Government of Western Australia Energy Policy WA

Consumer update

Renewable Energy Integration in the SWIS

October 2021

In 2019, the Australian Energy Market Operator (AEMO) released a report that instigated our journey toward a bright energy future.

After two years of significant steps in delivering the Energy Transformation Strategy, AEMO's recent *Renewable Energy Integration – SWIS Update* report shows we are on the right track, while highlighting the continuing challenges integrating renewables into the state's main power grid, the South West Interconnected System (SWIS).

Western Australia is leading the world in developing solutions to these challenges, allowing the continued uptake of renewables into our grid.

Energy Transformation Strategy

In March 2019, the McGowan Government launched Western Australia's Energy Transformation Strategy, to address the unprecedented changes underway as we transition to low-emissions energy sources.

The Strategy led to the development of our first <u>Whole of System Plan</u> to inform planning and investment in large scale electricity generation, network and storage infrastructure. It also drove reforms to the rules governing how electricity generation and storage facilities connect to the grid and participate in the Wholesale Electricity Market.

Through the <u>Distributed Energy Resources (DER)</u> <u>Roadmap</u> actions and ongoing transformational work program, we are managing the challenges arising from the rapid uptake of distributed energy sources such as rooftop solar, preparing for the

uptake of electric vehicles, and learning how we

can better harness the immense potential of DER while keeping our power system secure.

Western Australian households leading the transition

Large-scale renewable capacity connected to the SWIS has more than doubled since the Energy Transformation Strategy was launched in March 2019, including a 1600% increase in large-scale solar.

At the same time, the rate of rooftop solar connections has increased by 51%, bringing the total amount of rooftop solar capacity to more than 1,700 megawatts (MW). Household solar is now far and away the biggest generator on the SWIS. We are installing solar on our homes at record rates with around 200 households a day adding a solar system and are on track to reach one in two households with rooftop solar by 2030.

AEMO's Renewable Energy Integration – SWIS Update

In March 2019, AEMO, the market operator with a birds-eye view of the power system, published its *Integrating Utility-scale Renewables and Distributed Energy Resources in the SWIS* report, identifying the challenges and opportunities involved in integrating renewables into the SWIS. Urgent action was called for to ensure the system was ready to support the continued growth of rooftop solar and other renewables

The September 2021 <u>Renewable Energy</u>

<u>Integration – SWIS Update</u> report acknowledges the work of Government, working with AEMO, Western Power and others, in tackling the long-term challenges and imminent threats to power system security. AEMO has identified further work needed to ensure the transition can continue and the system remains stable in the long term, supporting the increased rate of household solar uptake.

Energy Transformation Strategy Stage 2

Many of AEMO's recommended actions have been captured in the second stage of the State Government's <u>Energy Transformation Strategy</u>.

Our Objectives

- Maintain a secure and reliable electricity supply
- Ensure affordable electricity for households and businesses
- Reduce energy sector emissions
- Transition affected workers in the Collie region
- Promote local jobs and growth

Announced in July 2021, Stage 2 of the Energy Transformation Strategy looks to build on the same objectives of the original Strategy.

The *DER Roadmap* outlines the long-term solutions to the challenges our system, and many others around the world, are facing in integrating household energy resources into the power grid. AEMO have made further recommendations for interim measures to stabilise the system in extreme events. These priority recommendations address the short-term impact of accelerated household solar adoption.

Management of distribution-connected photovoltaic systems

AEMO has recommended that the capability for customer solar to be dialed down or 'switched off' be introduced for times when system stability is at risk.

This capability would be used in absolute emergencies, minimising the impact on households and businesses with solar systems. AEMO is expecting this necessary backstop to be used very rarely.

Government is investigating how this option, and others, could be applied to support the system.

Integrating renewables in the community

Through the Energy Transformation Strategy, we have seen many developments in how rooftop solar, batteries and other DER are playing an active part in our power system.

Project Symphony is trialing a Virtual Power Plant in Perth's suburbs, which will enable over 500 residential and commercial customers to use their DER to actively participate in the electricity system. Designed to demonstrate how DER can be aggregated and its potential harnessed to support

our energy transition, Project Symphony will investigate technical and market factors as well as understanding customer interactions.



Following a successful trial of six Stand-Alone

Power System (SPS) units in 2016, the Western Australian Government has committed to an additional 1,000 SPS delivered by Western Power and Horizon Power over the next four years.

SPS are deployed in regional and remote areas as



an efficient substitute for a main electricity grid connection – improving reliability for customers and reducing bushfire safety risks.

A SPS (pictured above) typically include solar panels, a battery and a back-up generator.

Additionally, Community PowerBanks provide customers the opportunity to store the unused electricity they generate from their



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rooftop solar systems. They also serve as a costeffective option to help Western Power manage the network and could be used in virtual power plants.

How individual households can make a difference

On sunny days with lots of solar power production and low power usage, households can make the most of their own solar and help the system by shifting their power use to the middle of the day.

For example, by setting your dishwasher to run around lunchtime you can make a real difference – and you will know that the power you are using is renewable!