



Government of Western Australia
Energy Policy WA

DPV Management Online Forum

Information and Q&A Session

27 October 2021

Working together for a
brighter energy future.

We acknowledge and respect the Whadjuk people as the Traditional Owners of their ancestral lands, waters and skies.

Agenda

Welcome

Presentation – Energy Policy WA, Synergy

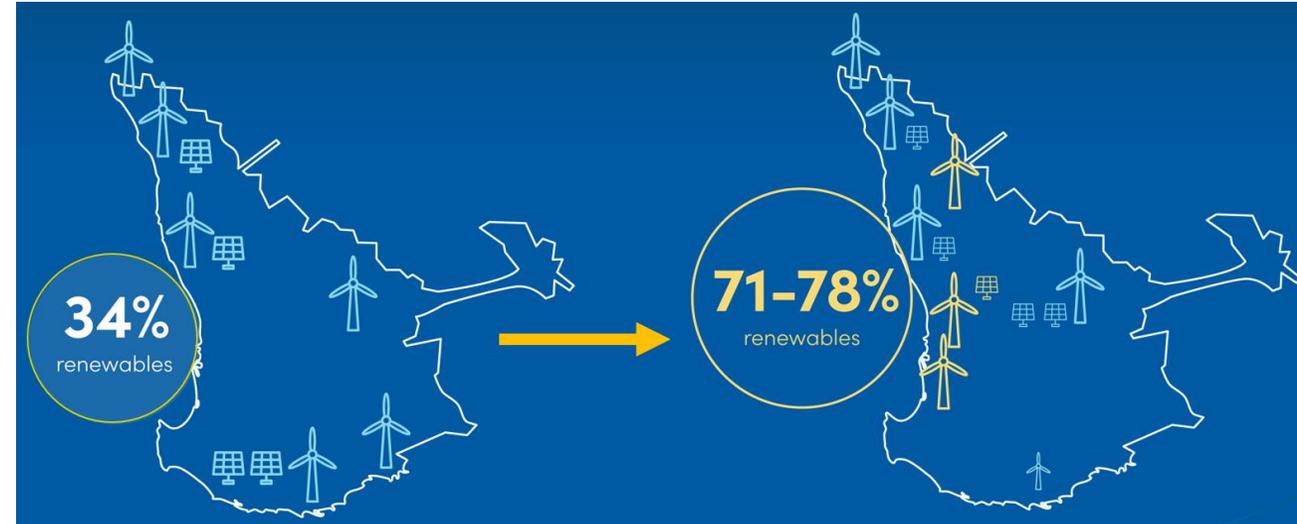
- Low load risks and AEMO Report
- Proposed response – DPV Management
- DPV Management Solutions
- Supporting DPV Management implementation
- Process for providing feedback

Q&A: Energy Policy WA, Synergy, AEMO, Western Power

Moving to a renewable energy future

The energy transformation is underway

- Significant investments are being made across the energy sector, businesses and households
- It's seeing a transition from large, traditional generators, to renewable and distributed energy sources

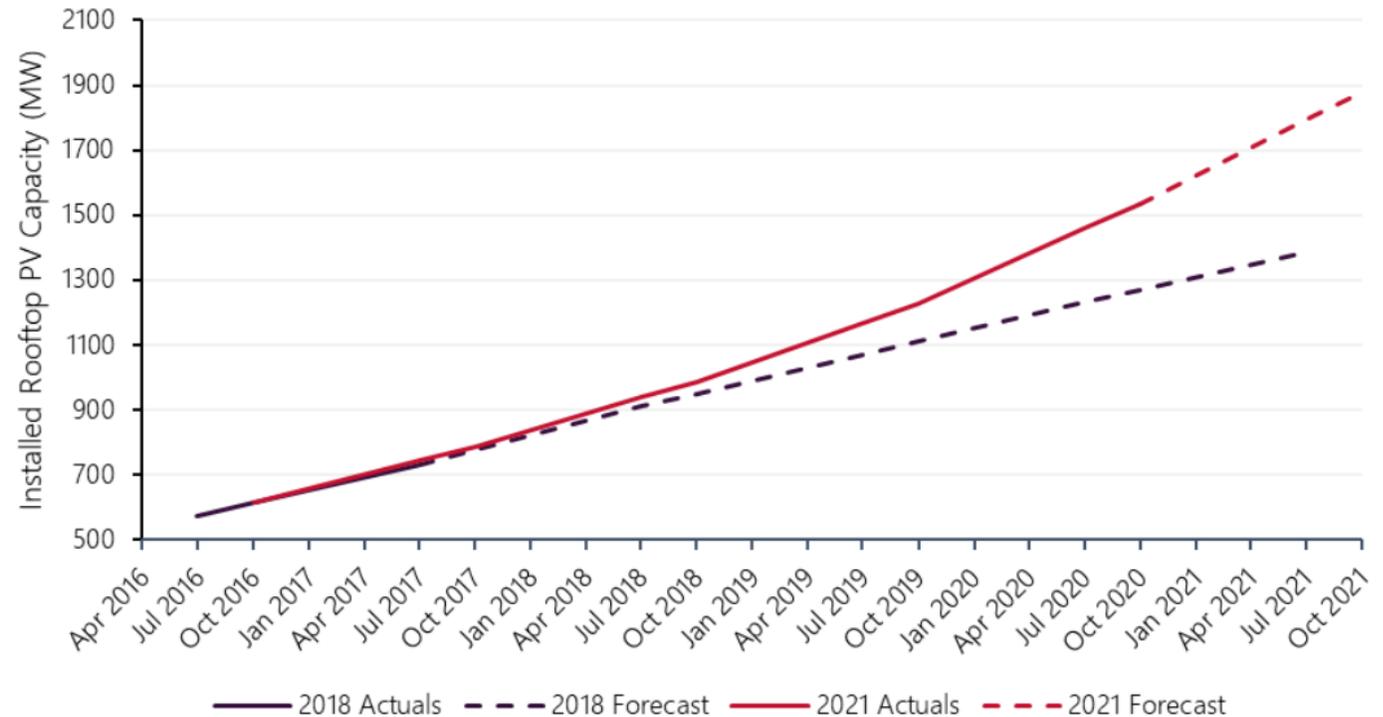


The power system is transforming – moving towards more low cost, low carbon renewable generation

Accelerating growth of DPV

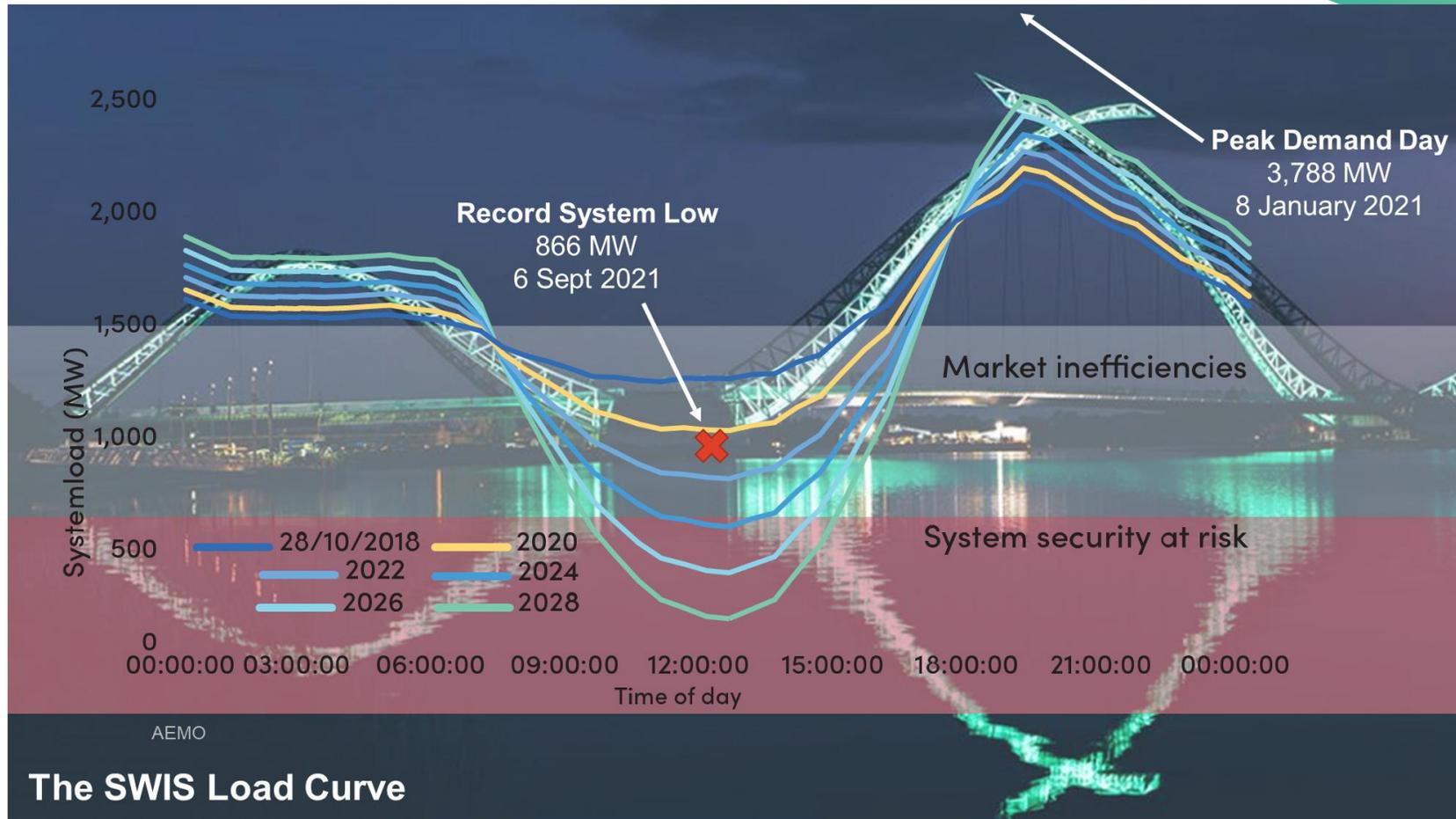
- Distribution-connected photovoltaic – “DPV” – is being installed at rapid, accelerating rates
- A record amount of DPV was installed in 2020, and new forecasts predict this to continue
- It’s offering significant opportunities for customers, and the sector, for low cost, low carbon energy
- As the transformation towards greater levels of renewables continues, we need to manage the risks

Figure 4 Installed DPV capacity is increasing at faster than expected rates



Source: AEMO, Renewable Energy Integration – SWIS Update, 28 September 2021

What is low load?



- At times of very low load (or demand from the grid), the power system becomes increasingly vulnerable to unexpected events – the risks are increasing as load decreases (driven by increasing solar installations)

AEMO Update – Power System Consequences

Changing power system conditions

AEMO's September 2021 report finds the accelerated installation of DPV is contributing to system risks.

Work across industry has improved resilience of the power system, including system management improvements by AEMO, efforts by Western Power at the network level, and the Energy Transformation Strategy.

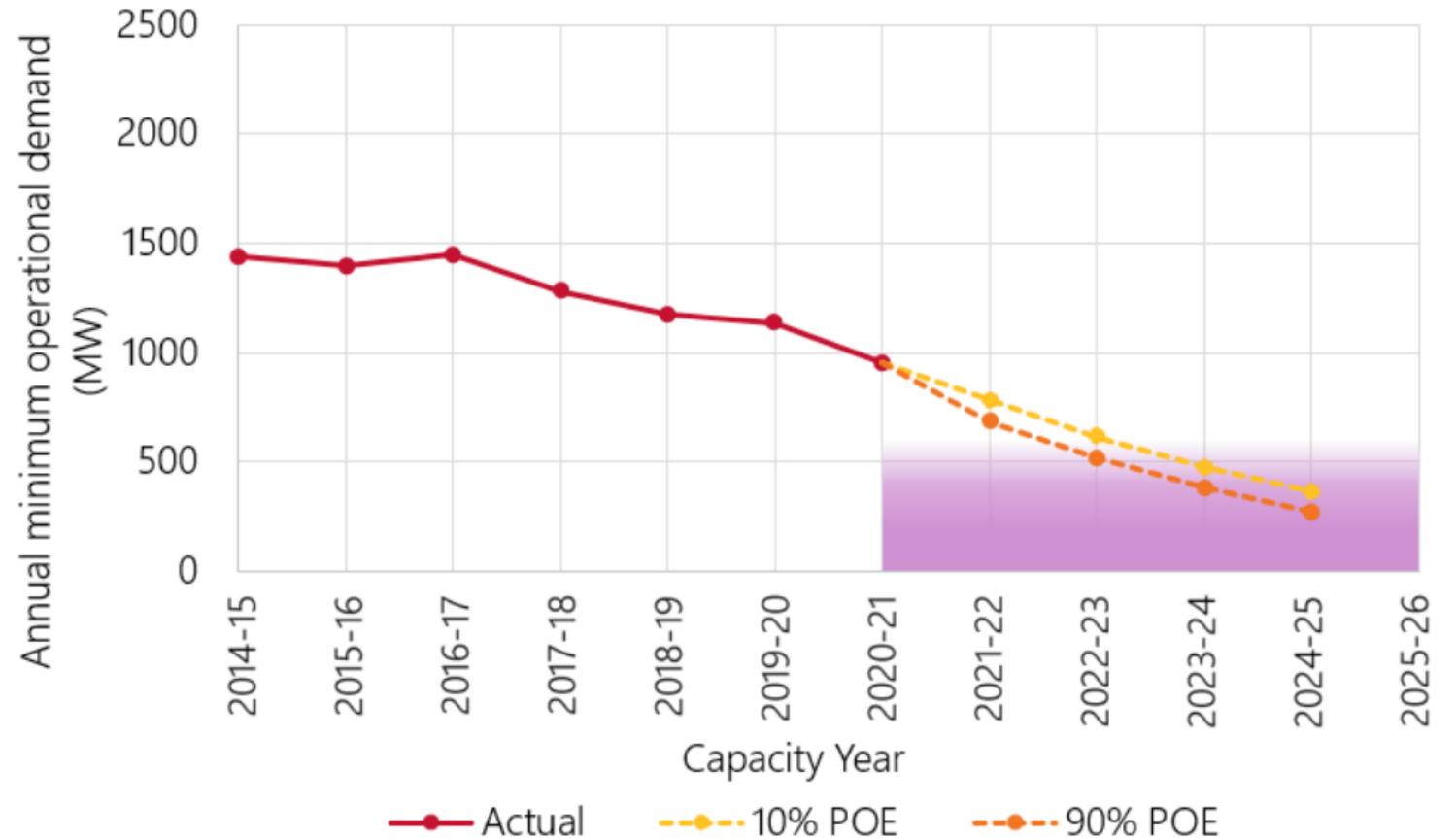
Despite this, since 2019, the impact of DPV has included:

- Increased generation and load volatility
- Increasing impact on market outcomes
- Decreasing minimum operational demand (load), coinciding with higher levels of DPV output
- Displacement of traditional generation sources by DPV and utility-scale renewable generation

AEMO Update Report – Low Load Risks

- As minimum load decreases, there are fewer combinations of facility dispatch which can keep the power system secure.
- AEMO identifies that below operational demand levels of 600 MW, these options materially decrease to a point that the system enters “a zone of ‘heightened security threat’”.

Figure 13 Zone of heightened system security threat and reduced operational flexibility in relation to minimum operational demand levels^{A,B}



Source: AEMO, Renewable Energy Integration – SWIS Update, 2021 pg 52

Working together for a **brighter** energy future.

AEMO Update Report

Recommendation 5 (PRIORITY):

Management of distribution-connected photovoltaic (DPV) systems

As soon as practically possible, enable the capability to manage newly installed and upgraded DPV (i.e., for output reduction and/or curtailment) on instruction from AEMO to a third party to assist in **managing power system security and reliability** in all emergency operational conditions, including during extreme low system load conditions and black start, as a measure of last resort (i.e., backstop capability).

Responding to low load challenges

Proposed approach

1. Implementation of the Energy Transformation Strategy

- The State Government's plan for integrating renewables and managing the energy transformation

2. Manage small-scale DPV output in emergency conditions

3. Export limits for larger systems

Supporting the energy transformation

Government is responding

- The Energy Transformation Strategy is providing the long-term solution to low load risks
- Implementation of the DER Roadmap will see DPV integrated more safely and effectively
 - The future aggregation of many DER devices will see customers able to provide energy services for payment, including services that help maintain power system security
 - The capability to remotely communicate with customer devices is highly aligned with this future participation
- Changes to the Wholesale Energy Market are improving opportunities for new technologies, including battery storage, to accommodate greater levels of low cost, low carbon generation while maintaining power system security and reliability
- The Government is also supporting the transformation through infrastructure, including a Synergy Big Battery and 13 PowerBanks
- This is being accompanied by efforts across the industry, including by AEMO and Western Power

DPV Management

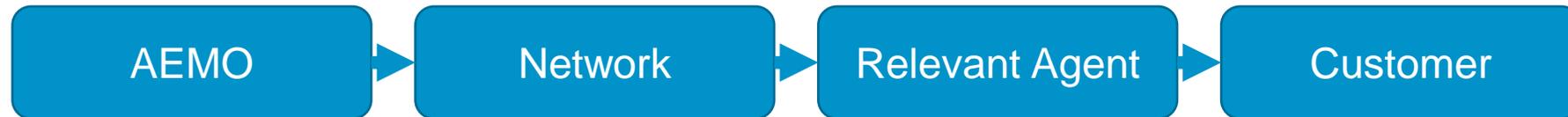
Principles for DPV Management policy assessment

To assess the introduction of DPV Management in the SWIS, Energy Policy WA applied the following principles:

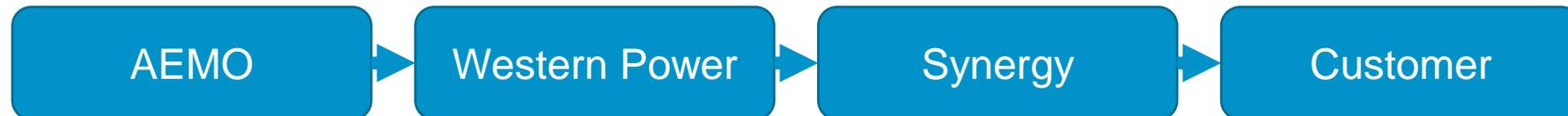
- DPV Management should only be called upon as one of the last resort measures to keep the system secure
- Small-use customers should, where possible, be the last to be affected and impacts should be equitably distributed
- Preferably, technology solutions should support zero exports from DPV to the grid, as well as zero generation
- DPV Management is considered a system security response – as such, customers subject to DPV Management should not be compensated in the event it is triggered

DPV Management in Western Australia

South Australian model for DPV Management



Proposed model for DPV Management in the SWIS



DPV Management – Proposed Approach

Key proposed details

- All new and upgraded systems with inverters capable of generating 5kW or less will need to be capable of being remotely turned down or off through one of the approved mechanisms
 - These mechanisms and the requirements would be introduced through the Western Power connection technical requirements, planned for an update later in 2021
- These requirements would apply to all new applications made from mid-February (and all new systems installs from mid-March)
- Existing customers with rooftop solar will not be affected
- DPV Management deployment would only occur in response to a direction from AEMO

DPV Management

Part of the larger solution

- **Mitigating short-term risks of extreme low load events**
- **Remote communication with DPV – highly aligned with the future participation of customer devices to provide electricity services for payment**
- **Extreme low load events are forecast to occur infrequently and for short periods in the SWIS**
 - South Australia has deployed DPV Management only once for a couple of hours.
 - The cost per small-use customer for such an event is estimated at \$1-2.
 - Customer power supply will not be impacted as a result of DPV Management
- **Will allow more rooftop solar PV to be installed overall, and increase total renewable energy generation available at all other times**

DPV Management solutions

Depending on the DPV installation, there may be multiple options for implementing DPV Management for a given customer.

For installations 5kW or below, **installers will have to ensure DPV systems meet the Western Power connection guidelines requirements**; including validation of an approved method for DPV Management at the time of application with Synergy.

Synergy is evaluating technology using the following criteria

- Maximum coverage of eligible DPV assets to ensure minimal impact of the solar installation industry.
- Architecture to provide flexibility as industry matures
- Implementation within the mandated timeline
- Incorporate learnings from South Australia

Consideration from South Australia:

- Major inverter companies have or are working on API Cloud integration (approx. 85% of market)
- Approx. 10% of market is choosing AMI Metering option
- Compliance at time of installation is most important factor of success

Supporting DPV Management implementation

Ensuring a smooth transition for installers and customers

- Households with existing rooftop solar systems will not be impacted by the new DPV management requirements unless they make changes to or upgrade their system.
- Households may continue to install solar panels up to the capacity of their existing approved inverter without triggering the DPV management requirements.

Working closely with the **Clean Energy Council**, Western Power, AEMO and EPWA, we will continue to share updates and information to support our customers, installers and industry; with **plans to run webinars** when we have a solution finalised.

For more information, you can read our FAQs at: [synergy.net.au/global/dpv-management](https://www.synergy.net.au/global/dpv-management)

Discussion Paper questions

- a) Are there any practical considerations Energy Policy WA should have regard for in implementing the proposed DPV Management model?
- b) What mechanisms should be used to provide information to consumers about DPV Management events and what form should this information take?
- c) What sort of customer support information should be made available by Synergy to assist customers to maintain compliance with remote communication – for example, if a Wi-Fi connection needs to be re-established?
- d) What assistance or training might be provided for installers to help meet requirements for validation, at the point of installation, and on an ongoing basis?
- e) Energy Policy WA will assist customers and installers in providing fact sheets and other communication tools to support the changes. Do you have any suggestions for information that you would like included within these fact sheets?
- f) Do you have any other questions, or comments?

Providing feedback

Feedback can be submitted in the following ways:

1. Email your written submission to submissions@energy.wa.gov.au
2. Contact info@energy.wa.gov.au to arrange a discussion
3. Post your written submission to Energy Policy WA at Locked Bag 11, Cloisters Square, WA 6850

This is progressing quickly – happy to meet to get you feedback if this is easiest.

Feedback on this Discussion Paper closes at 5.00pm (WST), Friday 12 November 2021

Next steps

- **Submissions close 12 November 2021**
- **A response to submissions planned for late-November 2021**
- **Western Power expected to release its updated connection guidelines later in 2021**
- **Synergy workshops with installers to follow**

Questions