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Wellington 6023

15 August 2023

New Zealand Electricity Authority
By email: distribution.pricing@ea.govt.nz

Issues Paper-- Submission on Targeted Reform of Distribution Pricing

Dear Sir/Madam,

I am writing to submit my thoughts and suggestions on the Targeted Reform of Distribution Pricing, a subject of critical importance to New Zealand's goal of economic decarbonisation.

I am making this submission in my capacity as an industry practitioner and a concerned New Zealander who has worked closely with business, industry and independent generators supporting their negotiations and contracting with distributors, Transpower and retailers on their electricity connection, supply and offtake arrangements.

I have over 30 years of experience in the energy and electricity industry including founding Simply Energy (now operating as a subsidiary of Contact Energy) and working on a number of the Authority's industry advisory groups.

Enclosed with this letter, you will find my detailed submission that responds to the questions posed in the consultation paper.

I would be pleased to discuss my submission in further detail if you deem it appropriate. Please do not hesitate to contact me at StephenPetersonNZ@gmail.com to arrange a meeting or for any further information.

Thank you for considering my submission. I look forward to contributing to this significant step toward a sustainable and economically prosperous energy future for New Zealand.

Yours faithfully,

Stephen Peterson

Enclosures: Response to Questions

Targeted Reform of Distribution Pricing – Responses to Questions

Distribution Pricing Regulatory Options

Q1. Are there other options that you think the Authority should consider? Comment

The need to rapidly grow the capacity & capability of our distributors to deliver electricity at affordable prices represents a distinct break with the requirements of the last 30 years of managing incremental load growth with broad downward pressure on prices.

To successfully and economically meet the challenges of decarbonising our economy I believe it is vital to create an environment where distributors can deliver services, grow and innovate across the country in a manner that will motivate all distributors to focus on customer value, innovate and and achieve economies of scale.

To this end I think the Authority should be considering how best to set up a regulatory structure that can be refined and evolve through time to adapt to new opportunities, technology and challenges.

I suggest, that in addition to the Control and Call-in options proposed, the Authority develops default regulated terms for connection and pricing principals that empower access seekers to:

- Assess engineering options for capacity that allow for trade off in scope, redundancy and price
- Choose who designs, builds, finances, owns and operates distribution assets dedicated to them,
- Subject to engineering constraints and meeting connection costs, select where they connect into their local network
- Have the right to access economically efficient pricing through standard tariffs and terms for a given connection voltage and capacity, and
- Be subject to fair, economic and transparent capital contributions that are consistently applied across New Zealand.

Standardisation of default terms and pricing principals for connecting load will also help distributors, many of whom don't have the scale to support development of sophisticated pricing and commercial terms that balances the requirements of regulation, economics, customer behaviour and operational constraints.

Q2. Do you have any comments on the options outlined? Comment

My experience in working with distributors to negotiate connection arrangements for generators and load customers suggests that both the Control and Call-in approaches will be required to give access seekers meaningful access to distribution pricing that supports an economic transition to a low emissions future.

Within the Control option I strongly support Code modifications to include default regulated terms for connection of load that include pricing principals and a timely and economic issue resolution process, similar to Part 6 Distributed Generation Regulations.

I support the Call-in option because it would complement the Control option by bringing into focus real examples of problems that could be learnt from and incorporated into the Code over time.

Peak Period Price Signals

Q4. Do you agree with the assessment of the current situation and context for peak period pricing signals?

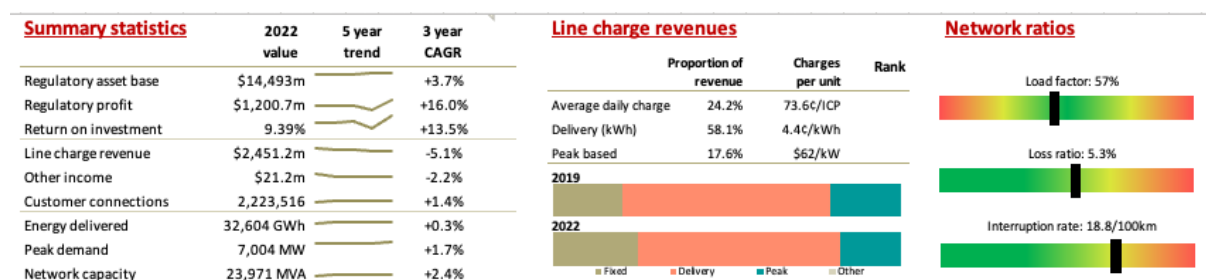
I broadly agree with the assessment of the current situation while noting that:

- It would be useful to understand more about the pricing available to large customers and consistency (or otherwise) with economic pricing principals.
- It would be useful to have clear pricing principals on how controlled load should be priced and note that pricing at the bottom end of the subsidy free range will support decarbonisation projects by making it more economic to invest in onsite energy storage e.g. hot water tanks, or dual fuel systems.
- Where access seekers are advised that there is insufficient spare capacity within a network e.g. because capacity is being reserved for other customers. I would encourage the Authority to consider principals for determination and rights to access capacity that can be safely unlocked with dispatchable or interruptible load.

What if any other significant factors should the Authority be considering? Comment

Create a framework to open up Redundant Capacity to access seekers – this could reduce capex over 3 decades by ~\$9B

The current Regulated Asset Base for distribution companies is less than \$15B with an average load factor of 57% at a redundancy of n-1 as set out in the following figure from Commerce Commission performance summaries for electricity distributors for year to 31 March 2022.



The Authority notes an anticipated \$60B of investment required over the next 3 decades. If access seekers had the option to use redundant assets that resulted in an increase load factors by 10% they would reduce the anticipated capital required from \$60B to $(60 * 0.57 / 0.67 =)$ \$51B or a saving of \$9B.

Give access seeker the option to notionally embed for transmission charges

The marginal price of transmission for new load is ~\$10 to \$15 per MWh less than the average price of transmission, phasing out over 8 years as the new load progressively pays a greater percentage of the residual charge. This near term cost savings is equivalent to ~ \$20/Ton CO₂e (for electrification of a coal boiler) which is very material for decarbonisation projects.

Recognising this, the Authority has issued guidance that on the pass through of transmission charges to end consumers in a manner that preserves the TPM price signals. This type of pass through can be complex for distributors to manage and implement through their billing systems.

To reduce operational complexity for distributors I suggest the Authority considers allowing access seekers (of a minimum size) to (notionally) direct connect and contract with Transpower for transmission services. The new TPM and market settlement systems already allow for this scenario and notional direct connections would have the additional benefit of giving Transpower direct visibility into flexible load that could be used to manage transmission constraints.

Target Revenue Allocation

Q14. Do you agree with the assessment of the current situation and context for target revenue allocation? What if any other significant factors should the Authority be considering? Comment

Network operations and maintenance costs

I have observed that large customer connections include maintenance costs that are set at the network average. This average is often materially higher than the anticipated operation and maintenance cost of the assets e.g. a small number of large assets are cheaper to maintain (as a percentage of capital) than a large number of small assets.

I suggest the Commerce Commission consider how distribution companies could provide differential operations and maintenance costs across their asset base and the Authority consider how these differential costs should be incorporated into distribution tariffs and pricing principals.

Connection Pricing

Q19. Do you agree with the assessment of the current situation and context for connection pricing? What if any other significant factors should the Authority be considering? Comment

I broadly agree with the Authority's assessment of the current situation and can add context to a number of the issues raised.

7.3 Scope of Connection Pricing

The paper notes that connection pricing refers to up-front payments that include fees, capital contributions and repayments.

For large customers connection, pricing is often presented together with standard or customer specific line tariffs. These tariffs include a return and recovery on network assets. It is usually very hard to understand what the line charges cover (e.g. does a tariff for a 1MVA connection include the supply and installation of a transformer?) vs. what scope is over and above what is covered in the line charge.

I suggest the Authority consider requiring distributors to clearly define the scope and service paid for by line tariffs so access seekers can understand what connection costs they are expected to pay for over and above a standard line tariff.

7.8 Connection pricing arrangements – significant factors to consider

Allocation of costs between access seekers and existing network users – first mover disadvantage

I have seen a range of behaviours from distributors in their allocation of costs between existing consumers and access seekers.

The best distributors make clear distinctions in the scope & cost of a network upgrade between assets required for an access seeker vs. what they will build out as part of efficiently upgrading the entire network and is paid for through standard line tariffs.

I have also seen projects where distributors have allocated network costs that resulted in the network connection exceeding the estimated cost of a direct connection to Transpower and specifying connection upgrade scopes that upgrade the broader network but are materially more expensive than the upgrade required to meet the access seeker requirements.

Is it reasonable for a access seeker to pay more for a connection than the bypass cost?

I support the Authority creating a common national standard for allocation of costs to access seekers and suggest that the Authority should consider regulation to give access seekers the right to challenge pricing when it doesn't meet these standards.

Growth levies

I don't understand growth levies. All the capital contributions I have seen made end up going through a distributors P&L, directly contributing to profit (and as noted in the consultation paper supporting retention of capital underspend in a regulation period).

I am curious to understand the Authority's view on how growth levies should be accounted for. Presumably if an access seeker is paying for imposing a future cost on existing customers the growth levy should result in a benefit to existing customers?

Efficient connection costs

Efficient connection costs are a function of both the design (scope) and the cost to build. For large new loads often associated with decarbonisation projects using flexible load to support resilience and redundancy in the network can provide a material cost saving and underpin project viability.

Impact of scope on capital cost

I have seen a connection budget reduced 90% through collaboration with the distributor's engineers that showed it was feasible to increase capacity from the substation above its n-1 limit by dynamically managing an electrode boiler load relative to upstream substation feeder constraints and avoid costly upstream network upgrades.

Access to interruptible capacity above the n-1 substation design supported doubling the emission reduction potential at the customer's site.

Despite the collaborative effort to demonstrate technical feasibility the distributor was not prepared to contract for capacity above the n-1 substation constraint but did offer pricing for some non-firm capacity. It is worth noting that the distributor faces limited incentives and perceived risks of providing network capacity above the standard n-1 operating range.

This non-firm capacity was priced at the same level as firm capacity with additional adverse commercial terms including that the access seeker was required to indemnify the distributor and other customers on the network in the event of a fault. This resulted in the access seeker declining to take up the non-firm capacity, reducing the emissions reduction potential.

In an attempt to get more capacity, the access seeker proposed an alternative point of connection upstream of the constrained substation into an existing 33kV breaker together with building their own 33/11kV substation. This would have resulted in 90% of the load moving off the existing sub effectively stranding the distributor's substation asset. Facing this strong dis-incentive the distributor refused to entertain the 33kV connection option.

I suggest the Authority should consider

- What should an access seeker be able to do if a distributor is not willing to offer access to capacity that is technically feasible to provide?
- How should interruptible load be priced relative to firm capacity?
- What are reasonable commercial terms for interruptible pricing?
- Should access seekers have the right to choose where they connect on a network in order to improve access to capacity and more economic pricing?

I have been told by an access seeker that they were provided with a network connection scope and cost that met their requirements but subsequently this was withdrawn and they were provided with an alternative connection proposal at a

substantially higher cost. This was justified on the basis that the initial design not meeting the network's design standards.

I suggest the Authority should consider – while it is reasonable for a distributor to reinforce their network in a way that accounts for future growth should an access seeker should be required contribute more than the capital cost associated with dedicated assets that would meet their requirements?

Risk on cost to build

The capital contribution arrangements I have seen have always provided that the risk of cost variances are payable by the access seeker with no incentive for distributors to ensure these costs are efficient. Furthermore access seekers have no rights to audit actuals costs without agreement by the distributor and I have seen some examples of distributors including non-transparent markups in their budget costings.

I suggest the Authority considers a process for how both access seekers and distributors that can efficiently provide access seekers with assurance that actual connections costs are fair and reasonable. A simple way to achieve this would be to give access seekers the right to build, own and operate their own dedicated assets.

Each connection is unique and often complex and highly interconnected with other network constraints. I think this makes it challenging to be prescriptive about efficient connection scope and cost for both the distributor and access seeker.

I suggest the Authority considers how regulation that supports meaningful transparency and contestability could address many of the challenges access seekers have encountered to-date.

Optimising growth costs

I have seen an access seeker that required new capacity trigger a GXP transformer upgrade. Transpower offered a choice of two transformers – with the larger and marginally more expensive option able to support not just the demand from the access seeker but also other anticipated demand.

The distributor advised the access seeker that they needed to pay for the more expensive upgrade rather than putting the marginal cost into the broader network cost recovery.

It took the access seeker considerable time and effort and professional support to identify and discover the full context of the GXP upgrade options. It was only after this was presented to the distributor with the support of Transpower the distributor modified their terms to align the access seekers costs in line with the smaller transformer upgrade.

I suggest the Authority considers what is an appropriate framework is for allocating transmission connection costs between existing, new and potential customers and if it would be appropriate to mandate this framework? Is it appropriate for access seekers to rely on chance to get fair treatment?

Complexity and time constraints

I have observed a wide range of approaches from distributors in the complexity and transparency provided into how they set capital contributions and prices.

Some distributors have operated with open books providing spreadsheets of budgeted costs and the build-up of line charges and capital contributions and been open to commercial discussions on how costs, risk and line charges could be managed for the benefit of all parties.

I have also seen situations where distributors and access seekers have spent months trying the access and understand pricing, disputing scope, costs, the treatment of capital contributions and application of regulated pricing. The time and effort associated with these interactions can leave access seekers with no option but to accept terms that they don't understand or agree with where the project they are trying to deliver is being put at risk because there is no agreement to deliver power.

I suggest the Authority considers what protections are appropriate for access seekers in the form of minimum commercial terms and pricing principals, who are at a considerable information disadvantage to distributors, and subject to hard project deadlines.

I note that standardisation also supports distributors explain costing and charges to access seekers with reference to an independent standard reducing transaction and customer management costs.

Cost of capital

The issues paper shows distributors ask for capital contributions anywhere between 0% and 100% of the connection costs. For all large customer pricing I have seen the return on and return of capital has been based on Commerce Commission regulations.

In several instances access seekers have had access to capital at a lower cost than is offered by the distributor and have wanted to use their capital but were been told that they must use higher cost capital from the distributor.

Not being able to use the lowest cost capital un-necessarily pushes up the cost of connections.

I suggest the Authority considers if it is reasonable to require access seekers to use capital at a higher cost than they are able to source?

Reconciliation Loss Factors

Reconciliation loss factors are set by distributors typically based on what voltage a load connects at on the network and the factor includes reconciliation losses like theft.

Electrification of fossil fuel use can often be for large loads and a percentage point of reconciliation loss can make a large difference to delivered energy costs.

There is no incentive on distributors to apply accurate and up to date loss factors as demonstrated by the infrequent updates to loss factors in the Registry. Access seekers don't

have the any right to seek a loss factor that reflects reasonable losses associated with their load.

I suggest the Authority consider allowing access seekers to:

- request and obtain an ICP specific loss factor by paying for an independent assessment of the losses associated with their loads, and
- as part of managing losses and in consultation with the network company (where there are options available), be able to choose where they connect into the local network

Actively blocking access seeker's bypass of distributor

I have seen several existing load customers where the costs of capacity expansion have resulted in a total network charge that has made it economically compelling to bypass the distributor.

In one of these cases, rather than reduce costs of connection and line tariffs, the distributor actively sort to block the customer's plan to bypass by refusing to negotiate for sale and transfer of assets dedicated to the supply of the customer and indicated a willingness to trigger a transmission upgrade that would have caused a material increase in network charges for the distributors broader customer base. Delays and project deadlines ultimately forced the customer to contract pricing and terms from the distributor. This example was easy to understand because its size. Most access seekers aren't at the scale where bypassing the distributor (to Transpower) would be economically feasible.

I suggest the Authority consider what minimum terms should not be able to be contracted out of and when access seekers can re-open pricing and commercial terms.

Q20. Do you agree with the problem statement for connection pricing? Comment

The problem statement for connection pricing notes

- high transactions costs
- overly high-cost allocations
- weak incentives on distributors to ensure connection costs are efficient
- weak incentives on distributors to ensure growth costs are efficient
- weak incentive on access seekers to ensure costs are efficient
- weak incentives for parties to co-ordinate

To this list I would add that other than a distributor apply best practice there are

- weak incentives (lower prices for all network users) on distributors to scope connection assets that take advantage of the flexibility of access seeker load
- weak incentives (higher network loading will increase risk of faults without increasing distributor revenue) on distributors to make existing network capacity available
- disincentives (limited expansion of RAB relative to standard network build) to expand available capacity by utilising redundant assets protected by interruptible customer load or customer load managed within a dynamic load limit
- weak incentives on distributors (no risk of losing access seeker business) to reach connection agreements with access seekers in a timely manner

- no incentives on distributors to optimise access seeker capital costs where the access seeker can source capital at a lower cost than the distributor
- no incentives on distributors (just more work) to apply accurate reconciliation loss factors associated with material new load or permit access seekers a choice on where they connect into the local network.
- there are strong incentives (to avoid asset stranding) for distributors to block access seekers bypassing their network

Q21. Do you agree with the Authority's preferred pricing approach for connection charges? Comment

I agree with the Authority's approach to pricing reform and believe development of regulated default connection terms and pricing principals will benefit the entire industry as many distributors are not large and have limited resources to develop their own standards.

Common standard across the country will also support companies trying to roll out EV charges and other electrification projects by making it easier to project costs and capture benefits from managing demand relative to network constraints.

In addition I suggest the Authority considers how to it can support the best distributors to grow, innovate and compete across the country to meet the enormous demand for network capacity by ensuring access seekers can

- Choose who designs, builds, finances, owns and operates the distribution assets dedicated to them,
- Choose where they connect into their local network and are able to obtain ICP specific loss factors.
- Have the right to access the standard tariff and terms based on economically consistent subsidy free pricing, and
- Be subject to fair, economic and transparent capital contributions

I strongly support erring on the side of lower contributions as this will help accelerate decarbonisation projects.

Q22. Do you have any thoughts on the complementary measures mentioned above and to what extent work on these issues could lead to more efficient outcomes for access seekers? Comment

Providing additional information.

I support access to information that enables access seekers a better understanding of local network configuration, capacity, and constraints as this underpins identifying where flexible load can be used to manage the cost of delivered energy.

More information is of little use if distributors don't allow for access to spare capacity or economic pricing in a timely manner. This means it is essential to provide access seekers with an economic route to call in of non-compliance with standard connection arrangements and pricing principals, similar to Part 6 Distributed Generation Regulations.

This call-in process would help raise the bar on access seekers and distributors by creating a focused feedback loop highlighting where there were material issues that will change with the evolution in our market.

Contracting works

I suggest the Authority considers why we wouldn't we create a national pool of certified contractors rather than a series of local pools? This would support a common standard of competence and support creating scale, innovation and competition in network deliver and maintenance capacity.

Q24. Which if any of the above options do you consider would best support distribution pricing reform in the area of connection pricing? Comment

I believe NZ as a whole would benefit from a standardised approach to connection costs that integrates with distribution pricing as this would take the burden off smaller distributors to develop their own policies and would give businesses focussed on decarbonisation a common framework that they could understand and use across the country.

Time is also of the essence. Access to network capacity is one of many inputs to decarbonisation projects that need to be managed. Because of the long life of the network and utility assets being deployed having certainty on network costs is fundamental to providing confidence in making decarbonisation investments. The risk to New Zealand is that reforms partially address problems but ultimately leave access seekers with no choice on who they work with and therefore no commercial leverage to provide confidence in making decarbonisation investments.

There is also an opportunity for our country to get more out of our existing and new assets with a benefit measured in \$Bs. Creating a regulatory environment that supports adding material amounts of flexible electrical load also supports the economics of intermittent renewable generation by increasing load when prices are low and reducing load when electricity prices are high.

This means I strongly support mandates on default connection terms and pricing principals coupled with an economic route to call in issues of non-compliance, similar to Part 6 Distributed Generation Regulations.

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