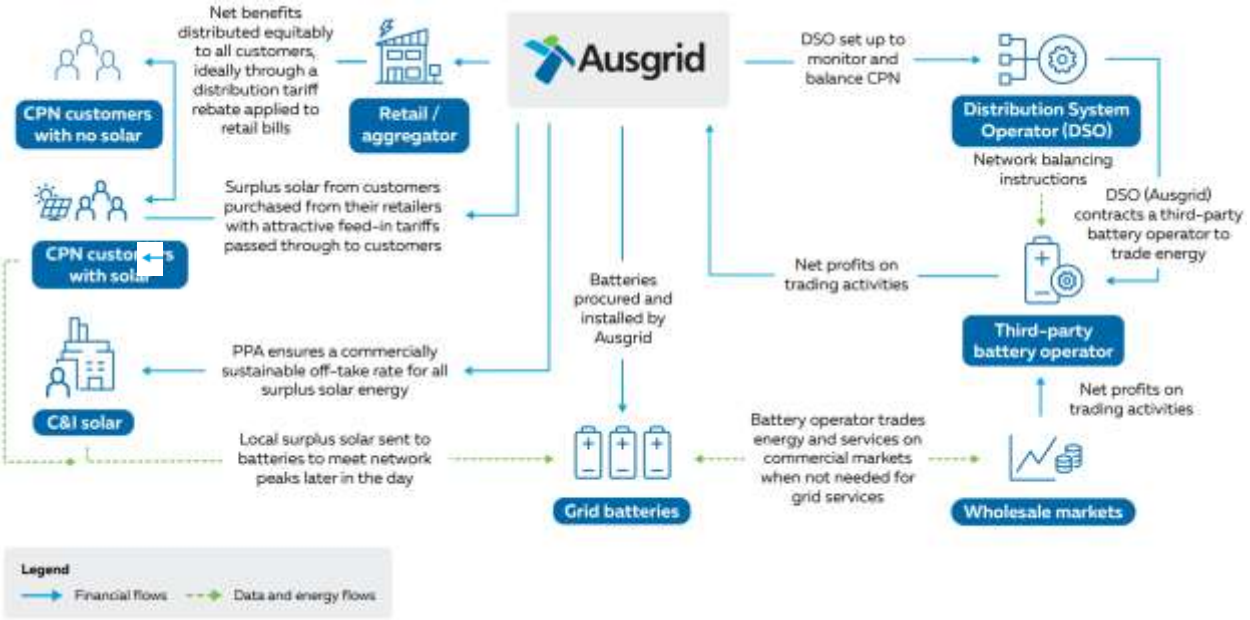
Input	Amount	How this unit was applied	Source
VER	$0.165 per kg CO2-e (average)	Average annual VER benefit gained from FY26-44 from avoiding National Electricity Market (**NEM**) electricity	AER[1]
NEM emissions intensity	0.28 kg COE-e per kWh (average)	Average NEM emissions intensity from FY26-44 starting with 0.66kg and reducing to 0.17kg	DCCEEW[2]
Solar generated in pilot	1.6 TWh (total)	Solar energy consumed over FY26-44 which avoids NEM emissions at the VER rate	Ausgrid
Discount rate	6%	Discounted the avoided FY26-44 emission benefits to their present value	Ausgrid

[1] AER, Valuing emissions reduction: AER guidance and explanatory statement, May 2024, p. 4
[2] DCCEEW, Australian National Greenhouse Account Factors, 2024, p.8

4.3 Financial Flows

An overview of the financial flows is shown in Figure 4.2 and described below.

Figure 4.2: Financial flows underpinning the Community Network concept



Feed-in tariffs will be paid to local solar owners and their representative retailers for surplus solar provided by the Community Power Network. This transaction will be managed by Ausgrid's third party trading partner within the pilot model.

Ausgrid's Distribution System Operator (**DSO**) will reinject this energy into the grid as required to flatten out network demand throughout the day. The DSO's trading partner will carry out wholesale market transactions accordingly to match energy movements instructed by the DSO. Power stored in the batteries and sold during the evening network peak will be at a premium and generate community value which the Community Power Network captures.

Ausgrid will apply a cost-reflective, lower network tariff to electricity that is both generated and consumed locally, recognising that only a small portion of the network is used to distribute power in the Community Power Network. However, because it is not practical to differentiate between local and NEM power sources in real time, standard network tariffs will be charged to retailers as power is consumed. Ausgrid will then calculate the volume of local generation off-line and allocate a portion of the recovered network tariffs to the Community Power Network's benefits pool. This amount will reflect the benefits of the lower network tariffs and will ultimately be returned to customers as part of the dividend.

Any spare battery capacity will be used by the trading partner for commercial activity, with the profits added to the benefit pool. Ausgrid will pay the third-party trader a service fee for their work. This cost will be part of the Distribution System Operator costs recovered by Ausgrid, along with depreciation cost and a regulated level of return on capital for the batteries deployed.

After covering pilot costs and solar purchases, remaining benefits will form the community dividend. The dividend will accrue and grow as the pilot commissions new assets and once large enough, will be distributed back to customers in an equitable manner. Ideally, this will be via retailers as described in earlier sections of this document.

Ausgrid forecasts that the dividend will grow from ~$11 per customer in year one to ~$270 by the final year. This means it may not be until the second year of the pilot that a dividend is actually paid to customers.

All financials will be run on an open book basis with the AER to support learning and assess benefit streams. Our aim is to transparently demonstrate that the lowest network costs and highest, most equitable returns to all customers can be achieved by a DNSP orchestrated, community-based approach to network design, as outlined in this application.

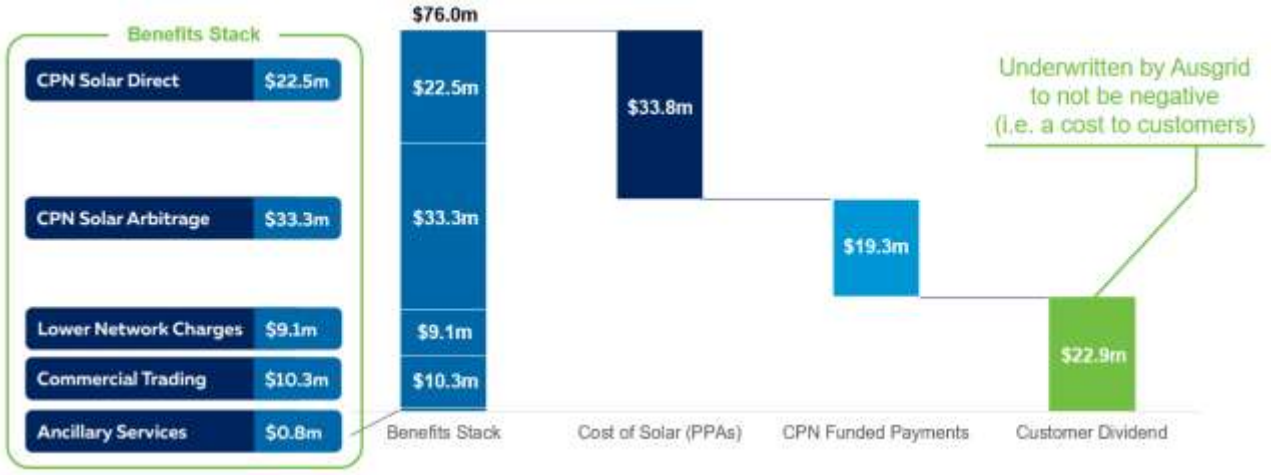
4.4 Generation of the Customer Dividend

The Community Power Network is modelled to generate $76m in benefits over the five years of the pilot.

The pilot will pay an estimated $33.8m to local property owners and commercial businesses for their surplus solar and $19.3m to Ausgrid to repay the cost of the batteries and the operation of the pilot.

The remainder will form the pilot dividend, which will be fully distributed to customers in the pilot areas. This is estimated to be $22.9m over the life of the pilot. If the dividend remains negative after the five years of operation, then Ausgrid will bear this loss as part of the exit strategy as described in Section 3.7.

Figure 4.3: Overview of Community Power Network Dividend Creation



Ausgrid will allocate costs associated with the Community Power Network to a separate account. This will not form part of the RAB, however, Ausgrid will limit its returns on capital invested equivalent to a regulated return. This maximises benefits for customers and aligns with Ausgrid's view that these assets should become part of the business as usual network should the pilot prove to be successful.

Losses in one period will be covered by gains in subsequent periods before a positive dividend pool begins to accrue for customers. All benefits from the beginning of operations will go towards generating a dividend for customers.

4.4.1 Customer benefits from solar generation (Arbitrage and Direct)

The Community Power Network model assumes that all solar is either consumed locally at the time of generation (CPN Solar Direct benefit in Figure 4.3) or stored and consumed locally after solar generation hours (CPN Solar Arbitrage benefit in Figure 4.3). All solar is procured by the Community Power Network at the Power Purchase Agreement rates and supplied to the community by selling it into the wholesale market at the time of consumption. Surplus solar sold to provide base load during the day without arbitrage is forecasted to generate $22.5m over the duration of pilot. Solar stored and sold during network peaks is forecasted generate $33.3m over the duration of pilot.

4.4.2 Customer benefits from reduced network tariffs

Under the Community Power Network model, the energy generated and consumed locally will not use any network assets above the Zone Substation (distribution or transmission) which provides a network pricing benefit to customers in the zone.

Ausgrid does not propose to create a new network tariff to give effect to the network tariff benefit of the pilot. Instead, we will calculate the Local Use of System (**LUOS**) benefits separately based on the metered amounts of the energy consumed within the local area. The LUOS benefits will be added to the benefits pool for the pilot, effectively returning this money to customers.

The proposed mechanism to do this is the 'A factor' in the control mechanism in our 2024-29 final decision. This would allow Ausgrid to adjust the unders and overs account to recover the avoided network use of system (**NUOS**) charges in the following year's revenue. This gives the same outcome as creating a LUOS tariff but allows more flexibility for equitable redistribution of benefits and more time to be able to implement appropriate metering and billing for this type of tariff within a Community Power Network.

It is important to note that the pilot will only meet about 30% of total energy demands in the zones. Customers within the selected locations will receive the remainder of their energy from the NEM via the traditional network. This mix will affect bill savings – the more energy consumed through Community Power Network model, the lower the average unit energy cost for customers. All solar energy generated in the Community Power Network will be used as the batteries will be managed to always absorb surplus solar created.

4.4.3 Customer benefits from commercial trading

The Community Power Network modelling incorporates commercial trading and revenue services to fully utilise batteries and generate the maximum returns for customers. These trades are modelled by identifying greater than 5 cent per kWh spreads in wholesale pricing where the Community Power Network batteries have spare capacity to conduct a trade, with a factor to allow for non-perfect foresight when making trades.

A portion of battery capacity will also be reserved for ancillary services. However, most major forecasters are predicting that this market will significantly reduce in value in coming years (our modelling is based on figures from Aurora, one of the prominent forecasters in this space). We have used these assumptions in our modelling and expect that decisions will be made during the pilot to assess if more value is available from arbitrage or ancillary services, with our strategy flexing to maximise returns.

4.4.4 Feed-in Tariff Benefits for Existing Systems

Customers with existing solar systems that currently produce surplus solar will also be able to sign onto Community Power Network specific retail schemes, effectively increasing the value of the solar they feed into the grid. This is an additional benefit created from solar that is in the Community Power Network pilot region but not installed as part of the pilot.

This is a real benefit that customers with existing solar systems will receive but is not captured within the benefits calculations described in Figure 4.3 as the solar generating them was existing. It is estimated to create $3.4m in FY25 real benefits for those customers with existing surplus solar over the pilot period. For equity in distributing dividends, this benefit is still trackable via feed-in tariffs paid and so will be accounted for.

4.5 Avoiding Cross Subsidisation Within the Pilot

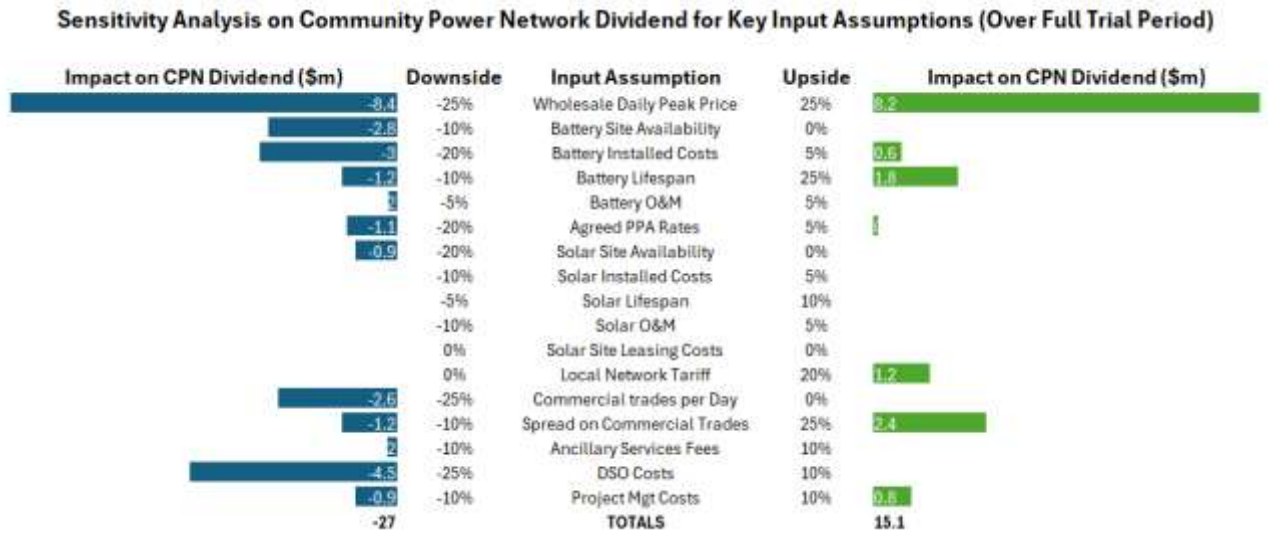
Funding sources have been carefully balanced to ensure that customers gaining a benefit from the trial contribute an appropriate amount to funding those benefits, with no customer group being worse off as Ausgrid will underwrite any losses if the pilot doesn't achieve a positive return.

By making the batteries communal, cross subsidies that are inherent in rebates to individuals who can buy and install assets are also avoided, improving aspects of equity in funding.

4.6 Upside and Downside Risks for Customers

To understand the sensitivities of the model, different inputs were given a "bookend" upside and downside scenario. A summary of this is shown in Figure 4.4, which demonstrates that the most impactful variable is the volatility in the wholesale market – expressed as the average daily peak price for electricity.

Figure 4.4: Sensitivity Analysis on Key Input Assumptions on Dividend



We consider our base scenario estimation to be on the conservative side for the average daily peak price. We have selected a starting price of $300 per MW in line with FY26 forecasts by Aurora, reducing to $187 in FY35. However, the FY26 forecast relies heavily on the assumption that the large number of storage projects coming online in FY25 will have an immediate impact on smoothing wholesale pricing volatility. This is possible, but as seen in Figure 4.5, it would require a rapid reversal of the current trend in average daily peak pricing seen on the wholesale market.

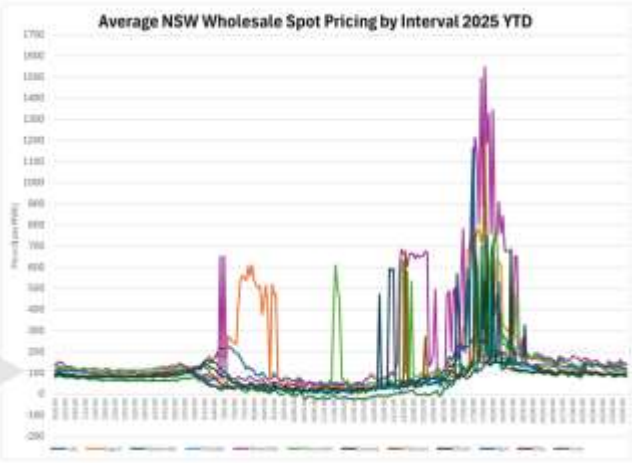
We believe that assuming this rapid reversal in pricing trend occurs is adds a level of conservatism into our modelling. If it happens, then our benefits calculations remain valid, but if prices peak prices remain above $300 per MW in FY26 and beyond, then this will create an upside for the pilot.

Figure 4.5 also shows that for average daily peak prices to negate the Community Power Network dividend, the price would have to drop below $117 per MW. This is well below the average prices seen in the wholesale market in every month of 2025 around the period of the evening peak and so is considered to be a very unlikely scenario.

Figure 4.5: Sensitivity Analysis on Key Input Assumptions on Dividend

Year	Average Daily Peak Price ($ per MWh)	Average Daily Peak Price to Drive CPN Dividend Negative
FY20 *(Actual)*	244	
FY21 *(Actual)*	439	
FY22 *(Actual)*	840	
FY23 *(Actual)*	1,065	
FY24 *(Actual)*	1,537	
FY25 *(YTD)*	1,826	
FY26 *(Model)*	300	117
FY27 *(Model)*	287	112
FY28 *(Model)*	275	107
FY29 *(Model)*	262	102
FY30 *(Model)*	250	97

The average price across each month in 2025 always surpasses these values, often by a factor of ten



We have also determined some potential upside and downside scenarios and considered the impacts that these would have on customers both within the pilot regions and for Ausgrid's customers more broadly. These are shown in Figures 4.4 and 4.5.

Higher wholesale peak prices create a strong upside for customers in the pilot, while all customers could benefit from avoided network spending.

Downside risks are significantly mitigated by Ausgrid's commitment to bear losses and so are largely limited to the dividend not materialising. Thus, customers would be no better or worse off than now.

Table 4.4: Impact to Customers of Potential Upside Scenarios

Scenario	Impact to Pilot	Impact to Customers in the CPN	Impact to Customers Outside the CPN
Daily Max Price stays at $1000 per MWh or above	Arbitrage revenues jump to $125.6m (from $33.3m) Commercial trading also likely to be more profitable in a more volatile market	Dividend increases 5-6 times current forecasts	Possibility to review equity definitions and broaden the pool of customers sharing in this benefit
Grid smoothing can defer planned network augmentation	Capital investment in the millions to tens of millions in the grid is not undertaken, reducing future costs recovered from customers	Slight reduction in network tariffs next regulatory period and beyond	Slight reduction in network tariffs next regulatory period and beyond
Pilot is successful and is extended beyond the trial period	Benefits continue to accrue at full Community Power Network rates	Continued payments of dividends	Permanently higher network utilisation Concept extended to new zones with costs savings relative to traditional grid upgrades

Table 4.5: Impact to Customers of Potential Downside Scenarios

Scenario	Impact to Pilot	Impact to Customers in the CPN	Impact to Customers Outside the CPN
Daily Max Price drops below forecasts	Lower arbitrage revenues - if daily max price drops to circa $200 per MW, arbitrage revenues will drop circa $15m	Dividend reduces by circa $15m to $7m (70% reduction)	No impact
Battery and DSO costs higher than expected	A 20% increase in costs would increase payments by circa $4m over the pilot	Dividend reduces by circa $4m to $19m (17% reduction)	Slight increase in costs borne by all customers to run the pilot
Pilot never makes a positive dividend	Pilot is unwound Solar and batteries sold to commercial market DSO and Project Delivery wrapped up	No dividend Feed-in tariffs remain No funding liability (asset sales repay)	Business as usual (**BAU**) Asset sales repay funds borrowed

Figure 4.6: Customer protections and Ausgrid's commitment to ensuring customer value

Customer protections during the pilot

The Community Power Network pilot is designed to ensure that customers face no downside financial risk from participating. Key protections include:

- **Ausgrid absorbs financial risk:** If the orchestration of batteries in wholesale and ancillary markets does not generate enough value to cover the costs of the pilot, Ausgrid will bear any shortfall. Customers will not be asked to contribute to make up any gap.
- **Natural incentives for efficient investment:** As Ausgrid is taking on the risk of costs outweighing benefits for the pilot, there is a natural incentive for Ausgrid to invest wisely, keeping the number of assets and cost per asset to the minimum required to deliver the desired outcomes.
- **No additional charges:** Customers within the pilot locations will not face higher network charges or other costs as a result of the Community Power Network.

This approach ensures customers are fully shielded from financial risk while preserving the opportunity to share in the upside benefits of the pilot. Ausgrid is taking this position for the pilot period to demonstrate our commitment to making the trial successful and driving innovation in the network for the good of all customers.

5 Innovation and Learnings

5.1 Key Learnings Intended to be Explored

Ausgrid is keen to capture and share learnings from the Community Power Network pilot on how the energy sector can best harness new technologies and approaches to improve outcomes for customers. This will be a key aspect of the programme.

It is not possible to list all the potential learnings from the pilot, but examples of the questions we intend to examine as part of the trial include:

- What parts of the concept work/do not work for different customer types and in different geographies?
- What incentives are required to activate all potential local roof space and what are the barriers preventing this?
- What degree of peak capacity and minimum load balancing can be achieved? Is this sufficient to eliminate the triggers that drive upstream grid upgrades?
- What types of grid spending can be eliminated by the pilot concept?
- How much storage capacity and what level of activity is required on DNSP-orchestrated storage to absorb local surplus solar and balance the grid?
- What differences and similarities appear in the way the pilot batteries are orchestrated compared to their commercially orchestrated counterparts, and what is the impact of this?
- What kind of dynamic pricing signals and other mechanisms would be required to make commercially orchestrated batteries respond in a similar way to DNSP-orchestrated ones?
- How much benefit can be generated from arbitraging local surplus solar and what is the most effective way to pass this through to customers?
- Can the storage installed as part of the pilot remove the need to manage and restrict the use of Consumer Energy Resources via mechanisms such as the Emergency Backstop Mechanism?
- What impact can DNSP-led orchestration of storage have on local power quality e.g. removing over voltage issues? What impact does this have on the community?
- What quantitative and qualitative benefits do customers receive from the pilot? How do attitudes towards the pilot and renewable technologies change over the duration of the pilot?

In addition to improvements in load and voltage management, the pilot will include a level of examination of the grid not actively done to date, which we expect to generate significant insights. Voltages will be monitored on each feeder constantly and then the DNSP-orchestrated batteries will be used to respond to any fluctuations. The Distribution System Operator model will be critical to making this happen and being a new capability, it is likely to require refinement as the trial progresses to make it work as desired. This learning will help to make DSO capability scalable across Ausgrid and beyond.

5.2 Connecting to Dynamic Tariffs and Commercial Batteries

This pilot is to test the hypothesis that DNSP-led orchestration of batteries can deliver a superior benefit for customers. This requires confirming if we can orchestrate batteries to create a local market for sharing surplus solar and to flatten out grid demand to the extent it can be relied upon to offset grid augmentation.

If these things prove to be true then we will not only confirm that it is desirable to have batteries act in this way, but we will also learn how they need to react versus batteries being operated to more traditional strategies. This will inform what mechanisms such as dynamic tariffs, direct services and operating envelopes would be required if we were to try and use these methods to guide orchestration of commercially operated batteries by providing various commercial signals to generate the desired behaviours.

In parallel, Ausgrid has a leading-edge program building up our capability to administer dynamic tariffs under Project Edith. This work is underway with a number of retail partners, but it is yet to reach its full capabilities, and the level of functionality that we expect to be required to drive the desired behaviours for batteries inside the Community Power Network. This can continue at full pace while the Community Power Network pilot takes place, so that by the time this, and other pilots, have determined what signals are required, we will have the systems and approaches ready to then implement them.

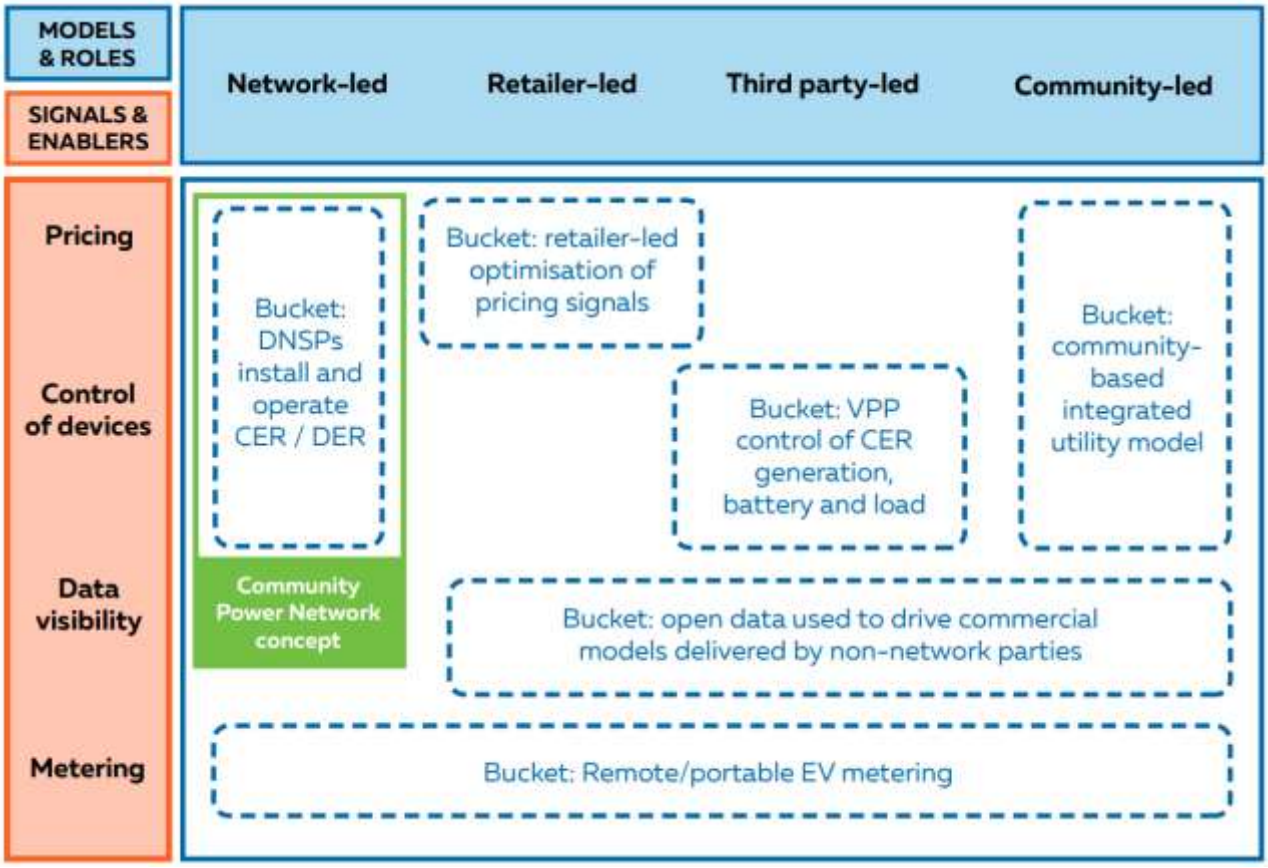
Keeping these separate for the time being allows multiple teams to work on and solve separate parts of the overall puzzle and reduce complexity in each pilot program.

6 Sandbox and regulatory requirements

6.1 Sandbox Requirements

The Community Power Network pilot aligns with the AER's priorities for regulatory sandbox applications. In February, the AER released its *Policy-led Sandboxing Guidance Note*, which identifies six priority areas, referred to as 'buckets'. These are illustrated in Figure 6.1 below, with an overlay (green box) highlighting that our proposed Community Power Network concept fits within the first bucket, 'DNSPs install and operate CER/DER'.

Figure 6.1: Identifying Where our Pilot Falls within the AER's Sandboxing "Buckets"



The *Policy-led Sandboxing Guidance Note* lists principles for designing and evaluating proposed sandbox applications. Our views on how the Community Power Network concept aligns to these principles is set out in Table 6.1.

Table 6.1: Alignment with the Principles in the AER's Policy-led Sandboxing Guidance Note

Principle	The Community Power Network
Equitable access to CER/DER	We will facilitate innovative ways for communities to access the benefits of solar and batteries by pooling and sharing the value created by DER/CER. No ownership of assets is required to receive a benefit.
Facilitating deployment and orchestration	The Spatial Energy Plan created as part of the pilot will identify the right assets to be installed in the right locations. It will assist Ausgrid to deploy assets at the optimum scale and help avoid over-building in areas from uncoordinated deployment. We will also invest in DSO capabilities to improve orchestration of storage once installed. While the pilot will not use dynamic pricing signals to coordinate commercially owned storage, the DSO will provide the basis to begin building this capability for the future.
Lowest whole-of-system cost	We estimate that a typical residential customer within the pilot areas will receive a dividend payment of $150-200 p.a. once the pilot is fully operational.[3] Our modelling suggests that the concept offers greater benefits via a lower cost whole-of-system, including for customers who have the ability to install storage.
Meeting consumer needs	Customers who are currently unable to benefit from CER due to renting, living in an apartment or lacking access to capital will now be able to access value generated by solar and storage.
Scalability and replicability	The Community Power Network model coordinates and deploys CER within areas serviced by Zone Substations. Ausgrid operates 155 Zone Substations, each of which could potentially implement the Community Power Network concept in some form.
System challenges	Improved co-ordination and orchestration of CER provides a more customer-centric approach to dealing with key system challenges, such as minimum demand and providing grid stability during a system restart event. The model addresses the issue of certain areas becoming net generators in the middle of the day from too much surplus solar, creating power quality issues and reverse power flows for networks and below cost wholesale spot pricing for generators.

[3] $150-200 average estimate is subject to change once the design of the benefit sharing mechanism is finalised and actual trading profits are known

6.2 Summary of the Waivers and Exemptions we are Seeking

In Table 6.2 below, we have included a summary of the waivers and exemptions that we are seeking to enable the Community Power Network pilot to be completed. However, other pathways may be possible. If our application is successful, we will work with the AER to determine the most appropriate way forward.

Table 6.2: Summary of the waivers and exemptions we are seeking to enable the pilot

What we are seeking	NER provision	What we are proposing
Additional funding	Cl. 6.6.5	Our regulatory sandbox application proposes a waiver of clause 6.6.5 of the NER. This clause allows the AER to approve additional capex not included in our 2024-29 determination if project costs exceed 5% of our RAB (>$800m), triggering a 'capex event'. Waiving this threshold enables the AER to reopen our 2024-29 determination to approve the additional costs for the Community Power Network pilot, which are significantly below the clause 6.6.5 threshold.
Leasing out storage capacity	Cl. 6.17.1	We plan to utilise a third party to conduct commercial trading involving our batteries. This is likely to be deemed to be leasing out spare capacity in the batteries we install and own as part of the pilot. If this conflicts with ring-fencing requirements, as part of our sandbox wavier, we will seek a waiver from complying with clause 6.17.1 of the NER, which requires us to comply with the ring-fencing guidelines. The waiver from this clause would only apply to activities related to this project and we will work with the AER to determine appropriate wording to give effect to this. Not seeking a separate, specific ring-fencing waiver eliminates difficulties associated with matching waiver lengths and implementing any exit strategy.
Solar ownership	Cl. 6.17.1	If market conditions do not meet the Spatial Energy Plan targets for solar generation, Ausgrid plans to install and own solar as the 'solar owner of last resort'. As part of our regulatory sandbox waiver, we will seek a waiver from complying with clause 6.17.1 of the NER, which requires us to comply with the ring-fencing guidelines. To be clear, Ausgrid does not intend to own solar at the outset of the pilot, however, we are seeking a sandbox waiver to allow us to act as the 'solar owner of last resort' if required.

We considered whether the Demand Management Incentive Scheme (**DMIS**) could be used to provide the additional funding required for the pilot. However, the DMIS is designed to equalise incentives between capex and opex solutions for managing demand by providing a financial incentive equivalent to a 50% uplift on eligible opex initiatives (equating to a 6.3% rate of return compounded semi-annually over a 6.5 year period).[4] It does not provide additional expenditure allowances. Applying the DMIS to the Community Power Network pilot would likely result in high opex costs, particularly during early-stage development, which would be captured by the Efficiency Benefit Sharing Scheme (**EBSS**). This would risk triggering a penalty for legitimate, upfront spending associated with a regulatory trial and, therefore, may not be an appropriate or effective mechanism for funding the pilot.

[4] AER, Explanatory Statement - Demand Management Incentive Scheme, December 2017, p. 30

Appendix A – Detailed Pilot Components

A.1 Details on the Spatial Energy Plan

The Spatial Energy Plan will be a live document which accounts for all new generation, loads and grid constraints in a local network and uses this to determine the right amount of storage and grid orchestrated storage needed to optimise local generation and network costs. It will form the roadmap for the Community Power Network and also be a useful tool for all customers and commercial entities looking to add new assets to the network.

The Spatial Energy Plan will use real profiles for every connection to the network, using AI to determine which connections already have solar, storage, EV chargers and other notable loads and then generate forecasts of how this will change over time if change is aligned to ISP uptake assumptions for each technology.

Ausgrid will overlay rooftop solar physical capacity caps and determine any hard electrical constraints on additional solar that batteries cannot overcome. The lower of these two numbers will be the maximum solar allowed to be connected on any given part of the network without incurring network augmentation costs. Ausgrid will determine the optimal amount of Community Power Network owned storage that needs to be added to each part of the network to balance the network and ensure surplus solar generated can be stored in the local network.

This work will be completed by a team setup within Ausgrid that will become a Distribution Systems Operator office within the pilot.

As this assessment builds up from National Metering Identifier (**NMI**) level data, the constraints and balancing will be done at the lowest possible level on the network, which will typically be the voltage and energy load on each low voltage feeder - a low voltage feeder being a circuit that feeds into a distribution kiosk servicing a small number of streets.

The exact format of the Spatial Energy Plan will partially depend on the software and analysis tools selected to support the Distribution System Operator office. Ideally, this will be available in a dynamic map that Ausgrid can overlay into its network viewer.

A version of the map will be provided to the public to help customers looking to add new generation, loads or make new connections to understand any constraints that would add to connection costs and to identify where assets like solar and storage could be of most value.

Some data will be grouped to protect individual customer's information. Ausgrid will endeavour to provide the greatest level of detail possible without breaching data protection laws or other network or national security requirements. We expect that in most cases this will show, current demand profiles, voltage profiles and spare capacity at the distribution kiosk.

The map will be refreshed regularly for the public, however, is not intended to replace Ausgrid's formal connection assessment. The Spatial Energy Plan will be an efficient way for customers to understand options and potential sites for them to connect new assets, but would still require them to undertake a formal connection assessment to confirm information available in the Spatial Energy Plan.

The model will also be capable of generating a baseline spatial energy map to compare against what actually happens in the Community Power Network to assist in identifying benefits and learnings generated.

A.2 Defining Equitable Distribution of Dividends

A critical factor in the success of the pilot will be in ensuring equitable distribution of the dividend. Defining equitable distribution is complex, and must take into account the circumstances of different customer types, the benefits they get receive from other mechanisms such as their own solar and storage, customers that move within the pilot period, or change retailers. Another factor to consider is how to work with retailers and owners of embedded networks to ensure that dividend distributions provided to them are efficiently passed through to end customers.

There is some time to refine and agree this methodology so it need not delay the commencement of the pilot. It is expected to take 18 months from AER approval to proceed to have the first wave of Community Power Network assets designed, installed, commissioned and generating a benefit, then another circa 12 months for a benefit pool to accrue that would warrant distribution.

To ensure the definition of equitable distribution is properly considered, Ausgrid will be partnering with RACE for 2030 and the University of NSW. These organisations will generate an appropriate methodology for determining equitable distribution of the dividend by consulting with consumer advocate groups, participating councils, the AER and other social equity stakeholders, analysing financial information from the pilot and assessing social factors in the pilot areas. Ausgrid will act as an engaged, but unbiased party in this process as regardless of what definition of equitable is agreed, we will distribute the entire dividend generated. UNSW will provide a report to Ausgrid on their assessment of options and once a final recommended method has been locked in across the involved stakeholders, we will seek the AER's endorsement and publicise the method.

Scoping of this work is already underway with RACE for 2030 and UNSW and is expected to be formally approved and commence shortly after receiving approval to proceed with the pilot from the AER.

Once a dividend is ready to be distributed, Ausgrid will simply comply with the collectively agreed methodology to enact the distribution. Ideally customers will see their distribution provided to them as a rebate or similar mechanism on their electricity bill as this would be the simplest way for them to receive their benefit. This will require co-operation of retailers, which will need to be agreed.

There are other methods for Ausgrid to directly distribute dividends to customers which could be pursued, however we want to respect the existing relationship between retailers and their customers for financial transactions and so will explore this as our preferred option.

A.3 Stakeholder Engagement and Collaboration

The pilot is not something Ausgrid can conduct in isolation. Success will be achieved by engaging with the communities involved and other stakeholders within the electricity ecosystem that we will need to partner with to get the best outcomes from the pilot.

Ausgrid has already discussed the Community Power Network concept with over 90 parties, including entities involved in the energy sector, independent customer advocates and representatives of customers and communities in the areas where the pilot is proposed. These groups and some specific entities communicated with are included in Table A3 below.

Group	Example Entities
Ausgrid Customer Consultative and Innovation Committees	Energy Users Association of Australia, Justice and Equity Centre, Business NSW, Energy and Water Ombudsman NSW, Hunter Joint Organisation [of Councils], Southern Sydney Regional Organisation of Councils, St Vincent de Paul, Erne Energy, CSIRO, The Customer Advocate and UNSW
Customer Advocates	Energy Consumers Australia, Committee for Sydney, Rewiring Australia, Smart Energy Council, Solar Citizens and Australian Alliance for Energy Productivity
Local Councils	Bayside Council, Central Coast Council
Local MPs and Energy Policy Leaders	Emma McBride MP, Federal Member for Dobell, Matt Thistlethwaite MP, Federal Member for Kingsford Smith, David Harris MP, NSW Member for Wyong, Chris Bowen, Federal Minister Climate Change and Energy, Dan Tehan MP, Federal Shadow Minister Energy and Emissions Reduction
Retailers	Australian Energy Council, Energy Australia, AGL, Origin, Amber Electric, Local Volts, MTA Energy, Shell Energy, Engie, Alinta Energy, Synergy, Tesla Energy
Energy Policy and Regulators	Australian Energy Regulator, Australian Energy Market Operator, Clean Energy Finance Committee, RACE for 2030, Australian Energy Markets Commission, Federal Government Dept. of Climate Change, Energy, the Environment and Water, Energy Networks Australia, NSW Government Dept. of Climate Change, Energy, the Environment and Water, NSW Government Net Zero Commission, Energy Corporation of NSW, Resilience Sydney
Large C&I Property Managers	Dexus, Goodman Group, Frasers and CBRE
Installers and Technology OEMs	Splice Electrical, Symmetry Solar, Connect Energy, Edisun, Greenpeak Energy, Charge Hub, Energus, Energy Bay, PlusES, Gridsight, Energeia, SwitchdIn, Sunman, Jinko, Ampaura, Hunter PV, Sungrow

To date, stakeholder engagement has focused on communicating the Community Power Network concept, its purpose, its benefits and any concerns and suggestions. These discussions have been used to refine the proposal and ensure that leaders of communities and other organisations that customers may turn to for answers are able to provide these after the proposal is made public as part of the AER's approval process.

Consultation and stakeholder engagement will continue throughout the pilot. Ausgrid will be sharing status updates and learnings, discussing what is working and not with customers and stakeholders and using this to refine the pilot processes.

Engagement will also continue with UNSW throughout the pilot to independently assess the benefits and learnings of the pilot. They will track benefits and opinions of customers and see how the pilot influences the way renewables are adopted by the community.

A.4 Partnering with Retailers and Aggregators and Maintaining Competitive Markets

Ausgrid do not see any reduction in competitive tension or innovation from private industry caused by this pilot. To utilise commercial batteries to perform grid services requires Ausgrid to understand the behaviours required from batteries, the value this creates for customers and what mechanisms would be best suited to incentivising commercial batteries to act in this way. This is exactly what this pilot is aiming to understand.

During the pilot Ausgrid will be directly owning and controlling a set amount of storage in a bounded area of the network so these things can be tested in the most cost effective and fastest way. Once we have definitive answers to the above points it is expected that any scaling up of the concept would include mechanisms to enable commercial batteries to participate in providing these services. Under this approach, DNSP-led orchestration will mean providing signals to the markets to ensure the desired battery behaviours are being delivered, but commercial markets would free to innovate around how they actually execute this and incorporate it into any other activities they are performing.

Also, even in the pilot areas, there are no restrictions being placed on any customer or any commercial entity installing and operating their own assets for their own purposes. This will be accounted for in the Spatial Energy Plan as described above, and Ausgrid will adjust to only provide the amount of storage required to deliver the grid balancing effects it is trying to achieve in the pilot. Customers in the pilot areas can sell their surplus solar into the Community Power Network, but are not obliged to do so. If they would prefer to interact directly with wholesale markets, or peer to peer trading networks then the Community Power Network does not interfere with this.

Keeping electricity simple for customers will be important for the pilot's success and we see the best way to do this is keep all the complex energy network optimisation strategies in the background so the Community Power Network only deals with retailers and sophisticated market participants, and then retailers can maintain simple, clear relationships with customers.

This means we will work with retailers to determine how we can most efficiently ensure that the benefits the pilot generates can be passed through to customers via their retailers. This is no different to other trials such as Energy Storage as a Service where Ausgrid has jointly developed processes to do this.

Integrations with retailers will be progressed in earnest should the AER approve the pilot.

A.5 The Broader Role of the Distribution System Operator (DSO)

The DSO function will be essential to success of the pilot, but there are other current programs inside and beyond Ausgrid that are considering what benefits a DSO could provide to customers.

The team that Ausgrid stands up for this proposal will connect with Ausgrid's DSO function so that it stays aligned to broader strategies for a DSO and learnings and synergies between the Community Power Network and other programs such as Community Batteries and Project Edith (a dynamic tariff trial being conducted in partnership with selected retailers and customers) can be leveraged.

Insights already gained from Project Edith suggests that utilising locational dynamic network pricing and dynamic operating envelopes is an efficient way to manage the impact of a geographically spread third party virtual power plant on the local distribution network while facilitating increased participation in wholesale markets (both by allowing value stacking and reducing inefficient network price barriers). In the Community Power Network pilot, we aim to test how leveraging similar building blocks (network monitoring, network modelling and operational forecasting) can expand the effectiveness of a DSO.

Collectively, this has the potential to inform not just the role the DSO has in managing distribution congestion and backstop capabilities as envisioned in the Federal Energy Department and AEMO's thinking, but also if there are broader benefits in looking beyond this scope for the DSO.

A.6 Base Assumptions in the Modelling

Some key assumptions we have made in our modelling of the Community Power Network pilot include:

- We are using the AEMO Step Change scenario assumptions for solar and CER growth to develop the baseline forecasts in the model
- The solar capacity proposed to be installed is within the maximum potential estimates made in a report by University of NSW and the Australian Photovoltaic Institute
- We anticipate that most solar in Botany and Mascot will be installed on C&I rooftops, while in Charmhaven it will be primarily on residential homes and light commercial properties
- Historical uptake of solar and battery has been 11% and 1% at Botany, 5% and 0% at Mascot, and 32% and 2% at Charmhaven for residential and commercial and industrial sectors respectively
- Solar installation uses a base assumption of 3 crews installing 3MW every 6 months. 50MW in Botany-Mascot and 20MW in Charmhaven will be installed.
- Home battery uptake rates have changed significantly since the introduction of the federal government rebate scheme. We will gather up to date actual adoption rates as part of the Spatial Energy Plan development, but in Botany-Mascot, the number of apartments is likely to dampen adoption of this scheme
- Batteries are assumed to use 400kWh units as our standard, with 3 units installed per month. During the trial period, both areas are assumed to reach 65MWh of installed batteries. This is limited by the rate at which the batteries can be installed rather than the number that the grid can accommodate.

A.7 Calculating the Benefits of a Scaled Community Power Network versus Traditional Methods

The Community Power Network concept utilises untapped rooftop and local distribution network capacity to install new renewable power generation capacity in our network. Modelling shows that this could deliver 30% of a community's daily power needs while smoothing out demand required from the National Energy Market. This makes it a viable alternative option to consider for providing a meaningful percentage of the renewable generation capacity needed to deliver the energy transition. Because it does not require significant network augmentation it is potentially a more cost-effective alternative too.

More data is required to fully quantify the impact that the Community Power Network concept could have on demand from the NEM and the potential to reduce or remove the need to build as many new transmission projects to connect remote large scale renewable generation assets.

For illustrative purposes however, Table A.1 provides an estimate of the costs to customers to build dispatchable solar generation capacity under the Community Power Network model versus creating the same amount of large solar generation connected via a new transmission project, such as the Central West Orana REZ. Six existing REZ projects were investigated, but Central West Orana was selected for this comparison as it is the most advanced of its kind and is at the lower end of the cost per MW spectrum compared to other planned transmission projects.

This table demonstrates that a Community Power Network approach could reduce the network costs to build and connect dispatchable renewable capacity by over 20%. If 30% of future energy needs could be met via the CPN model then that could result in a meaningful reduction in costs that customers will pay for in future network tariffs.

Table A.1: Estimated Cost Comparison to Install and Connect Renewable Dispatchable Power

	T-REZ ($m/MW)	CPN ($m/MW)	Source	Notes
Build cost - Solar PV	0.98	1.00	AEMO, Ausgrid modelling	**T-REZ**:Average of 3 lowest cost for large scale solar PV (new entrant generators) plus 30% efficiency for single axis tracking (source linked). **CPN**: Build cost from Ausgrid model
Operation/maintenance - Solar PV	0.02	0.02	AEMO	Same O&M cost assumed across both. **Source**: AEMO Draft Inputs and Assumptions Workbook 2025
Connection cost - Solar PV	0.14	0.18	AEMO, Ausgrid assessment	**T-REZ**: Large scale Solar PV connected to Central-West Orana (Cost zone: N3 - AEMO Draft Inputs and Assumptions Workbook 2025) **CPN**: Based on desktop assessment of 10 distribution centers in the Mascot/Botany area. These sites had a potential to accommodate about 15% of the required solar installation. (+/- 30% uncertainty)
Build cost - Battery storage	1.21	1.45	AEMO, Ausgrid modelling	**T-REZ**:2 hour battery in the Sydney, Newcastle & Wollongong sub-region. (AEMO Cost zone: NNSW, CNSW, SNW, SNSW) **CPN**: Build cost from Mascot/Botany model.
Operation/maintenance - Battery storage	0.01	0.07		**T-REZ**: O&M costs from AEMO Draft Inputs and Assumptions Workbook 2025. **CPN**: O&M costs average for first 5 years from Ausgrid model.
Connection cost - Battery storage	0.08	0.15		**T-REZ**: 2 hour battery in the Sydney, Newcastle & Wollongong sub-region. (AEMO Cost zone: NNSW, CNSW, SNW, SNSW) **CPN**: From Ausgrid estimation dashboard. Assumes battery is connected straight on to the LV mains via a UGOH, & UGOHs per MW of BESS.
Network build	1.02	0.07	EnergyCo, Ausgrid modelling	**T-REZ**: $5.45B on Central-West Orana (CWO) REZ transmission link supports additional 8GW of generation, 3GW solar and 5GW wind. Includes an uncertainty factor from AEMO Electricity Network Opportunities draft report 2025 - Uncertainty (5b). **CPN**: Assumes $8.7m of project delivery cost used for 'Network build' minus one off costs of $3.9m (approx.).
Network losses	7%	-	AEMO MLF FY25-26	**T-REZ**:Marginal loss factor of Wellington SF in Central-West Orana REZ is approx 0.93 on existing network. **CPN**: Assumes losses negligible.
Network operations	-	0.10	Ausgrid modelling	**T-REZ**: Assumes incremental market/system operation cost to be negligible. **CPN**: Assumes DSO cost of $17.8m as the cost to operate the CPN minus one off system build and part of system that could be used for overall network benefit and comms costs equalling $4.2m (approx.). Network cost spread across 70MW solar and 65MW BESS.
Total	**3.69**	**3.03**	**-22%**	

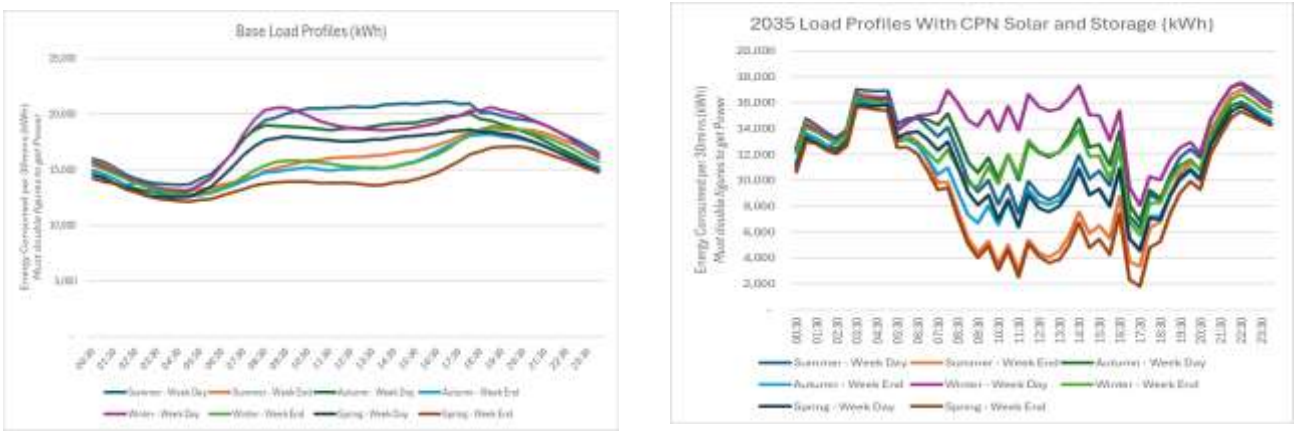
As previously mentioned, the Community Power Network also flattens out demand required from the NEM by circa 30% (details in the following section). At scale, this creates significant head room on the existing network to accommodate loads like data centres and the electrification of industrial processes. This would raise network utilisation levels and also have a significant impact on the per unit network tariffs required to fund the grid.

A.8 Current and Forecasted Load Profiles in the Pilot Areas

The following figures show the predicted impacts to load and peak demand in the pilot areas.

For Botany and Mascot, overall energy drawn from the NEM is forecast to reduce by 28%. Peak demand is forecast to reduce by 16%, freeing up 7MW of capacity on the network during peak hours.

Figure A.1: Predicted impacts to load and peak demand in Botany and Mascot



For Charmhaven, overall energy drawn is forecast to reduce by 29%. Peak demand is forecast to reduce by 23%, freeing up 5.6MW of capacity on the network during peak hours.

Figure A.2: Predicted impacts to load and peak demand in Charmhaven