

DER Initiative Assessment and Program Design - Workstream 1

Central NSW Joint Organisation

13 May 2024

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CONTENTS

1	Introduction	4
2	Summary of Findings	6
3	Summary of Input Research	9
3.1	Initiative Stocktake	9
3.2	Central NSW Region Information	12
4	Summary of Interviews with Stakeholders	14
4.1	Initiative Objective	14
4.2	Government Policy	14
4.3	Technical Standard Considerations	14
5	Summary of Workshop Outputs	16
5.1	Initiative Objectives	17
5.2	Energy Solution	18
5.3	Beneficiaries	19
5.4	Intervention Type and Eligibility Criteria.....	20
6	Next Steps	23
6.1	Confirm pilot initiative design.....	23
6.2	Identify key stakeholders and secure funding.....	27
6.3	Prepare, run and evaluate the initiative.....	29
7	Appendices	30
7.1	Initiative Stocktake Information	30
7.2	Demographic Analysis.....	31
7.3	Design Workshop Mural	32

1 Introduction

The business case regarding the nexus between energy security and emissions reduction in Central NSW, commissioned by the Central NSW Joint Organisation (CNSWJO), identified that deploying behind-the-meter (BTM) Distributed Energy Resources (DER) across the region could benefit the community by providing energy security through low emissions technology. The business case identified a number of work packages to assist in implementation.

One of those work packages was to develop and deploy the initiatives required to incentivise residents and businesses to install DER (specifically, rooftop solar PV and batteries) in areas experiencing energy security issues. Specifically:

- ▶ For residential premises:
 - 5kW rooftop solar PV installations for residential premises
 - 5kW two-hour batteries.
- ▶ For business premises:
 - 20kW rooftop solar PV installations for business premises
 - 20kW two-hour battery.

The business case identified that the Blayney, Cabonne, Forbes, Orange, Parkes and Weddin Council areas would benefit the most from being targeted by this initiative. However, the business case also noted that extending the rollout of DER to other Council areas may offer additional, incremental, benefits.¹ Given this potential, it was considered appropriate to consider a single initiative delivery approach for the whole of the region.

Following the business case, a series of planning activities were undertaken to progress implementation. EY's role was to prepare for, and facilitate, a workshop with relevant stakeholders to collaboratively scope the DER initiative. This report summarises what was agreed by stakeholders at the workshop.

A three-hour virtual workshop was held on the 14 March 2024 which was attended by representatives from key stakeholder groups to collaboratively design the core features of the initiative. Information and research on previous, similar initiatives were provided to stakeholders, along with key electricity network, current penetration of DER and demographics information of the region. This information is also summarised in this report.

The workshop was attended by representatives from:

- ▶ CNSWJO and member Council General Managers
- ▶ NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- ▶ Department of Regional NSW
- ▶ Essential Energy
- ▶ Iberdrola Australia.

Some suggested next steps are also set out in this report. While workshop attendees agreed to a range of initiative design elements, there were others that were not settled in the discussion. The next steps section of this report makes suggestions that builds on what workshop attendees agreed to but makes some further suggestions to help accelerate implementation.

This report is written in conjunction with two other reports summarising the results of two other work packages recommended by the business case which focussed on exploring land availability and costs for:

¹ The business case provided indicative guidance that for every additional \$1 invested in rooftop solar PV and battery system for an average resident in Central NSW, it is expected to result in a benefit of \$1.63 over the 30-year analysis timeframe (real, undiscounted) or \$1.21 (real, discounted).

- ▶ Batteries and co-located solar farms adjacent to zone substations in Lake Cargelligo and Condobolin in Lachlan, and Grenfell in Weddin.
- ▶ Ultra-fast 350kW electric vehicle (EV) chargers with co-located small-scale solar farm and batteries to supplement electricity grid-power to the EV charger at sites in Cowra, Lithgow and Parkes.

2 Summary of Findings

The high-level design elements and principles for the initiative that were agreed to by the workshop attendees are summarised in Table 1 and Figure 1. While energy solutions and beneficiaries for the initiative were agreed in the workshop, further work will be required to refine the eligibility criteria and detail the intervention types for the initiative. 'Energy solutions' refers to the DER technology type to be offered as part of the initiative, and 'beneficiaries' refers to the customer cohorts that would be eligible. 'Intervention type' refers to the nature of the benefit offered as part of the initiative to eligible customers.

Workshop discussions noted that the initiative should be 'place-based', meaning that it should be a collaborative, long-term approach tailored to the needs of the community in that area. In this case, it also refers to designing the initiative such that it future proofs the energy needs of the community. In particular, permitting asset owners to support the local community and its energy needs in future by enabling community energy sharing through a Virtual Power Plant (VPP).²

The staging of this initiative was also discussed in the workshop. It was agreed that the initiative would first be introduced as a targeted, small-scale pilot in Central NSW before being considered for a broader roll-out across all NSW regions. This report focusses on design of the pilot initiative in Central NSW.

Table 1: High-level initiative design summary from workshop

Why? Initiative Objective	
<p>The initiative objective is to:</p> <ul style="list-style-type: none"> ▶ Address energy affordability issues through deploying BTM DER ▶ Align with government objectives, including net-zero targets, and ▶ Support energy security in the region. <p>This initiative aligns with 'The Nexus Between Emissions Reduction and Energy Security in Central NSW' business case and sit at the interface between energy security, emissions reduction and driving affordability for customers.</p>	
What? Energy Solution	<p>The initiative will support the adoption of:</p> <ul style="list-style-type: none"> ▶ BTM batteries, or ▶ Combined BTM battery and rooftop solar PV.
Who? Beneficiaries	<p>The initiative will only target the following groups:</p> <ul style="list-style-type: none"> ▶ Residential customers ▶ Small-Medium Enterprises (SMEs).
How? Intervention Type	<p>While high-level principles for the intervention type were agreed in the workshop, further work is required to select the specific intervention type(s) for this initiative. The principles agreed to were that:</p> <ul style="list-style-type: none"> ▶ The intervention should be simple to understand and administer. ▶ The intervention type may differ for residential and SME applicants.
Eligibility Criteria	<p>While eligibility categories were agreed during the workshop, further work is required to refine the eligibility criteria for the initiative. At the workshop it was agreed that:</p> <ul style="list-style-type: none"> ▶ Ownership of a detached dwelling will be required for residential applicants. ▶ All applicants must be located in areas identified as suitable for increased adoption of BTM solar and/or batteries, in consultation with the local Distribution Network Service Provider (DNSP). ▶ All assets must be compliant with the energy solution technical standards of the initiative.

² A 'Virtual Power Plant' or 'VPP' is a decentralised collection of power-generating and/or storage units connected and controlled by a central software platform that collectively behave like a single, large power plant.

Attendees of the workshop agreed that the initiative should incentivise BTM battery or BTM battery and rooftop solar PV uptake in the region. It was agreed that this initiative would not support the uptake of standalone rooftop solar PV, as there are already programs available for this purpose. However, batteries offer greater energy capacity benefits in the region if combined with existing or new rooftop solar PV, and there are less initiatives targeted to this purpose.

It was also agreed that residents and SMEs should be the target beneficiaries for the initiative. This was because large enterprises often require tailored solutions and tend to have more resources to seek funding through other avenues.

No specific intervention type for the initiative was determined, however, there was consensus on two key points; the intervention method should be simple, and that the intervention type may vary between beneficiary cohorts. Simplicity and flexibility were considered important to streamline delivery and incentivise take-up.

There were three key eligibility criteria categories discussed. Firstly, that residential applicants should only be eligible if they are owner-occupiers. Again, this was to simplify requirements and processes. Secondly, that applicants must be located in suitable electricity network areas to be eligible so that this initiative does not further contribute to energy security issues in the region, but rather addresses it. Determining suitable locations will require consultation with the local DNSP.

Finally, there were a number of technical standard requirements discussed for the energy solutions that will require more detailed analysis to finalise. This is important for safety, ease and efficiency of connection processes as well as future-proofing the installations.

Figure 1 below shows an example design logic map, or decision tree, for the initiative which may form the basis to finalise the design elements of the Central NSW pilot initiative.

3 Summary of Input Research

To inform initiative design, desktop research on previous, similar initiatives were collated, as well as data on the Central NSW electricity network and analysis of business and residential demographics in the region. This research was provided to all stakeholders ahead of the virtual workshop. A summary of this information is provided below.

3.1 Initiative Stocktake

An analysis of 11 closed and in progress initiatives was conducted, including those that incentivise the uptake of BTM batteries, rooftop solar PV installations or a combination thereof across both state and national jurisdictions. A further 11 initiatives were identified that extended to other assets, such as community batteries, EVs, and other DER assets.

Many of the initiatives identified focused on residential applications of BTM rooftop solar PV and batteries, whereas only just over a third extended the initiative to business premises as well. All initiatives except two offered either a rebate, a zero-interest loan, or a combination of the two, which involved an upfront rebate accompanied by a zero-interest loan for an additional specified amount. One initiative offered a competitive grant, and another offered an option for consumers to forgo their Low Income Household Rebate in return for support toward purchasing rooftop solar PV.

Approximately half the initiatives identified established certain technical requirements for in scope assets. For example, the Northern Territory Home Battery Scheme approved equipment list was limited to battery and inverter assets with the capability for VPP enrolment.³ The South Australian Home Battery Scheme was the only initiative not to require property ownership within the eligibility criteria.

A summary of the initiatives with BTM rooftop solar PV and batteries is included in Table 2, with further detail of the initiative scan located in appendix 7.1.

Table 2: Summary of relevant initiatives

	Energy Solution	Beneficiaries	Intervention Type	Eligibility Criteria Categories
Solar for Low Income Program ACT	<ul style="list-style-type: none"> Rooftop Solar PV Energy efficiency upgrades 	<ul style="list-style-type: none"> Residents 	<ul style="list-style-type: none"> Rebate Zero-interest loan 	<ul style="list-style-type: none"> Property Ownership Means-tested
Solar Battery Storage Discount ACT	<ul style="list-style-type: none"> Battery 	<ul style="list-style-type: none"> Residents Businesses 	<ul style="list-style-type: none"> Rebate 	<ul style="list-style-type: none"> Property Ownership
Sustainable Household Scheme ACT	<ul style="list-style-type: none"> Rooftop Solar PV Battery Energy efficiency upgrades EVs 	<ul style="list-style-type: none"> Residents Businesses Community groups 	<ul style="list-style-type: none"> Zero-interest loan 	<ul style="list-style-type: none"> Property Ownership Means-tested

³ A 'Virtual Power Plant' is a decentralised collection of power-generating and/or storage units connected and controlled by a central software platform that collectively behave like a single, large power plant.

	Energy Solution	Beneficiaries	Intervention Type	Eligibility Criteria Categories
Community Energy Upgrades Fund <i>National</i>	<ul style="list-style-type: none"> Energy efficiency upgrades 	<ul style="list-style-type: none"> Local government 	<ul style="list-style-type: none"> Competitive grant 	<ul style="list-style-type: none"> Property Ownership Merit test
Empowering Homes Solar Battery Loan <i>NSW</i>	<ul style="list-style-type: none"> Rooftop Solar PV Battery 	<ul style="list-style-type: none"> Residents 	<ul style="list-style-type: none"> Zero-interest loan 	<ul style="list-style-type: none"> Property Ownership Means-tested Geography Technical requirements
Solar for Low-income Households <i>NSW</i>	<ul style="list-style-type: none"> Rooftop Solar PV 	<ul style="list-style-type: none"> Residents 	<ul style="list-style-type: none"> Forgoing other benefits 	<ul style="list-style-type: none"> Property Ownership Means-tested
Home Battery Scheme <i>NT</i>	<ul style="list-style-type: none"> Rooftop Solar PV Battery 	<ul style="list-style-type: none"> Residents Businesses 	<ul style="list-style-type: none"> Rebate 	<ul style="list-style-type: none"> Property Ownership Technical Requirements
Battery Booster Rebate for Households <i>QLD</i>	<ul style="list-style-type: none"> Battery 	<ul style="list-style-type: none"> Residents 	<ul style="list-style-type: none"> Rebate 	<ul style="list-style-type: none"> Property Ownership Means-tested
Home Battery Scheme <i>SA</i>	<ul style="list-style-type: none"> Battery 	<ul style="list-style-type: none"> Residents Businesses 	<ul style="list-style-type: none"> Rebate Zero-interest loan 	<ul style="list-style-type: none"> Technical requirements
Solar Panel Incentive <i>VIC</i>	<ul style="list-style-type: none"> Rooftop Solar PV 	<ul style="list-style-type: none"> Residents 	<ul style="list-style-type: none"> Rebate Zero-interest loan 	<ul style="list-style-type: none"> Property Ownership Means-tested Technical requirements
Solar Battery Incentive <i>VIC</i>	<ul style="list-style-type: none"> Rooftop Solar PV Battery 	<ul style="list-style-type: none"> Residents 	<ul style="list-style-type: none"> Zero-Interest loans 	<ul style="list-style-type: none"> Property-Ownership Means-tested Technical requirements

The results of the initiative stocktake we collated to aid the structure of the CNSWJO initiative design. This collation is presented in Table 3 below and was used as a potential menu of options for discussion and consideration by workshop participants.

Table 3: Elements of initiative design derived from initiative stocktake

Initiative Element	Category	Description
Energy Solution	Rooftop Solar PV	A new BTM rooftop solar system and inverter on private premises.
	Battery	A new BTM battery connected to an existing rooftop solar PV system and inverter.
	Combined Rooftop Solar PV and Battery	A new combined BTM rooftop solar PV system, battery, and inverter.

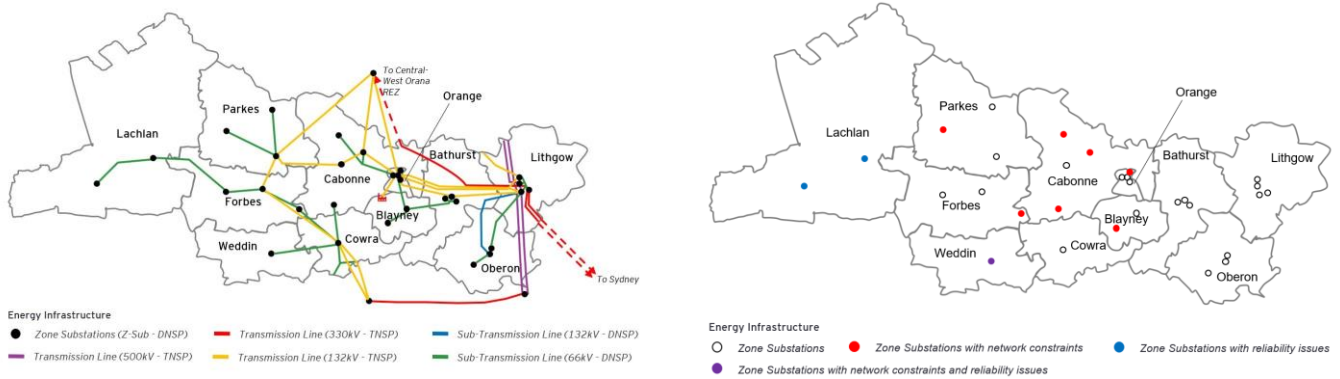
Initiative Element	Category	Description
Intervention Type	Rebates	Rebates refer to any singular or fixed lump-sum payment used to offset purchase costs.
	Zero-interest loans	Zero-interest loans refer to a debt agreement without an interest component for all or part of the purchase price.
	Forgoing other benefits	Forgoing other benefits refers to a beneficiary that relinquishes an entitlement in exchange for another benefit (e.g. receiving a rooftop solar PV and/or BTM battery system).
	Competitive grant	Competitive grants refer to initiatives that have a fixed funding pool that beneficiaries can submit an application to access, competing against other applicants.
Beneficiary	Residents	Residents refer to beneficiaries in residential homes, which can include renters and/or owner-occupiers.
	Business	Business refers to beneficiaries in commercial premises, which includes SMEs and large enterprises.
	Government entities	Government entities refer to any organisation owned by government, which may include government agencies, local government, and state-owned enterprises.
	Community groups	Community groups are organisations owned and controlled by local community members, which may include small non-profit organisations
Eligibility	Means-tested	Means-testing refers to income or asset value thresholds that will determine eligibility
	Merit-test	Merit-testing is only relevant to competitive grant initiatives, wherein an application is assessed on merit-based criteria compared to other applications
	Property ownership/type	Property ownership/type refers to both the ownership arrangement for the site (i.e. whether it is rented or owner-occupied) and the type of property (e.g. detached and freehold, attached and strata-titled, etc.)
	Technical requirements	Technical requirements refer to criteria that determine both the assets eligible to be installed through the initiative and the inclusion or exclusion of beneficiaries based upon the pre-existing assets onsite (e.g. existing inverters connecting to new batteries).
	Geography	Geographic eligibility criteria refers to inclusion or exclusion of beneficiaries based upon location criteria (e.g. suburb, postcode, etc.)

3.2 Central NSW Region Information

3.2.1 Electricity network and DER uptake

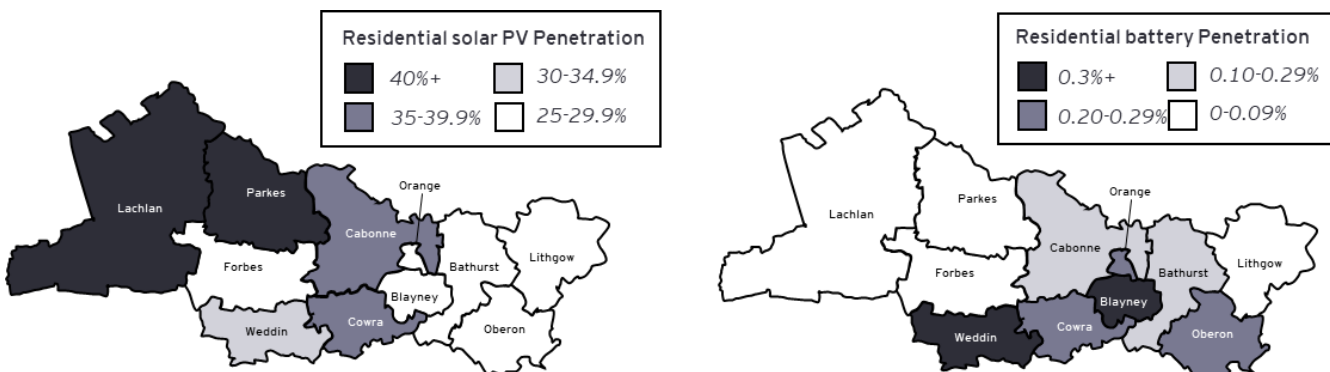
Electricity in the region services households and businesses via a network of transmission and sub-transmission high-voltage lines used to transport electricity over long distances within Central NSW. Broadly, the lower voltage infrastructure (sub-transmission) services the more remote western areas of the region, as illustrated in Figure 2. Similarly, constraints and reliability issues identified by the business case become more prevalent in the zone substations to the western edges of the Central NSW region.

Figure 2: Electricity network infrastructure (left) and zone substation experiencing network constraints and reliability issues (right)



Additionally, existing DER uptake in the region varies substantially across business and residential customers. Residential BTM rooftop solar PV penetration is high across Central NSW, reaching proportions above 40% in the western areas of Lachlan and Parkes.⁴ As noted in the Opportunities Context Report (an appendix to the business case), there is higher solar potential in the western areas of the region, which could offer an explanation as to the higher penetration in those areas. Forbes is a notable exception to this trend, which may indicate an opportunity in the region. Further, the eastern areas of the region that have a closer proximity to higher voltage infrastructure appear to have lower penetration rates of rooftop solar PV. Average penetration of residential BTM batteries in Central NSW is at 0.2%, only marginally below the NSW average of 0.3%, with the highest penetration in Weddin and Blayney at 0.3%.⁵

Figure 3: Residential BTM rooftop solar PV penetration (left) and BTM battery penetration (right)



⁴ Australian PV Institute, 'PV Postcode Data', <https://pv-map.apvi.org.au/postcode>, Accessed 18 March 2024

⁵ AEMO, 'Distributed Energy Resource Register', <https://aemo.com.au/en/energy-systems/electricity/der-register>, Accessed 18 March 2024.

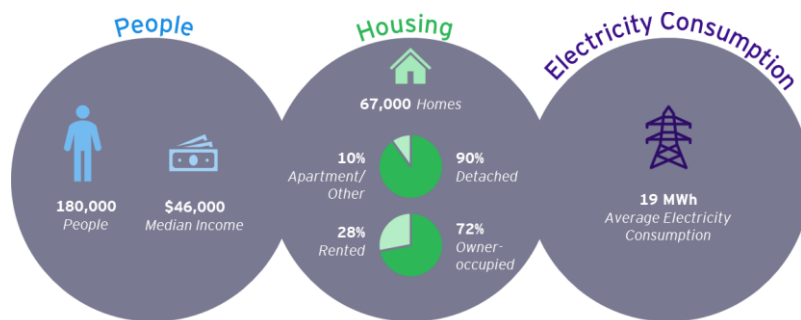
The uptake of DER in businesses across the region lags behind the residential cohort, with approximately 828 rooftop solar PV installations across Central NSW or 8.5% of total business connections to the electricity network.⁶ However, business solar PV installations have, on average, a higher capacity rating compared to residential, with an average rating of 16.4 kVa, approximately four times the average size of residential assets (at 4.8 kVa).⁷ Currently, there is very low uptake of BTM batteries in business premises across NSW, only two are recorded within the Central NSW region, or 1% of the total number of installations in NSW.⁸

3.2.2 Central NSW demographics

Additional desktop analysis of key demographic information was used as an input to the discussion to help tailor future detailed initiative design. A detailed analysis of demographics in the region is enclosed in appendix 7.2.

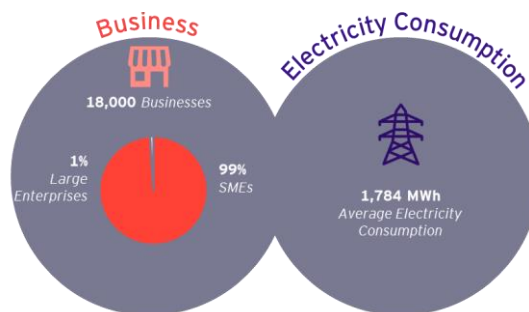
Residents of the region have a \$46,000 p.a. median income as compared to the NSW median of approximately \$95,000p.a.⁹ As a result, BTM DER assets could be cost-prohibitive for residents in Central NSW as compared to other regions without an intervention. Additionally, 90% of dwellings are fully detached houses and 72% are owner-occupied, therefore there are a substantial portion of residents that could be targeted for a DER initiative.¹⁰

Figure 4: Residential demographic overview



There are comparatively fewer businesses in the region than residential premises, but these have a substantially higher average annual electricity consumption (approximately 90 times higher at 1,784 MWh). Additionally, there are 18,007 individual businesses in the region, of which 99% employ less than 200 people, classifying them as Small-Medium Enterprises (SMEs).¹¹

Figure 5: Business demographic overview



⁶ AEMO, 'Distributed Energy Resource Register', <https://aemo.com.au/en/energy-systems/electricity/der-register>, Accessed 18 March 2024.

⁷ Ibid

⁸ Ibid

⁹ ABS, 'Data by region', <https://dbr.abs.gov.au/index.html>, Accessed 4 April 2024.

¹⁰ Ibid

¹¹ Ibid

4 Summary of Interviews with Stakeholders

Prior to the workshop, a series of interviews with the key stakeholders were held to ensure alignment in understanding of the workshop objectives, issues to be discussed and format. Interviews were held with representatives from Essential Energy, Iberdrola Australia and the Department of Regional NSW. The key topics discussed in these interviews were:

- ▶ An appropriate initiative objective
- ▶ Alignment with government policy
- ▶ Technical standard considerations for rooftop solar PV and battery technologies.

4.1 Initiative Objective

A consistent theme across all stakeholder discussions was that the initiative objective will have a strong influencing factor on the rest of initiative design. Different objectives may lend themselves to targeting different beneficiary cohorts, applying different energy solutions, or applying different eligibility criteria. Therefore, clear initiative objectives determined upfront will aid the development of each aspect of the initiative.

4.2 Government Policy

Alignment with publicly stated policy objectives and supporting equity across the state were the two key points noted during consultation with the Department of Regional NSW. There was a recognition that different regions within the state will require interventions tailored to their specific circumstances, but that one region of NSW should not be singled out to ensure equity. Therefore, a pilot initiative in Central NSW that may then be scaled to other regions within the state, experiencing similar challenges, could be more appropriate.

Additionally, any potential initiative should align with the NSW Electricity Infrastructure Roadmap, as the key NSW government policy that sets out the path forward for decarbonising the states' generation and storage mix. Further, no determination on the appropriate department or agency to lead the initiative was reached. Selecting a lead agency is further considered in section 6.

4.3 Technical Standard Considerations

Ensuring that eligible assets comply with the latest technical standards, to sufficiently future proof the installed DER, was identified as an important consideration for initiative design.

The specification of inverters was noted in particular. AS4777.2:2020 was highlighted as a relevant inverter standard for safety and the avoidance of introducing power quality constraints. Further, the Common Smart Inverter Profile (CSIP-Aus) standard would be required to enable interoperability with the DNSP and dynamic operating envelopes (DOEs) in the future. DOEs can mitigate the introduction of power quality concerns as well as optimise exports to the network. However, there are additional requirements for the DER to be connected to DNSP servers to enable the introduction of DOEs.

Ensuring that additional rooftop solar PV capacity does not further exacerbate export constraints on the grid was also highlighted in discussions. To ensure that this does not occur as a result of the initiative, close consultation with the DNSP will be required to determine appropriate locations for eligibility.

BTM batteries were noted as an appropriate solution for reducing grid consumption, but not necessarily for promoting overall reliability. Batteries aren't able to prevent a power outage to a site in the event power supply is interrupted, as to maintain the integrity of the equipment they must also disconnect in an outage. Additionally, depending on the duration of an outage, a battery may not be able to fully meet the electricity consumption needs of the site. Additionally, BTM storage solutions would not be captured

in the regulatory measures for reliability (e.g. STPIS), as opposed to in-front-of-the-meter solutions such as a community battery.¹² Dependent on the objectives of the initiative, consultation also flagged that it may be possible for batteries to monitor and improve power quality, but more sophisticated software and active management may be required to achieve this, which would likely impact the feasibility of using DER to manage power quality at this stage.

¹² The Service Target Performance Incentive Scheme (STPIS) is program that provides incentives for the DNSPs to maintain and improve network performance, improving electricity supply reliability.

5 Summary of Workshop Outputs

As previously noted, a three-hour virtual workshop with relevant stakeholders was held to facilitate the collaborative development of a high-level initiative design to increase the adoption of rooftop solar PV and batteries for residential and business customers in the Central NSW region. The workshop was attended by key stakeholder organisations in the region, including representatives from:

- ▶ CNSWJO and member Council General Managers
- ▶ NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- ▶ Department of Regional NSW
- ▶ Essential Energy
- ▶ Iberdrola Australia.

During the workshop, high-level design elements and principles for the initiative were agreed by the attendees. This is summarised in Table 4 below and in the initiative decision tree in Section 2. While energy solutions and beneficiaries for the initiative were agreed in the workshop, further work is needed to refine the eligibility criteria and intervention type(s) for the initiative - this is discussed in more detail below.

It was also noted the initiative would need to eventually be available to all communities in NSW. It was recognised that Central NSW represents a suitable region for a targeted and smaller-scale pilot initiative, which could later be scaled.

Table 4: High-level initiative design summary from workshop

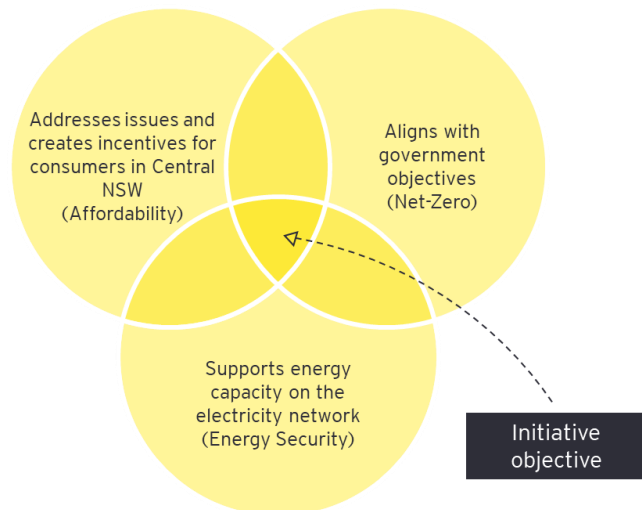
Why? Initiative Objective	
<p>The initiative objective is to:</p> <ul style="list-style-type: none"> ▶ Address energy affordability issues through deploying BTM DER ▶ Align with government objectives, including net-zero targets, and ▶ Support energy security in the region. <p>This initiative aligns with 'The Nexus Between Emissions Reduction and Energy Security in Central NSW' business case and sit at the interface between energy security, emissions reduction and driving affordability for customers.</p>	
What? Energy Solution	<p>The initiative will support the adoption of:</p> <ul style="list-style-type: none"> ▶ BTM batteries or ▶ Combined BTM battery and rooftop solar PV.
Who? Beneficiaries	<p>The initiative will only target the following groups:</p> <ul style="list-style-type: none"> ▶ Residential customers ▶ Small-Medium Enterprises (SMEs).
How? Intervention Type	<p>While high-level principles for the intervention type were agreed in the workshop but further work is required to select the specific intervention type(s) for this initiative. The principles agreed to were that:</p> <ul style="list-style-type: none"> ▶ The intervention should be simple to understand and administer. ▶ The intervention type may differ for residential and SME applicants.
Eligibility Criteria	<p>While eligibility categories were agreed during the workshop, further work is required to refine the eligibility criteria for the initiative. At the workshop it was agreed that:</p> <ul style="list-style-type: none"> ▶ Ownership of a detached dwelling will be required for residential applicants. ▶ All applicants must be located in areas identified as suitable for increased adoption of BTM solar and/or batteries, in consultation with the local DNSP. ▶ All assets must be compliant with the energy solution technical standards of the initiative.

5.1 Initiative Objectives

The agreed initiative objective is to:

- ▶ Address energy affordability issues
- ▶ Align with government objectives, including net-zero targets
- ▶ Support energy security in the region.

Figure 6: Initiative objectives



Energy affordability

Energy affordability was a key issue noted during the business case development and analysis. Energy costs and electricity wholesale price volatility are increasing in NSW. NSW was the only jurisdiction in the National Electricity Market (NEM) to experience year-on-year increases in wholesale price volatility in Q4 2023 and the Default Market offer increased by ~20% at the end of FY23.^{13,14,15}

The resulting impact is that energy prices levied on residents and businesses are compounding cost of living pressures. BTM DER assets can reduce consumers electricity consumption drawn from the network and reduce electricity bills for consumers.

Policy alignment

This initiative must align with Commonwealth and state government policy objectives, in particular those related to net-zero goals and social equity. The business case identified at least 8 NSW government policies that this initiative aligns with.

Energy security

Energy security is another key objective of the initiative. Drawing from analysis conducted in the business case, of the 30 zone substations located within the Central NSW region, one third were experiencing constraint or reliability issues.¹⁶ Careful deployment of BTM DER assets can contribute toward energy security in the region and help to alleviate network capacity constraints. To avoid power

¹³ The 'Default Market Offer' is the maximum price a retailer can charge for a default electricity contract.

¹⁴ IPART, '1 July 2023 electricity price increases', <https://www.ipart.nsw.gov.au/1-july-2023-electricity-price-increases>, Accessed 19 March 2024.

¹⁵ Australian Energy Market Operator, 'Quarterly Energy Dynamics Q4 2023', <https://aemo.com.au/-/media/files/major-publications/qed/2023/quarterly-energy-dynamics-q4-2023.pdf?la=en>, Accessed 19 March 2024

¹⁶ EY analysis of Essential Energy and Endeavour Energy Distribution Annual Planning Report data

quality issues, these assets will need to be deployed carefully and in consultation with key network stakeholders (e.g. DNSPs).¹⁷

5.2 Energy Solution

During the workshop it was agreed that this initiative should support the adoption of BTM battery solutions at eligible sites, and where appropriate, also support the adoption of rooftop solar PV. BTM batteries, when combined with rooftop solar PV, can help residential and business customers optimise the self-consumption of electricity and manage the temporary misalignment between peak solar production and electricity consumption periods.

Participants noted during the workshop that batteries are still cost-prohibitive in comparison to rooftop solar PV, and that there are many initiatives that have targeted rooftop solar PV but not batteries. As batteries will play an increasingly important role in the future, an initiative to incentivise adoption would be appropriate.

As such, it was agreed by workshop participants that supporting the adoption of stand-alone rooftop solar PV alone would be excluded from this initiative. Participants also noted that the uptake of rooftop solar PV is already high in the Central NSW region.

Coordinated BTM DER technologies, such as those participating in a VPPs, also have the potential to provide network services and support the operation of the grid in the future, provided the installed assets meet relevant technical standard requirements. While facilitating participation in VPPs is not the core objective of this initiative, future-proofing the solution so that participating customers are capable of sharing their excess energy with their community in the future was a key principle discussed during the workshop. There are also a number of enabling technology assets, of which technical standards also need to be considered, these include inverters and smart meters. Technical standard requirements for assets are discussed in more detail in the eligibility criteria, section 5.4.2.

Potential asset configurations which this initiative could support is summarised in the table below:

Table 5: Energy solution configuration options

Asset configuration	Initiative support for the adoption of a BTM battery at a site with existing rooftop solar PV	Initiative support for the adoption of a BTM battery and rooftop solar PV at a site
Contribution to initiative objectives	Can support initiative objectives by optimising self-consumption and could contribute toward energy security.	Can support initiative objectives by optimising self-consumption and could contribute toward energy security.
Constraints or challenges	Existing BTM assets may not meet program technical standard requirements.	Highest cost asset configuration.

An additional asset configuration is possible, whereby a beneficiary installs only a BTM battery without connection to a rooftop solar PV system. This would likely offer some benefit to shifting electricity consumption, enabling the user to utilise low energy prices during off-peak periods to charge and discharge during peaks. However, there is little benefit to achieving the decarbonisation objectives of this program. None of the initiatives examined in the initiative scan incentivised the installation of a standalone BTM battery either.

¹⁷ Essential Energy, 'DER Integration Strategy 2024-29', <https://www.aer.gov.au/system/files/Essential%20Energy%20-%207.01%20DER%20Integration%20Strategy%20-%20Jan23%20-%20Public.pdf>, Accessed 19 March 2024

5.3 Beneficiaries

Three customer or beneficiary cohorts for this initiative were discussed during the workshop, with only two identified as appropriate targets for the initiative.

- ▶ Residential consumers were identified as a target cohort for this initiative.
- ▶ SMEs were also identified as a target cohort for this initiative.
- ▶ Large businesses are to be excluded from this initiative.

Residential

As described in section 3.2.2, there are over 67,000 residential properties in Central NSW. This cohort clearly represents a good target cohort for this initiative. Furthermore, the majority of residential properties in Central NSW are detached and owner-occupied. These characteristics will enable the initiative to focus on residential properties which are not hindered by strata constraints or split incentive issues, as is the case for rental properties, simplifying the initiative design. Property type and eligibility will be discussed further in section 5.4.2.

There is already considerable residential rooftop solar PV penetration in the region among residential consumers. Battery uptake has been slower and has been hindered by higher costs. This initiative would support the uptake of batteries in the region and target further rooftop solar PV uptake in specific areas. As noted in section 3.2.1, areas such as Forbes and Weddin with high solar resource potential but comparatively low rooftop solar PV uptake may serve as target areas for the initiative. Geographic and electricity network area suitability will be discussed further in section 5.4.2.

Small to medium size businesses

SMEs were identified as another target cohort for this initiative. There are almost 18,000 SMEs in Central NSW which are a key economic contributor to the region, employing a substantial proportion of the 81,000 employed persons.¹⁸ By supporting SMEs, this initiative will support growth in the region. It was also recognised that SMEs share many of the same characteristics and face the same barriers to battery adoption as residential consumers.

Large businesses

Although large businesses are a key economic contributor to the region, workshop participants noted that large businesses are likely not a suitable beneficiary cohort for this initiative. Large businesses have varied and large electricity load profiles, which are dependent on the industry and product they produce. This would require the initiative to customise BTM solutions for each site and would likely require detailed scoping process, which would not be appropriate for this initiative given the complexity it would introduce.

Additionally, it was noted by participants that large businesses often have the resources to dedicate time to exploring renewable energy investment. Furthermore, there are many other existing government initiatives which specifically target renewable energy investments for large businesses.

¹⁸ ABS, 'Quickstats', <https://www.abs.gov.au/census/find-census-data/search-by-area>, Accessed 25 March 2024.

5.4 Intervention Type and Eligibility Criteria

The importance of a 'place-based' initiative, customising it to support the needs of different cohorts in various locations and the disadvantages of a 'one size fits all approach' was discussed by workshop participants. While initiative features related to energy solutions and beneficiaries were clearly defined by participants, eligibility and intervention types may need to change depending on the energy solution selected and target beneficiary cohort. How that should be tailored in the initiative design was not agreed to in the workshop. As outlined above in the initiative summary and decision tree in Figure 1, further investigation is still required to refine the eligibility criteria and intervention type(s) for this initiative.

5.4.1 Intervention Type

During the workshop it was agreed that the intervention types to be considered for this initiative should be simple for applicants to understand and for the initiative administrator to implement. Different types of intervention were discussed during the workshop including:

- ▶ Rebates upon purchase
- ▶ Zero-interest loans
- ▶ Forgoing other benefits
- ▶ Competitive grants
- ▶ Retailer-supported models.

Ultimately, rebates upon purchase and zero-interest loans were identified as the most likely candidates for consideration in this initiative due to their simplicity and success in previous initiatives. However, further work is required to refine the definition, quantum and applicability of these intervention types to each of the residential and SME cohorts.

Rebates

Rebates upon purchase, which provide an upfront incentive to offset some or all of the capital costs, were viewed favourably as the most straightforward intervention type during the workshop. It was noted that SMEs in particular are 'time-poor' and would benefit from a simple intervention that would support them in purchasing suitable BTM solutions for their operations. It was also noted that direct rebates were the most common intervention type identified in the Initiative Stocktake, as outlined in Section 3.1.

Zero-interest loans

Zero-interest loans offer similar benefits to rebates in that they reduce the upfront costs. However, workshop participants raised some concerns that residential and SME participants may avoid initiatives which result in additional debt due to broader cost-of-living and other financial concerns.

Forgoing other benefits

Forgoing other benefits involves swapping a rebate or other entitlement, such as a concession, with some form of support toward purchasing the BTM technologies. A recent initiative targeting residential consumers with a foregone benefit was noted by participants as too uncertain for residential consumers, who struggled to quantify benefits traded, which ultimately resulted in a very low participation rate in the initiative.

Retail-supported models

Other retailer-supported models were discussed, such as leasing the battery to the beneficiary through their retailer to reduce the capital costs. However, this may increase the complexity of the initiative and

may need to be accompanied by other supporting financial incentives. Given the initiative principle of striving for simplicity, these intervention models were not discussed in more detail.

Competitive grants

Competitive grants incentive schemes operate with a fixed funding pool that potential beneficiaries may apply to access by submitting an application. The application will likely include information such as overview of the applicant, the funding sought, the assets to be installed or use of funds, and description of alignment to the merit-criteria. The applications are weighed comparatively by the administrator of the scheme and it awards funds to applicants that demonstrate the greatest alignment with the state merit-criteria.

Competitive grants are usually utilised for large grant schemes as they are more onerous to complete, which may disincentivise uptake for residential and SMEs cohorts. As such, competitive grants were not identified as a candidate intervention type for this initiative.

5.4.2 Eligibility Criteria

Workshop participants agreed that eligibility criteria may vary depending on the target beneficiary cohort and energy solution. Three eligibility criteria were agreed to, but it was recognised that further investigation will be required to refine these for the initiative and that different eligibility criteria may be required for the pilot compared to the broader initiative once it's scaled. The agreed eligibility criteria for the pilot initiative in Central NSW are discussed in more detail below, but summarised as:

- ▶ Property ownership will be required for residential applicants only, SMEs leasing their properties would be considered if they have approval from the property owner.
- ▶ All applicants must be in areas identified as suitable for increased adoption of BTM batteries, and rooftop solar PV where appropriate, in consultation with the local DNSP.
- ▶ All technology assets must be compliant with the energy solution technical standards of the initiative.

Property Ownership

While all workshop participants agreed that supporting residential consumers who lease their properties may need to be a target for the broader roll-out of the initiative, in keeping with the pilot initiative's principle of simplicity it was agreed that the pilot initiative in Central NSW would focus only on residential consumers who own or mortgage their own detached dwellings. Given the variability of residential lease contracts and strata or body corporate management obligations, and restrictions for semi-detached dwellings or apartments, it was agreed that the pilot initiative should focus only on residential dwellings that are detached and owner-occupied. It was also noted that most residential dwellings in Central NSW are detached and owner-occupied, as outlined in Section 3.2.2, such that the pilot initiative is excluding only ~30% of Central NSW residents.

Stakeholders noted that many SMEs lease the premises they operate in and that introducing property ownership as an eligibility criterion for SMEs would exclude a large number of SMEs. It was also discussed that SMEs tend to have multi-year lease contracts and that they are often permitted to perform significant renovations on leased properties to suit their business needs. Given these characteristics, it was agreed that SMEs which lease their property should be eligible for the initiative provided the property owner consents to the applicant installing a rooftop solar PV and/or battery system at their property.

Geographic and Electricity Network Suitability

Geographic and electricity network suitability was also discussed as a critical element of initiative eligibility. To effectively support the objective of energy security, BTM assets should be installed in locations of the electricity network that would benefit from more energy capacity and do not exacerbate any existing network constraints. Determining eligibility would require input from the local DNSP to determine which areas of the network would benefit from increased BTM asset adoption and where the network can support it.

Further investigation and consultation with the local DNSPs in Central NSW (i.e. Essential Energy and Endeavour Energy) will be required to define the process for assessing this eligibility criterion.

Technical Standard Requirements

Technical standards for BTM battery, rooftop solar PV and enabling asset technologies were discussed as a key eligibility criterion. It pertains to both the eligible new equipment to be installed, as well as any existing equipment at beneficiary premises that new DER must interface with (e.g. existing inverters and rooftop solar PV). Suitable standards would provide assurances to the DNSP that the assets being installed are aligned with the latest standards as well as ensuring the assets are future-proofed for consumers. If insufficiently specified technology is installed, it may limit the benefits derived from the initiative. Further investigation and consultation with key technical stakeholders (i.e. Essential Energy and Endeavor Energy) will be required to determine the specific technical specifications that will be included as eligibility criteria under this initiative.

Some of the technical standard requirements that were discussed in the workshop include:

- ▶ Ensuring that BTM batteries are compatible with dynamic operating envelopes.¹⁹
- ▶ Ensuring that inverters are compatible with AS47770.2:2020 to optimise performance.
- ▶ Ensuring that inverters are compatible with the Australian Common Smart Inverter Profile (CSIP) for interoperability with DNSPs.
- ▶ Ensuring that BTM technologies are compatible with participating in VPPs in the future so that residents and businesses can share energy with their community in future.

Other Eligibility Criteria Discussed

Income-based means-tests to ensure the initiative supports energy equity was also discussed as a potential eligibility criterion in the workshop. While there is a desire for the initiative to support principles of equity during the energy transition and provide benefits to cohorts that may not otherwise have the means to afford BTM DER assets, it was agreed that the pilot initiative in Central NSW would not include this as an eligibility criterion. Narrowing eligibility based on means-testing could limit uptake during the pilot stage of the initiative and would be singling out one cohort of the residential customer base, as well as creating a layer of complexity. However, it was discussed that this eligibility criterion could be considered as part of the broader roll-out of the initiative beyond the pilot in Central NSW.

¹⁹ Dynamic operating envelopes refer to limits on customer imports and exports to the electricity grid that can vary based on time and location.

6 Next Steps

While the workshop resulted in agreed high-level design elements and principles for the initiative, additional work will be required to confirm aspects of the pilot design, such as how to tailor energy solutions and intervention types to beneficiary cohorts, as well as elements of the implementation process such as how to confirm eligibility from a network perspective. To address these remaining questions, further workshops with stakeholders would be required.

To enable faster implementation, there may be merit in progressing a smaller, simplified, more targeted pilot first, building on what was agreed at the workshop. Building on the success of a smaller, more targeted pilot, a broader scheme could then be scaled to all Central NSW and following that, the rest of NSW.

The following implementation pathway could be considered:

- ▶ Confirm the design of a smaller, simplified, targeted pilot
- ▶ Identify key stakeholders and secure funding
- ▶ Prepare, run, and evaluate the initiative.

Each of these aspects is discussed in more detail below. This approach builds on what workshop participants agreed to but reduces the scope of the initiative initially in order to accelerate implementation. This approach could be considered by the CNSWJO and its stakeholders as a potential next step.

6.1 Confirm pilot initiative design

A full-scale pilot program across Central NSW requires more detailed design activities to refine aspects of the initiative. However, narrowing the scope of the pilot in the first instance would likely reduce complexity and enable faster implementation. The additional staging to implementation could build confidence across stakeholders that the program can deliver the expected benefits, reduce risk and establish learnings that can be applied in scaling it.

Narrowing the scope of the initial pilot could involve targeting a smaller geographic area and reducing the choices in energy solutions to minimize the design complexities of a larger program. Targeting a smaller geographic area will also enable trialling a place-based approach, to test and validate the potential community level benefits the initiative could deliver before scaling to a larger program.

This section provides an overview of a potential targeted pilot design, followed by the key activities required to confirm the design.

Potential initial pilot design

A council area for the initial pilot needs to be selected. Factors that should be considered in the selection process may include analysis of solar resource potential, current DER penetration, housing stock composition (e.g. detached, semi-detached, apartment), and ownership (e.g. rented, mortgaged, owned-outright). Figure 7 highlights areas with high solar resource potential as well as current rooftop solar PV penetration.

Figure 7: Central NSW solar resource potential (left) and residential rooftop solar PV penetration (right)



As shown in Figure 7 above, most council areas in the region have high solar resource potential, but the council areas of Forbes, Weddin, Orange and Blayney in particular have a lower proportion of rooftop solar PV penetration compared to their neighbours and so could be strong potential candidates for the initial, targeted pilot.

To simplify the pilot delivery, offering only combined rooftop solar PV and batteries as a package would remove the need to assess existing inverter standards to determine eligibility, as the assets will be installed as a complete package.

Considering the preferences of workshop participants, applying a rebate intervention during the targeted pilot would be preferable. Stakeholders noted that this was the simplest method and avoids cost of living considerations that may deter potential beneficiaries from taking on additional debt on a zero-interest basis.

In order to estimate the potential costs associated with a targeted pilot, assumptions need to be made about the number of rooftop solar PV and battery packages that would be deployed, and the associated capital cost of those packages.

The LGAs in the region with the highest penetration of residential rooftop solar PV are Parkes and Lachlan, which have penetration rates of almost 41% and 42% respectively.²⁰ The penetration rates of rooftop solar PV for Small to Medium Enterprises (SMEs) in Parkes and Lachlan are 19% and 18% respectively.²¹

Therefore, for the purposes of calculating potential costs for the pilot here, we have assumed the LGA for the targeted pilot has a current penetration rate of 30% for rooftop solar PV in residential premises and 13% for SMEs. We have also assumed that the residential population is 3,560 and number of SMEs is 465. These figures align with the current penetration rates in Forbes, to provide a realistic estimate.

If a program targeting a single LGA were to be established that installed combined rooftop solar PV and battery packages, it could bring rooftop solar PV penetration rates closer in alignment with the leading LGAs in Central NSW (i.e., Parkes and Lachlan). An indicative costing has been compiled for a targeted pilot initiative, in Table 6. However, once a LGA is selected, these figures would need to be revisited and revised.

²⁰ Australian PV Institute, 'PV Postcode Data', <https://pv-map.apvi.org.au/postcode>, Accessed 18 March 2024

²¹ EY analysis of: AEMO, 'Distributed Energy Resource Register', <https://aemo.com.au/en/energy-systems/electricity/der-register>, Accessed 18 March 2024.

Table 6: Indicative initiative asset costs

	Residential	SMEs
Additional asset packages required to align the target LGAs rooftop solar PV penetration rate with leading Central NSW LGAs	427 ²²	23 ²³
Indicative cost per rooftop solar PV and battery package	\$17,214	\$71,465
Indicative total asset cost ²⁴	\$7,350,378	\$1,643,695

The indicative total asset cost highlights the capital expenditure potentially required to bring the rooftop solar PV penetration of the pilot LGA in line with leading LGAs in Central NSW, in addition to the installation of BTM batteries. Costs are developed based upon analysis from the business case, utilising a 5kW rooftop solar PV and 5kW two-hour battery for residents and a 20kW solar PV and 20kW two-hour battery for businesses.²⁵ However, the initiative would likely only offer rebates for a portion of the capital costs. To make adoption sufficiently attractive and considering SME lease lengths mentioned during the collaborative workshop, a 5-year payback period for the beneficiaries has been assumed to indicatively size the rebate. Table 7 below estimates the total funding requirement using these assumptions.

Table 7: Potential initiative rebate sizing

	Residential	SMEs
Annual expected electricity bill savings for beneficiaries ²⁶	\$1,500	\$9,000
Indicative savings over a 5-year period ²⁷	\$7,500	\$45,000
Indicative capital funding gap to be met by a rebate ²⁸	\$9,714	\$26,465
Indicative total funding requirement to provide rebates for asset cost ²⁹	\$4,147,878	\$608,695

²² 3,560 residents multiplied by 12% (i.e. the differential between the target LGAs assumed current rooftop solar PV penetration rate of 30% and Lachlan's residential rooftop solar PV penetration of 42%)

²³ 465 businesses multiplied by 5% (i.e. the differential between the target LGAs assumed current business solar PV penetration of 13% and Lachlan's business solar PV penetration of 18%)

²⁴ Indicative costs only estimate asset costs for rooftop solar PV and batteries and do not provide costs related to installation or ancillary assets (e.g. inverters), which will need to be estimated separately.

²⁵ Rooftop solar PV costs sourced from (Clean Energy Council, 'Costs and Savings', <https://www.cleanenergycouncil.org.au/consumers/buying-solar/costs-and-savings>, Accessed 28 March 2024) and battery costs from (Target Solar, 'Your guide to investing in a 10kW solar system in Australia', <https://www.targetssolar.com.au/10kw-solar-system/#:~:text=Cost%20Per%20Stored%20kWh%3A%20Expect,Between%20AUD%202411%2C000%20and%20%2414%2C000>, Accessed 28 March 2024)

²⁶ SunSPOT, 'Solar Potential Tool', <https://www.sunspot.org.au/>, Accessed 28 March 2024.

²⁷ Note: no inflation or escalation has been considered for indicative 5-year savings

²⁸ Indicative cost per rooftop solar PV and battery package minus indicative savings over the 5 year period.

²⁹ Indicative funding gap multiplied by the number of premises.

Activities to validate initiative design

The suggested initiative design detailed above and summarised below has built upon discussions from the workshop. However, to progress a targeted pilot towards implementation, it will first be necessary for the initiative administrator or proponent to validate and refine the suggested design. This will involve re-engaging workshop participants to confirm the assumptions about location, eligibility, energy solution, and intervention type summarised below.

Table 8: Potential targeted pilot design parameters

Energy Solution	▶ Combined rooftop solar PV and battery.
Beneficiaries	▶ Residents and SMEs.
Eligibility	<ul style="list-style-type: none"> ▶ Located in an appropriate pilot region, where there is sufficient network capacity for new rooftop solar PV and battery connections. ▶ Beneficiary does not already have rooftop solar PV installed. ▶ Residential premises are owner-occupied and detached dwellings. ▶ SMEs either own the property or have consent from the owner.
Intervention Type	▶ Rebate.

Additionally, stakeholders with network and technical knowledge (e.g. Essential Energy) need to be consulted to provide input for both the geographic eligibility criteria (i.e. locations on the network that rooftop solar PV and batteries cannot be installed), and for guidance in developing a list of eligible assets.

Essential Energy's 'Estimated Network Capacity Map' highlights locations with ample infrastructure capacity in green and locations with lower capacity in orange and grey. Essential Energy's map suggests that there are existing locations that could host additional DER across the region.³⁰ The map provides preliminary guidance only, and further consultation with Essential Energy to validate target locations for the initiative in the pilot region will be required.

Following the determination of eligible locations for installations, a list of equipment eligible for installation that meets the relevant technical standards will be required. Attendees of the workshop may be able to offer guidance in determining equipment eligibility. For example, Essential Energy have noted they are in the process of developing a list of approved DER technologies. This list is in progress and not yet available at the time of writing.

To accelerate development of an approved equipment list, equipment lists from similar schemes identified in the initiative scan could be used as a baseline. For example, the Northern Territory 'Home and Business Battery Scheme' has an established equipment list of VPP compatible batteries.³¹ And the Clean Energy Council have published guidance for inverters that are enabled with software communication clients ([linked here](#)).³²

Finally, it will be necessary to validate the expected program costings against the expected cost of assets to be installed, to ensure the funding obtained will meet the initiative delivery requirement.

³⁰ <https://essentialenergy.maps.arcgis.com/apps/webappviewer/index.html?id=dbd23384893b4412a0968ab7ae1bcc57>. Accessed on 13 March 2024.

³¹ Northern Territory Government, 'Home and Business Battery Scheme', <https://nt.gov.au/industry/business-grants-funding/home-and-business-battery-scheme>. Accessed 28 March 2024.

³² Clean Energy Council, 'Approved Inverters', <https://www.cleanenergycouncil.org.au/industry/products/inverters/approved-inverters>, Accessed, 2 April 2024.

6.2 Identify key stakeholders and secure funding

To progress the pilot initiative toward implementation, the following three activities will be necessary pre-requisites:

- ▶ Identify a lead agency or organisation as the initiative administrator
- ▶ Conduct market sounding
- ▶ Secure funding.

Identifying a lead agency or organisation as the initiative administrator

To determine a party to lead the first phase of the pilot initiative, the party should be able to demonstrate the following:

- ▶ **Capacity:** they should have the appropriate quantity of available resources to dedicate to the mobilisation and administration of the initiative.
- ▶ **Capability:** the party should also have demonstrated experience or expertise in both the administration of a similar initiative and the necessary understanding of the technical elements of initiative design. If experience in these areas is not available within the identified proponent, there should be a plan in place to draw on other willing stakeholders to contribute guidance and expertise in lieu of an active role.
- ▶ **Willingness:** they will also need to have a willingness to contribute the above two elements to be deemed as a suitable candidate to lead the initiative.

In the first instance, either the CNSWJO or the Council where the targeted pilot is focused may be an appropriate lead organisation given the limited scope of a pilot initiative. However, it may be necessary to establish connections with resources that can contribute expertise and advice on rebate schemes and technical requirements of DER. Beyond the first stage pilot, a new initiative lead will need to be identified that has the capacity to lead a broader region or state-wide scheme.

Conducting market sounding

Prior to launching the pilot initiative, a key step will be conducting a market sounding to identify preferred suppliers and installers for the BTM rooftop solar PV and batteries at residential and SME properties. The market sounding will seek to verify key assumptions (e.g. initiative design parameters including assets, installation costs, etc.) as they relate to the rollout of the initiative and gather early-stage cost estimates from suppliers and installation companies. The market sounding will likely revolve around three core topics; assessing appetite and interest to service the region, assessing operational capability and capacity and evaluating high-level cost estimates to supply and install equipment for the initiative.

It will be important to test market interest and appetite to service the pilot region to identify key drivers and limitations to servicing the area. Assessing the operational capability of respondents will also be vital to the initiative's success. The market sounding will seek to verify how respondents would address the challenges and issues in servicing the specific regional area. For suppliers, this may be provided through a proven track record in operating in similar communities. Installers will likely need to prove a local presence to be able to provide cost efficient post-installation maintenance and repair services. Finally, the market sounding will also seek to gather cost estimates and pricing models for different respondents to verify the initiative funding requirements.

The information gathered during the market sounding process will help to inform the assessment criteria to identify preferred partners for the initiative. This process to select preferred vendors will need to be transparent to ensure value for money in line with the initiative's funding requirements.

Securing funding

Of the funding sources identified in the business case, one program identified may offer a potential funding avenue for this pilot initiative. The ARENA 'Advancing Renewables Program' has broad eligibility criteria for the endeavours it will fund, indicating that in-scope activities include "...projects and activities that involve a renewable energy technology or technologies that increase the supply of, or improve the competitiveness of, renewable energy in Australia...".³³ Additionally, public sector agencies or organisations are eligible applicants.

The funding program requires an Expression of Interest (EOI) and full application before the grant is awarded. EOIs require the following information:

- ▶ A short description of the initiative and its alignment to the funding program objectives.
- ▶ The capability and experience of the key personnel driving the initiative.
- ▶ The high-level phasing and milestones for initiative delivery.
- ▶ The details of any providers identified in market sounding.
- ▶ The amount of funding requested.
- ▶ A short description of knowledge and learnings that will be gained and shared with ARENA through this initiative.

Applications for the grant program are assessed on a rolling basis, so there are no present timeline constraints for obtaining funding. Funding awarded by ARENA to activities under the program are expected to be between \$100,000 and \$50 million, with applicants typically expected to at least match the funding being sought from ARENA. Therefore, an additional party will need to provide funding to support this initiative.

In order to identify co-funding partners, it will be useful to assess the parties that may derive sufficient value from the initiative, to justify the contribution of funds. Potential co-funding partners might include:

- ▶ **Electricity retailers:** Retailers may derive value from contributing to an initiative such as the proposed pilot by being able to either increase revenue or brand recognition. A retailer may generate additional revenue that would merit co-funding if they were able to assume a role in the operation of the DER assets installed by the initiative (e.g. via a VPP in the future). Additionally, a retailer may also benefit from increased brand loyalty and awareness by having an active role in the initiative. However, only retailers that currently, or are aiming to, target the in-scope beneficiaries for this initiative (i.e. residents and SMEs) are likely to demonstrate interest in co-funding.
- ▶ **DNSPs and Transmission Network Service Providers (TNSPs):** DNSPs and TNSPs would likely derive value from the initiative, as they could avoid costs to augment the network, as identified in the business case benefits. However, as regulated entities, the degree to which they can co-fund an initiative of this nature will be subject to their regulatory obligations.
- ▶ **CNSWJO and member Councils:** The CNSWJO and its member Councils may be candidates for a co-funding role, as the initiative will likely deliver benefits to the region. Further, as the initiative is intended to deliver a 'place-based' or community-minded model, this initiative objectives demonstrate some alignment with the Joint Organisation's (and likely the Council's) objectives. However, the Council or CNSWJO subsidising privately owned DER assets with a rebate would likely be an unprecedented expansion of their role in the community and they may not have the mandate to do this.
- ▶ **NSW government:** The state government may also be a suitable co-funding partner for this initiative, considering the alignment to certain policy objectives. The initiative has the potential to

³³ ARENA, 'Advancing Renewables Program', <https://arena.gov.au/funding/advancing-renewables-program/#step-1-read-the-program-guidelines>, Accessed 28 March 2024.

reduce electricity bill costs for residents and SMEs, support the decarbonisation of the electricity grid, support economic activity with installation and maintenance jobs. The appetite for co-funding from the NSW government will require consultation with appropriate government stakeholders.

Additionally, the relative appropriateness of the co-funding partners may change depending on the agency or organisation that leads the initiative.

6.3 Prepare, run and evaluate the initiative

The next step in the implementation process will be linked to the direct preparation, launch and evaluation of the initiative, in preparation for scoping and planning the next phase of the initiative across the Central NSW region with partners. This process can be broken into two distinct activities:

- ▶ Community engagement and initiative launch
- ▶ Evaluation and reporting of the success of the initiative.

Community Engagement and Initiative Launch

Community engagement will likely be led by the agency or organisation administering the initiative but may require significant assistance from CNSWJO, local Council members and other local organisations or groups. Effective engagement with the community will be essential to driving high uptake in the program in the target areas.

Broader communication pathways will also be essential to promoting the initiative. This could include promotions and broadcasts through local news organisations, social media and other community groups. A high level of local awareness will be key to ensuring the success of the launch of the initiative.

In launching the initiative, the lead agency or organisation will need to create a suitable pathway for residents and business to submit their applications which will be used to assess their eligibility and enrolment in the initiative.

Evaluation and Reporting of the Success of the Initiative

This proposed pilot initiative will need a robust monitoring, evaluation and reporting process as it will enable stakeholders to assess the initiative performance, as well as document learnings, challenges and improvements for the next iterations of the initiative across Central NSW and eventually the state.

A robust evaluation plan should be developed prior to the initiative launching and should consider the expected benefits of the initiative, the specific benefits measures, the measurement capture methodology, and responsibilities for measurement capture.

7 Appendices

7.1 Initiative Stocktake Information

See summary of initiative stocktake overleaf.

Program details	Name	Solar for Low Income Program	Solar battery storage discount (Next-Gen Program)
	Where is it	Australian Capital Territory	Australian Capital Territory
Who?	Beneficiary	Homeowner	Mix of residential and business
	Eligibility	Income-based test	Property ownership
	Target	Mix of residential and business	Mix of residential and business
	<i>Detail on who</i>	The program is targeted towards residents of ACT who hold an Australian Government Pensioner Concession Card, Department of Veterans' Affairs Gold Card, or an Australian Government Health Care Card, own and live in the home where the product will be installed , and has an unimproved value at or below \$750000 for homes or \$300000 for apartments	The Next Gen program was available for homes and businesses within the ACT that includes Hall, Tharwa and Oaks Estate, but not Jervis Bay Territory.
What?	Type of energy solution	Combined package	Battery
	Type of intervention	Combined offer	Rebates on purchase
	<i>Detail on what</i>	The Home Energy Support Program provides up to \$5,000 in rebates for eligible homeowners to help with the upfront costs of installing energy-efficient products. The program also offers a zero-interest loan through the Sustainable Household Scheme of up to \$10,000 to help with the remaining costs.	The Next Gen program promoted the development of the energy storage industry in the ACT, along with research and training. The battery rebate was \$3,500 (excluding GST) or 50% of the battery price (excluding GST), whichever is lowest.
Why?	Expected outcome	Reducing emissions from energy use Monetary savings for recipients	Self sufficiency, resilience, and local reliability
	<i>Detail on why</i>	The ACT has committed to achieving net-zero emissions by 2045. The rebates and zero-interest loans aim to make it easier for homeowners to switch to energy-efficient products that help reduce greenhouse gas emissions .	Having a solar storage battery allows you to store excess power for later . This often reduces the need to buy electricity from the grid, ensuring the availability of power during an outage. Some systems further help the power grid's stability and allow for a higher share of renewable energy .
How?	Implementation timeframe		
	<i>Detail on how</i>	Homeowners can apply for either a rebate only (Option 1) or a combination of rebate and interest-free loan (Option 2) through online application after attending a free online workshop. There is no credit check needed for the rebate application and there are flexible repayment options for the loan.	New installations were made via approved Next Gen retailers. Rebates were received at the time of quoting from the retailer. Participants could apply for a rebate under this program and a loan under the Sustainable Household Scheme, both programs' terms and conditions apply. Retailers had to be accredited by the Clean Energy Council to ensure they are updated with latest safety requirements.

Program details	Name	Sustainable household scheme	Community Energy Upgrades Fund
	Where is it	Australian Capital Territory	National
Who?	Beneficiary	Mix of residential and business	Local and state government entities, community groups
	Eligibility	Merit or rules-based	Merit or rules-based
	Target	Mix of residential and business	Government and community buildings and infrastructure
	<i>Detail on who</i>	The Sustainable Household Scheme is open to residents of the ACT who either own a home or hold a current driving license. Community groups that meet the scheme's eligibility criteria are also eligible.	The Community Energy Upgrades Fund (CEUF) program by the Australian government invites all local governments across Australia to apply, including groups of local governments through existing joint organisations of councils.
What?	Type of energy solution	Combined package	Combined package
	Type of intervention	Combined offer	Competitive grant scheme
	<i>Detail on what</i>	This scheme provides zero-interest loans ranging from \$2,000 to \$15,000 to aid in the cost of energy-efficient upgrades. The products applicable under this scheme include a broad range of solutions (rooftop solar panels, household battery storage systems, electric heating and cooling systems, hot water heat pumps, electric stove tops, electric vehicles, electric vehicle charging infrastructure, and ceiling insulation).	The CEUF is a competitive grant program that provides co-funding for energy upgrades at local government facilities. With grants between \$25,000 and \$2.5 million, the program aims to make local government facilities more energy-efficient, lower greenhouse emissions, and energy bills. It will support the National Energy Performance Strategy. The fund offers up to \$50 million in the first round, with the second round commencing in 2025.
Why?	Expected outcome	Reducing emissions from energy use	Reducing emissions from energy use Monetary savings for recipients
	<i>Detail on why</i>	By encouraging energy-efficient upgrades, the program aligns with ACT's goal to attain net zero emissions by 2045. The loan can be used to reduce the direct cost of implementing sustainable upgrades.	The program supports Australia in meeting its emission reduction targets , including a 43% reduction by 2030, net-zero emissions by 2050, and supporting 82% of renewable electricity generation by 2030.
How?	Implementation timeframe		
	<i>Detail on how</i>	Eligible participants can borrow between \$2,000 and \$15,000, where they have up to 10 years to pay it back with no interest or upfront costs. To apply, they must meet the scheme's eligibility criteria and Brighte's lending criteria, including attending a free one-hour live workshop. They can use the loan amount to purchase and install one or multiple products from the list of eligible energy-efficient products.	Applications are assessed based on energy efficiency upgrades and eligibility criteria. Funding is awarded based on merit. Local governments are expected to share the knowledge from their projects for local government and community benefits, building the capability and skills of the local governments and the wider community to undertake energy upgrades.

Program details	Name	Community Batteries for Household Solar program	Community Batteries Funding Round 1
	Where is it	National	National
Who?	Beneficiary	Small/Medium enterprises	Small/Medium enterprises
	Eligibility	Merit or rules-based	Merit or rules-based
	Target	Public or private land (compulsory acquired)	Public or private land (compulsory acquired)
	<i>Detail on who</i>	The Community Batteries for Household Solar program, administered by the Department of Industry, Science and Resources' Business Grants Hub and the Australian Renewable Energy Agency.	The Australian Renewable Energy Agency (ARENA) are looking to underwrite community batteries.
What?	Type of energy solution	Other	Other
	Type of intervention	Competitive grant scheme	Competitive grant scheme
	<i>Detail on what</i>	Community Batteries for Household Solar program, aiming to install 400 batteries across Australia. The program also provides grants to successful applicants.	Community Batteries for Household Solar Budget Measure - in particular, the first round of funding (Round 1) for community battery projects under the Advancing Renewables Program (ARP).
Why?	Expected outcome	Monetary savings for recipients	Self sufficiency, resilience, and local reliability
	<i>Detail on why</i>	This program is designed to lower electricity bills , support more households to install rooftop solar , offer those who can't have solar panels access to renewable energy, reduce grid pressure , manage surplus energy to avoid voltage spikes , and decrease emissions .	To improve the economics of community battery projects through reduction or removal of barriers to large-scale deployment, build industry capacity for large-scale deployment of community batteries, and support the measure by lowering electricity costs , reducing emissions , benefiting the electricity network , and enabling storage of distributed solar energy.
How?	Implementation timeframe		
	<i>Detail on how</i>	Eligible applicants can apply for parts of a \$200 million fund, distributed through the Department of Industry, Science and Resources' Business Grants Hub and the Australian Renewable Energy Agency's Community Batteries Fund.	Interested parties can apply for funding allocated to either Stream A or Stream B. Proposals involving the deployment of chemical batteries of minimum TRL 9, ranging in capacity from 50 kW to 5000 kW and connected to the Distribution Network, which comply with one of the Streams' objectives and meet the detailed eligibility requirements, will be considered.

Program details	Name	Empowering Homes solar battery loan	Solar for Low-income Households
	Where is it	New South Wales	New South Wales
Who?	Beneficiary	Homeowner	Homeowner
	Eligibility	Income-based test	Merit or rules-based
	Target	Residential house or apartment	Residential house or apartment
	<i>Detail on who</i>	The homeowners of New South Wales (NSW), who have a combined pre-tax household income of less than or equal to \$180,000 per annum and live in eligible postcodes, are the target for this program.	The individual applicant/ homeowner who is to receive the 3 kilowatt solar system. The Department of Planning, Industry and Environment who will assess eligibility and pay for the solar system. Approved solar installers who will install the solar system and provide the required warranties.
What?	Type of energy solution	Combined package	Solar PV panels
	Type of intervention	Zero-interest loans	Rebates on purchase
	<i>Detail on what</i>	The NSW government is offering an 'Empowering Homes program' through which they are providing up to 300,000 households with interest-free loans to install solar battery systems. The loans can be up to \$14,000 towards a new solar PV plus a battery system, or upto \$9,000 towards retrofitting a battery system to an existing solar PV system. Plenti, a regulated lender, is the delivery partner and finance provider for this program.	The Department offers a fully installed 3-kilowatt solar system. The installer helps the applicant with the process, conducts a home assessment, and if approved, install the solar system. The homeowners agree to forego the Low Income Household Rebate for ten years , take ownership, and maintain the solar system.
Why?	Expected outcome	Increasing customer owned DER Monetary savings for recipients	Increasing customer owned DER Monetary savings for recipients
	<i>Detail on why</i>	The program aims to give access to clean, renewable energy to homeowners , reduce electricity bills , and increase energy self-sufficiency .	The program is designed to give low-income households access to the rebates for solar systems.
How?	Implementation timeframe		
	<i>Detail on how</i>	The NSW government is offering an 'Empowering Homes program' through which they are providing up to 300,000 households with interest-free loans to install solar battery systems. The loans can be up to \$14,000 towards a new solar PV plus a battery system, or upto \$9,000 towards retrofitting a battery system to an existing solar PV system. Plenti, a regulated lender, is the delivery partner and finance provider for this program.	Applicants apply via an online form, an approved installer then assesses house suitability and, if approved, the installer sets up the solar system. Besides this, the homeowner must arrange for a smart meter and enter into a contract with the solar installer.

Program details	Name	EV ready buildings grant	EV fleets incentive
	Where is it	New South Wales	New South Wales
Who?	Beneficiary	Small/Medium enterprises	Small/Medium enterprises
	Eligibility	Merit or rules-based	Merit or rules-based
	Target	Residential house or apartment	Commercial building and infrastructure
	<i>Detail on who</i>	Registered residential strata schemes located in NSW that are classified as class 2 in the National Construction Code are eligible to apply for the NSW EV ready buildings grants program.	Organizations interested in obtaining incentive funding for purchasing and registering Battery Electric Vehicles (BEVs) and Fuel Cell Electric Vehicles (FCEVs).
What?	Type of energy solution	EV & SE	EV & SE
	Type of intervention	Combined offer	Competitive grant scheme
	<i>Detail on what</i>	The program supports the installation of electric vehicle (EV) charging infrastructure in apartment buildings. It provides co-funding for feasibility assessments of installing such infrastructure and for the installation of EV charging infrastructure itself.	This is about a bidding process for organizations to secure incentive funding to purchase and register electric vehicles. The successful bidders need to sign the incentive funding deed and provide the necessary evidence for payment as per guidelines to receive the funding.
Why?	Expected outcome	Monetary savings for recipients	Monetary savings for recipients
	<i>Detail on why</i>	The program is designed to enable apartment residents to charge their EVs at home by making building carparks EV-ready .	Organizations are encouraged to electrify their fleets to reduce their emissions, save operating costs , and spur demand for electric vehicles. The EVs are also cheaper to run, thus leading to significant cost savings. Additionally, BEVs/FCEVs are better for the environment due to their lack of tailpipe emissions, improving air quality and human health.
How?	Implementation timeframe		
	<i>Detail on how</i>	The program provides up to \$80,000 per application in funding, covering 80% of the cost of retrofitting electrical infrastructure and 50% of software subscription costs for fast charging and load management features. Funding can also cover up to 4 chargers per site.	Interested organizations are to submit a bid for securing the incentive funding. Once successful, they need to purchase and register the electric vehicles, which could take up to six months. These organizations also need to provide the necessary evidence for payment as per guidelines to receive their funding.

Program details	Name	Home battery scheme	Battery Booster rebate for householders
	Where is it	Northern Territory	Queensland
Who?	Beneficiary	Mix of residential and business	Homeowner
	Eligibility	Merit or rules-based	Income-based test
	Target	Mix of residential and business	Residential house or apartment
	<i>Detail on who</i>	Homeowners in the Northern Territory (NT), registered NT businesses , and not-for-profit or community organisations operating in the NT are eligible to apply for this grant.	The Battery Booster program is for Queensland residents who own a residential property , such as a house, community lot, or granny flat and have a solar photovoltaic (PV) system.
What?	Type of energy solution	Combined package	Battery
	Type of intervention	Competitive grant scheme	Rebates on purchase
	<i>Detail on what</i>	The Home and Business Battery Scheme is offering a grant for the purchase and installation of a range of solutions (e.g., batteries, inverters, and solar photovoltaic (PV) systems). The grant is up to \$400 per kilowatt-hour of usable battery system capacity with a maximum grant of \$5000.	This program provides a rebate for homeowners who install a home battery energy storage system. They can be used with new or existing rooftop solar systems. The rebate amount ranges from \$3,000 to \$4,000 depending on household income .
Why?	Expected outcome	Increasing customer owned DER Increase VPP participation	Monetary savings for recipients
	<i>Detail on why</i>	The scheme aims to encourage the adoption of renewable energy sources and off-grid power generation in the Northern Territory. The goal is to create virtual power plants that can operate independently of the main power grid.	The purpose of this program is to help households manage electricity use efficiently, save on energy bills , and promote the use of renewable resources .
How?	Implementation timeframe		
	<i>Detail on how</i>	After checking the eligibility, applicants should get a quote from a qualified system installer or provider, choose a preferred quote and apply online through GrantsNT to receive a unique voucher. After approval, works must be completed within 6 months and the payment is to be made to the installer directly by the NT Government.	Interested residents should first obtain a quote from an approved installer. After obtaining the quote, they must apply for a conditional approval letter before having a battery system installed under this rebate program. If approved, they can proceed with installation. Afterward, homeowners complete the rebate approval stage by submitting their invoice.

Program details	Name	Climate Smart Energy Savers rebate	Home battery scheme
	Where is it	Queensland	South Australia
Who?	Beneficiary	Homeowner	Mix of residential and business
	Eligibility	Merit or rules-based	Merit or rules-based
	Target	Residential house or apartment	Residential house or apartment
	<i>Detail on who</i>	Queensland homeowners , living in residential premises in Queensland are eligible to apply. QRIDA is administering rebate applications and payments.	All South Australians including homeowners, business owners, renters, and energy concession holders. Qualified battery suppliers and accredited battery installers team up to provide services.
What?	Type of energy solution	Other	Battery
	Type of intervention	Rebates on purchase	Combined offer
	<i>Detail on what</i>	This is a rebate scheme on energy efficient appliances but only as replacements. The eligible appliances are 4-star or higher energy-rated washing machines, dryers, dishwashers, refrigerators (including fridge/freezers), hybrid fridge/freezers, air conditioners (specifically Demand Response Standard AS/NZS 4755.1:2017 compliant). Hot water systems like Solar and heat pump are also eligible. Each household is eligible for only one rebate which cannot exceed the total cost of the appliance purchase and installation.	Up to \$6000 to a Home Battery Scheme (HBS), which offered 40,000 households access to \$100 million in subsidies , plus an additional \$100 million in loans . Other options since the end of HBS include the Battery Storage for Business rebate and the South Australian Virtual Power Plant (SA VPP).
Why?	Expected outcome	Monetary savings for recipients	Monetary savings for recipients
	<i>Detail on why</i>	The scheme encourages the use of energy-efficient appliances to reduce electricity consumption and related costs . It is part of a broader energy sustainability and cost reduction initiative.	These schemes and rebates aim to lower energy costs and push sustainable energy initiatives . They support South Australia's goal of achieving net-zero emissions by 2050.
How?	Implementation timeframe		
	<i>Detail on how</i>	Applicants must be 18 or older, and must have purchased and installed an eligible appliance. Applications can be submitted after the appliance has been installed with the latter being done by an appropriately licensed contractor. Only one submission can be made per household and not for appliances in new homes.	Eligible participants applied to the HBS. For business owners interested in the Battery Storage for Business rebate, the business must be connected to the grid, and a participating retailer should install the battery system. The SA VPP involves building connections with 50,000 solar and Tesla Powerwall home battery systems.

Program details	Name	Solar panel incentive	Solar battery incentive
	Where is it	Victoria	Victoria
Who?	Beneficiary	Homeowner	Homeowner
	Eligibility	Income-based test	Income-based test
	Target	Residential house or apartment	Residential house or apartment
	<i>Detail on who</i>	The Solar Homes Program is tailored for Victorians who own existing homes , homes under construction, and rental properties. Applicants should have a combined household taxable income of less than \$210,000 per year.	The solar battery loans by Solar Victoria are designed for Victorians who are owner-occupiers and have a combined household taxable income of less than \$210,000 per annum.
What?	Type of energy solution	Solar PV panels	Combined package
	Type of intervention	Combined offer	Combined offer
	<i>Detail on what</i>	The program offers rebates of up to \$1,400 for the installation of solar panel (PV) systems. It also provides an interest-free loan equivalent to the rebate amount.	Solar Victoria is offering 4,500 interest-free loans of up to \$8,800 for installing a solar battery.
Why?	Expected outcome	Increasing customer owned DER Monetary savings for recipients	Monetary savings for recipients
	<i>Detail on why</i>	The aim is to encourage the use of solar energy and make it more affordable for homeowners, enabling them to save more on energy costs.	This initiative aims to reduce the upfront cost of installing a solar battery and promote sustainable, renewable energy usage among households.
How?	Implementation timeframe		
	<i>Detail on how</i>	Eligibility affirmation and application for the program can be processed online. After confirmation, the retailer can claim the rebate on behalf of the homeowner and then deduct the rebate amount from the system's total cost.	An initial eligibility test is conducted, followed by a financial check. If the applicant passes these checks, the solar retailer receives pre-approval to connect a battery to the grid, after which the installation can proceed. Repayments commence 30 days after the installation is approved by Solar Victoria.

Program details	Name	Solar hot water incentive	Community Climate Change and Energy Action Program
	Where is it	Victoria	Victoria
Who?	Beneficiary	Homeowner	Local and state government entities, community groups
	Eligibility	Merit or rules-based	Merit or rules-based
	Target	Residential house or apartment	Government and community buildings and infrastructure
	<i>Detail on who</i>	Solar Victoria, homeowners, and authorized hot water retailers.	This funding program targets Community Groups and local governments who own premises operated by Community Groups that can apply for the program.
What?	Type of energy solution	Other	Other
	Type of intervention	Rebates on purchase	Competitive grant scheme
	<i>Detail on what</i>	Solar Victoria is offering a rebate program for customers who install energy-efficient hot water systems. This includes emergency installations for those with broken down or unsafe existing water heaters. There are guidelines and procedures to follow for both new and existing customers to apply for the rebate.	Sustainability Victoria is offering funding through the Community Climate Change and Energy Action Program to help community groups make their facilities more energy-efficient. Financial support is provided through two streams: audit grants and implementation grants . Audit grants are available to examine and provide an overview of a facility's energy use while implementation grants are to support projects for reducing energy costs and greenhouse gas emissions.
Why?	Expected outcome	Monetary savings for recipients	Community development, energy awareness
	<i>Detail on why</i>	To incentivize the switch to more energy-efficient hot water systems and help homeowners reduce their energy expenses .	The program aims to save \$680,000 in energy costs per year, reduce 2,000 tonnes of CO2 emissions annually and invest \$3 million in Community Groups. Moreover, the program helps to meet Victoria's Climate Change policy targeting net-zero emissions by 2050.
How?	Implementation timeframe		
	<i>Detail on how</i>	Homeowners must obtain a quote from an authorized hot water retailer before applying for the rebate via hot water rebate portal. They must provide certain documents, including two forms of ID and proof of income. After receiving confirmation from Solar Victoria, homeowners can then arrange the installation with the retailer. The rebate, up to the value of \$1000, is paid directly to the retailer and deducted from the invoice.	Groups interested in the funding should apply online via the SmartyGrants website and make sure that their project qualifies for the funding and meets all the criteria listed in the guidelines. The applications go through a competitive, merit-based process.

Program details	Name	Local Government Energy Saver Program – Funded projects	Victorian Energy Upgrades for households
	Where is it	Victoria	Victoria
Who?	Beneficiary	Local and state government entities, community groups	Mix of residential and business
	Eligibility	Merit or rules-based	Merit or rules-based
	Target	Government and community buildings and infrastructure	Mix of residential and business
	<i>Detail on who</i>	The Local Government Energy Saver Program is targeted towards 22 resource-constrained, regional councils across Victoria. This program by Sustainability Victoria assists these councils in understanding, prioritising, and implementing energy efficiency and renewable energy upgrades on their buildings.	Victorian households, businesses, and accredited providers participating in the Victorian Energy Upgrades (VEU) program, which is a voluntary initiative by the Victorian Government.
What?	Type of energy solution	Other	Other
	Type of intervention	Competitive grant scheme	Rebates on purchase
	<i>Detail on what</i>	\$20000 for capital purchases that establish baseline corporate emissions, developing an energy use reduction plan, undertaking facility audits on the highest energy-using sites, and implementing projects to cut energy costs and reduce emissions. The program is designed to reduce operating costs and emissions, making the council facilities more energy-efficient.	The VEU program enables households and businesses to access discounted energy-efficient products, saving on their energy costs and reducing greenhouse gas emissions. Current savings range from \$120 to \$1,100 per year for households and \$500 to \$74,000 per year for businesses. The program generates Victorian Energy Efficiency Certificates (VEECs) that represent prevented greenhouse gas emissions.
Why?	Expected outcome	Community development, energy awareness	Monetary savings for recipients
	<i>Detail on why</i>	Many councils have high operational costs and reduced capacity to identify and fund energy-saving projects due to factors such as internal resource constraints and aging infrastructure. The program overcomes these barriers, providing opportunities for financial savings and other benefits through improving energy productivity.	The aim of the program is to cut power bills, reduce greenhouse gas emissions, and lower the overall energy prices for Victorians by promoting energy-efficient practices.
How?	Implementation timeframe		
	<i>Detail on how</i>	This program works in three streams. Stream 1 establishes current baseline corporate emissions and develops a reduction plan. Stream 2 includes undertaking facility audits utilising a panel of approved service providers. Stream 3 negotiates grant agreements with Sustainability Victoria to support the implementation of upgrade projects. The selection of appropriate streams for different councils will depend on their previous progress on assessment, planning, and implementation of emission reduction activities.	Participation in the VEU program involves three steps: 1) Looking at the available energy-efficient products. 2) Choosing the products to install for reducing energy costs. 3) Engaging an accredited provider who is authorized to install these products and also responsible for arranging discounts or rebates for the chosen products. Note that participation is voluntary and every Victorian household and business is eligible to take part.

Program details	Name	Neighbourhood battery	EV charging (multiple)
	Where is it	Victoria	Victoria
Who?	Beneficiary	Small/Medium enterprises	Local and state government entities, community groups
	Eligibility	Merit or rules-based	Merit or rules-based
	Target	Commercial building and infrastructure	Commercial building and infrastructure
	<i>Detail on who</i>	Performed by the Victorian government and open to a wide range of organizations with an Australian business number. These could be single entities or a consortium of participants.	The EVCCF program provided grants for the installation of Electric Vehicle (EV) private charging stations at council sites. Around \$1.25 million was awarded to Victorian councils for this initiative. The EVCCF program gave grants to businesses to help them transition to EVs. It provided \$1.48 million for the installation of 52 private charging stations at different locations. The DCAV program granted \$5 million for the planning and installation of 133 EV fast-charging stations across Victoria.
What?	Type of energy solution	Other	EV & SE
	Type of intervention	Competitive grant scheme	Competitive grant scheme
	<i>Detail on what</i>	The Neighbourhood Battery Initiative (NBI) is a \$10.92 million program that supports neighbourhood-scale battery trial projects in Victoria. They facilitate applicable projects across various operational models and provide grants for feasibility and implementation of such projects.	These initiatives offered grants for the installation of Electric Vehicle (EV) private charging stations at various locations across Victoria. In total, these programs have provided almost \$8 million in grant funding with the installation of 305 EV charging stations planned.
Why?	Expected outcome	Self sufficiency, resilience, and local reliability	Increasing customer owned DER
	<i>Detail on why</i>	The initiative aims to support the integration of more solar on the network, provide various network benefits, offer feasible market services, and expand the benefits of energy storage to more users.	The primary aim of these programs was to promote the transition towards EVs to reduce greenhouse gas emissions in line with the Victorian Government's net-zero transition target. They were designed to stimulate the second-hand EV market, create local jobs, deliver community benefits, and support smart charging infrastructure technology manufacturing, installation, and maintenance opportunities within the state.
How?	Implementation timeframe		
	<i>Detail on how</i>	Through the available grant, funds will be provided for projects that deliver a business case and related works for one or more neighborhood batteries located behind or in front of the meter.	Entities were required to apply for these programs, demonstrating the need for EV transition, the potential size of the fleet, location preference, and frequency of use. They were evaluated based on these factors and the allocated grants varied across the programs, with a significant portion directed towards regional Victoria.

7.2 Demographic Analysis

Table 9: Central NSW demographic overview^{34,35}

	Bath.	Blay.	Cabo.	Cow.	Forb.	Lith.	Lach.	Ober.	Oran.	Park.	Wedd.	Avg.	Tot.
Income													
Median	\$ 53k	\$ 50k	\$ 46k	\$ 42k	\$ 45k	\$ 48k	\$ 36k	\$ 50k	\$ 55k	\$ 45k	\$ 32k	\$ 46k	
Residential dwellings													
Physical dwellings	15,938	2752	4916	5081	3560	7455	2195	2043	16,183	5404	1502	6094	67,029
Residential dwelling types (%)													
House	85%	95%	94%	92%	90%	90%	94%	94%	86%	90%	94%	90%	59,496
Detached	10%	3%	1%	5%	4%	9%	2%	4%	10%	4%	2%	7%	4,766
Apartment	4%	1%	1%	2%	5%	2%	3%	1%	3%	5%	3%	3%	2,146
Residential consumption (MWh)													
Total	140,019	29,109	58,308	49,538	38,979	76,410	30,274	21,508	149,163	54,854	14,881	60,277	
Per customer	11	21	21	21	21	13	25	22	11	22	18	19	
Businesses													
Total number	3703	846	1963	1386	1162	1470	999	775	3745	1414	541	1637	18,004
Business consumption (MWh)													
Total	153,163	109,550	36,751	39,035	32,162	512,68	39,035	12,841	124,172	450,288	5,552	185,433	
Per customer	263	14,227	168	244	325	210	352	146	213	3,386	92	1,784	-
Residential occupancy types (%)													
Owned outright	34%	40%	44%	48%	38%	47%	42%	42%	31%	37%	51%	39%	23,310
Mortgage	33%	35%	34%	27%	30%	33%	23%	32%	34%	31%	24%	33%	21,405
Rented	30%	22%	16%	25%	27%	27%	27%	21%	33%	28%	18%	28%	18,486

³⁴ ABS, 'Data by region', <https://dbr.abs.gov.au/index.html>, Accessed 4 April 2024.

³⁵ Essential Energy, 'Electricity Consumption Data by Local Government Area', https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjLj4bzuKqFAxW-Z_UHHVXVCNOQFnoECCEQAQ&url=https%3A%2F%2Fwww.essentialenergy.com.au%2F-%2Fmedia%2FProject%2FEssentialEnergy%2FWebsite%2FFiles%2FOur-Network%2FLGA-consumption-data.xlsx%3Ffile%3Den%26hash%3D47A5BC35201531A9AEC6203C04EA633A0B4B6418&usq=AoVaw3lixcdDj_CrP_KPzJgh9gj&opi=89978449, Accessed 4 April 2024.

7.3 Design Workshop Mural

Please see a link to the virtual co-design workshop Mural [here](#).