FAQs: Emergency Solar Management

To maintain the stability of the electricity system and support the continued installation of rooftop solar, the WA State Government has introduced emergency solar management – the capability to remotely turn off (and on again) new and upgraded residential rooftop solar systems.

In response technical requirements for connecting and operating residential rooftop solar systems to the Western Power distribution network have changed.

From 14 February 2022, all new and upgraded residential rooftop solar systems with an inverter capacity of 5kW or less must have the capability to be remotely turned off in an emergency solar event where a:

1. Synergy Distributed Energy Buyback Scheme application is received on or after 14 February 2022; or,
2. Synergy Distributed Energy Buyback Scheme application is received before 14 February 2022 and the rooftop solar system it relates to is installed on or after 14 March 2022. Where the installation occurs after 14 March 2022, a new application may be required.

What is emergency solar management?

Emergency solar management refers to the management of distributed rooftop solar systems. Put simply, emergency solar management is the ability to turn down or turn off the capability of rooftop solar systems to generate solar energy remotely. Presently inverters are not technically able to be turned down via remote management and so if emergency solar management measures are required, rooftop solar systems will only be able to be turned off. In the future, technology may also allow inverters to be turned down.

Why do rooftop solar systems need to be remotely managed?

Distributed rooftop solar is an important source of low cost and low emission power. However, WA's electricity grid was not designed for the large uptake of renewables that has occurred in recent years. Large amounts of rooftop solar are making the electricity system more vulnerable and increasing the risk of electricity supply interruptions. As a last resort measure, emergency solar management could assist in managing the current risks to the energy system and allow rooftop solar systems to continue to be installed and connected to the grid as we transition to a more sustainable energy future.

How soon will emergency solar management measures be used?

Emergency solar management is not expected to be needed at all until the end of 2022, however Energy Policy WA (EPWA), the State Government's energy policy agency considers it is necessary to introduce the capability now. This is intended to ensure that there is enough rooftop solar capability that can be remotely managed by Synergy (in response to a request by Western Power, the network operator) to help manage future emergency operating conditions in the system and enable rooftop solar systems to continue to be installed.

What is low load and why is it an issue?

On mild, sunny days (usually weekends), the energy output from rooftop solar is generally high while demand for electricity is low. The stability of the electricity system requires the supply and demand of electricity to be balanced. When rooftop solar generation is high and electricity demand is low, it becomes more difficult to keep large-scale generators online which help provide essential services for maintaining a stable electricity supply in the system. As a result, the electricity system becomes vulnerable to unexpected events – this raises the risks of widespread electricity supply interruptions in the grid.

AEMO, the operator of the South West Interconnected System (SWIS) (the main electricity system in WA) has released a report titled *'Renewable 'Energy Integration – SWIS Update'*. The report states that whilst the rapid adoption of rooftop solar systems by Western Australians is encouraging, it is also contributing to low load risks. Read more about how low load is challenging WA's electricity system *here*.

Why is the WA State Government responding now to low load issues?

AEMO's *report* finds that low load risks have increased due to the accelerating uptake of rooftop solar systems. In 2020 the installed capacity of rooftop solar increased by over 300 MW (or 24%) in the SWIS. The installation rate of rooftop solar in the SWIS has consistently exceeded forecasts, including those from AEMO.

The WA State Government is implementing emergency solar management measures so that the electricity system can better manage in periods where there is less demand for electricity or 'low load' in the future. Emergency solar management and the new requirements for rooftop solar installations are being introduced following a recommendation from AEMO.

Emergency solar management is intended as a last resort measure to help protect the SWIS and is proposed only to be used in emergency operating conditions, during extreme low load events. EPWA expects that these events, and the subsequent need for emergency solar management measures to be used, will occur infrequently and only for short periods of time.

What other measures is the WA State Government undertaking to resolve low load issues in the SWIS?

The introduction of emergency solar management and the delivery of the WA State Government's *Distributed Energy Resources Roadmap*, a plan to integrate solar PV, batteries, electric vehicles and other energy devices into the SWIS, are part of WA's Energy Transformation Strategy (ETS), providing a blueprint to ensure the delivery of secure, reliable, sustainable and affordable electricity to Western Australians for years to come.

Planning is underway to reduce the need for emergency solar management (or DPV management) in the future. This includes proposed changes to the electricity regulatory framework that will allow new technologies, such as battery storage, to assist to manage low load risk in the future.

As part of the ETS, the WA State Government is already undertaking a number of other actions intended to improve the resilience of the electricity system to low load, including considering the use of virtual power plants, investment in large-scale and community battery storage and planning for the integration of electric vehicles into the grid. Emergency solar management represents a stepping stone to reaching this future, to assist in maintaining system security and reliability and enabling renewables to continue to be installed in the grid.

Implementing emergency solar management

How will emergency solar management work?

Households with existing rooftop solar systems with an inverter capacity less than 5kW will not be impacted by the new emergency solar management requirements unless they make changes to, or upgrade their system on or after 14 February 2022.

In an emergency solar management event, new and upgraded residential rooftop solar systems with an inverter capacity of 5kW or less must have the capability to be remotely turned off where a:

1. Synergy Distributed Energy Buyback Scheme application is received on or after 14 February 2022; or,
2. Synergy Distributed Energy Buyback Scheme application is received before 14 February 2022 and the rooftop solar system it relates to is installed on or after 14 March 2022. Where the installation occurs after 14 March 2022, a new application may be required.

Households with existing rooftop solar systems with an inverter capacity greater than 5kW will be subject to new export limits. Export limits are set in accordance with Western Power's *Basic Embedded Generator Connection Technical Requirements*. Where there is no offtake agreement in place with Synergy, the export limit will be set to no more than 1.5kW.

Households should discuss these requirements with their chosen solar installer prior to the purchase of a new rooftop solar system or proposed changes to their existing system to understand the new requirements.

Please note: a 5kW system includes systems with a 5kW inverter and 6.6kW of panel capacity.

Why is this only applicable to new or upgraded systems?

Emergency solar management is only applicable to new and upgraded systems due to the current challenges with retrofitting existing installations.

How will emergency solar management be implemented?

There are two ways to remotely manage and turn off rooftop solar systems to meet the *Western Power's Basic Embedded Generator Connection Technical Requirements* for emergency solar management.

1. The API cloud solution uses a software integration - an API (Application Programming Interface) to remotely manage rooftop solar systems. This requires installing a *compatible inverter* and maintaining a consistent internet service that the inverter is connected to.
2. The metering solution requires a meter with communications capability enabled and the inverter isolated so that it can be remotely managed. This solution should only be selected where the API cloud solution is not suitable or available.

The API cloud solution is currently expected to provide the best outcome for most customers – it is lower cost and aligned to future opportunities for DER participation.

What if I can't meet the requirements for the API cloud solution or the metering solution?

Export limiting is an option available for households who can't meet the API cloud or metering solution requirements but still wish to install a rooftop solar system. Please note that households who choose this option are not eligible for the Distributed Energy Buyback Scheme (DEBS) and would not be affected by an emergency solar management event.

What about new and upgraded solar systems that are larger than 5kW?

In an emergency solar management event, residential rooftop solar systems that are installed or upgraded after 14 February 2022, with an inverter capacity greater than 5kW, will be subject to export limits to ensure they do not contribute to low load events. Export limits are set in accordance with *Western Power's Basic Embedded Generator Connection Technical Requirements*. Where there is no offtake agreement in place with Synergy, the export limit will be set to no more than 1.5kW.

How does this impact battery installations?

Battery installations from 14 February 2022 are required to meet the requirements for emergency solar management as per Western Power's Basic Embedded Generation Connection Technical Requirements.

- In the situation where an existing solar system is being upgraded with a battery installation, where the parts of the existing solar system are unchanged during the new installation process, then the existing solar system is not required to meet the new emergency solar management requirements. For example, when adding an AC coupled battery to an existing solar system. However, the battery system must comply with the requirements for emergency solar management.
- In any other battery installation situations, emergency solar management requirements apply to the entire system.
- Emergency solar management for battery installations can be achieved by meeting the time of operation for Battery Energy Storage System (BESS) requirements, where all systems with a BESS shall not discharge the BESS between 10am to 3pm and not charge the BESS between 6pm to 9pm. Therefore these battery installations do not need a cloud API or AMI metering pathway for emergency solar management.

In an emergency solar management event, will households with BESS (Battery Energy Storage System), remain connected, and will generated rooftop solar continue to charge the battery?

Households with a solar system capable of export limiting may continue to charge the BESS. However, provision of the export limiting functionality via a cloud API solution varies from manufacturer to manufacturer. Please consult your manufacturer to find out more.

How do AC coupled batteries with 5kW of solar affect export limiting and DEBS?

To be eligible, a renewable energy system must have a generating capacity of 5kW or less. A solar PV system with total solar panel capacity of up to 6.6kW and an inverter capacity of up to 5kW is deemed eligible. There is no eligibility limit in relation to home battery or electric vehicle battery size, but all renewable energy systems and batteries must meet Western Power's Basic Embedded Generator Connection Technical Requirements for connection to the grid to be eligible for DEBS.

How can an inverter manufacturer be registered on Synergy's Supported Devices List?

To be registered on Synergy's Supported Devices List for the API Cloud solution, the inverter manufacturer must complete a self-assessment checklist (or nominate a technology provider to complete it on their behalf) and have an API Agreement in place with Synergy's Integration Partner.

An emergency solar management event

How often and for how long will household rooftop solar systems be remotely managed?

Emergency solar management is being introduced as a last resort measure to help protect the South West Interconnected System (SWIS) and is proposed only to be used in emergency operating conditions, including during extreme 'low load' events. Energy Policy WA (EPWA), the State Government's energy policy agency expects that these events, and the subsequent need for emergency solar management, will occur in the SWIS infrequently and for short periods.

Does emergency solar management only cover the SWIS (South West Interconnected System)? Do Horizon Power have the same requirements?

At this stage, this only applies to the Western Power network in the SWIS.

How and when would household rooftop solar systems be turned off?

AEMO will inform Western Power and Synergy of emergency operating conditions. As instructed by Western Power, Synergy will remotely turn off residential rooftop solar systems across the grid to manage the risk to the electricity system.

How will you decide which rooftop solar systems will be turned off?

Synergy will turn off rooftop solar systems as advised by Western Power to manage supply and demand in the grid in an emergency solar management event.

Will I be told that my rooftop solar system has been remotely managed?

All Synergy customers affected by the use of emergency solar management measures will be notified that an electricity supply interruption in the grid was avoided through the use of emergency solar management. If your rooftop solar system is remotely managed, it will not affect your electricity supply from the grid.

How will this affect my energy usage/ electricity supply?

Emergency solar management turns off rooftop solar systems to prevent excess solar energy being exported to the grid. Customers will continue to have uninterrupted electricity supply from the grid when emergency solar management measures are being used. Emergency solar management is being introduced to help prevent widespread electricity supply interruptions in the grid.

Will my rooftop solar system and/or battery still power my home when they are remotely managed under emergency solar management?

This is dependent on the design and capability of your rooftop solar system (and battery system if you have one) and what connection requirements apply, as well as what emergency solar management measures are being used.

How will I know my rooftop solar system has successfully been turned back on?

Synergy will turn back on rooftop solar systems that have been turned off if emergency solar management measures are used. All Synergy customers affected by the use of emergency solar management will be notified that an electricity supply interruption in the grid was avoided through the use of emergency solar management. Synergy will provide a customer contact number for any further questions that customers may have if they are affected.

What if there are technical issues with my rooftop solar system?

Customers should contact their solar installer if there are any technical issues with their rooftop solar system. Depending on the type of system you have, you may be able to see if your solar system is on or off.

Will customers be compensated for having their rooftop solar systems turned off?

Rooftop solar system owners will not be compensated when their system is turned off to maintain supply security and avoid the risk of an electricity supply interruption in the grid under emergency solar management measures. Since emergency solar management is intended to only be used as a last resort to avoid the risk of an electricity supply interruption in the grid, it is anticipated that it will have very little impact on affected customers.

Does the change impact the Distributed Energy Buyback Scheme or my return on investment?

The Distributed Energy Buyback Scheme, including rates, continue to apply and are not affected by the emergency solar management requirements. Since emergency solar management measures are intended only to be used as a last resort to avoid the risk of electricity supply interruptions, it is anticipated the measure will have very little financial impact on households with rooftop solar systems.

If a meter upgrade is required to comply with emergency solar management, is the customer responsible for the costs incurred?

The customer is responsible for any additional costs incurred as a result of a meter upgrade. The API cloud solution is currently expected to provide the best outcome for most customers – it is generally lower cost and aligned to future opportunities for DER participation.

How will emergency solar management impact life support customers?

Life support customers will still be required to follow the standard application and installation process but will not be impacted by emergency solar management. Life support customers will continue to be responsible for ensuring their details and information is up to date.

What can my household do to assist with low load risks?

Days where low load risk typically occurs are on weekends when the weather is sunny and mild. On these days, all households, whether or not they have rooftop solar installed, can help to mitigate low load risks by:

- running appliances, such as the dishwasher and washing machine around lunchtime
- charging devices such as laptops and phones in the middle of the day
- setting timers on hot water systems and pool pumps to operate in the middle of the day
- charging EVs in the middle of the day
- setting batteries to commence charging at midday so that they are not full when there is excess capacity in the network from solar.

FAQ information correct as at 14 February 2022.