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Ms Sara Stark
Director, DER – Network Regulation
Australian Energy Regulator

Incentivising and measuring export service performance – Consultation paper

Dear Ms Stark,

Power and Water Corporation (**Power and Water**) welcomes the opportunity to provide feedback on the Australian Energy Regulator's (**AER**) Consultation Paper aimed at exploring different options for incentivising distribution network service providers (**DNSPs**) to provide efficient levels of export services and the associated reporting metrics to assess their performance.

We support the positions outlined in the Energy Networks Australia's (**ENA**) submission, in particular the need for the development of a bespoke export service performance incentive scheme and the need to consider how performance reporting requirements may need to evolve and change over time as access to data and systems improve.

Incentive regulation is the fundamental principle of the economic regulatory framework

The regulatory framework is designed to promote incentives for DNSPs to drive efficiencies and adopt innovative ways of delivering network services to reduce costs and improve services (including reliability, safety and security), while maintaining appropriate consumer safeguards and protecting competition. Our commercial incentives are thereby aligned with the interests of consumers.

We consider incentive regulation remains the appropriate fundamental principle of the economic regulatory framework. However, information asymmetries can make it difficult for the AER to apply effective incentives – especially if the AER cannot rely on the DNSPs' past performance to 'reveal' efficient behaviour, or when the DNSP is applying new and innovative approaches to manage network issues. In these circumstances, the AER may consider alternative approaches and the efficient allocation of risk.

There are significant challenges to apply financial incentives in the short term

The AER has already undertaken significant consultation on the availability of data on export services and the suitability of a range of proposed metrics. The AER acknowledges:[1]

> *We note that while most DNSPs have been providing export services for some time, it is still early days in positioning export services into the regulatory framework. We observed that datasets for export services are either disintegrated into various network applications or embedded into existing information related to consumption services.*

We are responsible for three small regulated networks, each designed, configured, and operated differently. As such, we will experience high fixed operating and capital costs compared to other

[1] AER Consultation paper, p. 14.

networks to enable exports and capture and report data for incentives and benchmarking purposes. Efficient levels of per capita expenditure for us to enable export services is expected to be higher than other networks due to our stage of network maturity. Upfront investment (ICT/SCADA) in uplifting network capability and visibility, and improving data quality and accuracy will be required to determine the level of export services that our networks are capable of supporting to deliver benefits to all our customers. Consequently, we see that there is likely be a lag between initial expenditure to support two-way flows and changes in measurable 'hosting capacity' metrics.

The DMIA is a more appropriate financial incentive mechanism at this time

In the absence of a bespoke incentive mechanism, in the short-term, the AER may consider opportunities to strengthen the existing demand management innovation allowance (**DMIA**) – which is designed to incentivise DNSPS to expand and share their knowledge and understanding of innovative demand management projects that have the potential to reduce long term network costs.

With the rapidly changing energy market and ongoing reforms underway, the use of the DMIA may become increasingly important – especially to encourage DNSPs to explore applying new and innovative approaches to improve export services at minimal cost. Such innovation may play an important role to speed up the transition to a lower emissions power system.

The current cost thresholds under the DMIA are limiting. We consider there is merit in expanding the size of DMIA funding to further promote innovation of export services. Nevertheless, as noted by the AER, an allowance mechanism could be established for expenditure to enhance export hosting capacity, and DNSPs can submit compliance reports for such projects to be funded by the allowance. We support this approach and consider it may be the most efficient in the near to medium term to facilitate the innovative programs and investment in new DER technologies that are necessary to enable export services and manage two-way flows across our networks.

Monitoring and benchmarking

Performance monitoring and benchmarking can create a form of competitive pressure on DNSPs, whereby information about the relative performance of a DNSP can create peer pressure – thereby incentivising cost reductions. Greater transparency of DNSPs' performance also informs stakeholder understanding and consideration of regulatory proposals and decisions.

Under the Australian Energy Market Commission's (**AEMC**) final rule, the AER is required to prepare and publish a report annually providing information about the performance of each DNSP in providing export services to customers over the previous year. Given the above data concerns, we consider the AER will need to be cautious about drawing significant conclusions or inferences on the DNSPs' performance at this stage.

In preparing its annual report, the AER could consider how to present a broad suite of partial indicators, and commentary on DNSPs' approach to export-related planning and investment against alternative options, in a way that provides a high-level, qualitative assessment of each DNSP's performance. Commentary could draw from DNSP submissions, outcomes under the DMIA, and other new requirements on DNSPs to provide in their regulatory proposals:

- an explanation of the approach to identifying demand for (and providing for) distribution services for supply from customer energy resources (**CER**)
- the trade-offs between different options the network considered and why the network has proposed the particular approach around CER integration and management
- a comparison of the DNSP's proposed capital expenditure to support the provision of export services against its actual or committed capital expenditure and an explanation of any material difference

- a report on demand for export services and identify limitations on their network caused by this forecast demand as part of the distribution annual planning process.[2]

Benchmarking has its own challenges – especially the ability for the AER to compare 'apples with apples' given the significant differences in circumstances between DNSPs across Australia (especially smaller networks like ours). Any benchmarking metrics should recognise the need for us to invest in foundational capability to understand and develop export capacity before direct investments into increasing export capacity can be made.

It is important to note that Power and Water does not currently collect data for many of the identified export service metrics in the Consultation paper, although we intend to build our systems capability as part of the Future Network Strategy and associated expenditure to be included in our forthcoming regulatory proposal to the AER in January 2023. Some data collection may come at an additional cost to NT customers. Consequently, it is important that in introducing any new information requirements that these are appropriately targeted and proportionate to the benefits provided by the AER's performance reporting (including for monitoring and/or benchmarking).

Power and Water notes that implementing financial incentives in a way that efficiently allocates risk between DNSPs and consumers is likely to be challenging – especially in the short term. We look forward to working closely with the AER and other networks to develop fit for purpose incentives and targeted reporting requirements to deliver the objectives noted in the Consultation Paper.

If you have any queries or wish to discuss our response further please do not hesitate to contact Felicity Walton, Manager of Regulation and Policy at [redacted]

Yours sincerely,

[redacted]

Stephen Vlhaovic

Executive General Manager – Power Services

30 September 2022

[2] The AER may consider the reporting format used by the Australian Competition and Consumer Commission (ACCC) for its annual airport monitoring report – which presents information and trends on the prices, financial performance and quality of service at Australian airports, including ACCC qualitative commentary on the airports' performance over time.

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Appendix A: Power and Water's Response to Consultation Paper Questions

Issue Paper Questions	Power and Water Response
1. Do stakeholders consider further incentive measures are required to ensure DNSPs provide efficient levels of export services?	Power and Water supports the AER's position on the potential value of a future incentive mechanisms to improve export service provision to customers. Supporting and managing two ways flows are a focus of several capex and opex programs for Power and Water as part of our forthcoming regulatory period and is central to our 10 year Future Network Strategy. Power and Water is therefore already undertaking work to improve export services, currently incentivised by customer needs and the benefits long-term network efficiencies of increasing exports, meeting supply and decarbonisation requirements including the NT's 50% Renewable by 2030 target and enabling demand management to manage issues such as minimum demand. Power and Water engages closely with its customers and faces strong reputational incentives not to delay, frustrate or deny customer access to exports, particularly as any revenue upsides would be short-lived. We are continuing to provide export services and prioritise developing our capabilities within the limitations of our network's funding and resources. We will continue to improve our export services in a manner that is efficient, prudent and customer driven and as is practically and economically deliverable by Power and Water, even in the absence of an incentive mechanism. Further, Power and Water's immediate focus is on programs to build foundational network visibility, increased hosting capability and improved data accuracy. Together with additional tariff incentives, this will enable us to then rollout efficient and target export service programs that allow all customers to experience benefits at scale as soon as possible. Near-term incentive mechanisms should therefore focus on encouraging and supporting large-scale transition, while more sophisticated and granular incentive mechanisms can be used to fine tune service improvements in the future.

Issue Paper Questions	Power and Water Response
2. Do stakeholders agree with these objectives for assessment of the merits of enhancing incentives for export services?	Power and Water agrees with the objectives set out to assess different options for incentive mechanisms. Power and Water especially supports the first and last point, noting that the priority for networks should be large scale capability improvement to manage and optimise two way flows, including exports and demand management. Programs to facilitate this will differ for each network depending on what is efficient and effective for their unique circumstances. Power and Water are seeking to adopt a state estimation approach using a representative level of network and customer energy resource (CER) monitoring to create an approximate level of hosting capacity. This approach is highly cost efficient and acknowledges that there are diminishing returns from additional monitoring in accuracy. The same should approach should be applied to Performance Reporting and Benchmarking. If state estimation is the most prudent and efficient manner to enable and monitor export services but incentive payments are reliant on a more granular and accurate level of data, then the incentive mechanism has the potential to create perverse outcomes as a result of the cost of compliance outweighing the benefits provided to customers.
3. How significantly does the average low level (and value) of constraints currently experienced by most NEM exporting customers influence the need to enhance incentives for the provision of export services at this time?	Power and Water agrees that the materiality of concern for an incentive scheme is low due to the following factors: • We are already incentivised to provide for the needs of customers as discussed above, which increasingly includes providing export services • Enabling two way flows forms a core part of our 10-year future network strategy • Our priority is on major capex/opex investment programs aimed at uplifting our network capability to better manage and efficiently integrate two-way electricity flows. • Our networks experience little overvoltage issues and export customers are not experiencing material constraints.

Issue Paper Questions	Power and Water Response
4. What level of accuracy and robustness of data metrics would stakeholders consider appropriate for a financial incentive mechanism to operate? For example, are stakeholders comfortable with the use of approximated/modelled inputs for the purpose of a STPIS export service performance measure given most DNSP face significant data visibility issues? Do stakeholders agree that the CECV is the appropriate valuation of improvements or decline in export service performance? Should a non-symmetrical (penalty only) STPIS mechanism apply for export service levels about the basic export level? Do stakeholders agree that there are significant concerns with implementing a STPIS mechanism for export services at this time? Are there any other issues we have not considered? Should the AER explore establishing a paper trial to test the robustness of a selection of potential metrics? What metrics do stakeholders suggest should be included in a paper trial?	Power and Water supports the use of estimated/modelled data over granular data being required for each export customer. Given the varying barriers to granular data gathering, the AER should focus on higher level metrics to incentivise general network capability for export services. Power and Water strongly agrees that there are significant concerns regarding the complexity and need for a service target performance incentive scheme (**STPIS**) type incentive mechanism at this stage. Power and Water supports the AER establishing a paper trial and further considering the need for and potential approach of an export service incentive mechanism. Power and Water also notes that the AER should consider that access to export services should not be treated as equal priority to access to supply. Reliability of supply is a more fundamental mandate for a network business as it impacts all customers, whereas only a subset of customers (exporting customers) are directly impacted by export service levels. Recognising that all customers benefit from improving two way flows through efficient investment, incentive mechanisms should incentivise network to invest in exports where they produce benefits for all customers, not just those that are exporting.

Issue Paper Questions	Power and Water Response
5. Should a GSL for export services be further explored? If a GSL were to be implemented, do stakeholders agree a GSL would best relate to the basic export level and would the applicable jurisdictional CECV be the appropriate compensation for failing to meet the basic export level?	Power and Water recognises the value in a guarantee service level (**GSL**) for export customers to protect their access to basic export levels. However, due to the complexities of determining whether a customer's exports are forcefully constrained due to local network capability, as previously identified by the AER in 4.5.1, Power and Water does not see a simple way to measure or enforce GSLs. Power and Water agrees that export customers should not be granted actual or de-facto firm access through GSL-like payments. Exposure to acute or ongoing constraints is a risk of generation in Australian networks, for small or large-scale generation. If a GSL were to be imposed it should be framed in terms of an expectation for customers that networks will make best endeavours to facilitate export services and limit curtailment to times when required to maintain system strength and security.
6. Should a bespoke export service incentive mechanism be explored further?	Power and Water supports the ENA's position that there is a need to develop a bespoke incentive mechanism given the complexities of export and constraint metrics. However, in the interim we consider that there is merit in expanding the size of DMIA funding to allow networks to explore and uplift their network capability to better support two-way electricity flows and improve the intrinsic level of networks ability to host export services.
7. Should an allowance and/or margin incentive mechanism be explored further? Do stakeholders think appropriate output measures could be used to assess a DNSPs performance given the flexibility of these approaches? Should consumers drive these types of proposals?	Export service programs are new and require testing, particularly in Northern Territory (**NT**) grids where each network is configured and operated differently. Greater uncertainty of expenditure efficiency but a clear mandate to test and develop solutions for export services and two way flows positions the DMIA as a key funding or incentive solution to facilitating investment. However, the current cost thresholds under the DMIA are limiting for the scale and speed of investment that is required to evolve Power and Water's networks to support export services and keep up with customer needs. Power and Water supports introducing a new DMIA-like allowance mechanism to accelerate two-way flow investment in the NT with oversight but without the potential current complexities, costs and inaccuracy of performance metrics and associated incentives.

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	Power and Water does not agree with some of the assessments of allowance mechanisms against the incentive objectives. Power and Water is currently in a process of major investment programs to facilitate two-way flows across its network that are supported by the DMIA. The first stages of capability development for export services requires network pilots, upgrades in ICT, data and internal capabilities, metering projects and specific augmentation projects. Power and Water sees these projects as targeted, proportionate and cost-effective ways to build the foundational capabilities for advanced network services in our networks. The DMIA is fundamental to funding innovative programs managing new technical challenges, as is the nature of export and two way flow projects across the National Electricity Market (**NEM**). This incentive approach would also be aligned with knowledge sharing intent of DMIA as each network grapples with the transition to two way flows differently.
8. What sorts of reporting measures do stakeholders consider are likely to impose reputational incentives on DNSPs? Do stakeholders consider reputational incentives are sufficient to address concerns about DNSPs provision of efficient export services?	Power and Water supports the use of reputational metrics as we undertake extensive engagement with our customers to guide our network investments and future strategy. As a government owned corporation, Power and Water is incentivised to increase the hosting capacity and capability of its network to support the NT Government's policy objective of achieving 50% renewable energy by 2030. We also note that the National Electricity Objective (**NEO**) will soon be amended to have an environmental outcome, which will better enable DNSPs to justify expenditure aimed at facilitating export services, which poses a proportionally larger challenge in the NT where we are not part of the NEM and operate much smaller stand-alone networks. We find that large-scale energy transition metrics have the biggest impacts on our customers. For exports, this could include total penetration of export customers, total exported electricity and related quantified total system benefits.

Issue Paper Questions	Power and Water Response
9. What export service performance metrics should we ideally capture, even if this is only feasible or practical in the long-term? (a) Do stakeholders agree that the ideal measurement of export service performance would use equivalent measures to those used to measure import service performance – and that this would entail measuring interruptions to exports (or network export curtailment) per exporting customer? (b) Do stakeholders agree with our view that it would not be feasible to report involuntary export curtailment per exporting customer in the short term (that is, for the inaugural export performance report due by end of2023)? That is, do you agree with our understanding that this metric is not currently measurable, or cost effective to measure?	Power and Water agrees that network export curtailment per exporting customer due to a network constraint is a valid metric though would benefit from supporting metrics such as duration of export curtailment and a normalisation metric to remove outliers in a perfect world. Power and Water also agrees that this is currently theoretical. Power and Water does not have the capability to measure this metric and does not consider that it would be cost effective to do so in the near term.
10. Do stakeholders agree that financial year 2020–21 is a reasonable base year to start reporting data for most export service performance metrics? If not, what would you recommend and why? Considering current constraints to collecting export service performance metrics, what metrics are useful and feasible to collect for the inaugural export performance report (to be published by end-2023)?	Power and Water could provide FY21 data for some reporting metrics though Power and Water has data limitations for this year. Power and Water agrees with the use of potential metrics in table 5, and is currently able to measure or estimate from data most of the metrics identified. Power and Water does not currently have data available for vehicle-to-grid metrics, inverter compliance, actual battery capacity, other generation technologies or customer complaints. Currently there is no internal capability to integrate various data sources across data bases. Power and Water requires a new ICT system or process to be able to automate large amounts of data.

Issue Paper Questions	Power and Water Response
Do you agree with using the potential metrics summarised in Table 5, and are there particular factors we should consider in tracking those metrics? Relatedly, Attachment B summarises our understanding of current data holdings and limitations, and the potential usefulness of each metric. Please provide comments if you have any views on Attachment B.	For Power and Water to extract the require data on an ongoing basis, Power and Water would need to incur additional costs related to: • changes to connection application forms and processes • new processes and ICT to gather/deliver data, decreasing in cost over time • upfront costs (potential step change) to develop capability to deliver all data. Power and Water notes that compliance of DER installations is an issue in our networks and that monitoring and enforcing compliance is a key process that needs to occur in parallel with improving and measuring export service provision.
11. Do stakeholders agree with the data imitations, impacts and potential solutions summarised in Table 6? Please advise if there are other key limitations we have overlooked or if there are further solutions to explore. Several of the potential solutions in Table 6 refer to the need for the AER to tightly specify how data should be collected or estimated to ensure comparability. What should the AER consider or be aware of in pursing such an approach?	Power and Water already has 14,000 smart meters reporting voltage and power data across its networks, representing around 16% of its customer base. Voltage data availability is there to a certain extent and should increase, estimation programs are available to optimise the voltage visibility with lower smart meter penetration. Power and Water largely agrees with the limitations and impacts in table 6.
12. Do stakeholders have input on our proposed approach to develop the inaugural export performance report as part of the 2023 electricity network performance report? Please provide any views on the proposed project steps and timelines, including suggestions to improve the approach?	Power and Water supports option two for a report published in December with FY22 data. With the scale of transition underway in Power and Water's networks, including in developing DER export capability, a later data request will result in broader and more comprehensive datasets and the ability for Power and Water to better engage in the Export Performance report process. Power and Water notes that most networks are in the process of improving their export data capability and that the FY22 data may look materially different that the FY23 data in scope and granularity and therefore data presented in an early report based on FY22 may have to be

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If option one (early release of the export performance report based on 2021–22 data) is feasible, do you prefer this over option two (December 2023 release of the export performance report based on 2022–23 data)?	presented quite differently from a report based on FY23 data. For consistency and clarity of communication to customers, an inaugural report based on FY23 data may be the best approach for ease of comparison with and update for future iterations.
13. To what extent do the existing benchmarking techniques in Box 4 account for and / or do not account for export services? How does this impact the productivity results generated by these techniques, and are these impacts currently material? How do you see these issues changing over time as the level of installed export capacity increases and technology changes?	Our investment in network capability to enable export services and two way flows planned in our forthcoming regulatory period and beyond would not be accounted for in existing benchmarking techniques and is likely to skew our benchmarks.
14. Do you agree that the options identified above are possible options for adjusting the benchmarking framework to account for export services? Are there any other options?	Power and Water supports exploring each option for adjusting the benchmarking frameworks. In particularly, OEFs for export services are important for Power and Water due to the unique nature of the network and its customer base compared to larger, more mature NEM networks. Power and Water is seeking to progress a DER expenditure program as part of its next regulatory determination. We note the potential for poorly calibrated OEFs to cause Power and Water to be represented as an outlier in benchmarking analyses.
15. What are your views on the proposed staged approach? What if any changes would you suggest?	Power and Water supports the staged approach suggested.

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16. In the context of developing an OEF and determining incremental efficient export services cost: a) Have there been any changes in the export service -related cost data (capex and opex) collected since DNSPs provided responses to our initial data consultation process? Please outline these changes, including how these expenditures are categorised and reported, and provide the related cost data. b) To the extent export service -related costs are not separately captured in your processes and systems, can you disaggregate or estimate these costs from historical expenditure? What are the barriers (i.e. regulatory, technical, practical, cost, etc.) to doing this? What type of AER guidance would be helpful to facilitate disaggregation of export service costs? c) How export services -related cost data be collected that would allow for consistent measurement and allocation approaches between DNSPs?	Power and Water has historically spent negligible capital on export specific programs, instead relying on the inherent capability of the network to facilitate exports for our customers. From the upcoming regulatory period, Power and Water expenditure on export services and two-way flows will experience a step change as we progress key capital programs aligned with our customer needs and Future Network Strategy to transition our network to better facilitate DER and demand management. As such, historical export service-related costs for Power and Water are effectively null, yet any factors or benchmarking based on historical data will not reflect what is efficient for our current network. In response to the specifics of this question: a. There have been no changes in Power and Water's export service-related cost data. b. Power and Water does not capture export service-related costs separately and has not disaggregated these costs. Power and Water would need to investigate the most efficient method and implement a new system to disaggregate these costs. To do so, the technical and practical requirements need to be identified, costed and actioned. c. Power and Water has not yet considered a cost measurement and allocation process for export services.
17. How could the efficiency of export services -related incremental opex be tested?	Power and Water notes that DER related investment programs are typically labour intensive and require capital investments that are not directly proportional to customer numbers, e.g. ICT programs. Power and Water's upfront capital investments to improve network visibility and develop advanced export service capability will require different efficiency considerations across

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	each of its three networks, given their different customer bases, configurations and operation. The efficiency of Power and Water expenditure should be considered in light of these factors.
18. Do you see an estimation method as an in - principal option that could be examined for deriving incremental efficient export service opex? Why? Why not? If an estimation method were required, do you have views on: • what metrics could best proxy the size of the exporting task faced by DNSPs? how weights could be calculated (if needed)? • how an efficient cost elasticity could be calculated?	Power and Water supports an estimation method in-principle. The metrics used must recognise that the outcomes of initial investment programs to enable export services may not be able to be quantised and directly measured in terms of hosting capacity. For Power and Water to build our capability, we will first invest in data IT systems, network visibility and state estimation programs and internal resourcing and capability to understand the current export capacity of our network and prioritise potential improvements. This is vital for efficient and targeted future investment in export services and two way flows to provide best value for customers over the long-term. However, necessary expenditure programs can't be quantified in terms of a direct increases to export capacity or energy throughput. Power and Water highlight that the benefits of increasing hosting capacity and enabling technologies have on future proofing the network go beyond supporting exports. They are also central to managing minimum demand issues and support the transition to the imminent uptake of EVs. The AER should ensure that benchmarking and incentive approaches recognise the full suite of value add of technology like DOEs and investment programs to enable two way flows to capture the full benefits case and consider all efficiencies.
19. To what extent do the existing outputs and inputs listed in Box 5 account for, or not account for export services? Please consider in your explanation: • how the given output or input accounts for, or does not account for, export services. • how this impacts the productivity results generated, and the materiality of any impact.	Any benchmarking metrics should recognise the need for Power and Water to invest in foundational capability to understand and develop export capacity before direct investments into increasing export capacity can be made. Further, Power and Water is improving its data availability but still has gaps, as discussed above in regards to incentive mechanisms. This may restrict how existing benchmarking metrics could be modified. An efficiency assessment and benchmarking must recognise that DER programs require large upfront investments to deliver future benefit and that there is likely a delay between expenditure and actual export performance in the transitional years. Measures of expenditure efficiency may not be accurate if they attempt to assign customer export outcomes directly to programs that are more generally developing network capability. This is because investments are required in

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• how you see these issues changing over time as the level of installed export capacity increases and technology changes. How could the existing outputs and inputs be modified or added to better account for export services in the productivity results? Please consider the options outlined in Table 9 in your response and include in your explanation what you see as the key developmental and implementation issues that would need to be resolved to progress the modification(s) (i.e. data availability for the benchmarking period (currently 2006-21), new definitions, conceptual or technical issues that would need to be resolved)	capability, enrolment of CER and data (ICT/SCADA) to inform how we can subsequently directly invest in increasing exports. For example, there will be a lag between developing the capability to support flexible DOE enabled connections and customers connecting with this functionality enabled.