



Government of Western Australia
Energy Policy WA

Distributed Photovoltaic Management

Consultation Summary Paper - Discussion Paper
Responses

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

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Glossary

Term	Definition
AEMO	Australian Energy Market Operator
CEC	Clean Energy Council
DER	Distributed Energy Resources
DPV	Distributed, or Distribution network-connected, Solar Photovoltaic
ECA	Energy Consumers Australia
ETS	Energy Transformation Strategy
EVs	Electric Vehicles
IEEE2030.5	IEEE Standard for Smart Energy Profile Application Protocol – the international communications protocol used for many inverters and DER platforms
MW	Megawatts
SWIS	South West Interconnected System
WEM	Wholesale Electricity Market

Overview

This paper summarises issues raised in submissions made in response to the *Low Load Responses – Distributed Photovoltaic Generation Management Discussion Paper*¹ (Discussion Paper) released by Energy Policy WA on 19 October 2021.

The Discussion Paper was released following publication of the *Renewable Energy Integration – SWIS Update* report by the Australian Energy Market Operator (AEMO) on 28 September 2021, which made recommendations to better manage the rapid and accelerated uptake of distribution-connected rooftop solar photovoltaic (DPV). Included in these was a priority recommendation to implement the ability to remotely turn down, or off, DPV systems during emergency or extreme conditions to protect the power system. This capability is referred to as ‘DPV Management’.

The Discussion Paper outlined a proposed approach to implement AEMO’s recommendation (DPV Management) in the South West Interconnected System (SWIS). The approach was informed by the experience of the implementation of DPV Management capability in South Australia.

Feedback was requested from stakeholders on the proposed approach, and several questions were posed to guide responses and feedback.

Written submissions were provided by several industry organisations, including private electricity generators and retailers, the Clean Energy Council (CEC), SA Power Networks, original equipment manufacturers, and AEMO. Submissions were also received from the peak consumer representative organisation Energy Consumers Australia (ECA), and over 120 interested members of the public.

Feedback was also provided informally through meetings, including with organisations based in other Australian jurisdictions, such as SA Power Networks and Smart Energy Council.

A summary of the key issues raised in submissions is provided below, with an indication of how feedback is to be incorporated into the proposed approach. The submissions have also been uploaded onto the Energy Policy WA website.

¹ Energy Policy WA, 2021 https://www.wa.gov.au/sites/default/files/2021-10/DPV-Generation-Management-Discussion-Paper_0.pdf

1. Background

Western Australians are embracing distributed energy resources (DER) at record rates. These small-scale devices include batteries, electric vehicles, and distribution network-connected rooftop solar photovoltaic (known as DPV) systems.

This uptake presents significant opportunities for customers to both produce and use low-cost, low-emissions electricity generation. However, the unprecedented speed and scale of DPV uptake is also making the power system increasingly challenging to manage.

The most significant immediate challenge is managing power system security during times when customers' electricity demand from the grid (known as load) is very low. This challenge is growing as more DPV is installed on the system.

The State Government is implementing a comprehensive program of work under its Energy Transformation Strategy (ETS).² The ETS provides a vision for the future which will ensure that customers in the South West Interconnected System (SWIS) can continue to install DPV, batteries, and other DER to help manage their electricity bills and contribute to the decarbonisation of the power system.

Importantly, the ETS will see greater levels of renewable energy, with customer rooftop solar and DER devices playing a central role in the power system.

In its 28 September 2021 *Renewable Energy Integration – SWIS Update* report, the AEMO outlined the risks of declining levels of demand, including heightened threats to power system security. In this report, AEMO presents a priority recommendation to:

“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).”³

This recommendation is made by AEMO as an alternative to “disconnecting a distribution feeder or substation”, which would interrupt power supply to all customers in suburbs connect to that part of the network (both with and without rooftop solar).

The report identified that 600 megawatts (MW) of load was the critical amount that would keep the power system secure under most scenarios. The Wholesale Electricity Market (WEM) recorded a new record low of 761MW on Sunday 14 November, highlighting the SWIS is nearing AEMO's “zone of heightened security threat”.

To assist AEMO to maintain system security during extreme low load events the State Government is progressing the introduction of DPV Management capability in the SWIS. The proposed approach would see DPV Management used as a last resort measure only. That is, DPV Management would take place only after the curtailment of utility-scale generation (including coal-fired generators) not required for system security needs, and already controllable DPV owned by commercial customers.⁴

Importantly, DPV Management capability **only** reduces or curtails DPV generation for short periods – it is being introduced to ensure that power supply to customer premises is **not** interrupted.

DPV Management would be applied equitably, with the impact on customers kept to a minimum.

² Energy Policy WA, <https://www.wa.gov.au/organisation/energy-policy-wa/energy-transformation-strategy>

³ AEMO 2021, *Renewable Energy Integration – SWIS Update*, Executive Summary

⁴ Currently, DPV and other generation in the distribution system over 1 megawatt in capacity is required to have control systems installed to enable it to be switched off by Western Power.

The remote communication with customer devices under DPV Management is also consistent with the long-term vision set out in the State Government's *DER Roadmap*⁵, which sets out a path to safely integrating DER and have customer devices coordinated to participate in providing energy services for payment.

The intent of introducing DPV Management is to facilitate greater amounts of low-cost, low-emissions renewable generation to be connected to the SWIS, while managing the risks to the power system.

2. Summary of submissions

Energy Policy WA requested feedback from stakeholders on the proposed approach to implementing DPV Management and posed questions to help guide responses.

Written submissions were provided by several industry organisations, including private electricity generators and retailers, the Clean Energy Council (CEC), original equipment manufacturers, AEMO, and SA Power Networks (the distribution network service provider in South Australia). Submissions were also received from peak consumer representative organisation Energy Consumers Australia (ECA), and over 120 interested members of the public.

Feedback was also received through in-person or online meetings, including with agencies in other Australian jurisdictions such as SA Power Networks, and other industry stakeholders.

Submissions reflected the impact of the proposed approach on a wide variety of stakeholders.

2.1 Customer information

In the Discussion Paper, Energy Policy WA included several questions for stakeholders about the presentation of information to ensure consumers are well informed about the need for DPV Management at the time of making a decision to invest in DPV, throughout the installation process, when compliance issues might arise, and in the period surrounding a potential DPV Management event.

Customer information on DPV Management

ECA provided a submission focused on the implications of DPV Management for consumers. While its submission was supportive of DPV Management in the context of avoiding customer supply interruptions (including non-solar customers), ECA notes that any program that requires control of DER must establish a 'social licence' with consumers through consultation, transparency, and the provision of information to inform customer choices.

Energy Policy WA's proposed approach has been informed by work done in other Australian jurisdictions on establishing this social licence. For example, Energy Policy WA was pleased to note ECA's acknowledgement of the proposed approach to use DPV Management as a last-resort option during emergencies, and the focus on future market-driven opportunities for consumers to replace mandatory requirements.

Feedback from ECA and several industry participants reflected a view that consumer engagement must address possible consumer distrust through consistent and comprehensive information (for existing and prospective solar customers, as well as non-solar customers). This information should also provide an explanation of why DPV Management is necessary and estimates of possible impacts on consumers.

Suggested inclusions also referred to the benefits of DPV Management as a precursor to greater levels of DER and longer-term DER participation.

⁵ Energy Transformation Taskforce, 2021, https://www.wa.gov.au/sites/default/files/2020-04/DER_Roadmap.pdf

SwitchDin echoes this view, indicating that “Energy Policy WA should ensure that consumers and installers are clear that DPV Management is required to enable DPV to continue to be safely integrated to the grid. The fact sheets should include discussion of how some technology choices for compliance may also unlock other future revenue streams through improved energy management and orchestration.”

This feedback will be incorporated into all DPV Management information and release materials – comprehensive information should be made available to customers, including prior to making investment decisions, throughout the installation process, and before and after DPV Management events.

Customer information on detail of DPV Management requirements

The Discussion Paper notes Energy Policy WA expects to provide fact sheets for customers and installers to support the proposed changes, and asks for input on the types of information that might be included in these documents.

Huawei noted that information should be provided on the size and type of systems that will need to meet new requirements, and outline of the approved methods for DPV Management.

Energy Policy WA considers that clear and concise information should be provided to customers regarding DPV Management requirements, including information on the pros and cons of different communication options.

Customer support information (for compliance)

The Discussion Paper asked 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.

Submissions noted that Synergy should be able to undertake a routine fleet testing approach to ensure ongoing compliance of customer’s systems with DPV Management requirements. Other methods for ensuring compliance included that customers be sent notices if a communication loss is detected by Synergy, and that a wi-fi re-connection guideline document be made readily available to assist customers in maintaining compliance with technical requirements.

Other submissions suggested that the resolution of many compliance issues could be done remotely in many cases without having to involve customers, with offers made for further support.

Once customers have decided to install DPV under the new DPV Management requirements, Energy Policy WA considers information should be provided to them by Synergy to help ensure they can meet compliance obligations.

The adoption of flexible exports using IEEE2030.5 (the international communications protocol used for many inverters and DER platforms) was proposed in one submission as it could limit exports from systems that lost an internet connection, incentivising customers to maintain a connection. Energy Policy WA notes that the adoption of this standard is not currently under consideration in the context of implementing the DPV Management mechanism.

Customer information around potential DPV Management events

The Discussion Paper questions asked what mechanisms should be used to provide information to consumers about DPV Management events and what form should this information take.

Feedback from stakeholders supported provision of information for all customers (including those without rooftop solar) in the lead-up to, during, and after a potential DPV Management event.

Suggestions from industry participants on the mechanisms for information sharing during events included emails in advance of events to inform customers, as well as SMS messages or phone app push notifications to affected customers by Synergy. Submissions noted that a gateway device can also offer visual indicators during events. These communications can not only engage and inform, but “raise awareness of the broader system issues and provides a platform for behaviour change and informed customer investment decision making”.

Rheem's submission proposed that information should be descriptive, including date and time of the event, the type of event (e.g. zero export or zero generation), duration of event, and event conclusion notification. Its submission noted that "more information is better than less information".

Energy Policy WA is supportive of information providing transparency to customers regarding the use of the proposed DPV Management mechanism. Synergy will incorporate this feedback in its development of customer information and related communications before, during and after potential DPV Management events.

2.2 Installer assistance, information and training

The Discussion Paper noted the importance of ensuring installers are provided with all necessary information to assist customers comply with DPV Management requirements.

ECA notes previous research on customer experiences, particularly that customers rely on installers as a key source of information prior to installation, and that enabling social license will require adequate training and information for installers. In this vein, some submissions suggested that installers should be briefed with the same information as will be provided to consumers (including estimates of frequency DPV Management might be used, and what actions would be taken by AEMO/Western Power/Synergy prior to its deployment).

The Discussion Paper asks for input on assistance or training for installers to help meet requirements for validation at the point of installation, and on an ongoing basis.

The feedback from multiple submissions supported the provision of information to assist installers, including installer obligations to set up inverters, meeting relevant Australian Standards, and the Western Power connection guidelines (formally, the *Network Integration Guidelines*).

The proposed solution was the publication of a single document – a "commissioning paper" – which includes all the steps required to be completed by an installer to fulfill requirements. This paper should then be complemented by training webinars or programs.

A submission proposed that it is possible to provide an expansive collection of manuals for various installation issues. This resource could be made available to installers prior to attending the customer site, and step by step commissioning paper manuals. This could be complemented by a help desk offering installers phone-based support during the installation process.

Energy Policy WA recognises the crucial role that installers play in informing customers as part of the decision to purchase a DPV system. The above feedback will be incorporated into information provided as part of the release of new requirements, and Energy Policy WA will support Synergy in providing relevant documentation and training as required.

2.3 Other key issues

The Discussion Paper asked for practical considerations Energy Policy WA should have regard for in implementing DPV Management.

A summary of the key issues raised in submissions is provided below, with an indication of how feedback is to be incorporated into the proposed approach or is otherwise being responded to through other State Government policy initiatives.

Table 1: Issues raised in submissions

Issue raised	Stakeholders	Response
<p>Rooftop solar generation provides zero marginal cost, zero emissions renewable energy and shouldn't be reduced.</p>	<p>Members of public, CEC</p>	<p>The Government's ETS is supporting the ongoing uptake of rooftop solar in the SWIS and is preparing the power system for greater levels of renewables.</p> <p>DPV Management is being proposed as a necessary measure to manage the risks to the power system while this transition is occurring – by managing risks during these times, the power system can support greater amounts of rooftop solar and renewable generation available at all other times.</p>
<p>Alternatives to DPV Management should include increasing load from other devices (charging EVs, household batteries and community batteries).</p>	<p>Members of public, CEC, Perth Energy</p>	<p>Energy Policy WA, along with AEMO and Western Power, have considered and continue to assess a range of options to resolve low load risks.</p> <p>At present, DPV is the dominant DER technology installed by customers in the SWIS, while EV and battery uptake is still in its relatively early stages.</p> <p>DPV Management is being progressed because it will manage the risks that unmanaged rooftop solar is contributing to in the near term; the long-term vision is for all available DER (including EVs and storage) to be included in DER aggregation to address low load conditions via a combination of paid services and improved standards.</p>
<p>Incentives for storage should be provided – behind-the-meter battery financial subsidies, DPV Management exemptions for hybrid systems that include storage, or improved connection requirements that better facilitate greater storage levels (e.g. generation limits and phase imbalance restrictions).</p>	<p>Members of public, AGL, CEC, Tesla</p>	<p>Battery storage has the potential to contribute to mitigating some low load risks if batteries are available for charging during extreme low load events.</p> <p>However, appropriate pricing structures to incentivise charging times and the ability to aggregate and remotely manage storage as part of a Virtual Power Plant are needed before this potential can be properly realised. Without this, incentivising the installation of battery storage will not be able to reliably resolve challenges posed by low system load.</p> <p>Energy Policy WA is assessing ways through which pricing and aggregation can guide investment in energy storage to resolve low load problems through the 'Midday Saver' tariff pilot being operated by Synergy, and 'Project Symphony', the State Government's flagship DER aggregation pilot.</p>

Issue raised	Stakeholders	Response
		<p>In addition to these initiatives, the changes to the WEM as part of the ETS will facilitate investment in large-scale batteries, which will help to address low load conditions. Western Power’s community ‘PowerBank’ battery trial is testing the ability of storage located on the distribution network to provide value to customers, participate in the energy market, and resolve local network issues.</p>
<p>Compensation for affected customers should be provided – direct financial payments, or more innovative retail product offerings (e.g. opt-in products with bill credits).</p>	<p>Perth Energy, AGL</p>	<p>Market-based solutions are the goal of DER integration in the SWIS – customer DER participating in energy service markets, and receiving payment, is central to the vision outlined under the ETS and DER Roadmap.</p> <p>At present, utility-scale generators that are turned down during extreme low load events will not be provided with compensation, and these generators (including coal-fired generators) and controllable large DPV systems will be reduced prior to residential customers.</p> <p>The introduction of DPV Management also provides a platform on which opt-in products may be developed to pay customers willing to be curtailed outside of emergency situations. Energy Policy WA considers that, in future, such products will reduce the need for DPV Management at the same time as providing additional value for customers.</p>
<p>Zero exports are preferable, not just generation.</p>	<p>CEC, SwitchDin</p>	<p>Energy Policy WA is highly supportive of DPV Management solutions that facilitate zero exports (as well as zero generation).</p>
<p>Moving directly to flexible export control – the use of flexible export limits, also referred to as Dynamic Operating Envelopes (DOE), should be considered now and accelerated, and DOE is more desirable than DPV Management.</p>	<p>CEC, Huawei, Rheem, Smart Energy Council</p>	<p>Energy Policy WA has commenced assessment of flexible export controls, or DOEs, which will be piloted as part of Project Symphony.</p> <p>Energy Policy WA considers that methods for applying flexible export limits through DOEs are still in their development stage, nationally. It should be noted that DOEs may enable increased exports during times of lower network congestion, but may also have the effect of curtailing output from rooftop solar outside of emergency situations and would not provide compensation to affected customers. The benefits and costs of flexible export control will be explored further through Project Symphony.</p>

Issue raised	Stakeholders	Response
<p>Timing – timeframes are very condensed and will impact industry, and there is uncertainty on the level of work required from equipment manufacturers. One submission noted that if we were to replicate the South Australian approach, the February 2022 deadline could be met.</p>	<p>Huawei, Canadian Solar, Tesla</p>	<p>Energy Policy WA understands the timeframes will place pressure on industry. Aligning technology solutions for DPVM in the SWIS with those already implemented in South Australia will help to reduce impacts on manufacturers and installers.</p> <p>Energy Policy WA considers that the timely provision of information, training, and support from Synergy to installers and manufacturers will address risks in implementation and enable implementation of DPV Management in February 2022.</p>
<p>Cyber-security – large-scale power system control communication systems have strong cyber security precautions. Synergy should give consideration to appropriate security systems.</p>	<p>Perth Energy</p>	<p>Cybersecurity is already a key consideration in all aspects of operating the power system, interacting with customers (including metering, billing information), and remote communications to generators. Synergy and Western Power will continue to apply strict cybersecurity protocols as part of the implementation of DPV Management.</p>
<p>Energy Policy WA should prepare for more frequent use – there are risks that long-term initiatives take time to be fully implemented, and EPWA should develop a robust process to accommodate regular use over 2-3 years.</p>	<p>Perth Energy</p>	<p>The DER Roadmap remains on-track to deliver measures to integrate DER within the power system. DPV Management is only intended as a backstop to respond to power system emergencies and will eventually be displaced by DER participation, providing paid services of value to the market. The proposed approach to DPV Management is robust and aligns with the existing SWIS regulatory framework and the requirements of AEMO as system operator.</p>
<p>Design for DPV Management should be consistent with that for future DER aggregation – direct instructions from AEMO to Synergy should be considered for DPV Management (to align with the long-term process for provision of energy services, and to reduce the number of entities involved). An alternative DPV Management architecture was also proposed by one stakeholder.</p>	<p>Perth Energy, AGL, Rheem</p>	<p>Consistent with the anticipated future roles and responsibilities for DER aggregation, the selected DPV Management model maintains the role of Synergy as an aggregator and VPP provider while being able to be implemented within the existing regulatory framework. As such, in the near-term, the direction to increase load on the SWIS will be provided by AEMO to Western Power in the first instance.</p> <p>The proposed approach leverages the existing regulatory framework in the SWIS, noting that AEMO is not able to make directions with respect to</p>

Issue raised	Stakeholders	Response
		<p>individual devices (that are not part of a registered facility operated by an aggregator).</p> <p>The roles and responsibilities for the aggregation of DER and how services will be provided is being defined as through work underway as part of the DER Roadmap and the implementation of Project Symphony.</p>
<p>Tariffs – Western Power’s network tariffs should encourage increased load during solar peak periods to reduce or offset impact of DPV curtailment.</p>	<p>Perth Energy, AGL, Change Energy, members of public</p>	<p>Western Power is considering the development of new network tariffs as part of its Fifth Access Arrangement (AA5) process. This includes consideration of time-of-use network tariffs that may incentivise consumption during periods when solar output is high.</p>
<p>Lack of benefit for other electricity retailers – only Synergy appears to directly benefit from participation in DPV Management, and broader policy reform should be progressed quickly to enable market demand response mechanisms.</p>	<p>AGL</p>	<p>The Discussion Paper notes that while the proposed approach applies only to Synergy, other electricity retailers may be required to develop DPV Management capability in future, subject to consultation.</p> <p>At present, other retailers are able to prepare for DER participation, which is being progressed through the DER Roadmap work program.</p> <p>AEMO indicated in its September 2021 <i>Renewable Energy Integration – SWIS Update</i> report that it is interested in exploring the development of new market services to address problems such as low load and ramping requirements. The Non-Cooptimised Essential System Services framework, to be implemented in early-2022, will enable AEMO to specify and procure these services.</p>
<p>Larger systems – Energy Policy WA should contemplate a solution of curtailing a small volume of large customers.</p>	<p>AGL</p>	<p>Energy Policy WA has focused on ensuring residential customers are impacted as a last resort; however, smaller residential rooftop solar systems are the initial focus of a response to low load conditions as it comprises more than 80% of newly-installed capacity. Further consideration is being given as to how best to include the rooftop solar systems of larger customer within the DPV Management mechanism. Any inclusion of these systems would involve consultation with these customers.</p> <p>It should be noted that under existing processes, utility-scale generation not required to provide power system security and reliability (including Essential</p>

Issue raised	Stakeholders	Response
		<p>System Services and availability for evening peak) will have already been curtailed (or dispatched-off) by the system operator to protect the power system prior to DPV Management being called-upon. Further, the prospective changes to export limits for rooftop solar systems above 5kW will mean that the future contribution of larger customers to low load challenges will already be limited.</p>
<p>Market transparency – AEMO should provide appropriate market notices prior to, during and after events. This will allow market participants to anticipate and assess the impact of DPV Management on their operations and prices.</p>	<p>Perth Energy, AGL</p>	<p>It is intended that AEMO will provide information on DPV Management events and manage relevant market processes in the lead up to, during and after DPV Management events. The details of how this information will be provided are under development.</p>
<p>Alignment with other market processes – DPV Management should be part of a market process to ensure generation is available to meet increased load, and should not be a substitute for other energy services (where those services could deliver better outcomes or lower costs).</p>	<p>AGL, Alinta Energy, Perth Energy</p>	<p>As part of the ETS, the Government is implementing an improved design for the WEM (commencing 1 October 2023) which includes new Essential System Services co-optimised with energy. Additionally, a new framework for Non-Cooptimised Essential System Services (replacing Network Control Services and Dispatch Support Services) will be implemented in early-2022 to meet the needs of the power system and network. DPV Management will not be used as a substitute for these services. In time, these services – coupled with DER aggregation – will reduce the need for DPV Management.</p>
<p>An “off the shelf” product would be much cheaper to implement, than have Synergy establish a new platform from the ground up.</p>	<p>AGL</p>	<p>Synergy will leverage the experience of technology platform providers and original equipment manufacturers gained as part of the implementation of DPV Management in South Australia. The model for DPV Management in the SWIS allows for a wide range of technologies to be deployed, including solutions that have been developed for South Australia.</p>
<p>Large commercial and industrial systems are not being curtailed – a broader DPV Management framework would allow for all DPV and contemplate all retailers.</p>	<p>AGL</p>	<p>Large systems, that are not providing power to a retailer under an off-take agreement, will be subject to export limits that will apply at all times.</p> <p>The Discussion Paper notes that DPV Management capabilities may be required for all systems (including commercial systems) in the future.</p>

Issue raised	Stakeholders	Response
<p>Western Power is the entity that has full visibility of small and large customers and should therefore be the operator of DER devices and the organisation to implement DPVM, either by meter or by control through a platform.</p>		<p>Currently, visibility of the behaviour of small-scale DER is limited. The aggregation and participation of DER in the power system requires both visibility and control in order for services to reliably be provided to the WEM and network. Additionally, aggregated DER should be enabled to provide as many services as it is capable of. Synergy’s (and in future other retailers’) proposed role in the DPV Management mechanism is consistent with the anticipated future role for retailers as an aggregator and provider of both network and market services. As a monopoly provider of network services, Western Power is prohibited by legislation from providing market services and is required to purchase network support services from third parties when this is the least-cost solution.</p>
<p>IEEE2030.5 (the international communications protocol used for many inverters and DER platforms) should be made the default for Synergy’s platform – this would assist with further long term DER aggregation plans and the implementation of DOE.</p>	<p>Rheem, Tesla</p>	<p>Energy Policy WA and Synergy will consider this feedback and its interaction with DER participation work already underway as part of the implementation of actions under the State Government’s DER Roadmap.</p>
<p>Wi-fi communications should not be adopted, because it requires a high level of support, and some inverter brands do not support control commands over wi-fi.</p>	<p>Rheem</p>	<p>Synergy is assessing the optimal technology mix across inverters in the market and will consider this feedback. The DPV Management mechanism is technology-agnostic and will allow Synergy to adopt the solutions that meet customer needs, minimise costs and meet Western Power’s technical requirements.</p>
<p>The limitation of DPV Management to new and upgraded systems (rather than existing systems) will not provide sufficient controllable DPV capacity – other market and network support service frameworks should be made available.</p>	<p>Change Energy</p>	<p>Energy Policy WA has progressed changes to the WEM and Access Code that will provide for the ability of aggregated DER to provide paid services. Further changes to market frameworks are planned under the DER Roadmap to ensure that aggregated DER can provide all services that it is technically able to including, where possible, for existing systems.</p>

Issue raised	Stakeholders	Response
Manufacturers should be provided with clear explanation of how the DPV Management requirements align with the DER Roadmap – manufacturers may be reluctant to invest without certainty.	CEC, Tesla	This feedback will be incorporated into materials released by Energy Policy WA to support the implementation of DPV Management. Technical requirements to implement DPV Management have been aligned where possible and are appropriate with those adopted in South Australia to assist Original Equipment Manufacturers and installers.
DPV Management should not limit customer access to other DER value streams.	SwitchDin,	DPV Management is a backstop measure for use only in emergency system conditions, when other paid services are insufficient to maintain power system security. Aggregated DER providing paid services capable of addressing power system security needs would be deployed prior to the use of DPV Management.
Dual-element meters and wiring configurations can be inflexible and lock customers into a specific use regime, which may limit customer participation.	Enphase, SwitchDin	Dual-element meters have been identified as one possible way in which Synergy may elect to implement DPV Management under the proposed model and may be desirable in cases where other methods (such as inverter control via API over the internet) are unsuitable due to the circumstances of the customer. The implications of the selected DPV Management technology (such as wiring configurations or internet access for inverter API) must be explained to a customer as part of the installation process.

3. Conclusions

Energy Policy WA thanks all stakeholders, organisations, and individuals who provided input on the Discussion Paper.

Stakeholders confirmed that DPV Management offers a viable, near-term solution to power system risks during times of very low load. These risks are emerging more rapidly than forecast and require solutions that can be implemented reliably in a short timeframe.

Without DPV Management, during times of extreme low load, AEMO notes the alternative at present would be disconnecting exporting distribution feeders, meaning all customers connected to that feeder would lose power supply entirely. Other policy alternatives that could be implemented in the timeframes over which the mechanism is required include halting installations of DPV or charging customers who export rooftop solar generation.

Several stakeholders recognised that DPV Management is important to ensure the continued growth of DER in Western Australia. Benefits of DPV Management included that it is the start of orchestration through which customers can gain more benefit from their PV investment, and that a “suitable DPV Generation Management solution will provide a pathway for increased capabilities and value to be realised over time”.

Other submissions, including from industry and members of the public, reflected a view that DPV Management should only be progressed as an emergency backstop, and be part of a broader strategy that “incentivises uptake of storage, electric vehicles and smarter home loads”.

Energy Policy WA strongly agrees with this sentiment, noting that DPV Management is being progressed because it manages clear risks to power system security, but through a solution that:

- **only applies to new and upgraded rooftop solar DPV** – existing customers will be unaffected;
- **is only used in emergencies** – expected to be used infrequently and for short periods, and will prevent loss of power supply for consumers during these critical times;
- **does not interrupt power supply to customers** – only rooftop solar generation is reduced, and customers will continue to receive power from the grid;
- **only impacts households as a last resort** – other options to protect the power system, including turning off large-scale generators, will be exhausted first;
- **will allow more renewables overall** – by managing risks during these infrequent emergency times, greater levels of rooftop solar installation will be possible; and
- is aligned with the **long-term plan for the power system** – the implementation of the ETS will reduce the need for DPV Management, providing more opportunities for customer devices (including EVs) to provide energy services for payment, greater levels of battery storage, and better price signals to encourage moving energy use to the middle of the day.



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