

2 August 2026

To the EPWA Consultation Team,

Climateworks Centre submission to Energy Policy WA (EPWA), Department of Energy and Economic Diversification, consultation: *Making it easier to connect solar, batteries and EV chargers*

Climateworks Centre bridges the gap between research and climate action. We are climate transition specialists, working with decision-makers who have the power to reduce emissions at scale. Climateworks accelerates ambitious, evidence-based action for net zero in Australia and Southeast Asia. Co-founded by philanthropy, Climateworks is an independent not-for-profit within Monash University.

Western Australia's electricity system is changing rapidly as distributed energy resources (DER), including rooftop solar, battery storage and electric vehicles (EVs), become more widely adopted. Improving connection and uptake of these resources supports system security, lowers whole-of-system costs and enables customer participation. Streamlining DER connections is a critical near-term enabler for Western Australia to meet its net zero emissions targets.

Climateworks supports the direction of the proposed reforms, which improve network visibility, simplify connection processes for solar, batteries and EV chargers and facilitate coordinated integration of DER across Western Australia. This increased access to distribution data would enable Western Australia to build a demand-flexibility and load-forecasting framework that integrates demand-side services directly into energy system planning, market design and private investment decisions. To realise these benefits, Climateworks offers the following recommendations:

- Implement CSIP-AUS (v1.2) for inverters up to 30 kVA to align with national standards and enable dynamic export management that protects grid stability while maximising opportunity for customer interaction.
- Establish formal Distribution System Operator (DSO) data responsibility for Western Power under transparent ring-fencing rules to ensure open, non-discriminatory network visibility and foster fair market competition.
- Introduce light-touch reporting obligations for Level 2 EV charge point operators to improve demand forecasting.
- Standardise commercial connection pathways under 1,000 V to eliminate custom assessment delays, lower project costs and accelerate business decarbonisation.
- Formalise requirements for Western Power to enhance its existing Network Capacity Mapping Tool (NCMT) with granular low-voltage constraints and a Virtual Power Plant (VPP) recruitment 'Data Roadmap'.
- Implement open two-way data exchange standards for VPPs to give network operators real-time operational visibility during stress events and unlock flexible customer products.

This submission responds to all seven issues paper proposals; EPWA Proposals 5 and 7 about Western Power publishing network capacity information are addressed together under Recommendation 5. Climateworks recommends that the proposals be guided by four complementary

principles: adopt nationally consistent technical standards, improve distribution network transparency, enable open and competitive markets through non-discriminatory data access, and minimise regulatory burden by embedding new requirements within existing connection and market processes. The recommendations below are intended to advance these principles while supporting reliable, secure and efficient DER integration.

Recommendations

Recommendation 1: Implement CSIP-AUS (v1.2) for inverters up to 30 kVA to align with national standards and enable dynamic export management that protects grid stability while maximising opportunity for customer interaction.

CSIP-AUS allows smart solar inverters, behind-the-meter batteries and network operators to securely communicate and provides the technical foundation to transition Western Australia away from blunt Emergency Solar Management (ESM) shut-offs toward smooth, automated Dynamic Operating Envelopes (DOEs). Instead of imposing rigid, flat export limits or blanket solar shut-offs, this standard enables dynamic, two-way management based on real-time grid conditions. This ensures customers can export as much clean electricity as possible when capacity allows, while keeping the broader energy system stable and secure.

CSIP-AUS is becoming Australia's national communications standard for distributed energy resources across Australia. Western Australia has already moved in this direction, with Synergy using CSIP-AUS for its VPPs and the state's own interoperability statement naming CSIP-AUS as the preferred protocol for communication and control.

Climateworks supports the adoption of CSIP-AUS for residential and small commercial inverters below 30 kVA. CSIP-AUS gives networks, retailers and aggregators the ability to control behind-the-meter assets remotely and in both directions, instead of relying on fixed export limits. This two-way control introduces the opportunity to reduce energy costs for consumers by encouraging customers to work with their electricity provider to optimise generation and customer demand.

Key benefits include:

- improved interaction between inverters, network operators, retailers and aggregators
- enabling customers to optimise their electricity supply and reduce their costs
- simpler customer transfers between retailers and VPP providers without hardware replacement
- alignment with national technical standards, reducing compliance and equipment costs
- enabling DOEs that allow generation exports to respond to changing network conditions.

Adopting CSIP-AUS enables DOEs for new inverter installations and software updates for compatible existing systems. This lets networks scale export limits dynamically, rather than using fixed, conservative limits or emergency solar curtailment. The rollout of the grid mesh for smart meters in the South West Interconnected System in Western Australia is also supportive of a smarter energy system.

Recommendation 2: Establish formal Distribution System Operator (DSO) data responsibility for Western Power under transparent ring-fencing rules to ensure open, non-discriminatory network visibility and foster fair market competition.

Assign DSO responsibility to Western Power to verify, centralise and publish static grid information across the distribution network. High-quality distribution network data underpins effective planning, operational decisions and efficient DER integration.

To ensure competition, establishing a framework where Western Power publishes connection data on equal terms gives all market participants simultaneous, non-discriminatory access. Transparent data governance guidelines would ensure that independent aggregators and retailers operate on a level

playing field alongside Synergy. Effective oversight relies on regular, independent reporting to deliver transparent and efficient outcomes.

Providing equal, non-discriminatory data access aligns with the data ring-fencing principles that Climateworks advocates for distribution network operators¹. Establishing formal data governance guidelines and independent reporting gives a concrete, enforceable basis for assessing ring-fencing adequacy, far exceeding a general governance commitment.

Embedding data collection within the connection process improves the completeness and consistency of network information from installation, strengthening distribution system planning and reducing the need for retrospective data collection.

Outcomes include:

- standardised collection of asset information, including phase connection, inverter capacity and behind-the-meter battery characteristics
- improved visibility of low-voltage network conditions to support operational planning
- better identification of locations where network investment is required and locations where demand-side flexibility or orchestration may defer investment.

EPWA can incorporate DSO data governance obligations and ring-fencing metrics directly into Western Power's upcoming Access Arrangement 6 (AA6), ensuring data provision is treated as core regulated network infrastructure rather than a discretionary activity. Improved distribution data would also support greater consistency between network planning, customer connections and future market services. Publishing network capacity and enabling DER orchestration both avoid costly utility-scale network capital expenditure.

Recommendation 3: Introduce light-touch reporting obligations for Level 2 EV charge point operators to improve demand forecasting.

Better charging infrastructure data improves demand forecasting, network planning and smart charging services as EV uptake increases and shifts to the higher electricity loads of fully electric EVs as opposed to plug-in hybrid EVs (PHEVs). Because EV charging stations are exempt from retail and distribution licensing under the Electricity Industry Exemption Order 2005, EPWA cannot rely on traditional licence obligations to gather asset data. Indirect data can provide partial visibility by using sources such as electrical safety certificates, installer filings and smart meter data.

Rather than creating a standalone reporting regime, EPWA can embed a mandatory data registration step (capturing charge point operator [CPO] identity, charger capacity and telemetry capability) directly into Western Power's automated Basic Connection Process for commercial chargers above 11 kW. This captures non-residential Level 2 chargers at the point of installation without creating ongoing compliance overhead for operators.

Improved EV charger data would support:

- accurate load forecasting for electricity demand and peak load growth as EV adoption expands
- an evidence base for network regulation reviews to better target network investment in high-adoption areas
- smart charging product development that encourages charging during high solar generation and lower operational demand.

¹ <https://climateworkscentre.org/resource/submission-to-the-aemc-electricity-network-regulation-package-1-erc0435-and-erc0437/>

Consistent reporting by installers and CPOs to the WA DER Register managed by the Australian Energy Market Operator (AEMO) would provide system-wide visibility and support long-term distribution grid planning.

Recommendation 4: Standardise commercial connection pathways under 1,000 V to eliminate custom assessment delays, lower project costs and accelerate business decarbonisation.

Update the Electricity Networks Access Code (ENAC) and Western Power's Applications and Connections Manual (ACM) to establish standardised, predictable requirements for commercial installations under 1,000 V (Standard Small User Facilities). A more consistent connection process would reduce administrative complexity, improve assessment efficiency and support greater investment in commercial electrification.

Commercial and industrial customers represent a significant opportunity for rooftop solar, battery storage, fleet EV charging and process electrification. EPWA notes that current processes for commercial-scale DER (such as rooftop solar on warehouses) are overly fragmented. Standardising connection requirements for Standard Small User Facilities provides a critical enabler for commercial fleet transition and industrial precinct decarbonisation.

Standardising requirements:

- accelerates routine low-voltage connection assessments and eliminates delays caused by bespoke assessments.
- lowers development and transaction costs for commercial customer
- increases uptake of commercial solar, battery storage, fleet charging infrastructure and building electrification.

A streamlined connection pathway would allow network resources to focus on more complex applications while improving the customer experience for routine projects. One option would be that EPWA sets an x-business-day assessment deadline or an automated 'deemed approval' pathway for standard low-voltage commercial connections under 100 kVA (within the 1,000 V tier) where network capacity exists. This would shift Western Power's manual assessment focus exclusively to high-complexity or high-voltage applications.

Recommendation 5: Formalise requirements for Western Power to enhance its existing Network Capacity Mapping Tool (NCMT) with granular low-voltage constraints and a VPP recruitment Data Roadmap.

Climateworks supports formalising requirements for Western Power to expand the depth and transparency of its existing NCMT. The current tool provides valuable high-level visibility at the zone substation and subtransmission level. Project developers and VPP aggregators require more granular, low-voltage (LV) constraint data and a public 'Data Roadmap' outlining aggregated, anonymised customer datasets.

Enhancing capacity disclosure through the NCMT serves two complementary needs:

1. General network capacity data: Expanding the mapping tool to include dynamic hosting capacity and LV-circuit constraints enables developers to identify viable connection points for solar, batteries and EV chargers.
2. Aggregated and anonymised VPP datasets: Publishing privacy-preserving, aggregated customer datasets on a predictable schedule allows VPP aggregators to target recruitment precisely where flexible demand provides maximum grid relief.

Upgrading the NCMT will:

- optimise siting decisions for commercial DER and public EV charging infrastructure

- reduce preliminary connection enquiries and administrative overhead for Western Power
- target VPP growth to constrained grid areas, supporting localised demand response that can participate in the WEM Reserve Capacity Mechanism (RCM) and inform Western Power's upcoming Access Arrangement 6 (AA6) review.

EPWA could mandate that Western Power publish NCMT low-voltage capacity data in machine-readable, open GIS formats (e.g. GeoJSON) down to the distribution transformer level, updated quarterly. Providing programmatically accessible data rather than static maps allows aggregators and EV operators to automatically evaluate network capacity during site selection.

Recommendation 6: Implement open two-way data exchange standards for Virtual Power Plants to give network operators real-time operational visibility during stress events and unlock flexible customer products.

As distributed energy resources become more widespread, VPPs can coordinate flexible demand and distributed generation across growing numbers of customers. Consistent, open two-way data arrangements let this coordination develop without bespoke and hence costly integration agreements between each aggregator and Western Power.

Develop standardised data exchange arrangements for VPPs, including real-time or near-real-time telemetry standards between VPP aggregators, Western Power and AEMO for the WA DER Register. To ensure broad market participation, Western Power can implement these data exchanges using open, non-proprietary application programming interface (API) standards (such as OpenADR or IEEE 2030.5). Where Recommendation 5 addresses data flowing from Western Power to proponents and aggregators, this recommendation addresses the reverse: standardised reporting from aggregators to Western Power, so network operators retain visibility of aggregated flexible capacity during periods of network stress.

Benefits include:

- standardised reporting of aggregated available capacity to network operators via open protocols
- two-way exchange of network status information and operational signals without proprietary hardware or software
- development of customer products, including flexible charging and other demand-side programs, supported by consistent underlying data arrangements.

EPWA could require two-way VPP data exchanges to adopt the national CSIP-AUS Public Key Infrastructure (PKI) cybersecurity framework for device authentication. Furthermore, telemetry standards can align directly with AEMO's WEM Demand Side Programme (DSP) reporting rules, enabling a single telemetry stream to support both local network services and participation in WEM energy and essential system services markets, avoiding duplicate reporting requirements.

Conclusion

Climateworks supports reforms to streamline DER connections across Western Australia. Taken together, adopting nationally consistent communications standards (CSIP-AUS), establishing formal DSO functions within Western Power, standardising commercial connection data and improving visibility of Level 2 EV chargers will build a transparent, efficient foundation for asset integration. When combined with public network hosting capacity data and secure, privacy-preserving two-way data exchange for VPPs, these reforms will reduce administrative friction and defer costly network capital expenditure.

Collectively, these recommendations establish the governance and digital foundations needed for DER to become an integrated system resource rather than a collection of individual customer assets. By improving interoperability, transparency and market participation, EPWA can support lower system

costs, strengthen network resilience and position Western Australia to align with emerging national approaches while retaining the flexibility to meet the state's unique market and network characteristics.

Thank you for considering this submission. Climateworks welcomes the opportunity to provide a follow-up briefing to EPWA.

Yours sincerely,

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