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Submissions
Electricity Authority
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By email: tpm@ea.govt.nz

Dear TPM team,

Re: Consultation Paper – Proposed Transmission Pricing Methodology

The IEGA welcomes the opportunity to make this submission on the Electricity Authority's Proposed Transmission Pricing Methodology (Proposed TPM).[1]

We appreciate the assistance provided by the Authority holding numerous stakeholder events to inform and clarify the proposals during the consultation period. Transpower's transparency about its TPM development and its engagement with the Authority has also been very useful for preparing for this consultation.

In this submission we have first detailed our understanding of the Residual and Benefit-Based Charges in relation to distributed generation. If we have misunderstood any of the detail we would appreciate engaging with the Authority to correct our understanding.

In the second part of this submission we provide our feedback and questions on the proposals.

1. Our understanding of the Residual and Benefit-based Charges in relation to distributed generation

Residual Charge

To work out the **initial allocation** of the Residual Charge to distribution companies (a category of load transmission customers):

- Transpower will use historic metered data to find the highest actual consumption by the distributor transmission customer (called Gross Anytime Maximum Demand) during a year then averaged over the four years 2014-2018.

[1] The Committee has signed off this submission on behalf of members.

- The historic metered data is the electricity supplied by the point of connection with the grid plus any electricity provided by the embedded distributed generation that together sum to the highest actual consumption in one half hour trading period over the entire year.
- This means the calculation of highest actual consumption by load is indifferent between electricity supplied by the grid and the electricity supplied by embedded distributed generation – consistent with distributed generation competing with grid electricity to supply customer load in aggregate.
- These measurements are coincident half hourly demand which is supplied from the grid and distributed generation.
- The initial allocation across distributors is based on their proportion of the sum of highest actual coincident consumption in Megawatts.

Updating calculation of the Residual Charge allocation to distributors (assuming no batteries), involves applying a rolling average starting with the initial allocation proportion and updating it each year from 2018 as follows to get a pro-rata volume of energy consumed:

- A Megawatt hour measurement of total annual energy consumption by a distributor over the year.
- This is the sum of electricity supplied by the point of connection with the grid plus the volume of electricity provided by embedded distributed generation to meet MWh demand on the distribution network.
- Any electricity from embedded distributed generation that is exported on to the transmission grid is not included in the calculation of the allocator for distribution networks.[2]

The allocator measure of electricity used on the distribution network is therefore the total consumption which will always be the same or above the volume of electricity supplied at the point of connection with the grid – depending on the prevalence of distributed generation volumes consumed in a particular distribution network.

The Residual Charge is not allocated to distributed generation.[3] This importantly means distributed generation is competitively neutral with grid connected generation which does not pay the Residual Charge.

Benefit-Based Charge

The Benefit-Based Charge (BBC) is allocated to distributors or grid-connected load based on electricity volumes supplied from the point of connection with the grid. This is equivalent to total volume of load less the electricity supplied by generation embedded / connected to a distributor or a grid connected load customer – ie. net load.

[2] Explained in paragraphs 7.13 – 7.15 of the Authority's current consultation paper and in Section 5.2 of Transpower's paper https://www.transpower.co.nz/sites/default/files/uncontrolled_docs/2%20TPM%20Proposal%20Refer%20Back%20Part%202%20Response%2015%20Sept%2021.pdf

[3] Also explained in the Authority's refer back letter to Transpower 28 July 2021 https://www.transpower.co.nz/sites/default/files/uncontrolled_docs/Letter%20from%20Electricity%20Authority%20to%20Transpower%20re%20TPM%20Full%20Proposal.pdf

That is, transmission customers' BBC payments reflect actual use of the transmission grid – consistent with the charges being in line with the benefits received.[4]

The IEGA supports this 'net load' approach and suggests it is increasingly important that network connected distributed generation is competitively neutral with grid connected generation. Substantial growth in decentralised / distributed generation is anticipated as we transition to a low emissions economy, including industrial plants using renewable fuel cogeneration to decarbonise their processes and costs imposed on all generators must be competitively neutral.

The IEGA has argued for and continues to believe that net load or actual use of the transmission grid is also the correct allocator for the Residual Charge. It is unclear how a different approach as proposed can be justified for the two transmission charges, especially as the Proposed TPM Residual Charge involves paying for transmission services that are not used. Further, the proposed approach for batteries is 'final consumption' which is the same as net load (or load minus generation) not total consumption as for Residual Charges to load customers.

2. Feedback / questions on Proposed TPM

Residual Charge

The IEGA queries if the historic Gross AMD data used as the base for Residual Charge allocation has taken into account the decision / clarification in Transpower's September letter to the Authority to exclude any output by distributed generation that is exported from the distribution network? Transpower state this is in their Proposed TPM but it is unclear if the historic Gross AMD data has been revised.

Benefit-Based Charge

The Authority requests feedback about allocation under the **BBC Simple Method** where it is assumed to be **split 50:50 load:generation** (after using historic power flows to estimate benefits of investments to a region). Under this methodology power flows are important and the allocations for a partcicular Simple Method BBI do not change over time[5]. The Proposed TPM augments power flows by assuming a 50:50 spilt of charges between load and generation. The IEGA is concerned that this "weighting factor is an unusually important assumption"[6]. The IEGA suggests more information about why this is such an important assumption should be disclosed. We query whether this methodology is sound when one assumption drives big changes in value especially as the allocator of the BBC is fixed?

The IEGA suggests an equitable solution to the **first mover disadvantage** on connection assets is critical given the anticipated increase in generation capacity as NZ transitions to a low emissions economy. This relates to Transpower's assets at the GXP/GIP connection with the transmission grid. The Funded Asset Component approach payable by each new generation plant (ie not consolidating generation plant owned by one generator at a GIP) appears equitable.

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[4] This differs from the Residual Charge where the allocator is gross load which will always be at or above the electricity supplied by at the point of connection with the grid – depending on the prevalence of distributed generation in a particular distribution network.

[5] We understand this is 5 years of power flow data. It is unclear if this data is updated on a rolling five year basis over time so that updated data is used for subsequent Simple Method BBI investments.

[6] Paragraph 5.46 of the Authority's current consultation paper

Investors in distributed generation sometimes have the option of locating generation embedded in the network or on the distribution company's side of a GXP.

We agree Transpower's connection assets are benefit-based investments. It is important to be clear about the approach to '**anticipatory capacity**' especially when the proposal is to allocate what could be substantial transmission investments as if they were valued at less than $20m using the Simple Method (and allocated 50:50 load:generation). We also query how stakeholders get involved / scrutinise Transpower's connection asset investments given the treatment of these investments under the Commerce Commission regime may not require consultation?[7]

The IEGA supports Transpower being more specific about the recovery of reasonably attributable **overhead opex** is allocated to transmission investments recovered though the BBC. We agree with the Authority that this will mean an investment is being recovered from the beneficiaries.[8]

Allocation of the seven historic transmission assets has already been determined (in **Schedule 1**) using wholesale market prices between 2014 and 2018. These are described as being "representative". The Authority's very recent Wholesale Market Review report has identified a step upwards and increasing prices since 2018. The IEGA strongly suggests the Authority / Transpower redo Schedule 1 using the market reality of prices since 2018.

The **Indicative Prices** published with the consultation paper are charges for transmission customers of Transpower. Distributed generation owners are obviously not customers of Transpower. However, some of the transmission charge modelling identifies particular generation plant embedded in distribution networks. Noting that the BBC allocator to distributors is net load, the IEGA submits that if there are any proposals for transmission customers to pass through costs from BBC charges to distributed generation then there must also be a requirement to pass through any benefits for transmission customers from having distributed generation behind that load customer.

Application of Transmission charges to batteries

The IEGA suggests the Authority has not addressed the concerns raised by submitters during Transpower's consultation on batteries and the residual charge.[9] Transpower handed this issue to the Authority as a 'policy' decision. The Authority's current consultation paper focuses on 'double counting' and does not address the fundamental first principles of whether the proposed transmission charges are the same across all technologies / assets that provide the same services as batteries.

In our cross submission to Transpower, the IEGA suggested the Authority undertake a first principles consideration and consultation on what is the appropriate industry participant category for storage devices of any size taking into account all of the services a storage device can provide to the electricity system. This should be completed before any decision is made about the methodology for allocating transmission charges to storage devices.

Further, the Authority's current consultation paper states: *"7.34 We note for clarity that storage would be charged benefit-based charges under the proposed TPM in the ordinary way."*

[7] Referring to paragraph 4.52 and footnote 52 of the Authority's current consultation paper

[8] Paragraph 6.5 – 6.8 of the Authority's current consultation paper and addresses the first question on page 41.

[9] Consultation Paper 'TPM Development Residual Charges and the Treatment of Batteries Options', April 2021

The IEGA seeks clarity about what this means. Is the battery being treated as load and / or generation for the BBC? There are numerous methodologies for BBC charges and it would be useful if the outcomes of applying these different BBC methodologies to batteries (which are load and generation[10]) are set out clearly so that potential investors have clarity before making any battery investment.

The IEGA submits it is also in everyone's interests to understand how the BBC would be allocated to a battery purchased and connected to the transmission grid by Transpower. This battery will be a transmission customer. The battery may be installed as a non-network solution but will have an impact on load on the network, the generation sector and wholesale market prices. Would this battery be a Resiliency investment by Transpower?

Decision not to include a Transitional Congestion Charge in the Proposed TPM

The Proposed TPM is, after a transmission investment is needed, making a fixed allocation of transmission costs to consumers based on the benefit of avoiding paying a high cost for electricity due to a lack of transmission capacity during peak demand periods. Paragraph 5.16 of the Authority's consultation paper explains this:

> *"The criterion at clause 53(1)(b)(i) is particularly important, requiring that the clause 53 method will be used if most of the benefits of an investment relate to consumers avoiding paying a high cost for electricity during peak demand periods, eg, due to a lack of transmission and generation capacity to supply load in a region."*

A Transitional Congestion Charge would have been an opportunity for flexibility and incentivising behaviour to manage peak demand, reduce congestion and avoid or defer new transmission investment. Instead the Proposed TPM is going to allocate the costs of a required/committed transmission investment to consumers because they benefit from this investment managing peak demand and reducing congestion.

Further, reliance on the spot price to influence behaviour during congestion may not be as effective as the Authority expects as Transpower states *"The change in market price due to a constraint is not always the most significant factor in determining private benefits – the amount of time a constraint is expected to bind, and the volume of load or generation exposed to a change in price is often more important".*[11]

The IEGA still believes that the decision not to include a Transitional Congestion Charge in the Proposed TPM is a lost opportunity to incorporate some flexibility into transmission charges in a no-regrets manner to manage an unquantified risk of a surge in peak demand. Transpower wrote "*Peak pricing for transmission helps to preserve our option value into an increasingly uncertain future by providing downward pressure on peak demand growth. ... The faster peak demand grows in the short*

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[10] For example, under the BBC Standard Method "*For many BBIs, we expect injection to disbenefit from a BBI when offtake in the same region is benefitting (or vice versa)*" from Paragraph 55 Chapter 7 in Transpower's Reasons Paper30 June 2021 https://www.transpower.co.nz/sites/default/files/plain-page/attachments/TPM%20Proposal%20Reasons%20Paper%2030%20June%202021.pdf

[11] Chapter 7 Paragraph 46.1 Transpower's Reasons Paper 30 June 2021 https://www.transpower.co.nz/sites/default/files/plain-page/attachments/TPM%20Proposal%20Reasons%20Paper%2030%20June%202021.pdf

or medium term, the higher the risk we invest in new assets that become obsolete but must still be paid for."[12]

The TPM Guidelines provide "*for a Transitional Congestion Charge to be included in the proposed TPM if Transpower considers that, without it, grid demand would not be efficiently controlled by other means, including nodal pricing and administrative load control associated with scarcity pricing*".[13]

This charge would have been designed to encourage actions to reduce peak demand on the network. That is, provide a financial incentive to take this action and avoid or defer new transmission investment for a transitional period.

It would seem prudent give the uncertainty of demand growth for decarbonisation to have something already in the 'toolkit' to ensure reliable supply and avoid constraints.

Growth in distributed generation

We request feedback from the Authority about the allocation of the Residual and Benefit-Based Charges to distributors if a point of connection between the distributor and the grid becomes a grid injection point as embedded generation volumes exceed demand on a network when measuring total annual consumption by the distributor to update the Residual Charge allocator. For the BBC Simple Method power flows have already been determined using five year historic data, and for the BBC Standard Method distributed generation export may impact quantity / price and market outcomes.

We understand a number of distributors are fully allocated in terms of their capacity to host distributed generation. The distributor holds this information – not Transpower – but Transpower's calculation of transmission charges under the Proposed TPM will be impacted by the commissioning of these generation assets. The IEGA submits Transpower should be recalculating its Residual and BBC Charges now taking these investments into account so that investors understand any transmission charges they might incur.

It is critical there is clarity about transmission charges before the TPM is effective. Investors are already investigating distributed generation that could exceed network demand. The imposition, after the event, of a fixed transmission charge could financially cripple distributed generation projects. This has consequences for NZ's efforts to increase renewable generation capacity and reduce emissions across the economy.

We would welcome the opportunity to discuss this submission with you.

Yours sincerely

Warren McNabb
Chair

[12] https://www.transpower.co.nz/sites/default/files/plain-page/attachments/Transpower_The_Role_of_Peak_Pricing_for_Transmission_2Nov2018.pdf Page 4

[13] Paragraph 10.1 page 85 of Authority's current consultation paper. If the industry is relying on administrative load control to manage grid constraints we suggest stakeholders should be well informed to avoid reputational damage on the industry.