



EMPOWERING HOMES PROGRAM

# Market Sounding Paper

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# Introduction

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## The Empowering Homes Program

The Empowering Homes Program will support the installation of up to 300,000 solar-battery systems across the state over the next 10 years. The program will provide interest-free loans to eligible NSW residents to install battery and solar-battery systems.

Interest-free loans of up to \$9,000 for a battery system or up to \$14,000 for a solar-battery system will be available to owner-occupiers with an annual household income of up to \$180,000. All applications will be subject to normal loan assessment criteria as part of the program requirements.

The program aims to unlock up to \$3.2 billion in clean energy investment, adding up to 3,000 megawatt hours of storage into the NSW energy system when complete. It will help create jobs, reduce emissions, increase system security and reliability, and place downward pressure on energy costs.

It is expected that the first battery or solar-battery systems will be available for installation in summer 2019/2020.

## Purpose

This market sounding paper is for information gathering purposes only and will not lead to the awarding of a contract. The objective of the market sounding paper is to gain an understanding of the maturity, capability and interest of industry, and to further inform the design of the program and the requirements within any future request for tender (RFT). The Department of Planning and Environment (Department) is not bound to undertake any subsequent procurement activity following the market sounding paper.

Responses to this market sounding paper are not intended to be used in a formal selection process to restrict the parties that can respond to any subsequent RFT. As such there are no formal selection criteria applied to the review of feedback to this market sounding paper. All stakeholder feedback is welcome, particularly from consumer advocates, industry participants, technology providers, system installers, industry bodies, other government agencies, potential program partners, along with any other interested parties.

## Confidentiality

To assist the Department in managing your information appropriately, the Department requests that you identify, in relation to each question response in this market sounding paper, whether the response contains commercial in confidence or otherwise confidential information.

Where appropriate, the Department may seek an intellectual property license from you to allow the responses to this market sounding paper to be used determine the detailed design of the program, and in formulating a subsequent RFT, which would be made publicly available.

## Disclaimers

The State of New South Wales, the Department, and their agents and employees disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance on the whole or any part of this document. No representation, warranty or guarantee, whether express or implied, in relation to the information contained in this document is given, and nothing contained in this document is or may be relied upon as a promise, guarantee, representation or warranty.

## Submissions

Please provide comments by **COB 9 August 2019** using the online response tool. This, along with additional information on the program can be found at:

[energy.nsw.gov.au/empowering-homes](http://energy.nsw.gov.au/empowering-homes)

If you have specific questions about this market sounding paper, please contact:

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# Part one – program overview

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*In this section we are seeking your feedback on the program objectives and program delivery model.*

## Program objectives

The objectives over the 10-year life of the program are to:

- Support the rollout of up to 300,000 solar-battery and battery systems across NSW through interest-free loans.
- Place downward pressure on energy prices for all users by reducing peak demand and helping to avoid network upgrade costs and unserved energy demand.
- Support enhanced energy security, reliability and resilience in NSW.
- Unlock up to \$3.2 billion of clean energy investment by NSW homeowners.
- Add up to 3,000 megawatts of residential battery storage capacity to the NSW energy system.
- Ensure that installations are available state-wide, including in rural and regional areas.
- Enable the NSW electricity system to handle higher penetrations of distributed renewables.
- Reduce greenhouse gas emissions from the energy sector.
- Drive growth and confidence in the NSW residential battery storage system market.

## Program delivery requirements

The following requirements will be incorporated into the design and delivery of the program:

- It will provide funding to households across NSW for solar-battery and battery system installations at no upfront cost through an interest free loan, helping to reduce their power bills.
- The NSW Government will fund the interest costs for loans within the agreed program thresholds, and loan defaults (subject to stringent due diligence processes being satisfied).
- One or more delivery partners will be established to deliver the program on the Government's behalf.
- It will ensure robust consumer protections in terms of safety, system performance, and value for money.
- Delivery partners will provide interest free loans of up to \$9,000 for battery systems and up to \$14,000 for solar-battery systems to eligible households.
- In delivering the program, preference will be given to NSW based businesses, where possible.
- Minimum eligibility requirements and criteria are to be established that must be met by each applicant, system, and installation to ensure that both applicant and program objectives can be achieved.
- The tender process for delivery partners will be re-run periodically throughout the life of the program to ensure that performance is maintained, program costs are appropriately managed, and program delivery is adaptive and reflective of developments in the market.
- Only NSW owner-occupiers with an annual household income of up to \$180,000 will be eligible for the program.
- The program design will seek to ensure that customers are not unnecessarily restricted in their choice of energy retailer.
- The program will support the increased penetration of Distributed Energy Resources (DER) in the NSW electricity network, and the transition to cleaner energy.

## Program roles and responsibilities

The Department intends to deliver this program by engaging one or more delivery partners.

Delivery partners are expected to be both the finance administrator and the program administrator (see Figure 1 and Table 1), and will be responsible for significant aspects of program implementation and delivery, including:

- Ensuring systems meet customer and program requirements.
- Ensuring suppliers and installers satisfy the program requirements.
- Managing approved supplier and systems processes and lists.
- Ensuring applicants and installations meet all eligibility criteria and the program requirements.

- Facilitating the installation of solar-battery and battery systems.
- Managing and administering warranty claims and issues.
- Administering loan repayments.
- Managing and resolving customer complaints and disputes.
- Monitoring and managing installer performance (including ensuring compliance with relevant legal requirements and industry standards)
- Managing and recovering their costs of administering and delivering the program.

Figure 1 outlines the potential delivery model and Table 1 outlines the different functional roles required to deliver the program.

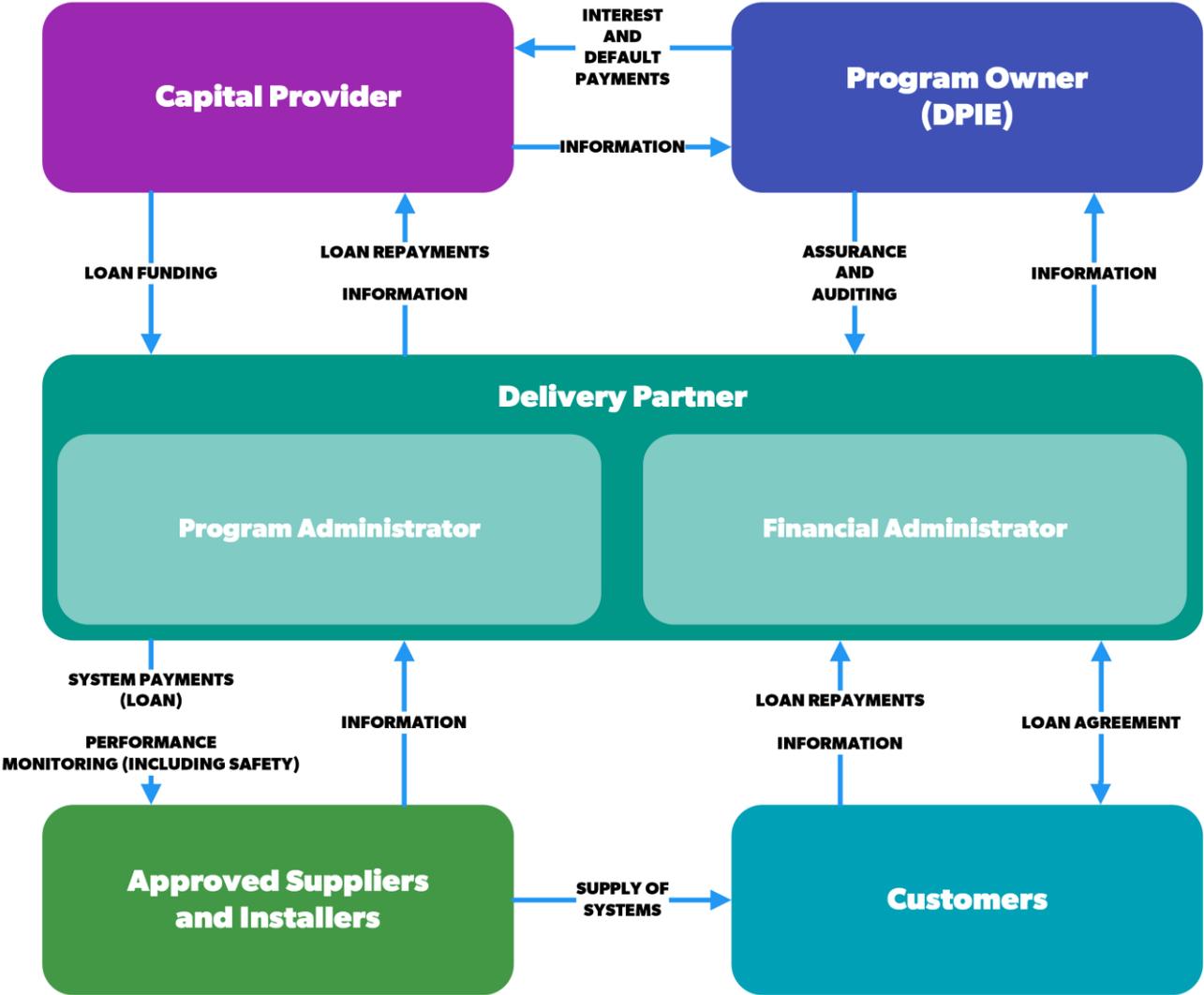


Figure 1. Outline of Empowering Homes Program proposed delivery model for the first delivery phase.

| Role                                  | Core responsibilities  |
|---------------------------------------|--|
| <b>Program owner (the Department)</b> | <ul style="list-style-type: none"> <li>• Selects the capital provider and delivery partner</li> <li>• Sets requirements for approved systems and installers.</li> <li>• Audits partners due diligence processes and information management.</li> <li>• Pays interest and default costs.</li> <li>• Promotes the program through its available capabilities (for example through Service NSW centres, the Energy Savers website).</li> <li>• Manages audits of installations</li> </ul> |
| <b>Capital provider(s)</b>            | <ul style="list-style-type: none"> <li>• Provides the loan funds to the finance administrator(s).</li> <li>• Receives and reconciles loan payments from finance administrator(s).</li> <li>• Delivers information and data to the program owner.</li> <li>• Receives payments of interest and default costs from the program owner.</li> </ul>   |
| <b>Finance administrator(s)</b>       | <ul style="list-style-type: none"> <li>• Ensures customers are eligible for the loan, including by running credit assessments on potential borrowers.</li> <li>• Pays the system supplier/installer and manages repayments from customers, along with default processes and procedures.</li> <li>• Manages customer accounts.</li> <li>• Delivers information and data to the program owner.</li> </ul>  |

| Role                                 | Core responsibilities  |
|--------------------------------------|--|
| <b>Program administrator(s)</b>      | <ul style="list-style-type: none"> <li>• Manages process for approving suppliers, including ensuring associated installers are suitably qualified.</li> <li>• Manages processes for approving systems.</li> <li>• Ensures systems are eligible</li> <li>• Ensures installations are compliant and are installed safely.</li> <li>• Manages system warranty claims and customer complaints.</li> <li>• Monitors performance of approved suppliers, including safety and quality assessments.</li> <li>• Ensures that installed systems are appropriately registered with the Australian Energy Market Operator (AEMO) once the DER register becomes available.</li> </ul> |
| <b>Approved suppliers/installers</b> | <ul style="list-style-type: none"> <li>• Provides information on systems for approved list.</li> <li>• Provides system information and install quotes to prospective customers.</li> <li>• Installs systems in accordance with program requirements.</li> <li>• Provides evidence of compliant system and installation.</li> </ul>   |

**Table 1. Proposed roles and responsibilities in the Empowering Homes Program**

## Delivery partner costs

The Department wants to better understand options and preferences for how delivery partners could recover their costs resulting from the delivery of the program, along with the strengths and weaknesses of each approach.

Potential options may include:

- A flat fee per installation, paid by the system supplier or by the Department.
- A performance fee paid by the Department when the delivery partner achieves certain agreed milestones.
- Recovery of all costs through the interest rate agreed to be paid by the Department.

**We are seeking your feedback on the following questions:**

1. How might this model be improved to best achieve the program objectives, bearing in mind the program delivery requirements?
2. Do you have any comments on how delivery partners might recover their costs for setting-up and delivering the program?
3. How might the program be designed to address specific issues that arise in rural and regional areas (for example, higher costs or installer availability)?
4. In what ways can the administrator be incentivised to minimise and rapidly resolve any customer complaints?
5. Do you have any other feedback regarding the proposed administration arrangements that the Department should consider?

## Engaging delivery partners

The Department proposes undertaking a competitive tender process to secure one or more delivery partners for years one - three (Stage one), years four to six (Stage two) and years seven to ten (Stage three) of the program. Each tender process will enable new organisations to be engaged as additional delivery partners. Existing delivery partners will also be required to re-tender for the next period of program delivery if they wish to continue their engagement. This approach will enable the Department to manage delivery performance and costs by establishing competition and customer choice, as well as allowing the program to adapt to changes in the market.

## Contracts

The Department proposes engaging one or more delivery partners to administer applications, installations and financing under the program for a period of three to four years. Once this period concludes, the delivery partner would not be allowed to support any new installations unless a new contract has been entered into with the Department. The contract with the delivery partners for each contract period would need to run for a total of 13 years for contract periods one and two, and 14 years for Contract Period three to cover the three years allowed for installations, and up to a 10-year repayment period following the last installation to cover loan repayments and warranty periods.

**We are seeking your feedback on the following questions:**

6. Is a three-year contract and re-tendering approach for delivery partners suitable?
7. Are there tendering or contract issues that arise from this approach, or are there different approaches that the Department should consider?

## Annual caps

To control the program costs and budget, the Department proposes capping the number of installations on a per annum and per contract period basis (see **Error! Reference source not found**). This recognises that there will be a ramp-up in demand over the life of the program due to reductions in system costs, which will require an increase in the capacity and capability of the installation market to meet that demand. Previously unfulfilled caps may be rolled over into future years if required.

| Year                           | Contract Period 1 |    |    | Contract Period 2 |    |    | Contract Period 3 |    |    |    |
|--------------------------------|-------------------|----|----|-------------------|----|----|-------------------|----|----|----|
|                                | 1                 | 2  | 3  | 4                 | 5  | 6  | 7                 | 8  | 9  | 10 |
| <b>Approved Systems ('000)</b> | 8                 | 16 | 20 | 25                | 30 | 35 | 40                | 42 | 42 | 42 |

**Table 2. Proposed annual installation caps for Empowering Homes Program**

### We are seeking your feedback on the following questions:

8. Are the annual caps outlined above suitable to support the market and meet the program objectives?
9. Do you have any other comments on how best to avoid the cyclical nature of programs that can result from annual caps?

## Auditing and compliance

The program will include audit and compliance checks on installations and on delivery partners. This will ensure that systems and installations are of appropriate quality and compliant with relevant standards and ratings to protect customer safety and ensure that high quality systems are installed. The Government will develop and implement due diligence processes and customer protections and will require that the delivery partner implements them effectively. Auditing and compliance activity will either be undertaken by NSW Government agencies or independent third parties. System suppliers and installers, and delivery partners will be required to resolve any non-compliance issues discovered through these checks. This will be done, at their own cost and within a reasonable timeframe, otherwise they may be removed from the program.

### We are seeking your feedback on the following questions:

10. What issues around auditing and compliance checks should the Department be aware of in designing this program to ensure its objectives can be achieved, and any material risks are appropriately managed?
11. Are there better ways to ensure the performance of installers, including a high quality of customer engagement and installation, is maintained, beyond traditional auditing regimes?

## Customer protection

Customer protection is a key concern for the Department and will be considered throughout program design and delivery.

Approved system suppliers and their associated installers will be required to provide potential customers with enough information for them to make a properly informed decision as to whether a battery or solar-battery system meets their needs. This would include providing clear information about system options, and the expected costs and benefits of each option.

To help potential applicants in their decision making the Department proposes to provide access to tools such a system sizing calculator or similar, that would enable customers to make more informed choices on system sizing based on household energy use characteristics. The Department would like to help all prospective applicants increase their awareness of their energy usage and reduce their energy costs. This may include directing prospective customers to energy efficiency information and programs and the NSW Government Energy Switch service.

While households should be able to make energy bill savings from their system, it should be clear that the NSW Government does not guarantee that these savings will be equivalent to or exceed the loan repayments. Delivery partners and approved system suppliers must be mindful of sales claims about any net savings in energy costs in their marketing materials.

Delivery partners will need to ensure applicants have been provided with access to all necessary information for them to make an informed decision about whether the system and loan is right for them, before an application can be approved. At a minimum, delivery partners shall provide the prospective applicant with a robust estimate of the potential net savings a battery or solar-battery system could provide in their situation.

**We are seeking your feedback on the following questions:**

12. How can the NSW Government best ensure applicants are making an informed choice, and to manage customer expectations about their potential return on investment?
13. What information should prospective applicants be provided with to enable them to make an informed choice, and what are the main issues with providing this information?
14. Should the program mandate basic system requirements, and return on investment thresholds, to ensure that customers install appropriately sized systems (for example, a set of upper and lower bounds on the relative sizes of different system components)?

## Business systems

Delivery partners will be responsible for providing mandatory data relating to each application and installation to the Department prior to loan funding being released and subsequent interest repayments commencing.

A list of anticipated data is provided in Attachment B – list of key data capture fields. The data structures and business systems required for the program are still to be finalised, however we are seeking input on potential issues that may arise with the data identified to date. This could include data, including its capture, management and transfer to the Department's business systems.

The Department recognise that if more than one delivery partner is engaged, each partner will need access to program information held by the Department to assess an applicant's eligibility (for example, whether they have previously received a loan through the program). Access to the Department's business systems by delivery partners may be by an application programming interface (API) and/or via a user interface to allow delivery partners to manage their reporting requirements to the Department.

**We are seeking your feedback on the following questions:**

15. We have identified a list of data fields for capture in Attachment B – list of key data capture fields. Are there any additional data fields that should be captured by delivery partners to improve the program?
16. What should the Department consider when designing the business systems for the program in terms of data, data structures, and integration with delivery partner platforms and systems?

# Part two – eligibility criteria

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*In this section we are seeking your feedback on the proposed criteria for customers and installers.*

## Eligible customers

Eligibility to access a no-interest loan under the program is will be determined according to the following business rules:

1. The program will be accessible to NSW owner-occupiers with an annual household income of up to \$180,000.
2. Owners of townhouses and apartments under strata title would be eligible for the program if formal authorisation from the strata body is provided to enable the installation.<sup>1</sup>
3. There is a limit of one system (battery or solar-battery) installed per eligible home. Customers that move to a new house will be able to apply to access the program for their new house, provided they meet the eligibility criteria and have repaid any previous loans provided through the program.
4. Interest free loans for installing a solar-only system, which does not have an accompanying battery, are not available under the program.
5. Delivery partners will be required to satisfy all requirements of the *National Consumer Credit Protection Act 2009*, including the responsible lending conduct obligations, when assessing an applicant for a no-interest loan under the program.

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<sup>1</sup> Note: The NSW Government is also working to make it easier for residents in strata buildings to install sustainability infrastructure by reducing the voting approval requirement from 75% to 50%.

6. Delivery partners will be responsible for taking all reasonable steps to verify an applicant's eligibility, including that:
- a. The applicant does not exceed the combined household income threshold.
  - b. The applicant has full authority to install a battery or solar-battery system at the premises.
  - c. The applicant is aware of the return on investment for the system based on their current circumstances and has been provided with all other information reasonably required to enable the customer to make an informed decision.
  - d. Only one system is to be installed at the premises through the program.
  - e. If the applicant is seeking to install a battery-only system then a suitable solar photovoltaic (PV) system shall currently exist at the premises that the battery can be connected to.
  - f. The installed system is compliant with the required equipment specifications, approved installer requirements, and all installation standards.

We are seeking your feedback on the following question:

**17. Are these business rules adequate to support delivery of quality systems, protect consumers, minimise risks and ensure that the program objectives are achieved?**

## Installer requirements

It is expected that system suppliers will need to be granted approval to sell and install systems under the program. The application process and approvals are expected to be conducted by the delivery partner. Approved system suppliers will need to ensure that their installers are suitably accredited and that an adequate level of quality and performance is maintained when their systems are installed. Frequent poor performance, including issues such as non-compliant installation or significant customer complaints could result in the system supplier and associated installers being removed from the program. The Department proposes that at a minimum, installers are to have the Clean Energy Council (CEC) accreditation for the design and install of grid-connected photovoltaic systems, and the endorsement to install grid-connected battery storage.

Installations will be required to meet CEC's *Best Practice Guide: Battery Storage Equipment – Electrical Safety Requirements*, and *AS/NZS 5139 – Electrical Installations: Safety of battery systems for use with power conversion equipment*, when this new standard is released.

All approved system suppliers will be required to be CEC Approved Solar Retailers and signatories to the CEC *Solar Retailer Code of Conduct*. They will also need to comply with the Australian Competition and Consumer Commission (ACCC)'s *New Energy Tech Consumer Code* when it is released.

The Department also intends to work closely with the CEC to ensure installer accreditations and performance monitoring meet program needs and establish whether any additional activities or resources will be needed to achieve program objectives.

We are seeking your feedback on the following questions:

**18.** Should the Department require anything additional from system suppliers or installers for them to be approved and for them to maintain their approved status under the program?

**19.** How can the Department ensure installations are fully compliant with specified standards, codes and best practice guides, in the most efficient and effective way?

# Part three – finance arrangements

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*In this section we are seeking your feedback on the proposed loan arrangements, repayments and the management of defaults.*

## Loan arrangements

The Department proposes that the loans will be administered in accordance with the following businesses rules:

1. The Department does not intend to provide the capital for the loans, rather it will pay the interest costs for the loans provided.
2. The Department will only pay the interest costs based on the rate agreed with the delivery partner.
3. The Department is proposing to underwrite loan defaults, subject to strict conditions.
4. The Department will re-tender for delivery partners approximately every three years to ensure that performance levels are maintained, and delivery arrangements meet requirements.
5. Delivery partners will bear the responsibility for recovering their costs incurred in delivering the program.
6. Participating households will be able to install a battery or solar-battery system at no upfront cost to them, and only be responsible for paying the loan principle.
7. It is expected that provisions to adjust the maximum interest rate amount in exceptional circumstances would be included in the contracts with delivery partners.

We are seeking your feedback on the following questions:

20. Are these business rules appropriate to achieve the program objectives while appropriately managing risk, bearing in mind the delivery requirements outline in Part one?
21. How might the program improve benefits and uptake by enabling delivery partners to provide attractive options to prospective customers which meet the customers differing needs?
22. Are there any other matters in relation to establishing an efficient and effective financing framework that the Department should consider?

## Application process

Delivery partners will be responsible for assessing, processing and managing loan applications from applicants. Delivery partners will need to fully comply with the requirements of the *National Consumer Credit Protection Act 2009*<sup>2</sup>, and the Australian Securities and Investments Commission's (ASIC) *Regulatory Guide 209*<sup>3</sup> which sets out ASIC's expectations for meeting the responsible lending obligations.

To ensure customers are protected and the risk of default is appropriately managed, contracts with the delivery partners will stipulate that loans can only be provided to households that meet specified eligibility criteria and a loan minimum credit assessment. These criteria and the assessment process are expected to be finalised during the contract negotiation stage between the Department and the delivery partners, however, they will be designed reflect existing best practice and protect program participants.

Regardless of which capital finance approach is chosen, the delivery partners will operate as the finance administrator and have the principal obligation to ensure the loan process is appropriately managed, and that reasonable steps are taken to minimise defaults. This process will include ensuring that the other eligibility criteria are met, including the means test limit and proof of home ownership for the install location.

We are seeking your feedback on the following question:

23. Are there any other matters relating to the customer's loan application process that the Department should consider?

## Loan repayments

Loan repayment periods will be set at up to eight years for solar-battery systems and up to 10 years for battery systems. Repayment periods can be shorter if requested by the applicant and

<sup>2</sup> Commonwealth of Australia. *National Consumer Credit Protection Act 2009*– [legislation.gov.au/Details/C2017C00196](https://legislation.gov.au/Details/C2017C00196) (accessed 24.04.2019)

<sup>3</sup> Australian Securities and Investment Commission (ASIC), November 2014, *Regulatory Guide 209: Credit Licensing: Responsible lending conduct*– [download.asic.gov.au/media/2243019/rg209-published-5-november-2014.pdf](https://download.asic.gov.au/media/2243019/rg209-published-5-november-2014.pdf) (accessed 24.04.2019)

agreed by the delivery partner taking into account their assessment of the applicants cashflow and ability to make repayments.

Household repayments on a \$9,000 no-interest loan for a battery only system would be around \$75 per month (or \$225 a quarter), over a 10-year loan term. Repayments on a \$14,000 no-interest loan for a solar-battery system would be around \$146 per month (or \$437.50 a quarter), over an eight-year loan term.

**We are seeking your feedback on the following question:**

**24.** Are there any other matters relating to loan repayments and improving the return on investment for customers that the Department should consider?

## Defaults

The Department intends to establish a process for determining when a loan can be considered as in default. This includes a review of whether the loan application assessment was conducted correctly, and whether all reasonable follow-up actions have been taken by the delivery partner. If satisfied that all due diligence processes have been carried out appropriately, the Department will cover the remaining loan and any outstanding interest costs. An applicant who has defaulted on a loan under the program will not be eligible to apply for a subsequent loan.

### Installer insolvency

In the event of insolvency of a supplier under the program, the relevant delivery partner will be responsible for arranging an alternate installer and for covering any associated costs.

### Delivery partner insolvency

In the event of collapse or insolvency of a delivery partner, the Department will seek an alternative delivery partner to take on management of the portfolio of systems already installed through the failed delivery partner.

**We are seeking your feedback on the following question:**

**25.** What material issues regarding defaults on loans, or the potential insolvency of key program stakeholders, will need to be addressed by the Department?

# Part four – equipment

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*In this section we are seeking your feedback on the proposed systems and equipment supported by the program.*

## Eligible systems

### Battery-only systems

To be eligible for a loan for a battery-only system, the household must have an existing installed solar system or have contracted for the installation of a solar system (that is, it is not yet installed) at the time of executing a contract for a battery installation under the program.

The program is not intended to support the purchase of a battery system without a corresponding solar system which is of sufficient size to enable an acceptable return on investment.

### Solar-battery systems

A household may have an existing solar PV system installed and still receive an interest free loan through the program for a solar-battery system. In this case the applicant will need to show that the solar being funded through the program will either:

- a) augment the existing solar system, or
- b) replace the existing solar system.

Where the new solar will augment the existing solar system, loan funding can be used to cover the cost of any work required to re-configure the existing solar system as part of an expanded solar system.

In cases where the existing solar system is to be replaced, the kW<sub>p</sub> capacity of the new solar to be installed as part of the solar-battery system must be equal or greater than the operating kW<sub>p</sub> performance of the existing solar system.

We are seeking your feedback on the following questions:

- 26.** What are some of the common issues that arise when retrofitting batteries to an existing solar system, and how can the program best address these issues?
- 27.** What evidence needs to be collected from installers to ensure the installation is safe, compliant and meets the program requirements?
- 28.** Are there any other issues and situations the Department should consider in determining what is an eligible installation under the program?

## System technical requirements

The Department proposes equipment and systems supported by the program will be subject to the following business rules:

1. All equipment installed under the program will need to be on a CEC approved list under their Assurance Program.
2. Only combinations of eligible equipment that have been assessed and approved by the Department, in a similar manner to the approach under the South Australian battery program<sup>4</sup>, can be installed under the program.
3. A range of system sizes will be offered under the program, to ensure that customers receive the most appropriate system size for their needs.
4. All equipment, fittings and fixtures must meet program requirements, including any minimum technical specifications, as set out by the Department.
5. All systems must be installed in compliance with all relevant standards, codes and guidelines applicable at the time of installation.
6. System suppliers will need to provide evidence that all of these requirements have been met, and delivery partners will need to implement systems and processes to collect and assess this evidence to ensure these requirements are met.

## System testing

The Department anticipates delivery partners will facilitate installations across NSW by linking interested households with approved system suppliers. Delivery partners will be required to ensure that technologies and systems approved to be installed under the program have appropriately demonstrated they meet program requirements. This may include collating and assessing evidence to show the system has been subject to an appropriate whole-of-system accelerated lifecycle testing regime, before the system is placed on an approved list.

All administrative costs associated with testing and approving systems for the program will need to be managed by system suppliers and delivery partners. It is expected that the suppliers or manufacturers of systems would be responsible for commissioning laboratory tests from respected,

<sup>4</sup>South Australian Department of Energy and Mining. *Equipment Eligibility Criteria: Approach to Technical Evaluation of Systems*. [homebatteryscheme.sa.gov.au/system/files/documents/DEM\\_HBS\\_Approach\\_to\\_Technical\\_Evaluation\\_of\\_Systems\\_1.pdf](http://homebatteryscheme.sa.gov.au/system/files/documents/DEM_HBS_Approach_to_Technical_Evaluation_of_Systems_1.pdf) (Accessed 16 June 2019)

independent third parties, and providing the test results to the delivery partner and Department for assessment and record keeping.

We are seeking your feedback on the following questions:

- 29.** What other aspects should be considered when establishing technical specifications for the solar-battery systems supported by the program?
- 30.** Are there additional specifications beyond current CEC requirements that should be considered?
- 31.** How can the program best support the battery and PV industry development in NSW, and the transition to the future grid?
- 32.** How should the Department determine that supported systems will meet program requirements. What testing and documentation should be required?

## Grid security requirements

A key objective of the program is to support higher penetration of DER while maintaining or improving system security. A recent report by AEMO looked at the integration of DER into the electricity system<sup>5</sup> and highlighted the significant challenges caused by higher penetration of DER installations in the power system in a 'no-change' scenario.

AEMO's *Technical Integration of Distributed Energy Resources Report and Consultation Paper* published in April 2019 highlights the following:

*"At present, the performance standards for smaller distribution-connected generation do not currently capture all the performance requirements needed to optimise and support a secure power system under high levels of DER penetration, delivering more affordable energy and the ability for consumers to pursue individualised services."*

*"...DER behaviour is already having a substantial influence on power system stability, and this will grow quickly as more DER is installed. Further, technological changes are progressing quickly, in some cases ahead of standards development processes."*

Further work from the Australian Energy Market Commission (AEMC) has identified opportunities and challenges that DER bring to the system<sup>6</sup>.

As a result, the Department is considering additional specifications beyond the current Australian Standards that all systems financed by the program must meet to help support efforts by industry and regulators to provide ongoing support to the grid and enable further uptake of DER. These specifications are likely to be in-line with those currently specified by South Australian Power Networks (SAPN) as part of its connection agreements<sup>7</sup>.

The Department intends to release a technology roadmap for the solar-battery and battery systems installed under the program that would require increased capabilities of the systems supported

<sup>5</sup> AEMO, April 2019, *Technical Integration of Distributed Energy Resources – Improving DER capabilities to benefit consumers and the power system*: [aemo.com.au/-/media/Files/Electricity/NEM/DER/2019/TechnicalIntegration/Technical-Integration-of-DER-Report.pdf](http://aemo.com.au/-/media/Files/Electricity/NEM/DER/2019/TechnicalIntegration/Technical-Integration-of-DER-Report.pdf)

<sup>6</sup> Australian Energy Market Commission, *From little things, big things grow*: [aemc.gov.au/news-centre/media-releases/little-things-big-things-grow](http://aemc.gov.au/news-centre/media-releases/little-things-big-things-grow) (accessed 21 May 2019)

<sup>7</sup> South Australia Power Networks, *Technical Standard – TS129 Small EG Connections – Capacity not exceeding 30kW*, [sapowernetworks.com.au/public/download.jsp?id=9561](http://sapowernetworks.com.au/public/download.jsp?id=9561) (accessed 29 May 2019)

over the life of the program. This will promote alignment with requirements in other states and territories in addition to international standards, along with domestic standards as they continue to evolve.

## Inverter standards

While Australian grid connected inverter, standards have been world leading at times, recent reviews by AEMO have identified significant progress by the USA and Europe in supporting greater adoption of DER in their electricity grids.

Australian Standards have supported opt-in capabilities to better support operation on the networks and increase the ability to integrate greater proportions of DER. The Department is considering mandating the activation of these capabilities as part of the program. These include:

- Volt-Var support
- Volt-Watt support

Australian distribution networks have been working on moving beyond the current mandated parts of the Australian Standards to better support operations within their networks. SAPN for instance has developed a *Technical Standard – TS129 Small EG Connections – Capacity not exceeding 30kW* (SAPN)<sup>7</sup>, that departs from Australian Standards by specifying the power modes that inverters must be set to, based on network characteristics. Western Power has likewise mandated the activation and configuration of certain grid support capabilities as part of their *Network Integration Guideline: Inverter Embedded Generation*<sup>8</sup>.

We are seeking your feedback on the following question:

**33.** What elements of current domestic and international standards, or other technology developments, should the Department consider in the development of a technology roadmap intended to help develop the market and improve public and private outcomes?

## Virtual power plant capability

The Department will require that all battery and solar-battery systems installed under the program are pre-enabled for virtual power plant (VPP) operation. The VPP will be developed to meet the following principles:

- Systems that are developed around open communications standards that will not tie customers to particular vendors are preferred.
- Suitable VPP standards to be met for the installations will be established through consultation with the market.
- Systems should be capable of reporting both
- If a suitable open standard is developed during the life of the program, the Department will require delivery partners to ensure future installations meet the standard.
- In return for facilitating the availability of no-interest finance for systems under the program, the Department is considering encouraging customers participating in the program to

<sup>8</sup>Western Power, *Network Integration Guideline Inverter Embedded Generation*, [westernpower.com.au/media/1325/network-integration-guidelines-inverter-embedded-generation.pdf](http://westernpower.com.au/media/1325/network-integration-guidelines-inverter-embedded-generation.pdf) (accessed 15 March 2016)

commit to participating in a consolidated VPP program (this may be implemented in a staged approach).

The Department proposes defining ‘VPP capable’ by means of the following high-level requirements:

- A system must have communications and control functions that extend beyond basic battery system functions, which may include additional components.
- Once registered to a VPP, a system must be capable of responding adequately to remote commands, so that the battery can be deployed as part of a coordinated fleet or residential storage systems that can be financially rewarded for providing energy and grid services.
- Systems must be capable of registering and onboarding most, if not all, mainstream VPP platforms with minimal or no additional cost and hardware.

We are seeking your feedback on the following questions:

- 34.** What are the key challenges and risks that the Department should be aware of in encouraging VPP participation and operation, and how might these be mitigated?
- 35.** In mandating a technical specification for the program, is the definition of ‘VPP capable’ outlined above suitable? How might it be improved?
- 36.** Noting the transition to a five-minute AEMO market settlement, what should the frequency of reporting (both polling and by exception) data to a VPP be, and why?
- 37.** Would it be beneficial for VPP operators to tender for specified groups of program participants to source the best VPP arrangements? Are there alternative commercial models that would provide economies of scale for VPP aggregators?
- 38.** Are there suggested approaches or technologies that could support the backwards compatibility of systems for VPP arrangements as the technology develops and matures, to avoid technology lock in?
- 39.** What else should the Department be aware of in its consideration of VPP operation to ensure that customers benefit, and systems installed under the program support the program objectives?

## Warranties and guarantees

To be an eligible battery or solar-battery system under the program, delivery partners will need to ensure the following:

- Battery systems have a minimum manufacturer warranty of 10 years.
- Solar systems have a minimum manufacturer warranty of 10 years.
- Any inverters have a minimum manufacturer warranty of 10 years.

- Installers provide a warranty for the workmanship, fittings and fixtures etc for a minimum of 10 years.

The Department proposes requiring the delivery partners to take responsibility for managing and resolving all warranty-related issues for systems installed under the program, for the full warranty period. Delivery partners would also be responsible for recovering all related administrative costs.

We are seeking your feedback on the following questions:

**40.** Please outline any anticipated issues or concerns with establishing warranty and guarantee requirements for the program as outlined here.

**41.** What other minimum warranty or guarantee requirements should the Department consider establishing for the program?

## Product stewardship

The NSW Government is currently working on a national product stewardship scheme for photovoltaic systems and a proposed scheme for large energy storage batteries with the Australian Government and other state and territory governments, industry and other stakeholders.<sup>9</sup> The NSW Government has recently committed \$10m to fund recycling and reuse activities for solar panels and batteries. The NSW Government's Environmental Protection Agency is an affiliate member of the Australian Battery Recycling Initiative (ABRI) and is working to promote whole of life considerations in the battery industry.

We are seeking your feedback on the following question:

**42.** How can the Department ensure the program supports appropriate product stewardship and sustainability outcomes?

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<sup>9</sup> Australian Government, *Draft 2018-2019 Product Impact Management (PIM) Work-plan*, [environment.gov.au/system/files/consultations/05e0a7da-13af-4bc5-ae34-e012b4a79f48/files/draft-2018-19-national-product-stewardship-priorities-work-plan.pdf](https://environment.gov.au/system/files/consultations/05e0a7da-13af-4bc5-ae34-e012b4a79f48/files/draft-2018-19-national-product-stewardship-priorities-work-plan.pdf)

# Attachments

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## Attachment A – glossary

For the purposes of this document, the terms listed in this glossary have the following meanings.

|             |   |
|-------------|---|
| <b>ACCC</b> | Australian Competition and Consumer Commission.   |
| <b>AEMC</b> | Australian Energy Market Commission.  |
| <b>AEMO</b> | Australian Energy Market Operator.  |
| <b>API</b>  | Application programming interface. A set of clearly defined methods of communication between IT components.   |
| <b>ASIC</b> | Australian Securities and Investments Commission.   |
| <b>CEC</b>  | Clean Energy Council.   |
| <b>DER</b>  | Distributed energy resources.<br>The collective term for energy resources that are available ‘behind the meter’ at consumers sites, and which can be used to feed energy into the grid or reduce demand. Some examples of distributed energy resources include rooftop solar photovoltaic units, demand response via smart devices (for example, hot water systems, air conditioners, and pool pumps), and battery storage. |
| <b>DNSP</b> | Distribution Network Service Provider (in NSW these are Ausgrid, Essential Energy, and Endeavour Energy).   |
| <b>NEM</b>  | National Electricity Market.  |
| <b>PV</b>   | Photovoltaics.  |

|                       |  |
|-----------------------|--|
| <b>SAPN</b>           | SA Power Networks.   |
| <b>Smart Battery</b>  | A smart battery for the purposes of this program, is a battery energy storage system that meets the Department's minimum technical specification (published separately). |
| <b>The Department</b> | The New South Wales Department of Planning, Industry and Environment.  |
| <b>VPP</b>            | Virtual power plant refers to the network of smart Batteries and/or smart devices controlled remotely through a technology platform.                                     |

## Attachment B – list of key data capture fields

### **Delivery partner**

Business name

ABN/ACN

Delivery partner contract ID

### **Household information**

Name

Address

National Meter Identifier (NMI)

DNSP name

### **Electricity retailer information**

Retailer name

Retail account number at installation

### **Solar panel details**

Brand

Model

Capacity

Serial number

Warranty period (minimum 10 years)

### **Inverter details**

Brand

Model

Capacity

Serial number

Inverter warranty period (minimum 10 years)

Solar / battery / combined DC Supply

Capacity of pre-installed solar system

### **Battery**

Brand

Model

Capacity

Serial number

Warranty period (minimum 10 years)

### **Photographic records**

Photo of installed battery

Photo of pre-installed solar system

Photo of solar system installed under the program

Photo of installed smart meter

### **Installer information**

Name

Business name

ABN/ACN

Address

Accreditations

### **Installation information**

Warranty for fittings and fixtures

Certification of compliant installation

DNSP connection approval

### **Loan information**

Loan commencement date

Loan completion date

Loan amount

Loan interest rate

Loan repayment amount

Loan repayment frequency [drop down menu]

### **Interest information**

Interest cost

Interest cost frequency [drop down menu]

### **Customer VPP agreement form**