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Project Lead  
IDSP Rule Change Consultation

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Dear Matthew,

**ERC0410- Integrated Distribution System Planning.**

The Australian Energy Council ('AEC') welcomes the opportunity to comment on the consultation paper examining a rule change request from Energy Consumers Australia (ECA). The ECA has identified potential issues with the existing distribution annual planning process in the National Electricity Rules and has proposed addressing them by implementing a new Integrated Distribution System Planning (IDSP) process.

The AEC is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. AEC members generate and sell energy to over 10 million homes and businesses and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 percent emissions reduction target by 2035 and is committed to delivering the energy transition for the benefit of consumers.

The AEC comes to this consultation cognisant that in the more nascent stages of CER, and without the ISP, much of the ECA proposal would have been considered by us as exploring what was possible; and not what was necessary. They would have in the past failed any dynamic efficiency or allocative efficiency test. We were, and remain, advocates for a targeted and economically justified approach: you can and should have better data for managing distributed energy. But only where there is the requisite scale, and the right signals, protections, and incentives in place.

In our view the requisite thresholds have plausibly been reached, or they are about to be. In terms of scale, according to the AEMC rooftop solar is the second-largest source of renewable electricity generation in Australia (behind wind energy generation), and the fourth-largest source of electricity generation, making up approximately 12.4 per cent of the country's installed capacity for power supply. And CER has been trial proven in VPPs. We are active in a regulatory environment that is alive with projects to unlock the value; but where is it?

Related tasks such as the AEMO CER Data Exchange project can also augment the future development of markets that will rely upon these IDSP data sets. All things considered (and there are many more) we think the materiality threshold has been reached, and that we can broadly put our support behind what the ECA proposes to be the functional and high level technical requirements for an IDSP, particularly as they relate to third party data access.

With CER now proven at scale and supportive initiatives in motion, there's no better time to embrace the ECA's IDSP consultation to unlock the full value of these resources for Australia's energy consumers. Any questions regarding this submission should be directed to the undersigned at [david.markham@energycouncil.com.au](mailto:david.markham@energycouncil.com.au)

Yours sincerely,

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### **AEC responses to specific questions in the consultation.**

#### **Question 1: What are the shortcomings of the current distribution annual planning process?**

The five-year horizon is too short given CER trajectories, data usage is patchy, and the process incentivises under utilisation of capacity. Engagement with stakeholders is inconsistent or without deep commitment to non-network alternatives.

The short planning horizon misaligns with long-lived assets. Networks invest in assets with lifetimes of 30+ years and yet only forecast five years ahead. This five year "lock in" means expenditure forecasts under the determination only span half a decade, even though most non-network assets will continue operating far longer. Technologies like rooftop PV, electric vehicle charging infrastructure and demand-side management deliver system wide value that compounds beyond a single regulatory period.

Capex forecasts that only incorporate five years of DER-related projects may undervalue investments such as network-side DER orchestration platforms that generate increasing benefits in the years 6–15.<sup>1</sup> This undervaluing can provide perverse incentives to build. Because hosting capacity assessments are voluntary, DNSPs have an incentive to err on the side of under reporting capacity to justify new construction. This drives a bigger RAB and bigger bills.

This can occur because valuable smart-meter and low voltage system data is unused or unavailable to alternatives. As a result, planners may lack visibility into two-way flows and local peak that could defer network spend. Networks control the data: they know (or ought to know) where the hosting capacity exists, what network constraints look like, and where upgrades are planned. Third parties don't.

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<sup>1</sup> There has already been thought put into this problem. Under the DMIS, "investment horizons" are essentially set by the life of each demand-management project (not the five-year regulatory control period) with some limited ability for claw back if the project terminates early.

That information asymmetry gives them a strategic advantage. When networks propose to act on this advantage, regulators may see it as an 'efficient' use of existing knowledge. But a broader assessment is required. Is a network using its privileged position to block competition, for example.

As potential counterparties, we are missing on the ground insights into where CER is growing fastest or where investments are needed. The ECA have identified this and expanded well upon its impacts.

**The AEC suggests that the following approaches are further considered:**

- Mandate Comprehensive Hosting Capacity Assessments requiring DNSPs to perform and publish hosting capacity studies on a rolling basis (e.g. every two years), covering all feeders and voltage levels using a standard form to ensure consistency across networks.
- The AER consult to establish a data sharing format Guideline where anonymised smart meter and low-voltage network data must be made accessible to third parties.
- The AER consult to create a Guideline to define clear privacy, security and commercial use rules for DER service providers, aggregators and researchers using the data.
- Include metrics such as "capacity uplift per dollar spent" or "avoided cost per kW of DER integrated".
- Publish a stakeholder engagement plan each year, detailing who was consulted, how feedback was incorporated, and where unresolved issues remain.
- Set a minimum engagement threshold (e.g. lowering the RiT-D threshold) for tendering non-network alternatives before any major network investment is approved.

**Question 2: Does distribution network planning need to be further integrated with the ISP?**

Mandating biennial IDSPs that share ISP scenarios and require DNSPs to explain divergences will ensure consistency, reduce forecast risk and align investment signals across transmission and distribution.

**Integration Reduces Scenario Mismatches**

We believe that integration reduces the risk of scenario mismatches. Under the current framework, the ISP's long-term scenarios (e.g. high-electrification, rapid DER uptake) are developed at a national scale, while each DNSP constructs its own localised forecasts. DNSPs often use different assumptions about uptake rates of electrification or EV's, technology costs or behavioural change. This can then become apparent in:

- **Divergent Forecasts:** A DNSP might assume a different penetration of EVs to that of the ISP by 2030. Whichever planners is higher will size new lines (for example) for demand that may not materialise or may be materially underestimated. Whilst scenario inaccuracy is still a possibility in an integrated world, at least left hand knows what right is doing, reducing the risks of stranded assets.
- **Sub-Optimal Trade-Offs:** And as above, where transmission and distribution aren't planning off the same sheet, one may build capacity where the other is constraining it, or vice versa, thus undermining effort on both sides.

In our view the IDSP helps by adopting the ISP's scenarios, or by publishing a detailed justification for any departures. DNSPs must reconcile their localised modeling with national-scale assumptions. This

creates a single, consistent set of futures that all planners follow, helping to ensure that the right type of assets are built in the right place at the right time.

### **Integration Mitigates Forecast Error**

It is not important whether forecasts are overly optimistic or pessimistic, as each under or over brings with it significant financial and reliability risks. Overly conservative forecasts can delay needed upgrades, risking reliability. Overly aggressive forecasts can trigger unnecessary capex, inflating consumer bills. The likely scenarios include:

- **Optimistic Biases:** DNSPs may assume exceptional CER adoption based on recent growth spurts, then see actual uptake plateau, leaving them underprepared for peak loads.
- **Pessimistic Biases:** Conversely, an overly cautious CER forecast can understate export potential, leading to needless poles and wires projects that crowd out lower cost, non-network alternatives.

In our view the IDSP helps by implementing the divergence reporting where DNSPs must quantify and explain any differences between their forecasts and the ISP's scenarios. In this way systematic biases become visible, helping prevent costly coordination failures between transmission and distribution planning and exposing forecast biases before they translate into reliability or cost blowouts.

### **The AEC suggests that the following approaches are further considered:**

- The AER require audits to determine alignment between ISP scenarios and DNSP models, with the power to require revisions where unexplained divergences pose a material forecast risk.
- The AER require each DNSP to produce an IDSP every two years that:
  - Adopts the latest ISP scenarios wholesale,
  - Clearly maps how those scenarios flow through to local load, DER uptake, and network investment forecasts, and
  - Provides a public statement reconciling any departures.

### **Question 3: How can distribution network transparency be improved, including during network planning?**

The IDSP should require DNSPs to publish granular CER uptake data, hosting capacity maps for zone-substation level, smart meter data and analytics for small aggregations of small customers and proposed utilisation metrics. We share the ECA view that effective planning is reliant on making effective use of network data, and that this is currently not being optimised in either problem or solution identification and analysis.

To empower market participants and investors in batteries, virtual power plants and third-party providers all require clear, machine readable maps of spare capacity to site assets efficiently. And to drive benchmarking and accountability, published material showing actual versus forecast peak load and CER injections allows the AER and consumer advocates to spot and challenge persistent overbuild or underutilisation is required.

These data sharing and modelling improvements allow solution providers to see where hosting headroom exists or where voltage excursions are a problem, increasing the value stack and improving potential buy in for non-network solutions.

**Suggested approaches to improve network transparency.**

- The AER develop and mandate a common template for scenario inputs (e.g. technology costs, adoption curves for EVs/PV/storage, behavioural parameters), so every DNSP uses the same starting assumptions as the ISP.
- Consider a centralized (longer term at least), machine readable data format where all the datasets (like CER uptake, hosting capacity, meter aggregates, utilisation metrics) are published in uniform, open formats.

**Question 4: Is a new distribution planning process required?**

We agree with ECA's proposal to replace the current distribution annual planning process with an IDSP. Implementing a biennial Integrated Distribution System Plan (IDSP) alternating with the ISP will provide the depth and coordination needed to capture CER impacts and assist with system wide optimisation down to a distribution transformer level. The benefits of implementing the proposed IDSP process are:

- A five-year annual plan is too shallow, while the ten-year ISP is too broad; a biennial IDSP (with say a 20-year outlook and 10-year action plan) is a good estimate of the granularity needed to plan for asset lives and emerging technologies, and to take account of the disruption to predictable central planning that CER and DER creates.
- The process creates a bridge between distribution and transmission in that the alternating cycles, meaning that by the time the next ISP is drafted, distribution insights are already available, thus avoiding any information lags and lowering repeat forecasting.
- It supports CER integration. The IDSP process elevates the key CER considerations such as hosting capacity, voltage issues, etc into being a central component of network planning and strategy.

Of course, the costs of implementing the proposed IDSP scheme need to be considered in context. But right now, that context is that networks control the data. They know where hosting capacity exists, what network constraints look like, and where upgrades are planned. That information asymmetry gives them a strategic advantage in potential network support and grid side DER as well as CER markets that locks in their future dominance. The ECA argues they don't use what they currently have or can deduct from it effectively in any case.

The AEC thinks the main cost consideration should be the cost of *not* doing this, as opposed to system and infrastructure costs that DNSPs may incur in complying. That is why we cautiously support changes to the Distribution planning process.

But we are mindful here in the answer to this question that an incremental approach is required. The seven year road map articulated by the ECA is one approach, and we can support that, but of course other stakeholders will have differing views – especially DNSPs.

**Suggested approaches to a new planning framework:**

- Consult further on replacing the shallow 5 year annual plan with the biennial Integrated Distribution System Plan (IDSP) that alternates with the ISP, considering the practicality of a 20-year strategic outlook and a 10-year actionable roadmap.
- Quantify further value of the IDSP as the bridge between transmission and distribution planning, especially the embedding CER/DER values.
- But to immediately address the shortcomings of the current distribution annual planning process as identified in our recommended approaches in Question 1.

**Question 5: How useful is the proposed data for the IDSP process?**

The AEC supports these as very useful. A 20-year projection with 10-year action period aligns with the ISP, and detailed low-voltage data will expose local constraints. And whilst it is possible that much of the proposed data is currently available from DNSPs, it is not used to the benefit of any party other than the DNSP. The ECA IDSP proposal helps mitigate the DNSP using its privileged position to block competition, as occurs now through widely known practices of delay and obfuscation, and the reverse burden of the applicant almost needing to know where hosting capacity exists or what network constraints look like, to get that confirmed.

- The longer outlook reduces rework and improves certainty. Forecasting 20 years removes the need to redo studies when assets have 30+ year lives, and improves certainty to those investors in CER or grid side DER projects.
- More visibility. Low-voltage feeder-level load, distribution substation load, and voltage profiles reveal discrete constraints that zone substation averages obscure. Thus enabling targeted investments or non-network solutions.
- Accountable planning. A clear ten-year rollout schedule with triggers for opex or capex spend keeps DNSPs accountable for forecasts.

The AEC endorses the ECA's IDSP proposal because a 20-year planning horizon with a 10-year action plan both aligns with the ISP and reduces costly rework on long-lived assets, while requiring detailed low-voltage and substation data exposes local constraints that aggregated averages conceal. Although DNSPs may already possess much of this information, they traditionally withhold it to preserve their competitive advantage. So, mandating transparent, machine-readable maps and schedules shifts the burden of proof away from applicants, holds networks accountable for their forecasts, and provides investors and third-party DER providers to site and scale projects with greater certainty.

**Question 6: Is a new consultation process needed for the distribution annual planning review?**

We think the main objective here is market enablement, and that stakeholder consultation is a subset of that objective. We acknowledge the ECA's interest in a consultation process as an outworking of this consultation. Structures such as the DNSP appointing a consumer panel made up of technical experts to represent consumers and all other stakeholders such as they do in the regulatory rate of return process would be our preferred approach.

**Question 7: Is a Network Data and Insights Roadmap the right tool for implementing the proposed IDSP process?**

The AEC can support the idea of the seven year transitional roadmap to let DNSPs phase in requirements and demonstrate accountability and continuous improvement. Any requirement on DNSPs to produce a new roadmap following the initial seven-year period should be a subject of review in year six.

This allows for both phased consultations and investments. Spreading system upgrades over seven years will allow DNSPs to absorb capital costs gradually, and to learn from any pilots before a full rollout. We acknowledge that there's probably three years of IPRR type consultations, functional specifications etc. before we even get to a technical specification and system builds for the sort of



interactive maps and discoverable data being contemplated. However the ability of DNSP's to project manage is not the AECs area of expertise so we will study responses in this regard closely.

What we can observe is the importance of each of:

- **Clear milestones:** Any roadmap will need defined deliverables which is important. Historical performance at large system/IT type projects will add context. In our view early deliverables like publishing feeder level hosting maps can probably be done in 24 months, so a basic start can be made. But the roadmap should primarily be a tool to hold DNSPs to account and for the AER to monitor progress against.
- **Industry timings:** Having a shared timetable gives retailers, aggregators, meter providers and CER installers a clear understanding of when new data opportunities will arrive, hopefully encouraging parallel innovation.

The seven year transitional roadmap lets DNSPs phase in transparency requirements, pilot publishing data, and helps spread capital costs; with an independent review in year six to determine the need for a subsequent roadmap essential. Key elements of the roadmap will include clear, time-bound milestones (such as publishing feeder-level hosting maps within 24 months) and a shared industry timetable so retailers, aggregators, meter providers and CER installers can align their innovations with new data releases.

We think that overall, by combining phased implementation, clear milestones, and coordinated industry timing, the seven-year Network Data and Insights Roadmap offers the right balance of accountability, flexibility and opportunity identification. Ultimately, the roadmap itself serves as a monitoring and accountability tool for the AER.

#### **Question 8: Are new guidelines and templates required to standardise the IDSP framework?**

The IDSP Framework must be standardised. In our recommended approaches we have identified that the AER will be required to develop guidelines to harmonise and standardise the key functional requirements, like methodologies, data definitions and reporting formats.

Beyond these, the technical and transactional requirements such as data schemas could possibly be better managed through AEMO, via the IEC and B2B structures, given their nature and historical experience. We understand that DCCEEW are thinking of a new body for CER overall, but if you are linking the ISP (which AEMO have carriage of) and the IDSP then perhaps AEMO is a good alignment. We do not support an additional regulator for what could essentially be an extension of what the AER and AEMO already do. In developing a standardised framework:

- The AER can avoid a proliferation of “one-off” programs: Without standardisation, each DNSP crafts its own modelling assumptions, making integrations difficult and raising regulatory burden (think smart meter communications protocols, or even network tariff design).
- The standardised framework helps drive economies of scale: Shared code libraries, data schemas and report structures all reduce duplication and lower the establishment and ongoing costs.
- Automated or simplified oversight: Standard formats mean the AER can build scripts to take up plans and flag anomalies, rather than manually sifting through distributor files.

The AEC believes that by the rules directing the AER to issue clear, principle based Guidelines for methodologies, and to manage dynamic data definitions and reporting formats in Guidelines, that this is a coherent start. Further, by the AER leveraging the likes of AEMO's proven B2B and IEC infrastructure for technical and transactional standards, the IDSP can be rolled out without spawning yet another regulator. This dual tier approach will mitigate against siloed planning exercises, and foster economies of scale. We see this as a more cohesive, cost-effective framework to integrate distribution planning with the ISP, and to support the ECA objectives.

#### **Question 9: Are the proposed benchmarking requirements suitable?**

An appropriately robust benchmarking regime will help ensure DNSPs are measured against and motivated to respond to the evolving realities of a two way grid. In broad terms, we suggest an approach that endorses three core principles:

##### **Reflect Bi-Directional Flows**

- Traditional benchmarking focused on one-way load growth; the new regime must also capture how well networks accommodate exports (e.g. rooftop PV injections) and utilise smart meter insights and voltage regulation capabilities.
- Metrics such as “hosting capacity forecast accuracy” (the difference between modelled versus observed export headroom) and “percent of DER capacity unlocked” (how much of published capacity is actually made available to customers) would assist DNSP effectiveness in managing two way flows.

##### **Link Performance to Deferment and Cost Efficiency**

- Building on hosting metrics, introduce measures like “cost per MW deferred” (total expenditures on non-network or minor network interventions divided by the cumulative MW of capex deferred) and “opex savings per DER-enabled kW” (operational cost reductions attributable to DER-enabled network management).
- By tying costs directly to the MW or kW level impacts, the AER can compare which DNSPs are most effective at deferring major rebuilds or augmentations.

##### **Foster Continuous Improvement through Transparency**

- Publish case studies of successful techniques (e.g. innovative inverter-control settings or dynamic export limits).

The ECA benchmark push is useful to enable trend spotting with hosting capacity accuracy. Cost deferment metrics can highlight distributors that have overbuild or underutilise assets. As DER penetration deepens, the value of these two-sided and cost efficiency metrics will only grow, so a framework capable of incorporating new metrics is important. We would recommend the AEMC or AER build on the ECA's suggested metrics without this rule-change proposal being the forum for debates over alternatives. What is required is a clear, dynamic benchmarking approach that identifies and rewards genuine innovation (or conversely penalizes a lack thereof) and accelerates the cost effective integration of CER into the grid.



**Question 10: Are the existing performance metrics for distribution networks no longer useful with the increasing adoption of CER?**

This may be a review in itself. They are linked to many elements of incentive regulation. But developing new (if additional) metrics that capture two-way flows, minimum demand, voltage quality and localised hosting capacity to reflect the realities of a high-CER grid is required, and perhaps first.

This is because two way flow measurement and the current traditional peak only metrics may collide in midday reverse flows driven by rooftop solar, failing to recognise DNSPs that optimise for export headroom. And minimum load events where there is potential for voltage collapses or for protection settings trip are critical to avoid in high CER networks and likely warrant a dedicated performance indicator.

Voltage variability or excursions should also be captured, though I'm not sure a specific performance metric is required over and above that generally referred to in the above. Certainly, the market should know about these in data sets so as non-network solutions may also be employed to keep voltage quality high as CER grows.

**Question 11: How frequently and in what form should the proposed IDSP and supporting data be released?**

It is suggested to release biennial IDSP reports aligned with the ISP cycle, but with interim data updates at least quarterly to enable timely investment decisions. This seems sufficient for now but should be within the Guideline structure to ensure it remains a dynamic and responsive set.

Quarterly data aids responsiveness, but future markets for batteries, VPPs and demand response will both increase in size and move more quickly. Quarterly seems sufficient at present to spread opportunity to avoid developer capacity constraints, which might occur in longer interval hosting capacity updates for example.

The delivery method, though preferably digital, would be the subject of the roadmap and may commence as static PDF type downloads, but end at web based portals that allow automated data pulls by market participants. So, the final form may not be able to be decided in this consultation and should be subject to a Guideline.

**Question 12: How should any data privacy concerns be managed?**

The AEC is unsure that publishing data down to the low voltage transformer level would create data privacy issues unless there was one or very few connections, and we have not taken advice in this regard. But to ensure it cannot, proposals to aggregate data at the transformer or feeder level (e.g. groups of  $\geq 10$  customers) and to employ anonymisation techniques to preserve privacy should not on the face of it interfere in a material way with the provision of actionable insights.

This is not a specific area of AEC expertise, but relevant options exist, such as:

- Statistical aggregation: Publishing only groups of ten or more prevents identification of individual household generation or consumption patterns while still showing meaningful local variation.
- Anonymisation: Techniques such as encryption, noise-injection and differential privacy have been proven to protect customer data without destroying utility for planners.\*

\*Noise injection adds random data to obscure original values, while differential privacy provides mathematical guarantees against re-identification.

### **Question 13: What are your views of the benefits and costs of the proposed solution?**

Benefits such as better utilisation of existing assets, lower network spending, targeted CER uptake, transparent planning have not been shown to demonstrably outweigh implementation costs such as data and systems builds in the consultation document itself, and will largely be addressed by DNSP submissions we suppose.

However, the benefits are likely to exceed the costs, especially when accounting for the dynamic and allocative efficiency uplifts that will flow from the changes. These efficiency uplifts would include the likes of:

- Capital deferral savings: Deferring just small percentages of planned network spends via optimised hosting alone could save billions over two decades. This would certainly be more than one-off implementation and any ongoing costs.
- Transparent, evidence driven opportunities: These will lower barriers for CER investors, driving more competition in each element of the value stack and ultimately putting downward pressure on costs .

Ultimately, while there are upfront data and systems costs, the long-term efficiency dividends, of competition driving transparency, and the substantial capital deferrals will likely ensure a net positive outcome for both consumers and the grid.

### **Question 14: Assessment framework**

The AEC believe that the five assessment criteria identified: (safety/security/reliability; emissions reduction; market efficiency; implementation considerations; good regulatory practice) are appropriate.

- Safety and reliability: Any changes proposed must maintain or improve network security. As an aside DER could (theoretically at least) be a “black start” resource with microgrids to begin start-up processes on their own, to then provide the capacity required to start up larger generators. I don’t propose this in the current paradigm but it could be a future part of the IDSP.
- Emissions reduction: Recognising that CER’s role in peak shaving and backup generation accelerates renewable uptake and supports national targets.
- Market efficiency & regulatory good practice: Transparent benchmarking and clear guidance can minimise regulatory risk and foster competitive non-network solutions. There will be dynamic and allocative efficiency uplifts that will flow from the changes.

Community resilience might be considered within safety and reliability. Such as ensuring energy reliance to combat the risk of extended outages due to extreme weather for communities at risk. Explicitly measuring how DNSP plans enhance local emergency response, such as island microgrids from CER during storms, is another opportunity for social value that could be considered.

Together, they ensure that future distribution planning not only meets today’s reliability and safety needs, but also drives emissions reductions, market dynamism and stronger safety and reliability outcomes.