

## Submission

Electricity Authority

Market Development Advisory Group: Price discovery under 100% renewable electricity supply – Issues Discussion Paper

20 March 2023

## Table of Contents

1.	INTRODUCTION .....	1
2.	GENERAL COMMENTS.....	1
3.	OPTIONS AFFECTING DISTRIBUTORS.....	2
3.1.	Option C11.....	2
3.2.	Option C12.....	3

# 1. INTRODUCTION

1. Aurora Energy Limited (Aurora) welcomes the opportunity to submit its views to the Electricity Authority (the Authority) on the Market Development Advisory Group's (MDAG) issues discussion paper, Price discovery under 100% renewable electricity supply (the Discussion Paper), dated 2 February 2023.
2. No part of our submission is confidential.

# 2. GENERAL COMMENTS

3. We commend MDAG for its work to identify the key issues associated with the wholesale electricity market under a 100% renewable electricity system. The Discussion Paper is the second stage of MDAG's project which has the objective:

*“to develop sound recommendations on what changes should be made to the wholesale electricity market assuming 100% renewable supply to ensure economically efficient price signals (from short to long term) to meet the statutory objective of promoting competition in, reliable supply by, and the efficient operation of the electricity industry for the long-term benefit of consumers.”*

4. Aurora considers it is appropriate that MDAG look at the issues underpinning the scope of the project (wholesale market price discovery under a 100% renewables scenario); however, this is just one perspective of the challenges to arise as part of electrification/decarbonisation. The issues are manifold and interrelated and need to be considered in an holistic whole of system way, including consideration of other regulatory initiatives currently being explored.
5. For example, there are several initiatives recommended by the Innovation and Participation Advisory Group (IPAG) that will also promote and facilitate the development of flexibility markets through its:
  - advice on creating equal access to electricity networks; and
  - advice on reducing barriers to customer access to multiple electricity services.
6. In addition, other supporting projects include:
  - distribution pricing reform (the Authority);
  - enhanced information disclosures (the Commerce Commission); and
  - review of distributors' regulations settings (the Authority).
7. It will therefore be challenging for regulators and industry participants to simultaneously progress recommendations from all reviews, advice and recommendations (noting that it is likely that not all recommendations will need to be progressed). Aurora submits that there will need to be a triage

process whereby the various recommendations are considered in terms of their benefits, costs, capacity and capability to execute or implement. This might be assisted by the Authority developing an electrification regulatory roadmap that takes into account recommendations of IPAG and MDAG that the Authority considers are essential and generally supported by the sector.

## 3. OPTIONS AFFECTING DISTRIBUTORS

8. Aurora's submission addresses the two options which directly impact electricity distributors, C11 and C12. These are both aimed at distribution pricing.

### 3.1. OPTION C11

9. Option C11 seeks to ensure that distribution pricing reflects network needs so wholesale market participants can optimise wholesale and network value streams. This is supported by MDAG.
10. This option asks the Authority to focus its monitoring of, and guidance on, distribution pricing on how network congestion is reflected, with a view to enabling intermediaries to optimise across wholesale and network values (coordination of pricing). It asks the question whether static network pricing will be effective in signalling network conditions and therefore incentivising flexibility services, or whether more dynamic options are required.
11. The recommended timeline for commencement is 2023 and to be in place by 2025.
12. Aurora considers that 2025 may be too soon to consider whether moves beyond static network pricing are required. Owing to the staged withdrawal of LFC regulations, it is unlikely that cost-reflective pricing will be fully implemented by all distributors (particularly those with no existing constraints and a low probability of emerging constraints) until 1 April 2027 at the earliest.
13. Aurora considers that a potential interim target for 2025 might be to have an agreed implementation plan in place as opposed to all distribution prices reflecting network need at that date. This would ensure that a plan is in place to maintain momentum.
14. LFC withdrawal notwithstanding, the Authority's distribution pricing project has been moving since 2018<sup>1</sup> and the Authority should consider whether a fully principles-based approach to regulation of distributors pricing methodologies is likely to be effective and is still fit for purpose. Further clarity on the following factors may assist distributors to move forward positively:
  - What forms/examples of congestion pricing will be considered to align with the pricing principles?
  - How will distributors test/confirm that their approach to congestion pricing is consistent with the principles and outcomes the Authority is seeking?

---

<sup>1</sup> 2012 if the EA's 'Decision-making and economic framework for distribution pricing' is considered.

- How will dependencies on resolving other issues (e.g. access to data - smart metering) that will influence the level of granularity of congestion based distribution pricing be considered?
15. While aligned dynamic pricing (distribution, transmission, energy) might encourage faster deployment of DER and development of flexibility markets, could the influence be too subtle for a laissez faire encouragement of correctly placed DER within the distribution network. Is contracted deployment of flexibility services likely to be more effective. If so, then potential additional measures might need to be considered such as:
- the creation of guidelines around when flexibility services should be considered and what process should be followed to ascertain their suitability ahead of traditional solutions; and
  - can compliance with the congestion pricing principles be substituted by contracts or standing offers for flexibility services on constrained/forecast constrained networks.
16. Consistent with the conclusions of the South Island Distribution Group’s investigation into new operating models, Aurora considers that the implementation of a ‘market led’ model through contracted flexibility services will provide equal or better signalling of the need/value of DER in constrained areas on the network. This approach significantly reduces the pricing complexity and ensures that long term price signalling is not distorted by short term congestion. Flexibility service payments/discounts can provide an effective price signal to complement static distribution pricing. Total price at a distribution node is the net combination of distribution price and distribution flexibility payment. Therefore, flexibility service payments for real time dynamic demand responses can be a practical way to create a location specific, dynamic offset to the static distribution price. Note also that this does not prevent staged improvement in the distribution static (semi dynamic) price through a dynamic element, such as the Aurora control period demand signal.
17. Static distribution pricing can be used to send a broad, long term price-signal that generally encourages efficient network usage across a distribution network, including shaping the demand profile to reduce long term peaks. Flexibility services may be contracted to meet more targeted network requirements (either a specific location or time of constraint). In this way, static distribution pricing and flexibility services can be used together in a tiered response to network constraint – static pricing being the first broad response to addressing emerging network constraint, and flexibility services a secondary targeted response to network constraint.
18. Furthermore, it is important to consider a consumer’s ability to understand and respond to price signals. Static distribution pricing is a long established method of setting tariffs. A shift to more dynamic pricing may need to be accompanied by extensive consumer education, and specific management of price shock or affordability will need to be considered, noting however that the retail function may have a role in repackaging distribution pricing.

### 3.2. OPTION C12

19. Option C12 seeks to investigate extending locational marginal pricing (LMP) into distribution networks. This option is partially supported by MDAG. The recommendation is to investigate extending the System Operator’s existing scheduling, pricing and dispatch (SPD) approach to

distribution networks. MDAG identifies that this could be challenging for voltages below 66kV as the SPD model uses a linear (direct current) approximation of power flows across the grid, and becomes problematic when modelling power flows deeper into the distribution network. Sapere (Batstone, Reeve, Stephenson) determined, in 2017, that extending LMP to distributions networks was technically infeasible, and it appears this has not changed.

20. The recommended timeline for commencement is mid-2026 and to be in place by mid-2029.
21. We consider that dynamic locational marginal pricing appears to remain technically infeasible in the medium term. With cost-reflective static network pricing yet to be fully deployed, it will not be easy to determine its effectiveness in incentivising DER/flexibility in the short term (it will be jumping the gun). There is more that distributors could do to disaggregate their pricing by location (say to grid exit point level).
22. Work is currently being undertaken by the industry through the Flex-Forum to investigate operating envelopes (both static and dynamic) that could be applied at a locational level.
23. However, we consider that the flexibility services industry needs to evolve before introducing regulations that risk stifling innovation. As such the Authority should remain open-minded about how LMP may evolve practically in the distribution space.