Feedback

Commerce Commission Part 4 Input Methodologies Review 2022

Feedback on expenditure forecasting by electricity distribution businesses and areas of focus for the 2025 default price-quality path reset

16 December 2022

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1. Introduction

1. Aurora Energy Limited (Aurora) welcomes the opportunity to submit its views on the Commerce Commission's (the Commission's) "Request for feedback – Expenditure forecasting by electricity distribution businesses and areas of focus for the 2025 default price-quality path reset".

2. No part of our submission is confidential.

2. General Comments

3. There are three interrelated inputs to price-quality regulation that cause concern for electricity distribution businesses (EDBs) as the sector moves from the relatively static, 'business-as-usual' operating environment of network maintenance and development, to a more volatile environment driven by decarbonisation and characterised by uncertain development requirements (scale and/or timing) and the need to integrate third-party distributed energy resources (DER).

4. The three interrelated inputs are:
   - Expenditure forecasting - adequacy of expenditure allowances forecast within a 'relatively low-cost' price-quality regime;
   - Intra-period adjustments - adjustments to expenditure allowances to reflect unforeseen and/or unforeseeable events (including where foreseeability affects only timing); and
   - Expenditure incentives - an incremental rolling incentive scheme (IRIS) that aims to target expenditure efficiency, but which also rewards / penalises inadequate expenditure allowances.

5. All three inputs are currently receiving attention as part of the Commission's 2023 input methodologies (IM) review, albeit that expenditure forecasting and allowance setting is not codified within the IMs and the process and outcomes are, rather, influenced by historical precedent and subject to the Commission's discretion.

6. EDBs will be a key enabler of the Nation's decarbonisation agenda, and decarbonisation-driven electrification seems certain to drive EDBs' expenditure needs materially above historical levels. The expected impact of electrification on EDBs includes:
   - accommodating new, large loads as the energy source for industrial process heat converts to electricity. This will include the provision of new connection assets and upgrading network feeders.
   - the need to gain visibility and actively control low voltage circuits in order to be able to connect and integrate DER without constraining its operation;
   - the need to reinforce and upgrade low voltage circuits in order to accommodate an electrified transport fleet – both private and commercial; and
   - integrating DER into network control and load management systems, including contracting for network support and facilitating capex deferral.

7. It is imperative that expenditure forecasting, intra-period adjustments, and expenditure incentives are all coordinated to support electrification. Failure to do so could have significant consequences, including New Zealand not meeting its decarbonisation targets and, potentially, bringing the Part 4 regime into disrepute if it is viewed as a barrier.

8. To be clear, this does not mean that regulated suppliers should receive a 'free pass', or that forecast expenditure should not be scrutinised but, rather, uncertainty and the need to invest ahead of time should be recognised to ensure that the whole of the Part 4 regulatory framework can appropriately manage the significant risks of underinvestment in decarbonisation enablers.

9. In considering EDBs' forecasts and their importance to effective regulatory resets, the Commission may wish to consider supporting the development of industry guidelines on good industry practice forecasting. This could extend to a documented assessment framework that puts the onus on EDBs to adequately explain forecasts that present as outliers. To further support enhanced forecasting, an agreed process for developing decarbonisation planning scenarios / assumptions could be facilitated by the Commission.

3. Answers to the Commission's Questions

How are EDBs obtaining confidence in establishing the requirements they are forecasting to meet, including but not limited to demand, resilience, and reliability?

10. There are different approaches to expenditure forecasting available to EDBs, which are generally aligned to different expenditure categories. A substantial proportion of an EDB's expenditure forecast is derived from modelling that seeks to predict a service outcome from a range of asset interventions. For example, if we replace/repair 'X' widgets at location 'Y', we can expect reliability performance to stabilise within the next 'Z' years.

11. These models are based on disciplined processes that include inputs such as asset survivor curves, asset risk assessments, public safety risk assessments, reliability risk assessments, etc., and can be tested and calibrated through feedback loops, over time.

12. Whilst external verification can be useful, it does require the verifier to have a sound grasp of the EDB's circumstances. Forecasts are at the summit of a mountain of input data, assumptions, modelling, operating policies, and circumstances that the verifier needs to understand and evaluate in order to provide its opinion. This is not a trivial exercise and, for a medium-sized EDB, could cost in the order of half a million dollars for a detailed review. For this reason, external verification should be used only periodically (say, at intervals not less than 5 years) or should be targeted; for example, reviewing the structure and validity of underlying modelling or specifically targeting area of proposed step-change.

13. Another constraining factor for external verification is access to appropriate experts. While external verification need not be independent as defined in the IMs[1] in order to provide value, there does need to be a reasonable separation from the provision of advice. With a relatively small consultant pool in New Zealand (extending, potentially, to Australia), it could be challenging access appropriate resources for external verification, especially if the 16 price-quality regulated EDBs seek verification at the same time.

14. The concept of external verification is one more aligned to a customised price-quality path (CPP), which is not a low-cost mechanism. Before considering whether to require some form of verification for DPP forecasts, the Commission needs to consider the cost/benefit trade-off, including whether this would be the best use of resources, and whether the resultant regulatory 'creep' is warranted.

[1] Commerce Commission. (2012). Electricity Distribution Services Input Methodologies Determination 2012. Consolidated 20 May 2020. Clause 1.1.4 and Schedule G.

Are there specific events or metrics that can be forecast and then observed that indicate that a step change in expenditure is required or an alternate scenario is playing out?

15. It is common to use external metrics or forecasts to help inform EDBs' forecasts. We use population growth forecasts and historic building consent trends to try and build a picture of how consumer capex might change over time, along with direct engagement with large electricity users. These are useful when the EDB is operating in a near-stable state. However, we consider that there are few, if any, new metrics that could be incorporated into EDB forecasts to mitigate the expenditure forecast uncertainty posed by decarbonisation. That uncertainty is generally driven by the potential for a step-change in expenditure need, and doubt as to timing, leading to a requirement to model a number of credible "what if" scenarios.

16. As an example, Aurora monitors regional electric vehicle (EV) registrations, and we know that the trend is increasing, but we do not know exactly where on the adoption curve we sit, or what the ultimate shape of the adoption curve will be. While there is significant speculation as to the pace of EV adoption, the ultimate uptake will be influenced by a range of factors, including central government policy intervention. We do not see any external metrics that appear good predictors of the pace of EV uptake.

17. Some elements of forecasting require EDBs to actively gather specific information. For example, South Island EDBs engaged DETA Consulting to identify large industrial energy users that may potentially electrify (boiler conversions, etc). While this is useful in identifying candidate electrification loads, significant uncertainty remains in whether the consumer will choose electric or biomass for its conversion. Timing is also an uncertain factor, with uncertainty both as to when the consumer will decide how it will convert and, if electricity is selected, when that conversion will occur.

18. There is some concern that EDBs do not have sufficient data upon which to base their forecasting. Again, in the case of EVs, some EDBs have suggested that the Electricity Authority should establish a formal information register for the installation of EV chargers[2] so that EDBs can start to understand how these are clustered and the likely impact on low voltage networks. Similarly, EDBs have recognised the importance of access to advanced meter data on reasonable commercial terms[3] as being vital to understanding their low voltage networks and allowing the full value of DER to be unlocked. While reasonable processes are available for accessing historic interval consumption data, further work is required to enable EDBs to integrate other advanced metering data in near real time – for example, voltage, current, power factor, harmonics, and 'last-gasp'.

19. Having ready access to a wider range of reliable data will help reduce uncertainty in forecasting and improve efficiency of expenditure; however, this will require coordination and support across different regulators.

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[2] For example; Vector (2021). Submission on updating the regulatory settings for distribution networks. Available from https://www.ea.govt.nz/development/work-programme/evolving-tech-business/updating-regulatory-settings-for-distribution-networks/consultations/#c18946

[3] For example; Orion (2021). Response to consultation paper- Updating the regulatory settings for Distribution Networks. Avialble from https://www.ea.govt.nz/development/work-programme/evolving-tech-business/updating-regulatory-settings-for-distribution-networks/consultations/#c18946

How are EDBs obtaining confidence that their proposed expenditure plan is the most effective and efficient solution for the forecast level of demand, resilience requirements, and reliability levels?

20. It is important to note that effective and efficient are not absolutes, but are relative terms. Some expenditure categories can have lower relative efficiency than others, because of external demands. We noted within our submission to the process and issues paper that consumer connection capex is one such category where efficiency can vary:

> *"Provided they can afford the capital contribution that an EDB charges, Developers are not concerned about the efficiency of their electricity connection. They want to be connected at their preferred location, and are not concerned (for example) that it would be more efficient to connect their installation within an industrial precinct rather than the rural location they have selected."* [4]

21. In these circumstances, the EDBs approach to capital contributions and/or non-standard pricing can ensure that any similar inefficiencies are funded by the developer/consumer and not passed into the RAB where they would be socialised.

22. In general, we consider forecast categories with the greatest confidence include:

- Asset replacement & renewal (capex);
- Reliability, safety and environment (capex), excluding the legislative and regulatory subcategory;
- Service interruptions and emergencies (opex);
- Vegetation management (opex);
- Routine and corrective maintenance and inspection (opex);
- Asset replacement and renewal (opex); and
- Business support (opex)

This is because expenditure forecasts in these categories are generally supported by robust and tested modelling. Some refinement of forecasts can be expected over time, however, if the data underpinning the modelling improves and/or becomes more reliable.

23. Expenditure categories with lesser confidence include:

- Consumer connection (capex)
- Asset relocations (capex)
- System growth (capex)
- Reliability, safety and environment (capex) - legislative and regulatory subcategory
- System operations and network support (opex)

[4] Aurora Energy Ltd. (2022). Submission, Commerce Commission Part 4 Input Methodologies Review 2022: Process and Issues Paper. Paragraph 75, p18.

This is because these categories are subject to some form of external influence or emerging change in the industry. For example:

- Certainty over consumer connection (especially large connections) and asset relocations expenditure is influenced by several external factors, including economic activity cycles, consenting timeframes and ability to gain timely intelligence about future development.
- System growth capex can be forecast with reasonable certainty at higher voltages, although it remains susceptible to the impact of 'unheralded' high capacity connections. Due to relatively poor visibility of low voltage networks, rapid DER clustering can cause uncertainty in growth forecasts at the low voltage level.
- Legislative and regulatory capex is generally driven by short notice (intra-period) changes.
- Uncertainty in system operations and network support opex is driven by the potential to contract third party flexibility services to defer capital growth solutions, but those solutions are not suitable in all circumstances or available in all locations.

24. The use of flexibility services does provide some challenges for EDBs' forecasts. Unless an EDB has an immediate need for flexibility services and has a well-developed business case, a prudent EDB is likely to base its forecast on the most reliable solution that the EDB knows can be implemented today (almost certainly capex) and note that a flexibility services solution may be implemented if feasible and more cost effective. Potentially, an IRIS reward may be earned if the opex solution can be implemented, and there is true equivalence in the IRIS mechanism for capex / opex substitution.

25. Ultimately, even improved forecasts will carry uncertainty, particularly in regard to timing. Regulatory processes need to be adaptive to accommodate uncertainty, and should not assume that greater analytics/assurance will remove uncertainty. New capability may reduce uncertainty, but not sufficiently to address the risk of regulatory resets leading to greater or lesser allowances than required.

How are EDBs getting confidence that their expenditure plans are deliverable, particularly if they involve a significant increase from historic levels?

26. Deliverability requires EDBs to have a sufficiently advanced and detailed view of their forward expenditure so that it can be tested against forecast (or better, contracted) resource capacity.

27. Aurora seeks to assess deliverability by producing project definitions, including a description of criticality, at least 18 to 24 months in advance and seeking feedback from its works delivery team. Based on feedback, reprioritisation or deferrals can be made within the works pipeline, to ensure that deliverability is maintained and that the highest criticality projects are completed on time. Where necessary, additional short-term resources can be contracted to maintain progress on any deferred lower-priority projects.