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To whom it may concern,

Climateworks Centre submission to AEMC Draft determination: Enhancing distribution network planning & reporting

Climateworks Centre welcomes the opportunity to provide input on the Australian Energy Market Commission's (AEMC) draft determination on enhancing distribution network planning and reporting to respond to changes in Consumer Energy Resources (CER), and open up Distributed Energy Resources (DER), and hence, efficient network investment.

Climateworks bridges the gap between research and climate action, operating as an independent not-for-profit within Monash University. Climateworks accelerates ambitious, evidence-based action for net zero in Australia and Southeast Asia. The rapid decarbonisation of Australia's electricity system will play an important role in supporting its commitments under the Paris Agreement. Increasing renewable electricity generation and coordinated electrification across transport, buildings and industry can support Australia to meet its emissions reduction targets.

In this submission, Climateworks recommends the AEMC pursue rule changes that support the Australian Energy Regulator (AER) to strengthen electricity distribution network planning and reporting frameworks in ways that improve whole-of-system coordination and planning confidence.

Distribution network planning reform is an important enabling mechanism for Australia's energy transition. As electrification accelerates across households, transport and industry, Distribution Network Development Plans (DNDPs) can evolve into more active planning frameworks that align with the 2024 National Energy Objective (NEO) rule on emissions reduction enabled by regulation. This evolution can support least-cost electrification pathways, strengthen integration of CER, open up DER and improve coordination between local and national planning processes.

Submission summary

Climateworks recommends that the AEMC:

- support a 20-year planning horizon informed by ISP scenarios and targeted sensitivities that explore various levels of electrification and CER/DER
- strengthen the role of DNDPs as active planning tools that support demand-side participation and non-network solutions
- maintain annual updates while improving standardised reporting and visibility of evolving demand patterns
- integrate granular spatial planning data and Low Voltage (LV) hosting capacity information into the planning framework
- embed planning alignment principles between DNDPs, the updated NEO, energy planning, and Industrial Area Energy Plans.

Taken together, these recommendations can strengthen planning confidence, improve coordination between local and national planning processes, and place demand-side opportunities on a more equal footing with traditional network investment approaches.

Recommendations

Recommendation 1: Support a 20-year planning horizon informed by ISP scenarios and targeted sensitivities that explore various levels of electrification and CER/DER

Climateworks supports the proposed 20-year planning horizon. We recommend the framework supports DNSPs (Distribution Network Service Providers) to apply the Integrated System Plan (ISP) Optimal Development Path (ODP) alongside targeted sensitivities that explore both higher and lower uptake of electrification and CER. This 'bookending' approach can help planning processes accommodate uncertainty while identifying no-regrets investments that perform effectively across multiple future pathways.

Linking DNDPs to the ISP does not require distribution planning to treat macro-grid modelling as deterministic forecasts of future outcomes. Rather, it supports local network planning to operate within a consistent set of policy-aligned assumptions and sensitivities that reflect national transmission and generation planning. Greater structural linkage between these planning processes would improve coordination between local and national planning processes, and hence distribution network investment decisions.

Alignment with the ISP is important because distribution planning decisions made today will influence how effectively networks support coordinated electrification and least-cost pathways to a net zero economy. Supporting DNSPs to align with credible ISP-consistent decarbonisation scenarios would strengthen alignment with the National Energy Objective (NEO).

Recommendation 2: Strengthen the role of DNDPs as active planning tools that support demand-side participation and non-network solutions

DNDPs can be more than passive reports showing where the electricity grid is congested. Instead, they can be used to support demand-side participation and non-network solutions. These may include shifting power demand or supporting technologies like local batteries, which can be lower cost than building new poles and wires. Flexible demand, storage, virtual power plants and other distributed resources can all assist in addressing network constraints.

By using DNDPs as a tool to support demand-side participation and non-network solutions, they can strengthen the role of demand-side participation in reducing system costs, improving network utilisation and supporting least-cost pathways across the energy transition. Similar reforms are emerging internationally. For example, Distribution System Operator (DSO) frameworks in the United Kingdom increasingly use transparent network constraint information and procurement of flexibility services to support non-network solutions alongside traditional augmentation investments[1]. In Australia, this direction is also consistent with the AER's Network Visibility reforms and AEMO's Demand Side Factors (DSF) Statement.

DNDPs as active planning tools would help create a more interoperable and investable environment for aggregators, retailers, industrial demand response providers and community energy participants. Clear locational signals can lower barriers for third-party providers, improve investment certainty and support more efficient coordination across market participants. Greater national consistency in electricity distribution regulation may also help reduce fragmentation across jurisdictions and improve interoperability for aggregators, retailers and other participants. Positioning the DNDP as an enabling mechanism for demand-side participation can better align the framework with a rapid decarbonisation of Australia's electricity system.

[1] https://dso.ukpowernetworks.co.uk/smart-grid-index

Recommendation 3: Maintain annual updates while improving standardised reporting and visibility of evolving demand patterns

Climateworks supports annual DNDP updates as a mechanism to check progress against the DNDP assumptions. Australia's energy transition is accelerating rapidly, with CER, DER, industrial electrification, green export industries, electric vehicle uptake and policy developments all influencing future network demand pathways.

Climateworks suggests the AEMC consider a more formal review checkpoint every two years aligned with the IASR in the ISP cycle. This could support a clearer assessment of how distribution planning assumptions continue to align with broader national energy planning processes.

To maximise the value of this information, Climateworks recommends more standardised reporting formats across DNSPs. Consistent and interoperable reporting can reduce transaction costs for market participants, improve comparability across jurisdictions and support more efficient third-party analysis. Nationally consistent reporting standards may also help reduce the risk of incompatible network data and DER participation frameworks emerging across jurisdictions.

Given that all major DNSPs will be subject to climate transition disclosure requirements, Climateworks also recommends that new reporting formats align where appropriate with existing reporting frameworks, including the Transition Plan Taskforce recommendations and AASB S2.

Recommendation 4: Integrate granular spatial planning data and Low Voltage (LV) hosting capacity information into the planning framework

Climateworks recommends the DNDP framework support greater integration of spatial planning data and Low Voltage (LV) hosting capacity information in areas experiencing rapid CER growth and major new electricity demand.

As the energy transition accelerates, planning outcomes are becoming more varied on different electricity distribution lines. Coordinated electrification and renewable energy development depend not only on technology choices, but also on where generation, storage and industrial loads are located relative to network capacity. Improved spatial planning information would strengthen coordination between network investment, renewable deployment and industrial development opportunities and help improve outcomes for the electricity system and customers.

International experience demonstrates the value of accessible and standardised hosting capacity information. In jurisdictions such as California, publicly available hosting capacity maps are increasingly used to improve connection visibility, support DER siting decisions and improve network utilisation outcomes.[2] Similar approaches are also emerging across Europe and the United Kingdom as distribution systems evolve toward more dynamic operation. Dynamic operation is where connection limits, power flows, and network capacity are calculated and adjusted in real-time, based on actual grid conditions.

In Australia, broader access to low-voltage hosting capacity information could complement existing AER Network Visibility reforms while supporting integration of CER, electrified industrial loads, EV charging infrastructure, and DER such as community-scale storage.

To support this transition, the framework could prioritise more transparent, machine-readable and operationally useful planning information, including:

- greater visibility of dynamic network capability under changing operating conditions

[2] www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/distribution-planning/data-portals-and-integration-capacity-analysis

- topology-based planning information at feeder and distribution transformer level
- forward-looking constraint signals that support demand-side participation and non-network solutions alongside planned network upgrades.

Climateworks also supports consideration of more transparent data delivery approaches that improve the timeliness and usability of network information. Consistent with the AER's Network Visibility framework, more frequent updates to data about the headroom available on distribution networks, may help maintain the relevance of information used by consumers, aggregators and other market participants.

Improved visibility of network capability and hosting capacity would help reduce uncertainty for consumers, developers and demand-side providers while improving coordination across the broader energy system. Over time, this may support more efficient capital investment, shorter connection timeframes and faster deployment of clean energy technologies.

Recommendation 5: Embed planning alignment principles between DNDPs, the updated NEO, energy planning, and Industrial Area Energy Plans

Climateworks recommends the AER guidelines for DNDPs incorporate planning alignment principles that support:

- clearer alignment between national and distribution-level planning processes
- the emissions reduction objectives of the NEO
- integration of Industrial Area Energy Plans
- development of Data Roadmaps that improve transparency and investment certainty.

Following updates to the National Electricity Objective, distribution network planning can play a stronger coordination role between national decarbonisation policy, industrial development and local electricity infrastructure investment. Embedding clearer alignment principles within the framework would help support least-cost pathways to a low-emissions electricity system.

Transitioning away from fossil fuels will significantly increase industry's reliance on electricity, and the success of that shift depends on industry and investors having confidence that renewable supply will be sufficient, reliable, and affordable. Place-based planning can help provide that confidence. Climateworks recommends state governments work with AEMO and other actors to develop Industrial Area Energy Plans for regions with high concentrations of industrial energy demand. These plans would complement the ISP, showing how much renewable energy, storage and transmission each region needs to support industrial decarbonisation.

Integrating Industrial Area Energy Plans within the regulatory framework would improve coordination in regions experiencing concentrated industrial electrification and major load growth. Industrial precincts often face distinct transition pathways that may not be fully reflected through broader macro-grid forecasting approaches. Greater coordination between DNSPs, industry and regional planning processes could support more efficient network investment outcomes, lower system costs, reduce transition risk and improve management of localised grid constraints.

Data transparency also remains an important enabler of innovation and investment. Dedicated Data Roadmaps could provide clearer visibility regarding future releases of granular network information, improving certainty for CER providers, aggregators and other market participants. Enhanced transparency would support more efficient market participation, strengthen demand-side integration and improve coordination across the broader electricity system.

Thank you for considering this submission. Climateworks welcomes the opportunity to provide further

insights from our work and continue supporting collaborative energy system reform.

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