Department of Energy and Economic Diversification
GOVERNMENT OF WESTERN AUSTRALIA

Energy Policy WA

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Fact sheet

September 2025

Customers with existing solar systems

Installing a battery under the WA residential battery scheme

This fact sheet provides information on options for adding a home battery to an existing solar system under the WA residential battery scheme.

The WA residential battery scheme provides rebates and no-interest loans to install home battery storage, and opportunities for ongoing bill savings by participating in a virtual power plant (VPP).

To access rebates and no interest loans, battery installations must meet some technical requirements that make sure different battery models can easily communicate with other systems, like solar inverters, home energy gateways, and VPPs. Devices that meet the requirements are VPP-ready and eligible for the scheme. Synergy publishes the supported solutions list on its website, and it will keep adding new devices to this list until a nationally consistent listing approach is available.

I already have a solar system. What are my options to add a battery under the scheme?

Cost-effective options are available for customers with all install types. The best option and the install process will depend on whether your existing inverter is a:

- Hybrid inverter
- Non-hybrid inverter (including 'microinverters')

I have a hybrid inverter

Hybrid inverters are the most efficient type if adding a battery to an existing solar system. They are often called 'battery ready inverters' and more easily communicate with batteries without add-on 'gateway' devices. With some extra backup wiring, hybrid inverters offer more options to charge and discharge batteries from your solar if the grid is interrupted.

Adding a battery to a hybrid inverter is more straightforward and usually involves a 'DC coupled' battery. Your inverter will control electricity between your rooftop solar, battery, and home, and can communicate directly with a VPP provided your inverter is on Synergy's supported solutions list. Your installer can provide advice on suitable battery models for your inverter.

I have a non-hybrid inverter

Customers with non-hybrid inverters, including 'microinverters', can still cost-effectively add batteries to their existing system.

Using an 'AC coupled' battery, your current inverter will continue to control electricity flow between your rooftop solar and home, and a separate battery inverter will manage battery charging and discharging. A small 'gateway' device is the heart of the system – devices on Synergy's supported solutions list enable compatible inverters and batteries to talk to each other and to participate in a VPP.

AC coupled systems are slightly less efficient and have limitations when used for backup power, so it is worth considering the size and age of the system when looking at options to add a battery.

Customers can also choose to replace their non-hybrid inverter with a new hybrid one and should discuss the costs and benefits of each option with their installer.

The table at the end of this factsheet shows different scenarios and options to add batteries to existing non-hybrid or multi-inverter systems.

I am not sure which type of inverter I have

All inverters show a model number on their electrical label, which is usually located on the bottom of the inverter.

You can use the model number to search whether your inverter is a hybrid or non-hybrid inverter.

If you are still not sure, your installer will be able to tell you which type of inverter you have.

I want to install a new solar and battery system at the same time

Customers installing a new solar and battery system should speak to their installer about using a hybrid inverter and DC coupled battery.

This combination is the simplest and most cost-effective way of installing new systems under the rebate scheme.

I want to install solar, and I am considering adding a battery later

Customers installing a solar-only system who plan to add a battery later should also speak to their installer about using a hybrid inverter.

A hybrid inverter means adding a battery later will be simpler and more cost-effective.

Ask your installer about a solar consumption monitor, which will let you see:

- How much electricity you are using and how much of this your own system is providing.
- Whether your system is performing correctly.
- If you add a battery – when the battery is charging or discharging.

Consumption monitors are a common part of solar systems, and most new solar packages include them already. For inverters that do not come with the monitor by default, it is much cheaper to install a consumption monitor at the same time than to add it later.

Is it cheaper to replace a whole solar system than to add a battery to my current one?

There are a few scenarios where it will be cheaper to replace the whole system. If you have an older system and an upgrade would create a need to rewire it to comply with current electrical standards, it is likely cheaper to replace the system. Replacing the system at the same time as installing a battery under the rebate scheme will be more cost effective than rewiring your older system.

If your non-hybrid inverter system is newer and you don't plan to make any other changes, it could be cheaper to add an AC coupled battery and a gateway.

It is worth speaking to your installer about the features you would like and if they offer options to integrate with your existing system. Different installers may use different equipment brands, so always get multiple quotes before deciding which upgrade option to go for.

What options are available for homes with a three-phase supply or an existing multi-inverter system?

Customers with three-phase supplies or an existing multi-inverter system can still access rebates and no-interest loans to add batteries.

Provided the new system meets phase balancing limits in Western Power's basic embedded generation technical requirements, you can add batteries to various install types such as:

- Three-phase inverters (hybrid or non-hybrid).
- Single-phase inverters separately installed on one or more phase.
- Several single-phase inverters from different manufacturers.
- Multiple inverters installed in parallel on the same phase.

Like other install options, speak to your installer about adding a solar consumption monitor at the same time as a new inverter or battery.

The tables below outline some options for adding batteries to non-hybrid or multi-inverter systems, but they do not cover every system variation that customers might have. If your system does not match one of the options below, we recommend asking installers for options to upgrade or add batteries to your specific system.

I have a single or three-phase supply and would like to add a battery to my existing non-hybrid inverter. (one three-phase inverter across all phases for customers with three-phase supplies)			
Possible options	**Option summary**	**When this might be worthwhile**	**Technical requirements**
Option 1 – Keep inverter	Add an AC coupled battery and gateway device.	• Your system is relatively new or has specific features that you need. • You do not plan to expand the system because it is already adequately sized. • You already have consumption monitoring, and your inverter is compatible with a supported gateway device.	• New AC coupled battery is listed on the supported solutions list (SSL). • Gateway device is listed on the SSL and supports the existing non-hybrid inverter. • Meets whole of site compliance requirements.
Option 2 – Keep inverter	Add a second inverter (hybrid) alongside your existing inverter (non-hybrid) and add a DC coupled battery to the new hybrid inverter.	• Your system is relatively new or has specific features that you need. • The current system output is adequate, but you want to add more solar panels to cover battery charging.	• New hybrid inverter is listed on the SSL. • Gateway device is listed on the SSL and supports existing and new inverters. • Meets whole of site compliance requirements.
Option 3 – Replace inverter	Replace your existing inverter with a larger hybrid inverter and add a DC coupled battery.	• Your system is a few years old, or the inverter is nearing the end of its listed warranty period. • You want a system that has a larger power output to cover electrical needs during winter, to power more electrical appliances, or to charge a new battery.	• New hybrid inverter is listed on the SSL. • Meets whole of site compliance requirements.

I have a single or three-phase system that uses microinverters.			
Possible options	**Option summary**	**When this might be worthwhile**	**Technical requirements**
Option 1 – Keep inverters	Add AC coupled battery	• The microinverter system was chosen to address a specific issue, such as safety or roof shading. **Customers with microinverters should speak to installers about battery and gateway options specific to their system.**	• Specific whole of site compliance requirements will depend on the system. Customers should speak to installers.

I have a three-phase supply with a non-hybrid inverter on one phase only.			
Possible options	**Option summary**	**When this might be worthwhile**	**Technical requirements**
Option 1 – Replace inverter	Replace your existing inverter with a three-phase hybrid inverter and DC coupled battery.	• You want to take advantage of the upgrade to expand solar and battery generation from a single phase to all three phases. • You want a system that has a larger power output to cover electrical needs during winter, to power more electrical appliances, or to charge a new battery. • You are looking for a simple option to add batteries.	• New hybrid inverter is listed on the SSL. • Meets whole of site compliance requirements.
Option 2 – Keep inverter	Add an AC coupled battery and gateway device (single or three-phase).	• You do not plan to expand the system because it is already adequately sized. • You already have consumption monitoring, and your inverter is compatible with a supported gateway device. **Customers planning to add single-phase inverters to three-phase systems should discuss phase balancing limits with their installer. Single-phase inverters on three-phase supplies may have a lower power output than expected.**	• New AC coupled battery is listed on the supported solutions list (SSL). • Gateway device is listed on the SSL and supports existing and new inverters. • Meets phase balancing limits in Western Power's basic embedded generation technical requirements. • Meets whole of site compliance requirements.
Option 3 – Keep inverter	Add a second inverter (hybrid) alongside your existing inverter (non-hybrid) and add a DC coupled battery to the new hybrid inverter.	• Your system is relatively new or has specific features that you need. • The current system output is adequate, but you want to add more solar panels to cover battery charging. • You do not want to replace your current inverter, but you want some of the benefits of DC coupling a battery.	• New hybrid inverter is listed on the SSL. • Gateway device is listed on the SSL and supports existing and new inverters. • Meets phase balancing limits in Western Power's basic embedded generation technical requirements. • Meets whole of site compliance requirements.
Option 4 – Replace inverter	Replace your existing inverter with a hybrid inverter on that phase and add DC coupled battery.	• You want a simple backup option and only need it for one phase. • You want to add more panels to cover battery charging and your existing installer is available to expand the system, or a new installer agrees to work on existing panels.	• New hybrid inverter is listed on the SSL. • Meets phase balancing limits in Western Power's basic embedded generation technical requirements. • Meets whole of site compliance requirements.

I have a three-phase supply with single-phase inverters on more than one phase.			
Possible options	**Option summary**	**When this might be worthwhile**	**Technical requirements**
Option 1 – Replace inverters	Replace existing inverters with a three-phase hybrid inverter and add DC coupled battery.	• Your system is a few years old, or the inverter is nearing the end of its listed warranty period. • You want a system that has a larger power output to cover electrical needs during winter, to power more electrical appliances, or to charge a new battery. • At least one of your current inverters needs a more complex installation for batteries, consumption monitoring, or a gateway device. • You are looking for a simple option to add batteries.	• New hybrid inverter is listed on the SSL. • Meets whole of site compliance requirements.
Option 2 – Keep inverters	Add AC coupled batteries and a three-phase gateway device.	• Your system is relatively new or has specific features that you need. • You do not plan to expand the system to provide solar or battery power across more phases. • You already have consumption monitoring, and an available gateway device can communicate with your range of solar and battery inverters.	• New AC coupled batteries are listed on the supported solutions list (SSL). • Gateway device is listed on the SSL and supports existing and new inverters. • Meets phase balancing limits in Western Power's basic embedded generation technical requirements. • Meets whole of site compliance requirements.

I want to add a battery at the same time as increasing the overall size of the system. (for example, increase from 5kVA to 10kVA)			
Possible options	**Option summary**	**When this might be worthwhile**	
Option 1 – Replace inverter	Add panels to your existing rooftop solar, replace your inverter with a single larger hybrid inverter, and add a DC coupled battery.	• Your existing panels are performing well but your inverter is older or nearing the end of its stated warranty period. • You want a system that has a larger power output to cover electrical needs during winter, to power more electrical appliances, or to charge a new battery. • You have an odd roof shape that makes it difficult to add new, separate rows of solar panels to existing inverters. • Your installer is still active and able to supply and install additional panels into your existing system, or a different installer agrees to add panels to your existing system. • Your existing system does not need significant rewiring to make it consistent with current electrical standards.	• New hybrid inverter is listed on the SSL. • Meets whole of site compliance requirements.
Option 2 – Keep inverter	Add a second inverter (hybrid) to sit alongside your existing system, a DC coupled battery, and a gateway capable of coordinating both inverters.	• Your system is relatively new or has specific features that you need. • Your installer is no longer active or available, but a different installer agrees to add new rows of panels and an inverter alongside your existing system. • An available gateway device can communicate with your existing and new inverters.	• New hybrid inverter is listed on the SSL. • Gateway device is listed on the SSL and supports existing and new inverters. • Meets whole of site compliance requirements.

Department of Energy and Economic Diversification | Energy Policy WA
(08) 6551 4600 | EPWA-info@deed.wa.gov.au
www.energy.wa.gov.au