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From: Electricity Engineers' Association of NZ

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Subject: EEA Submission – Issues Paper – Updating the Regulatory Settings for Distribution Networks

OVERVIEW

The Electricity Engineers Association (EEA) of NZ welcomes the opportunity to provide feedback on the Electricity Authority's (Authority) issues paper on *Updating the Regulatory Settings for Distribution Networks*.

The EEA welcomes the opportunity to be involved as we provide the power industry's largest collaborative forum in New Zealand, focused on delivering clarity on complex engineering/technical issues, practical support and solutions, and market intelligence to support our members and other industry stakeholders to deliver safe and reliable electricity supply within a low carbon policy framework. The EEA represents over 70 Corporate Members (companies) and 600 Individual Members across New Zealand from all engineering disciplines and sectors of the electricity supply industry (see Appendix A).

Getting the regulatory framework right is essential, and the discussion on the review regulatory arrangements for distribution networks is timely and will need to be ongoing as policy and technology further evolve. We encourage the Authority to consider their future state regulatory settings in the context of a whole of system approach to future electricity infrastructure and service delivery including: generation; transmission; distribution; and customer led emerging technology.

EEA recognises that the Government has set an ambitious decarbonisation agenda for New Zealand and plans significant economic activity to transition the countries energy use from Fossil fuels to renewable energy. Due to this transition, there is predicted to be a 70% increase in electricity demand by 2050 across New Zealand. Therefore, the development of an updated regulatory framework that is focused and robust, including one that allows for flexibility services and consumer led distributed energy resources (DER) more broadly, is key to supporting the transition to a carbon-neutral economy.

To deliver New Zealand's ambitious climate change objectives in the timeframes required, an unprecedented amount of new infrastructure investment and smart technology will be needed by New Zealand's electricity sector to facilitate this transition. In addition, it should be noted by Government

that both the existing and future electricity infrastructure will need to be upgraded or built to a higher standard of resilience required to mitigate the impact of climate change.

EEA consider that the changes required in the power system are significant and fundamental to decarbonisation of New Zealand's economy by delivering electrification led by customer engagement in the electricity market. As such, EEA consider that it is a priority for regulators to work with the electricity sector, in consultation with all other key stakeholders, to deliver a 'fit for purpose' regulatory approach that will deliver New Zealand's energy future.

Therefore, we think that for the Government, in conjunction with all sectors of the electricity supply industry, to deliver on this approach it will be important to identify and prioritise workstreams that are critical to enabling a vibrant, low-carbon energy future. EEAs response has therefore primarily focused on the questions in three areas which we deem the most critical:

- access to information on network congestion and on the visibility of DER for both distributors and flexibility traders.
- capability and capacity of the electricity industry to transform the distribution networks from delivering decarbonisation and electrification strategies.
- electricity supply standards concerning the connection of DER – both in terms of connection times and additional standards that might be needed to address a range of power quality issues associated with increased competition and participation in the flexibility market.

EEA is keen to continue our collaboration with EECA, industry, and other stakeholders.

Access to data and information

Q1: Do you see value in the Authority commissioning two separate reviews to look into the merit and practicalities of implementing the recommendations of the UK's Energy Data Taskforce around unlocking the value of customer actions and assets and setting up a "digital spine" in a New Zealand setting. The Authority will consult on the findings and recommendations of the reviews as appropriate.

No. Whilst we consider it is worthwhile for the Authority to understand and consider any learnings from how DER and the associated regulatory frameworks are evolving in other jurisdictions such as the UK and Australia, any recommendations for adoption would need to be contextualised to ensure consistency for the New Zealand Energy Market.

Predetermining how the market may evolve and prematurely forming regulations will restrict innovation, future flexibility and not provide time to design appropriate regulations suitable for New Zealand.

We recommend therefore that the Authority take a similar approach to other leading jurisdictions across the world and facilitate change through a program of work that consults across industry as well as other key stakeholders to develop solutions/recommendations that provide the best outcomes for NZ consumers to de-risk the Authority's potential of prematurely setting regulation incorrectly.

Q2: Does this capture the key data needs for distributors to make informed business decisions that will unlock the potential of DER for the long-term benefit of consumers? If not, what data is missing and what would it be used for?

EEA generally agree that the key data needs for distributors has been captured in this section. This data in conjunction with EV (Electric Vehicle) charger identification would be helpful for network management purposes and assist in planning a building network resilience.

We also note that power quality data can also be used by distributors to improve their LV connectivity/phase connectivity information, especially if supplied in real-time, thereby supporting greater hosting of distributed generation on LV network.

However, we do not agree with the Authority's statement that DER is currently minimal, visibility and observability is high. EDBs have limited visibility of the location and characteristics of much of the non-exporting DER connected to the LV networks.

Q3. Do you agree with the prioritisation of the key data needs for distributors? If not, why not and how would you suggest the priority is changed?

EEA agrees with the Authorities prioritisation. However, this is subject to the Authority giving more priority to real time smart meter data and improved DER visibility requirements.

Enhanced visibility for distributors will be critical for them to manage congestion and power quality issues on their networks as the addition of DER changes power consumption patterns. This will allow them to better forecast planning of flexibility services, replacement, renewal, and system growth at a lower cost to traditional solutions. Flexibility market development will be enhanced by distributors having better visibility on the network.

Q4. Does this capture the key data needs for flexibility traders for them to make informed business decisions that will unlock the potential of DER for the long term benefit of consumers? If not, what is missing and what would the data be used for?

EEAs only comment regarding this question is in relation to priority. None of these items of data have value without first being collated and combined with the HV and LV network topographic and asset data that EDBs maintain.

Q5. Do you agree with the prioritisation of the key data needs for flexibility traders? If not, why not?

As per our answer to Q4.

Q6. Do you agree that the Authority should amend the Data Template to address the above issues to improve its workability? If not, why not?

EEA agrees that the Authority should amend the Data Template to incorporate the ENA/ERANZ variation in the template. This would improve the workability as this has already been consulted on and agreed upon in principle between distributors and retailers.

Q7. Are there other changes to the Data Template that would improve it and assist it to be a useful mechanism for open access to data?

EEA considers that changes will be required in the future, however we recommend that the Authority considers these longer-term changes in conjunction with what impact the Consumer Data Right (CDR) will have in the electricity sector when making changes to the Data Template.

An alternative to the template could also be considered where the MEPs and distributors can contract to provide this information and Code obligations could provide that MEPs have permission to do this, and retailers must include appropriate privacy clauses in their customer agreements.

Q8. Do you agree that this is an issue? If not, why not?

EEA agrees that this is an issue and adds transaction costs. A balance needs to be reached in respect of Privacy of Information, using information for network management and flexibility without compromising retail competition, and the Authority should consider an approach to amend the Code to enable EDBs to work directly with MEPs for access to consumption data.

Q9. Should the Authority amend the Code to clarify that MEPs must contract directly with distributors and flexibility traders to provide ICP data for permitted purposes? If not, why not?

EEA agrees that the Authority should amend the Code so that EDBs can contract directly with MEPs. Distributors have found it challenging to obtain un-aggregated data making LV visibility and monitoring challenging. If MEPs can directly contract with distributors and flexibility traders, this would resolve a lot of complexity currently experienced when trying to access metering data, for permitted purposes.

Q10. Should the DDA Data Template be updated to include Power Quality Data? If not, why not?

Whilst it makes sense to leverage the new technology in metering to improve network performance by including Power Quality, we do not think it should be included in the template, and it would be more efficient for distributors and MEPs to contract to supply this information.

Code changes would be required to clarify if MEPs can supply this information to distributors, and that retailers must include necessary legal wording in their customer agreements.

Q11. Do you think that the transaction costs associated with negotiating the terms of access to ICP data held by MEPs is a problem that the Authority should prioritise? If no, why not? If yes, do you think there is merit in developing a default template to help reduce transaction costs?

EEA considers that this is not an area that the Authority should prioritise. We are not convinced that developing a standardised default template will achieve the goal of reducing costs, and could actually result in increased costs.

However, the key challenge is not the costs associated with negotiation, but rather the time taken for MEPs to be able to provide the data.

Q12. Do you agree that MEP pricing for ICP Data (including Power Quality Data) and related data services is not unreasonable at this stage? If not, why not?

Whilst we generally agree that MEP pricing for ICP data is reasonable, there is some variation between MEPs. We are aware that there have been some instances where an MEP has been difficult to engage with, and that their pricing for power quality data was significantly higher than other providers which in those instances could result in material increases to lines charges.

Q13. Do you agree that MEP pricing for the provision of ICP data to distributors (and other parties) could be more transparent? If not, why not?

EEA agree that MEP pricing for the provision of ICP data for distributors should be more transparent. Transparency for pricing for smart meter data will significantly simplify and ease the process of consistent and standardised pricing for accessing this data for EDBs.

Publishing these prices would also assist in standardising pricing and/or allow for negotiating charges from MEPs and remove the uncertainty of EDBs having to negotiate with individual retailers and/or MEPs.

Q14. To support the transparency of pricing, standardisation, and equal access to data, do you think that the Authority should consider further implementing IPAG's Input Services recommendation that MEPs publish standard 'pay-as-you- go' terms open to all parties? If yes, why, and what do you think this could cover? If not, why not?

EEA supports the recommendation for MEPs to publish standard 'pay-as-you-go' terms. This would enable users to negotiate and ensure a level playing field for all potential purchasers, and we consider this is an issue the Authority could progress quickly.

Q15. Do you agree that distributors' visibility of the location, size, and functionality of DER needs to be improved within the next 3–7 years to support network planning? If not, why not?

Whilst EEA agrees with the Authority that distributor visibility needs to be improved, we disagree with the timeframe suggested. This issue must be improved as a matter of urgency as it is a pressing issue that needs to be addressed quickly.

The rapid uptake of electric vehicles, particularly in metropolitan areas, will soon start to impact the capacity of some areas of the LV networks. Introducing processes whereby the location and capacity of residential EV charging units, as well as other forms of connected DER, should be a high priority for the Authority.

Q16. Do you have any views on the type and size of DER that needs more visibility?

We consider that distributors require visibility of all DER, because distributors need to be able to assess the cumulative impact of lots of small DER as part ensuring network stability, safety and to understand the impact of them being co-ordinated by a flexibility trader for export energy on the network.

Visibility' basically refers to actively monitoring key real-time information regarding what DER assets there are, how much electricity they can generate/store/export and their technical capabilities.

Being able to understand how DER is behaving adds additional information that will support dynamic operation of the distribution network.

This visibility of DER within the distribution system is critical at both the local and aggregate level as they can impact power system security. Distributors need to know what amount of power is being exported into the grid and from where – to prevent damaging voltage spikes and other system security challenges.

EEA therefore recommends that the Authority considers that DER installers (i.e. solar installers) should have a Code of obligations to provide information back to distributors as to what they have installed behind the meter (i.e. type and size etc).

Q17. The Authority acknowledges that definitions of 'real-time' vary, please explain what real-time data means to you.

EEA considers real-time data to mean that there is a constant and instantaneous link to the DER device by a reliable means of communications such as fibre. This allows for the distributors control systems to manage the load and to potentially control the load (directly or via a flexibility trader) near instantaneously.

Q18. Do you agree that access to 'real-time' consumption and Power Quality Data won't be needed for at least five years?

Whilst we agree that access to 'real-time' consumption and PQ data is not required yet in New Zealand, this does not mean that we should wait to start implementing this functionality. EEA considers that the quicker that we start planning for 'real-time' consumption and PQ data the sooner these customer service benefits can begin to flow. Commencement of building the business processes required to make optimal use of this functionality will take some time, and if we start asap, then there will be no delay in implementation when required in 3-5 years. Activities that we recommend that are started as a priority include:

- Developing and implementing standards so that DER being installed today has the technology on board to communicate with the network, to avoid retrospective replacement or refitting being required.
- Developing the network capability needed to interpret and use the data. Implementing real-time data now gives them the time to do this, before penetration levels of DER reach levels that will compromise the system.

Q19. Do you agree that flexibility traders' access to ICP data must be improved so they have the same level of access as distributors (and retailers), with whom they might be competing to provide contestable services? If not, why not?

In principal EEA agrees with flexibility traders having the same level of access as distributors. However, we think that there should be a lot of industry consultation undertaken in establishing this could be implemented from which the Authority should take guidance.

Q20. Do you think the Authority should prioritise modifying the Data Template, so that flexibility traders can use it, or should the Authority prioritise amending the Code to clarify that MEPs must provide ICP data directly to flexibility traders and distributors for a set of permitted purposes without the need for retailer permission? If neither, please explain why.

EEA agrees that the Authority should prioritise amending the Code to allow MEPs to provide ICP data directly to EDBs and flexibility traders. It would however be prudent to set out the permitted purposes for which consumption data may be used without the retailer's permission.

Q21. Do you agree that flexibility traders need access to granular current and likely future congestion data on distribution networks within the next 1–3 years?

Whilst EEA supports the principal of open access data, we believe that it will be highly unlikely that it to provide within a timeframe of 1-3 years. However, that does not mean we should not work towards

this goal, but rather let it evolve like is being done in the UK and Australia where the focus has generally been on HV flexibility.

Q22. Are there any other issues preventing distributors from providing granular current and likely future congestion data?

There are a number of issues still preventing distributors from granular current and likely future congestion data including challenges relating to asset information, business process, customer interaction and business capabilities that EDBs will need to address and overcome in order to provide accurate and meaningful network congestion information to third parties, particularly at the lower levels of the distribution networks.

It should be noted that many of these challenges are already being confronted by EDBs and, other than resolving issues related to EDB access to ICP data, there is no further changes required by EDBs to current industry provisions to facilitate this.

Q23. Do you agree that visibility of the location, size and functionality of larger DER needs to be improved within the next 3–7 years to help understand the drivers of network congestion, what DER is 'controllable', and what services could be offered to owners of DER? If not, why not?

EEA agrees that the visibility of larger DER needs to be improved. However, as outlined previously, we consider that it is also important to have visibility of customers smaller DER e.g., vehicle batteries to reduce local constraints. For both large DER and small DER, visibility of their location, size and functionality needs to be sooner than 3-7 years.

Q24. Do you have any views on the type and size of DER that flexibility needs to have improved visibility?

EEA considers that any DER connection that has the ability to optimise a network connection has value in providing flexibility services.

Q25. Do you think that the Authority, instead of a DER registry, should consider amending the registry data fields and /or requirements to improve DER visibility?

We agree that the existing registry seems the most appropriate place to record all DER details. It would however need to be expanded to capture the improved DER information.

Q26. Do you agree that the Authority should prioritise work on addressing the other issues outlined in this chapter?

EEA agrees that the Authority should prioritise work on addressing the other issues in this paper before work is commenced to create a market for DER as we need to build the foundations first so as to be able to create the right environment for flexibility traders to deliver benefits from DER.

Q27. Do you agree that flexibility trader access to real-time congestion and ICP data won't be needed for at least five years?

EEA agrees that flexibility traders will not need real-time congestion and ICP data for at least five years.

Q28. Do you agree that model privacy disclosure terms are appropriate?

EEA agrees that the Authority's proposal to develop model privacy disclosure terms for ICP data is appropriate.

Q29. Do you agree that model privacy disclosure terms would facilitate data access?

Yes, EEA agrees that the model privacy disclosure terms would facilitate data access.

Q30. Do you see any practical issues with this proposal?

There are no practical issues arising from this proposal.

Q31. Should the Authority create model terms for distributors and MEPs as well given the range of data being collected through smart meters? If not, why not?

Given that the model terms that would apply to EDBs and MEPs are unlikely to be significantly different to those that currently pertain to retailers, we think that it would be beneficial and would require little additional work if these model terms were expanded in this way.

Q32. Would the industry find it helpful for the Authority to conduct workshops on privacy preserving/minimisation techniques?

EEA agrees it helpful for the industry if the Authority facilitates workshops on privacy preserving / minimisation techniques.

Please note that **Q33 and **Q34** were not included as we had no comment on these questions.*

Capability and Capacity

Q35. What do you think of the Authority's option of using the education option proposed elsewhere in this paper, to include some guidance on how distributors should collaborate in future?

EEA agrees that there will be shortages of skilled personnel across the electricity industry in New Zealand over the coming years. EDBs are aware of the need to increase their capacity and capability, now and in future. And they are aware that they have an ageing workforce, face domestic and international competition for labour, and that they need to develop new skill sets in areas such as data and flexibility.

However, whilst this issue is important for the future, capacity and capability is not relevant to this particular and highly important consultation on regulatory settings. The Authority has no regulatory tools that would or could improve the supply of labour and skills to distributors.

It should also be noted that EEA members are aware of the importance of collaboration and cooperation. Working together has been a consistent theme among all our members including EDBs.

With such a clear understanding on the importance of collaboration, and many examples that it exists, it is unnecessary for the Authority to attempt to encourage it.

Therefore, EEA does not agree that the Authority should expend resources to create guidance on how distributors should collaborate.

Q36. Do you think it would be helpful for the Authority to encourage the use of joint ventures between distributors to increase their integration of DER and their procurement of NNS projects? And should this be combined with the first option?

EEA members are well aware about the opportunity of joint ventures to share their resources and, in future, increase their integration of DER and NNS projects. There is a long history of the industry working together in New Zealand including for storm and emergency response, shared services, development of a common competency framework, development of joint technical standards, metering, cyber-security, and procurement. When and as the opportunity arises, these collaborations are and will continue to expand to include DER and NNS.

EEA therefore does not agree that it is required for the Authority to encourage the use of joint ventures between distributors to increase their integration of DER and NNS projects.

Standards

Q40. What are your thoughts on the proposed scope for the Part 6 review? What, if anything, would you include or exclude, and why?

ENA agrees that Part 6 of the Code is overdue for a significant review and update and that DER be included, as opposed to only Distributed Generation (DG) which is limited to generating plant or equipment used for generating electricity.

The purpose of Part 6 is a connection framework and the regulated terms of DG. If DG is replaced by DER, then DER would need to be defined in the Code.

We therefore recommend that the following is included when the Authority reviews Part 6:

- Distributed Energy Resources (DER) are defined as technologies to generate, store, or manage energy behind and in front of the meter. They can be:
    - Uncontrollable – wind and solar
    - Controllable – output can be turned on or off to increase or decrease demand.

Controllable DER allows for flexibility and the ability to modify generation and consumption patterns in reaction to an external signal or incentive through a flexibility service.

Flexibility Services are services that take the flexibility available from controllable DER and send it on behalf of DER owners to buyers of flexibility at an agreed price. Thereby fulfilling the demands for flexibility that are representative of their value stack.

In addition, whilst the issues identified in the issues paper are important, the segregation of the review of the Part 6 pricing principles into a separate workstream with unclear timelines and undertaken different divisions within the Authority risks creating unnecessary compartmentalisation and disjointedness.

Pricing, in particularly the incremental cost rule, is a key determinant of what, where and how DER and DG are incorporated into the New Zealand electricity grid. The review of Part 6 pricing principles should be conducted in conjunction with the issues listed in the issues paper.

Q41. In order, what are the three most important issues that should be addressed as part of a Part 6 review, and why?

1. AS/NZS4777 - Alignment with AS/NZS4777 requirements for residential 5kW per phase export limitations for installations. Having this limitation would align with the installation standards. If a connection could not handle a 5kW export, then it unlikely to be able to have the capacity for EV charging in the future.
2. Obligations on installers - There needs to be more stringent obligations on installers of DER. We have seen that they may prefer certain technologies where there are better margins as opposed to the best solutions for their customers.
3. Guidelines - We would suggest a framework or guidelines to standardise connection requirements.

Q42. What are your thoughts on amending Part 6 to explicitly include DER, and what do you think are the key issues to be considered?

EEA considers that it is important that Part 6 is updated to include DER so that it remains relevant, and not only focused on DG.

We also note that the Code does not address DER upgrades or make it compulsory to record DER modifications (i.e., installations and removal of installations).

Finally, we consider that Part 6 of the Code should also be expanded to cover flexibility service providers to ensure that they have the same rights and obligations as other industry participants.

Q43. What are your thoughts on increasing the size threshold for Part 1 DG applications, including the benefits and drawbacks?

EEA supports the increase in the threshold as the Part 1 (particularly Part 1a) process as it simplifies the process for standard DG connections that are unlikely to materially affect network operations.

Q44. If the threshold were to change, what do you think the new threshold should be and why?

We consider that a 20kW threshold would be appropriate as it represents a natural break point from both an network management and DG installation perspective.

Q45: What are your thoughts on adjusting the ten-business day timeframe in Part 1A?

10 days appears appropriate.

Q46. What are your thoughts on maintaining the current approval timeframes in Part 1 (comprehensive) and Part 2?

Part 1 and 2 are appropriate but more flexibility is required for larger connections great than 1MW.

Q47. If you seek a change to approval timeframes, what evidence can you give to support this?

EEA do not see the need for a change in approval timeframes other than mentioned in question 46.

Q48. What are your thoughts on adding a new DG application process for largescale DG to Part 6? Please provide examples in support of why you think change is or is not necessary.

The scope and scale of large DG/DER projects (>1MW) makes the assessment of applications a time- and resource intensive task.

While the current process allows for EDB to seek extensions, these are time limited. Rather than introduce a separate application process, the Authority should provide greater flexibility within the existing process for large projects.

Q49. If you think a new application process should be added, where should the threshold be and why?

EEA views the 1MW threshold as appropriate for any new application process.

Q50. What are your thoughts on reviewing the priority of applications clause in Part 6?

EEA supports a comprehensive review of application priority, queuing and capacity reservation components of Part 6. We are aware that the recently finalised Transpower connection management framework provides a useful case study on which the Authority could model a more modern application prioritisation process.

Q51. Should the AS/NZS 4777.2:2020 Standard be mandated for inverters in New Zealand? If so, how should this be accomplished?

EEA agrees that AS/NZS 4777.2:2020 should be mandated. We see significant benefits to EDBs, and ultimately their customers, by being able to access the more sophisticated functions of inverters compliant with AS/NZS 4777.2:2020.

Q52. What are your thoughts on the Authority reviewing the prescribed maximum fees in Part 6?

No comment

Contact

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Appendix A

Introducing EEA

Founded in 1927 the EEA is the national organisation for engineering, technical and health and safety matters within the New Zealand Electricity Supply Industry (ESI).

Our members include over 70 Corporate Members (companies) and 600 Individual Members from all engineering disciplines and sectors of the electricity supply industry including generation, electricity networks (transmission and distribution), contractors (operation/maintenance), engineering consultancies and equipment suppliers.

The EEA works collaboratively with industry, government, and other stakeholders to provide expertise, advice, and holds or contributes to significant bodies of knowledge on engineering/ technical and safety issues relating to the electricity supply industry in New Zealand. All EEA guides and publications are publicly available.

A key focus of our work is enabling engineering and technology understanding and solutions to support decarbonisation and ensure the safe, reliable, and secure delivery of electricity to our communities.

Our functions include:

- Production and ongoing stewardship of 'bodies of knowledge' including engineering, technical, asset management and safety publications (e.g., guides, Standards, industry reports, and links to relevant legislation and international information).
- Representing the New Zealand electricity supply industry in national and international Standard development and facilitation of benchmarking in safety, technology, and asset management (e.g., IEC, AS/NZS, NZS Standards).
- Providing and supporting engineering and technical professional development and competency for our engineers/technical staff.
- Providing a web-based knowledge hub on safety, engineering, asset management, emerging technology and professional development including information services, notifications, newsletters, guidelines and support documents, events, and infrastructure engineering careers information.

The EEA is currently a partner with EECA and industry.