

26 March 2025

Electricity Authority

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By E- Mail: distribution.pricing@ea.govt.nz

Re: Submission on Distribution Generation Pricing Principles – Issues paper

Counties Energy Limited (**CEL**) welcomes the opportunity to comment on the Electricity Authority's (**EA's**) consultation on the Distribution Generation Pricing Principles – Issues paper.

CEL agrees in principle with the EA's identification of issues in its paper with the current distribution generation pricing principles (**DGPPs**) in Part 6 of the Electricity Industry Participation Code (**Code**). However, CEL considers the issues with the current DGPPs is much more significant than is indicated in the EA's paper.

This is especially the case with parts of CEL's network, which is quickly becoming fully export constrained because of a significant amount of new generation looking to utilise all the existing available export capacity on our network, while paying only incremental costs.

As electricity distribution networks are not designed for export of power, the export constraints are at a 'lower' capacity threshold, than that of demand (import) constraints. This is because load constraints are generally caused by capacity limits, such as at a substation or feeder level. In contrast, with the net exports from distributed generation (**DG**), export generation constraints are caused by power quality issues¹ such as voltage instability, as voltage is set at the generator, not at the transformer.²

Therefore, electricity distribution businesses (**EDBs**) can't make a financial return from primitively building 'poles and wires' to alleviate export constraints, as with demand. This means the solution is for the level of DG to be capped at a lower level. Alternatively, the EDB can arrange a solution

¹ Saxena, V et al., Navigating the complexities of distribution generation: Integration, challenges, and solutions. Energy Reports, Volume 12. December 2024. Retrieved from <https://www.sciencedirect.com/science/article/pii/S2352484724005948>

² Less often, export generation constraints can also be caused by the thermal capacity limit on lines.



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with a DG owner to solve the issues caused directly by the DG.³ This is evident with many DG projects already facing barriers to connect. This is to the long-term detriment of customers, as otherwise economically viable renewable generation projects are unable to be built to meet our growing electricity demand.

Given changes to DG economics and the market landscape (e.g. cost, technology) since the current DGPPs was developed, CEL considers that the EA's proposal is timely. While EA's preferred approach, for a complete overhaul of the current DGPPs, is an appropriate option to address underlying issues, CEL considers a better option would be to mandate that DG is priced like load customers.

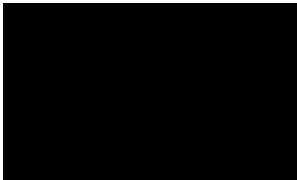
In either approach, CEL considers the main challenge will be in defining what network costs (e.g. direct costs, consequential costs etc.), and how much, is fair and appropriate to charge to new DG installations. CEL's key concern for any new DG pricing framework is that it will need to:

- ensure that EDBs can make a fair return on DG connections so that they can make efficient plans through DG charges to fund grid capacity upgrades;
- ensure that the current first mover advantage doesn't limit future DG capacity;
- allow grid- and distribution-connected generators to compete on a fair and equal basis (e.g. not distorted by inefficient price signals);
- allows individual distributors the flexibility to determine any benefits that DG provides to manage its electricity distribution network;
- permits distributors to allocate a fair and proportionate share of network costs to new DG; and
- avoid cross-subsidies paid to new DG, by existing customers on an electricity distribution network.

³ Such as requiring the DG to provide voltage support or installing additional equipment to import/export reactive power.

We understand that these are not trivial issues to solve but appreciate the EA's efforts in progressing this work now. We look forward to engaging with the EA and its relevant team(s) further as it develops this work. CEL would be happy to discuss any aspect of this submission further.

Yours sincerely



Marcus Sin
Senior Regulatory Manager

Annex – Response to questions

Questions	CEL comments
<p>Q1. Do you have a view on the definition of incremental cost that is contained in the Code? Should it be more tightly defined to include only network costs and to exclude consequential costs relating to factors such as frequency keeping and voltage support? Would this lead to more timely generation build and lower energy costs?</p>	<p>CEL agrees in principle with the EA’s assessment that the ‘incremental cost’ definition in the Code should be further refined to avoid ambiguity.⁴ CEL considers this will provide distributors and DG investors with greater clarity and transparency on costs, and confidence to invest.</p> <p>CEL’s view is the incremental cost limit should be expanded to include all network costs, and reasonable consequential costs required by the DG connection, that would not otherwise occur. In particular, EDBs need to recover the cost of managing over-voltage caused by DG, which could be through increasing a feeder capacity or installing equipment to export reactive power/kVARs.</p> <p>For costs that would not otherwise occur but are not directly and solely attributed to the DG (e.g. shared assets), we consider the DG investor should pay a fair share. The difficulty will be in determining what a ‘fair’ share would be, that doesn’t create cross-subsidies with existing customers. CEL considers that the load pricing principles could be a useful starting point to develop the underlying principles for this.</p>
<p>Q2. Do you agree with the problems with the incremental cost limit identified in this section? Why or why not? Do you have a view on the relative importance of the problems identified?</p>	<p>CEL agrees in principle with the other problems noted in the EA’s consultation paper relating to the incremental cost limit. It agrees that the current DGPPs incentivises uneconomic and inefficient DG installations, which is being subsidised by other customers on the same network due to the incremental cost limit being applied.</p> <p>However, CEL considers that the problem created with the current incremental cost limit is significantly worse than is described in the EA’s consultation paper. Currently, DG developers, especially solar farm developers, are scaling their developments upwards to use all the available export capacity on EDB networks. This is because there are</p>

⁴ Clause 1.1(1) of the Code

	<p>economies of scale with expanding the size of the solar farm, especially if a DG owner only pays incremental cost. This has resulted in large parts of CEL's network becoming significantly export constrained, which is stopping new DG from being connected.</p> <p>Any changes proposed by the EA should enable generation investors to be able to compare distributed- and grid-connected generation on the same basis (i.e. without distorting price signals). If the DGPPs encourages sub-optimal generation supply, the higher costs of supply will ultimately be borne by end-customers through higher retail electricity costs.</p>
<p>Q3. Do you agree circumstances have changed significantly since the DGPPs were introduced, including that there are now far fewer impediments to distributed generation than in the early 2000s?</p>	<p>CEL considers that the circumstances have changed significantly since the DGPPs were developed due to a reduction in solar array costs, and higher wholesale electricity prices, which has incentivised a greater interest in electricity generation investment.</p> <p>This has resulted in large-scale solar farms becoming increasingly viable and a 'spare capacity grab' by developers as they seek to sign solar array lease agreements with landowners close to where there is available network, or grid, capacity to connect.</p> <p>This increased competition for renewable sites (e.g. wind, solar), sought by incumbent and independent generators, already provides significant downward competitive pressure on network connection costs. However, CEL agrees with the EA that further clarity is needed on a framework for charging DG.</p>
<p>Q4. Do you agree with the assessment of the current situation and implications of incremental cost pricing? If not, why not? What, if any, other significant factors should the Authority be considering?</p>	<p>CEL believes that the impact is worse than stated in the EA's paper, as mentioned above. The long-term implications are worse because the incremental cost limit results in a lower amount of DG being connected into New Zealand, which in turns means higher wholesale electricity prices for consumers. The lower amount of DG being connected is the result of EDBs not being incentivised to build network infrastructure to host greater DG capacity.</p>

	Furthermore, once the network is at capacity, the next DG to connect normally pays an uneconomic large incremental step cost increase to connect either through a large network upgrade, or to fund equipment such as a battery or STATCOM (i.e. to regulate voltage).
Q5. Do you agree these are the appropriate options to consider?	CEL agrees that the EA's proposed options is an appropriate long list of options to consider. However, we consider that the removal of current DGPPs (option 3) or a comprehensive overhaul (option 4) would be the only options to address the identified issues (above) directly.
Q6. Are there other options the Authority should consider for improving rules about costs that can be recovered from distributed generators?	An alternative (and likely quicker) solution is that the Code could be amended to make it clear that EDBs should charge DG on the same basis as load customers. This would mean that DGs are charged for their fair use of the network including maintenance, depreciation and weighted average cost of capital (WACC) as well as a fair share of overhead and common costs. This would be net of any benefits that the DG potentially provides to the network.
Q7. Will new aggregator business models emerge to solve the problem?	<p>EDBs are being impacted, and increasingly so, by large-scale DG (greater than 2MW) that are using all the available network capacity while only being charged at incremental cost. This is increasingly from ground-mounted solar farms, and not mass-market solar arrays. Therefore, this issue will not be resolved by aggregators.</p> <p>In regard to mass-market customers, for aggregator business models to emerge, CEL considers the EA needs to develop more clarity around the future structure of the distribution sector, including the role of Distribution System Operators (DSOs), to provide a robust framework for aggregator business models to emerge.</p> <p>In particular, this includes clarification of controlled load responsibilities, guidance on appropriate commercial arrangements between EDBs, flexibility providers and aggregators, and clear lines of accountability for each party under such arrangements.</p> <p>The above issues aside, it should be noted that nearly all EDB network peaks occur during cold winter mornings and</p>

	<p>evenings, when there is no solar generation occurring. In addition, most residential solar arrays do not currently have batteries. Even those that do have batteries will be unlikely to charge them fully from their solar array during the winter peak periods.</p>
<p>Q8. Are distribution price signals alternative to, or complementary to contracting?</p>	<p>CEL considers that distribution price signals and contracting are both useful tools to manage congestion and signalling of constraints in different parts of an electricity distribution network.</p> <p>However, the use of both distribution price signals and contracting at the same time would distort any signalling achieved through distribution prices.</p> <p>Therefore, CEL considers that the use of both distribution price signals and contracting (at the same time and on the same part of the network) would reduce the effectiveness of using either tool.</p>
<p>Q9. Which, if any of the above options, do you consider would best support efficient pricing for recovery of distribution costs from DG?</p>	<p>CEL considers that the most efficient approach to address the problem would be to mandate that DG is priced like load customers, with consideration made for transmission charges. The EA's preferred option, for a comprehensive overhaul of DG pricing principles, would be the next best alternative to support efficient pricing of DG. While every electricity distribution network is different, and each face their own challenges, a common problem prevalent across the industry is the issue of increasing DG creating export constraints. By either mandating the pricing of DG like load customers, or undertaking a comprehensive overhaul of the DGPPs, CEL considers this will enable the EA to address the problem directly.</p>
<p>Q10. Do you agree with the Authority's tentative view on a solution? In particular:</p> <ul style="list-style-type: none"> • Should efficient price signals be sent through a 	<p>CEL believes that the EA should mandate that DG is priced on the same basis as load, as mentioned above. If the EA wishes to have a separate approach between load and DG, then CEL agrees for the DG pricing principles to be revised, and for the revised set of principles to be flexible, for the reasons stated above.</p>

<p>revised set of pricing principles?</p> <ul style="list-style-type: none"> • Would voluntary guidelines or mandating through the Code be the best approach? • Should we rely on the distribution pricing principles outside the Code or codified new pricing principles for DG? Why? 	<p>This will enable distributors to determine the best approach to address export constraints, by efficiently pricing DG in their respective networks.</p>
<p>Q11. Are there any unintended consequences from removing the existing DGPPs?</p> <ul style="list-style-type: none"> • Do you agree with the risks we have identified, and our assessment of them? • Do you think there are any other risks we should consider associated with the removal of the DGPPs? • Do you have any information that would allow the Authority to better assess such risks? 	<p>CEL agrees with the EA's assessment that there isn't a significant risk from removing the existing DGPPs, as the only risk is non-payment of the Avoided Cost of Distribution (ACOD) by two EDBs.</p>

<p>Q12. Do you agree market and regulatory settings provide efficient incentives for DG reducing or avoiding transmission costs? What, if any, other significant factors or options should the Authority consider?</p>	<p>CEL agrees in principle that the current market and regulatory settings provide efficient incentives for DG with regards to transmission costs. CEL considers that DG investors do not require additional incentives, beyond those already provided by higher wholesale prices.</p> <p>This is because generation development is determined by multiple factors, not just distribution or transmission price signals, including degree to which spot prices are correlated (i.e. across an investor's generation portfolio), and location, proximity and access to fuel sources (e.g. hydro catchments, wind speed, average sunshine hours etc.). Therefore, providing additional payments is unlikely to influence DG investment decisions materially.</p>
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