

20 March 2023

Submissions
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Orion Submission on Price discovery in a renewables-based electricity system – Options Paper

Introduction

1. Orion appreciates the opportunity to respond to the Price discovery in a renewables-based electricity system which the Market Development Advisory Group is seeking feedback on from industry stakeholders.
2. Note that the original submission date for this was set at 6 March 2023 with an extension of 14 days due to Cyclone Gabrielle, making it due on 20 March 2023.
3. As the project centres around price discovery in the New Zealand wholesale electricity market under a 100% renewable electricity system, several of the options are not directly relevant to Orion.
4. Our response focuses on the options most pertinent to Orion, which are: A1, A2, C5, C11, C13 and C14

Reliable and efficient operational coordination

5. Orion supports option A1 (improve short-term forecasts of wind, solar, and demand) and highlights the role of EDBs in supporting coordinated visibility of flexible demand in a decentralised energy system.
6. Orion supports option A2 to strengthen governance for the next phase of the Future, Security and Resilience (FSR) programme and encourages deeper involvement from EDBs.
7. As demand-side flexibility (DSF) becomes incentivised and managed by various parties, Orion suggests the hierarchy of mechanisms is clarified to ensure operational coordination between market participants.

Lifting demand side participation and flexibility

8. Adapting to a rapidly changing and complex environment requires the industry to learn-by-doing and experiment, before building aligning and scaling successful solutions.
9. To stimulate flexibility market development, funding is needed across the value chain to incentivise exploration, particularly for EDBs due to the nature of the regulatory regime.
10. Option C5 should be revised from a trial to a programme fund to support a range of collaborative projects, including those with a greater focus on consumer and market research given the gaps in existing funds available.

11. Orion support knowledge sharing requirements for publicly funded projects and encourage engagement with relevant groups (including the ENA and FlexForum) on how to effectively share information across the industry to minimise duplication, leverage resource and facilitate collaboration.
12. Orion suggests that the extent to which distribution pricing should reflect network needs requires consideration of other mechanisms that may reflect network needs (such as flexibility services) and the granularity required for optimal outcomes.
13. Orion has several initiatives to maximise the potential of Demand Side Flexibility (DSF), help us support customers with DSF decisions and understand its effectiveness so we can invest appropriately to meet customers changing needs.

Increasing public confidence

14. Orion submit that a new option should be considered to extend existing consumer research channels to gauge public perception on energy and demand side flexibility in NZ
15. In extension to option E3 on inter-change with international experts, we suggest a focus on how to leverage knowledge sharing within NZ on DSF and the role of existing groups in supporting this.

Concluding remarks

16. Orion is interested in contributing to options C5, C11, C13 and C14 and would encourage MDAG to engage with the FlexForum and ENA's Future Networks Forum to support co-design.
17. Thank you for the opportunity to provide this submission. We do not consider that any part of this information is confidential. If you have any questions, please contact Evie Trollove (Head of Market and Customer Innovation), DDI 027 228 4426, email evie.trollove@oriongroup.co.nz.

Yours sincerely,



Sam Elder
General Manager Energy Futures

Appendix B

Submitter: Orion Group

Reliable and efficient operational coordination

1. *Do you agree that, weighing costs and benefits, our preferred options in Table 7 above are likely to best address the operational coordination issues described in that chapter? If not, why not?*

Yes, Orion agree with the preferred options in Table 7, particularly

- **A1 - Improve short-term forecasts of wind, solar, and demand:** We support this option which intends to provide better information for decision-makers leading into real time. As the volume of demand side flexibility increases, the accuracy of demand forecasts will depend on the visibility of the flexible capacity. Orion has and will continue to play an important role in supporting coordinated visibility of flexible demand in a decentralised energy system.
 - DER visibility and operating arrangements are being consulted on by Transpower in the “Enabling distributed flexibility to support whole system reliability and efficiency: a system operator view” paper; and by the EA through the “Updating the Regulatory Settings for Distribution Networks” consultation.
 - Orion has fully transparent sharing of load management information with the System Operator for its own network and for the Upper South Island (USI) load management group, which we also manage load on behalf of. Both “available to shed” and “amount to be restored” are provided to the SO via their SCADA system.
 - As more market participants utilise flexibility from distribution connected assets, EDBs will require greater visibility of these assets and their use to efficiently operate the local network and maintain the accuracy of information shared with the system operator.
 - We would welcome the opportunity to contribute to the exploration of options to ensure system coordination through improved visibility, forecasts and information exchange.
 - **A2 – Strengthen governance for next phase of FSR Project:** Orion support strengthened governance, particularly as the focus of the FSR programme widens from transmission to consider interactions with distribution networks. Orion would encourage deeper involvement from EDBs as the programme progresses and welcome further opportunities to contribute.
2. *What is your view of the proposed sequencing and timing of measures to strengthen operational coordination?*

We do not have a strong position on the timings, but these seem reasonable.
 3. *What, if any, other options should be considered to strengthen operational coordination?*

- **Clarify hierarchy of mechanisms:** As more DSF is incentivised and managed by various parties, we suggest the hierarchy of mechanisms is clarified by the Authority (with industry input) and communicated to ensure operational coordination between market participants. As an example, Schedule 8 of the Default Distributor Agreement (DDA) between the Distributor and Retailer currently outlines the priority rank, with grid emergencies outranking any other right to control loads. As multiple parties look to utilise flexible capacity from the same devices for a range of needs, greater granularity on the hierarchy of mechanisms to manage load will be needed. The Authority should also consider how to ensure mechanisms cover the appropriate parties, for example aggregators who are not a party to the DDA.

Risk management and efficient investment

4. *Do you agree that, weighing costs and benefits, our preferred options in Table 10 above are likely to best address the risk management and investment issues described in that chapter? If not, why not?*
No response.
5. *What is your view of the proposed sequencing and timing of measures to improve risk management and investment?*
No response.
6. *What, if any, other options should be considered to improve risk management and investment?*
No response.

Lifting demand side participation and flexibility

7. *Do you agree that, weighing costs and benefits, our preferred options in Table 13 above are likely to best address the demand side flexibility issues described in that chapter? If not, why not?*

General feedback

Orion supports the development of options to increase Demand Side Participation (DSP) and tariffs that reward end-customers for being flexible with their electricity use and the preferred options suggested. Below, we highlight several Orion initiatives and how they relate to the options proposed.

- **Resi-Flex**
 - Our 'Resi-Flex' project, in collaboration with Wellington Electricity, aims to encourage flexibility from residential consumers by exploring commercial mechanisms with flexibility suppliers.
 - Resi-flex has strong links to Option C5 (stimulating dynamic tariffs through trials), C11 (exploring options to reflect network needs with greater spatial/temporal granularity) and C14 (developing consumer insight that will enable more tailored education and support for customers on their flexibility journey).

- The Resi-Flex project employs a design thinking approach and consists of three main workstreams, starting with an initial phase to identify user requirements from across the value chain. The insights gathered during this phase are informing the development of commercial mechanisms to incentivise flexibility. The project will then partner with flexibility suppliers to co-design customer offerings based on the selected commercial mechanisms and trial these with consumers. These trials will help inform EDBs which mechanisms to scale, ultimately creating opportunities for residential consumers to provide flexibility.
- The project aligns with priority actions identified in The Boston Consulting Group's "The Future is Electric" report to 'improve distribution peak pricing signals' and 'smart managed tariffs'. It also supports several steps in the FlexForum's Flexibility Plan v1.0¹.
- **Other related initiatives**
 - Orion has other initiatives (including Orion's Lincoln Flexibility Trial²) focused on exploring commercial mechanisms to encourage flexibility from commercial and industrial consumers, which relates to option C13.

C5: Provide significant funding for pilots/trials to kick-start dynamic tariff use

- We acknowledge the need for significantly more funding for exploration and learning-by-doing to support flexibility developments as a priority.
 - Orion is generally supportive of options that stimulate the development of simple and attractive customer propositions.
 - The intent of the funding appears to align with the Resi-flex project mentioned above, which is collaboratively exploring incentives for residential flexibility.
 - Given the complexity of market mechanisms, price signals and consumer behaviour, traditional project methods are no longer fit for purpose and 'learning-by-doing' is needed to explore and adapt.
- Rather than a single trial, we would suggest the option is revised to a well-rounded programme fund that can be used to support a range of learning-by-doing projects and collaborative, customer-centric trials.
 - This would enable greater exploration of many concepts, mitigating the risk of failure in any one project.
 - We suggest the programme focuses on initiatives that demonstrate the potential to scale, avoid duplication and develop shared intellectual property (IP).
 - Funding should encourage a phased approach to project delivery, such as Ofgem's Strategic Innovation Fund. By increasing the scale of funding at each phase, governing bodies encourage exploration while ensuring funding is used efficiently as concepts evolve.

¹ <https://www.araake.co.nz/assets/Uploads/FlexForum-Flexibility-Plan-1.0-31-August-2022.pdf>

² <https://www.oriongroup.co.nz/corporate/corporate-publications/lincolnflexibilitytrial/>

- The fund should encourage a greater focus on consumer and market research and development, in addition to the traditional technical lens.
 - There is a lack of funding available for consumer and market research, with current mechanisms being technically focused (including through EECA, Callaghan Innovation, R&D tax credit and EDB Innovation Allowance).
 - Consumer and market research is crucial for the energy transition to identify consumer segments, their specific needs and develop desirable, scalable solutions. For example, Ofgem's Network Innovation Allowance (NIA)³ in the UK enables DNOs in the UK to deliver small scale research projects that inform the development of more inclusive and effective solutions. Examples include UK Power Network's Enable⁴ (supporting disabled motorists) and Shift⁵ (smart charging) projects which developed consumer insights that were shared publicly as per funding requirements.
 - Orion is taking a similar approach through the Resi-flex project, where we are developing customer flexibility journeys for a range of consumer groups to inform the development of customer offerings that maximise participation in flexibility. Insight from this project will be made publicly available in support of the FlexForum Flexibility Plan Step C.
- Knowledge should be shared to maximise the value of funding
 - We strongly agree that publicly funded work should result in learning that is available to all (4.64 Library of Options). Shared visibility of these projects and the insight generated from them would help leverage resources, avoid duplication, and facilitate collaboration. Examples of tools we have found useful include:
 - <https://arena.gov.au/knowledge-bank/>
 - <https://smarter.energynetworks.org/>
 - As this fund is planned, we would encourage engagement with the industry to assess how knowledge could be effectively shared, given links to other funds and activity (including the FlexForum and EDB initiatives to support DSF).
- While EDBs are a key component of the DSF value stack, access to funding for trials, market development and flexibility services is constrained by the current regulatory regime. This could be improved by understanding what's worked well overseas and addressing the barriers that may exist for EDBs in particular to improve opportunities for DSF.
 - EDB's current access to innovation funding via the Commerce Commission innovation allowance creates a barrier due to its poor design and sizing

³ <https://www.ofgem.gov.uk/energy-policy-and-regulation/policy-and-regulatory-programmes/network-price-controls-2021-2028-riio-2/network-price-controls-2021-2028-riio-2-riio-2-network-innovation-funding/network-innovation-allowance-riio-2>

⁴ https://innovation.ukpowernetworks.co.uk/wp-content/uploads/2022/03/Enable_Deliverable_3_Final_Accessible.pdf

⁵ <https://innovation.ukpowernetworks.co.uk/projects/shift/>

- EDBs are not incentivised to innovate in order to improve uncompensated outputs i.e. any output that is distinct from the number of customers, line length or the specific quality targets used to apply the economic regulation that determines revenue
- There is a lack of incentive for innovation with an up-front cost when the payback occurs in future regulatory periods in the form of avoided investments
- There is also no clear pathway to advance an innovation i.e. Ofgem applies outcome incentives (and other mechanisms) so that the payoff from innovating is greater than in New Zealand
- Substituting capex for opex within the regulatory period has penalty impacts in the next regulatory period through the Incremental Rolling Incentive Scheme
- Funding mechanisms available via EDBs that have a required proportion of external spending (like Ofgem's NIA) encourage EDBs to collaborate with external innovators to address specific problems, while enabling sufficient flexibility for iterative exploration. This approach also stimulates information sharing and scalable solutions as external resources can apply insights to other EDBs. These attributes will be particularly important in NZ due to the smaller size of EDBs and the need to share resources and expertise.
- Rather than incentives for retail market participants or consumers, Government funded trials should focus on systemic issues to ensure the development of appropriate customer offerings to incentivise demand side flexibility. For example, funding should not focus on increasing the payments to consumers where these could artificially elevate customer expectations.

C11: Ensure distribution pricing reflects network needs

Orion generally agrees with the narrative of Option C11 in the Library of Options. In the paper, the heading of this option reads 'C11 - distribution pricing reflects network needs so wholesale market participants can optimise wholesale and network value streams'. We would suggest tweaking this wording to acknowledge the following:

- The extent to which distribution pricing should reflect network needs requires consideration of:
 - the interaction with other mechanisms, such as flexibility services that can be used to signal location specific network needs; and
 - the temporal or spatial granularity required to achieve optimal outcomes for consumers and the Authority's existing pricing principles.
- The need to enable other intermediaries to optimise these price signals (as stated in 4.150), not just wholesale market participants.

We agree that there will likely be a gap between the signalling effect of distribution pricing tariffs and the dynamic, location specific needs of the network (4.164). However, location specific flexibility services (while still emerging) could provide more dynamic and targeted signals. This relates to the FlexForum Flexibility Plan Step 20, to Understand the interaction between price-based flexibility and contracted flexibility, which we are exploring through Resi-flex and other initiatives.

C13: Provide information to help large users with upcoming DSF investment decisions

Orion support improving information to large consumers, particularly process heat customers contemplating electrification. Given the scale of impact electrification from large consumers can have on networks, we would suggest collaborating where possible to ensure that information shared is comprehensive and explains (at a high level) the other value drivers for DSF (not just wholesale). We are currently working on initiatives that will support large users by:

- making network capacity information more accessible to inform investment decisions;
- enhancing support throughout the electrification journey; and
- exploring solutions to unlock capacity at lower cost through flexibility.

We are happy to share learnings from these as they progress.

C14: Provide information to help customers with DSF decisions

We support this option to support customers with DSF decisions and recognise the value of Norway's approach. As well as tariff selection, there are a number of other factors that will impact customers DSF decisions or flexibility journey, such as energy literacy and technology availability e.g. smart EV charger, type of smart meter. Our response to Question 7 (Option C5) and Question 15 outline our support for more consumer research (project specific and nationwide), which would inform this option to help customers with DSF decisions.

8. *What is your view of the proposed sequencing and timing of measures to improve demand side flexibility?*

The proposed timelines for DSF options appear reasonable.

9. *What, if any, other options should be considered to improve demand side flexibility?*

No other options suggested at this stage.

Strengthening competition

10. *Do you agree that, weighing costs and benefits, our preferred options in Table 15 above are likely to best address the competition issues described in that chapter? If not, why not?*

No response.

11. *What is your view of the proposed sequencing and timing of measures to strengthen competition?*

No response.

12. *What, if any, other options should be considered to strengthen competition?*

No response.

Increasing public confidence

13. *Do you agree that, weighing costs and benefits, our preferred options in Table 17 above are likely to best address the public confidence issues described in that chapter? If not, why not?*

No response.

14. *What is your view of the proposed sequencing and timing of measures to increase public confidence?*

Only two solutions are expected to be in place by 2024. Given these options are largely about information sharing as opposed to solution development, we would encourage more ambitious timeframes in this space and the development of clear measures to identify whether the options are effectively addressing the issues identified.

15. *What, if any, other options should be considered to increase public confidence?*

- **Develop shared consumer research to gauge public perception of energy system**
 - Publicly accessible consumer research in NZ related to energy and demand side flexibility in NZ could be leveraged across the sector to identify issues and opportunities to improve customer experience and perception. Insight into public perception could also be used to inform energy infrastructure strategies and planning. This option could build on existing research initiatives such as:
 - EECA public attitudes and action on energy and climate change⁶
 - Electricity Authority behavioural insights, including switching pilot⁷
 - This option could align with our proposed suggestions for Option C5 (funding for targeted consumer research) and C14 (to support customers with DSF decisions).
- **Improve knowledge sharing within NZ about demand side flexibility and market related innovation**

⁶ <https://www.eeca.govt.nz/insights/eeca-insights/public-attitudes-and-action-on-energy-and-climate-change-september-2022/>

⁷ <https://www.ea.govt.nz/assets/dms-assets/29/Using-behavioural-insights-to-increase-search-and-switch-behaviour-Final-report.pdf>

- In addition to Option E3 (Increase interchange with international experts) we would suggest an option to improve knowledge sharing within NZ. While knowledge sharing is currently strong across the sector (for example via the ENA, FlexForum and EEA), it will be challenging to keep pace with the increasing number of initiatives and in some cases, to know where to look to find information. In our response to Option C5 on trials, we make some suggestions to ensure effective knowledge sharing on projects.

16. *Do you agree the measures in Table 18 should be prioritised to help ensure a smooth transition to a renewables-based system? If not, why?*

No response.

17. *What, if any, other measures should be considered to facilitate a smooth transition to a renewables-based system?*

No response.

18. *Do you agree with the proposed categorisation of how measures should be progressed between Code-processes, market facilitation and hybrid approaches in Table 20? If not, why?*

No response.