



2 December 2021

TPM team
Electricity Authority

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**Re: Consultation on Proposed Transmission Pricing Methodology –
consultation paper 8 October 2021.**

Introductory comments

1. NZ Steel has actively engaged in the Electricity Authority processes in reviewing the current Transmission Pricing Methodology (TPM). We are pleased of the opportunity to continue actively working with the Authority and Transpower with the goal of formulating a workable and enduring methodology.
2. The focus of this submission is the translation of the June 2020 Guidelines developed by the Authority through to the draft TPM circulated as part of this consultation process. However, NZ Steel notes the invitation for feedback on wider aspects¹ of the proposed TPM. In this respect we do not step-back from previous submissions and maintain the view that several aspects of the proposals will undermine the durability of the TPM and will prove to be costly to electricity consumers.
3. We are willing to engage further on the numerous points we have submitted on during the various rounds of consultations and the short time we got to meet with the Board on 2 December 2019. However, we have concluded the substantive aspects of a new TPM have long become fixed in the minds of the Authority and the remaining items open for genuine consultation are relatively minor points on the fringe.
4. On-going involvement should not be seen as prejudicing views previously expressed by NZ Steel and that may not be covered in this submission.

¹ Consultation document, clause 1.2 page 1.

Impact on NZ Steel and implications for New Zealand.

5. Upfront we record the magnitude of the proposed changes in the TPM and what this means to NZ Steel and the wider perspective of the importance of domestic steel making in New Zealand. This is set-out in appendix 2.
6. Under the proposed TPM NZ Steel will ultimately pay \$13.8m² pa in transmission charges. This is a 345%³ increase from the current \$3.1m⁴pa. The transitional cap was intended to provide some relief for a period of time, but as can be seen later in this submission, relief will be minimal and probably \$nil. The \$10.7m pa additional cost cannot be passed onto to customers – we are part of the international steel market with most of our customers being in NZ where price-parity applies.
7. Year ended June 2021 was a very good year for NZ Steel. Underlying EBIT was \$130.1m⁵, but for FY2020 the result was a loss of \$5.8m. \$10.7m is a material additional cost when related to the surplus for a very good year. In average or poor years, it is a very significant impost. Our parent Board in Australia is required to allocate capital to maintain operations in various international locations. Cost impositions such as proposed for the TPM will have an influence when longer term decisions are taken re the future of steel making in NZ.
8. NZ Steel commented⁶ in more detail on the cost implications in our submission on the 2019 issues paper⁷.
9. We point out these facts not to ask for a hand-out or subsidy (in fact the reverse is what is proposed in the TPM - as set out later in this submission we consider the residual charge will see a very significant cross subsidy from direct connect customers to mass-market consumers). We need the Authority to be mindful decisions taken regarding the TPM have wide implications and there is more at stake than the application of economic theories, a number of which are still the subject of debate between international experts.

NZ Steel engagement

10. NZ Steel has actively participated for the 10+ years of the review of the TPM. We have questioned and continue to question a number of the fundamental approaches and some of the detail, the Authority is planning for Transpower to implement. Appendix 1 sets out points of on-going concern. Also, a list of NZ Steel involvement over the years. In particular we draw attention to the NZ Steel submission dated 20 October 2019⁸ on the 2019 Issues Paper⁹. We record this information for the benefit of Authority members and staff who were not involved in the earlier parts of the process and attach a copy of the NZ Steel submission for ease of reference.

² Consultation document, Table 5

³ Consultation document, source numbers Table 8 and Table 10.

⁴ Consultation document, Table 10

⁵ Page 73, Investor presentation. https://cdn-api.markitdigital.com/apiman-gateway/ASX/asx-research/1.0/file/2924-02407030-3A572771?access_token=83ff96335c2d45a094df02a206a39ff4

⁶ Paragraphs 20-26, NZ Steel submission, dated 2 October 2019, <https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review/consultations/#c18138>

⁷ 23 July 2019, Issues paper 2019, <https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review/consultations/#c18138>

⁸ NZ Steel submission, dated 2 October 2019, <https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review/consultations/#c18138>

⁹ 23 July 2019 issues paper, ibid.

Consultation questions and specific comments

Chapter 7 Residual charges

Do you have any comment on how the proposed TPM implements the residual charge provided for in the Guidelines?

11. NZ Steel's submission dated 1 October 2019¹⁰ re the 23 July 2019 Issues paper commented in detail on the residual charge. We draw this to your attention for further consideration (copy attached).
12. The size and allocation methodology of the proposed residual charge is of particular concern to NZ Steel. In summary:
 - (a) allocating the large residual charge to consumers (and none to generators, unless they are also load customers);
 - (b) Allocating on gross demand ignoring on-site generation. In NZ Steel's case cogeneration fuelled by process off-gases and waste heat that would otherwise go unused;
 - (c) basing the residual charge allocation on any time maximum demand ('**AMD**');
 - (d) basing the calculation on historic AMD;
 - (e) calculating AMD from the grid exit point ('**GXP**') rather than the installation control point ('**ICP**');
13. NZ Steel requested clarification from the Authority on aspects relating to allocation of the Residual¹¹ and request further consideration of the following:
 - There is some difference in AMD numbers used in the Consultation supporting documents to those calculated by NZ Steel. The expectation is these differences will be reconciled before being used to calculate any new charges that are to be applied.
 - NZ Steel Glenbrook is supplied via shared connection assets which includes some 20km of 220kV tower line and 3x150kVA transformers. There are two GXPs. In standard configuration they are run separately. In this state GLN0331 supplies part of the NZ Steel load. GLN0332 is shared by the rest of the NZ Steel load, Counties Energy load, and Alinta cogeneration. The configuration varies under maintenance or fault situations.
14. Clarification was sought as to whether it was intended each GXP be taken as standalone and then summed to give the total average AMD to be applied for NZ Steel.

The reply received stated

¹⁰ Paragraphs 61-77, NZ Steel submission dated 2 October 2019. <https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review/consultations/#c18138>

¹¹ EA TPM Q&A, <https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review/development/questions-and-answers-tpm-consultation/>

“Yes, the guidelines require, and clause 71 of the proposed TPM requires, calculation of gross Anytime Maximum Demand (Residual) (AMDR) by POC. This means AMDR for a connection location is the sum of the non-coincident peak demand of each POC at the location”¹².

15. Using historic AMD makes this an arbitrary allocator for a very significant amount of the Transpower revenue and undermines the credibility and threatens the durability of the proposed TPM. We have submitted on this previously.
16. However, our emphasis in this submission is the total lack of logic and justification for using non-coincident demand for a customer when the GXPs are at the same location. This is a quite different situation to a customer that may have multiple connections, but at different locations.
17. As stated above Glenbrook is supplied from a Connection asset the costs of which are met by NZ Steel and the other customers. The benefit from / impact on the grid is at the connection to the main grid some 20kms away, not at Glenbrook.



18. How the electrons flow at the Glenbrook location depends on the switching settings at any particular point of time. It has no bearing on anything beyond the connection assets.
19. Continued insistence in the TPM proposal on using a non-coincidental peak demand at a single location reinforces the view that historic anytime AMD at the Customer level is a purely arbitrary allocator and undermines credibility and durability of the TPM proposals.
20. NZ Steel has previously submitted on the proposed AMD measure being inappropriately applied at the GXP customer level rather than at the consumer ICP¹³. We draw particular attention to:

¹² EA TPM Q&A, *ibid*

¹³ Paragraphs 73-76. NZ Steel submission 2 October 2019, attached and at link

<https://www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review/consultations/#c18138>

76. As has been pointed out in previous submissions, inconsistent application of AMD can be further illustrated by extrapolating the TPM proposal to a residential consumer. In the 2016 second issues paper, the allocator used for the mass market was “Nominal MVA”. For residential consumers this was set at 20kW.²⁰ At that time, by applying the same logic as the Authority’s modelling for NZ Steel’s Glenbrook site, we calculated the transmission allocation for “Residual” to each residential ICP in the South Auckland area as \$1,063 per annum. Considering this is approximately half of what the average household pays now for their total electricity, clearly something is wrong. In reality, this would not be the case because application of the formula and the same input parameters would lead to an over-recovery of total revenue. However, it demonstrates the inappropriateness of a blanket application of AMD at the Transpower customer level, and the over allocation of costs that inevitably eventuates for direct connect and other identified consumers. An allocator exclusively based on gross capacity for the Transpower load customers is not appropriate. If gross AMD is to be used, it must be applied to all consumers (ie, down to ICP level within electricity distribution networks).

21. The proposed AMD at the GXP as the residual allocator creates a huge cross subsidy from direct connect consumers to those taking supply through an EDB; in particular mass-market consumers. The proposed AMD allocator for the residual charge (and benefits-based charge) are applied on an inconsistent basis. For direct connect consumers, AMD would apply. For consumers connected through distribution networks, the benefits of demand diversity would apply i.e. ADMD.
22. The impact of the proposals would be to shift the burden of cost recovery to different users, which compromises the Authority’s stated efficiency objective¹⁴. Such redistribution lacks credible economic support. It ignores the risk of significant damage to dynamic efficiency from moving to imperfect and largely arbitrary rules for allocating transmission costs to customers. In simple terms it is not ‘fair’ and could lead to perverse outcomes.

Chapter 10 Transitional congestion charge

*Do you have any feedback on the proposal not to include a TCC in the proposed TPM, for the reason that widespread risk of congestion from removing the RCPD charge is unlikely and that, if necessary, the grid owner and system operator have effective tools to manage the power system quickly and efficiently?
If not, how should a TCC be designed to be consistent with the Guidelines? Under what situations should it be applied and how should its size and allocation be determined?*

23. NZ Steel has repeatedly made known views on the risks and ultimate costs to consumers of removing a peak pricing signal and placing reliance on nodal pricing. The Authority has accepted there is some risk and provided an opportunity for Transpower to put in place a short-lived transitional congestion charge (TCC) ¹⁵. Transpower has said they do not think this is necessary.
24. Managing congestion issues and the risk of system failure is one aspect. Transpower is not seeing (and the Authority agrees) the need for a TCC on the basis that short-term congestion can be managed through tools available to the system operator and grid owner with limited impacts on consumers¹⁶.

¹⁴ Consultation document, 14.2 page 110

¹⁵ *ibid*, para 10.5, page 85

¹⁶ *ibid*, para 10.6 page 85

25. Recent incidents involving the grid paint a different picture¹⁷. Issues on the grid do impact Transpower Customers and there are flow-on effects to Consumers either directly or indirectly through uncertainty and risk of supply loss or curtailment – these are particular issues of concern for large continuous operations planning production throughput mindful of the costs, and potentially integrity of plant if sudden interruption eventuates, and the costs of lost production if it does not.
26. Since the 9 August 2021 issue, in some circles referred to as NZ’s Black Monday, Transpower has stepped up its planning and communication with customers for system stress events. This is a positive move which we support and maintain involvement. However, there is an impact on customers. In NZ Steel’s case we are a customer and a consumer. A lack of appropriate demand signals in the TPM will likely increase the occurrence of ‘stress events’ and we take exception to the suggestion that this can be effectively controlled through available tools in a way that “...limits load shedding.” Invariably there is a direct or indirect impact on consumers and therefore a cost. We see no attempt by the Authority to measure this cost.
27. The second aspect of congestion is the long-term impact and cost of not managing load. Power systems need to be designed and managed for peak load. Economic growth and electrification will see a significant increase in the requirement for additional generation and upgrading of the grid and local networks. While there may be adequate capacity in most of the grid now, unmanaged growth will see increases in peak loads. The time congestion pricing clicks-in it is too late. Consumers will face the costs of then managing load until further investment is made in the grid, which again consumers pay for the cost, and in many cases will involve delays until the work can be completed.
28. The Authority has accepted that removal of an RCPD type signal will see the need for earlier investment to increase capacity, but claim analysis shows this is a lessor cost than that incurred now with artificial and unnecessary pricing signal restraints (through RCPD charges) put on load at peak times. The issue is it is consumers who carry the risk if the theory does not deliver in the real-world. Consumers bear much of the cost of early grid investment, and all the cost of lost production and inconvenience while adequate capacity is put in place. Our question is, what systems are the Authority putting in place to:
- Monitor peak loads relative to changed pricing signals
 - Monitor grid investment requirement - actual compared to counterfactuals
 - Evaluate direct and indirect costs to consumers of changes in the ability of the grid to meet poorly managed peak load.
29. In summary, while we can understand Transpower being able to manage short-term congestion issues without a TCC, this has direct and indirect costs to consumers. However, the Authority has a wider responsibility to act in the long-term interests of consumers. Nodal pricing may or may not prove adequate to avoid short-term congestion, but we argue by that stage it is too late. The Authority has a responsibility to oversee mechanisms that pre-empt capacity issues and the inefficiencies of early investment.
30. We reference previous NZ Steel and MEUG submissions to Transpower re developing an alternative to the current RCPD and a TCC¹⁸

¹⁷ 9 August 2021 load / generation mis-match, 17 August 2021 HVDC pole 2 tower line issue Canterbury, 23 November 2021 HVDC tap-changer issue at Benmore.

¹⁸ NZS and MEUG submissions, October 2020, <https://www.transpower.co.nz/industry/transmission-pricing-methodology-tpm/tpm-development-project-exploring-transitional>

Chapter 9 Prudent discounts

Do you have any comments on the proposed PDP provisions? The Authority welcomes comment on any aspect of the proposal

31. PDP provisions have an important part to play to prevent inefficient disconnection from the grid when a win-win opportunity presents for the customer and consumers in general.
32. Recognising there are two parts to the proposed PDP provisions – inefficient bypass and stand-alone - the concerns are:
 - the provisions are too prescriptive, particularly with new technologies providing grid-based security and quality of supply options. We refer to clause 119(2) of the proposed TPM and the requirement that an alternative project “...provide the same or substantially the same level of service...”. This relates to access, quality, and reliability of electricity plus anything else Transpower determines relevant. This leaves no latitude for a consumer to work with a lesser quality of supply (at a reduced cost) or supplement through developing technologies.
 - The level of detail Transpower is required to receive from the applicant before the concept is even considered effectively makes this an unworkable provision. Clause 117(2) requires (c) “...at least the level of detail a prudent board of directors...would reasonably expect...” and (d) “...an independent verification of the application.” There would be costs of possibly several \$100k’s for an organisation of size to even get an application on the table.
 - There is a requirement for applications to be published upon receipt¹⁹. The consultation document does recognise commercial sensitivities may exist. However, it is envisioned potential applications will have financial, consenting, commercial, and stakeholder aspects that an applicant could not reasonably expect to have in the public arena at the initial stages of a PDP being considered. In some situations, it may not even be practical to have internal approvals to proceed. We can understand approved PDPs and the justification for these being published.
33. In summary we submit the proposed PDP provisions are so narrowly defined they will prove to have very limited application to real-world situations. It will be misleading to continue with PDP provisions as currently drafted leading customers to believe some day they may reasonably be able to use this provision

Chapter 12 Indicative prices

Do you have any comments on indicative pricing or the application of the transitional cap?

34. The concept of transitional cap no doubt started as a well-intended means to soften the significant increase some customers face should the changes proposed with the new TPM be implemented. However, we submit the outcome now has the appearance of arbitrary calculations that have very limited and short-lived application, if any. Inflation predications²⁰ for next year will likely mean the cap will never apply to NZ Steel.

¹⁹ Transmission Pricing Methodology, Clause 118(4)

²⁰ RBNZ 11/2021 Monetary Policy Statement, Table 7.1, page 50.

35. Based on the published information, and with an increase of 211%²¹ after application of the cap shown in the consultation paper, NZ Steel faces the largest % increase of any consumer. In \$ terms the NZ Steel increase at \$6.6m pa, again the number shown in the consultation paper and after application of the cap, is second only to Vector.
36. The consultation paper shows the value of the cap applied for NZ Steel has reduced \$1.6m pa since the 2020. This relates to an inflation factor being applied.
37. The proposed formula means once set the cap will not increase even if inflation reduces below the 1.5% factored into the number in the consultation document. The reverse is likely with the recent hike in inflation. The cap that was initially expected to help transition NZ Steel to circa 2030 is now likely to never apply from when the new charges are planned to start in April 2023.
38. The calculations are based off a notional bill applying 2019 market rates. Given 60% of NZ Steel electricity is generated on-site by means of cogeneration fuelled by off-gases and waste heat from the iron making process, there is no direct relevance to market prices when compiling a total bill.
39. Addition of an inflation factor is equally lacking in relevance especially given volatility in spot prices in the last 3 years.
40. Given a cap was conceived to assist in the transition to very much higher transmission cost for the likes of NZ Steel, we ask that the Authority revisit the matter.
41. We refer the Authority to clause 14 of the Consultation document, the Regulatory statement. In particular:

“14.3 In implementing any new transmission pricing methodology, the Authority would also seek to limit the exposure of load customers to a price shock in their electricity bill as a result of introducing any new TPM.”

And

“14.5 (e) providing for a transitional cap to avoid any price shocks”

42. If implemented as is, it can be expected the NZ Steel charges from Transpower will immediately increase from \$3.1 pa to \$13.8m²², a 345% increase effective April 2023 without a transition cap applying. Neither the \$ amount nor % increase can be remotely considered to meet the Authorities statement of objectives.

Please let me know if further explanation is required on any points we raise in this submission or that NZ Steel has raised in the past.

Regards



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²¹ Consultation paper, Figure 5

²² Consultation paper tables 8 & 10.

Appendix 1

(The content is drawn from the Affidavit of Alan Douglas Eyes filed with the High Court

Re TRUSTPOWER LIMITED v's Electricity Authority)

1. This note addresses circumstances that relate to issues most important to NZ Steel. They stem from the Authority's approach to allocating the large residual charge, and removal of a coincidental peak load signal, including:
 - (f) allocating the large residual charge to consumers (and none to generators, unless they are also load customers);
 - (g) basing the residual charge allocation on any time maximum demand ('AMD');
 - (h) basing the calculation on historic AMD;
 - (i) calculating AMD from the grid exit point ('GXP') rather than the installation control point ('ICP');
 - (j) allocation to customers based on an assessment of gross rather than net load.

UNIQUE POSITION OF NZ Steel

2. NZ Steel can be considered unique in the NZ electricity industry. We are one of the few industrial customers with a direct connection to the Transpower grid and electrically speaking our Glenbrook site is the second largest in the country. Significant electricity is generated on-site (plant owned and operated by Alinta Energy) fuelled from off-gases and waste heat as a by-product of our iron making process. If we didn't use these for electricity, they would be released into the atmosphere. On average, co-generation meets 60% of the electrical energy needs at our Glenbrook site. While there is generally no export to the wider grid, this generation is currently the largest north of Huntly and plays an important role in grid stability. Because of its proximity to the Auckland load centre, the Glenbrook cogeneration contributes to the site maintaining Upper North Island power factor, and voltage support.
3. We tailor our practices to actively manage down electricity load over periods of peak transmission load for Transpower in our region. This is to help minimise requirements on the grid and the need for further investment in grid capacity. It has been a longstanding factor in our energy use planning, with material incentives on us to do that under the RCPD element in current transmission pricing. It is and has been achieved with minimal impact on our production, for example by scheduling co-generation plant planned outages outside the winter period. We also use third-party software to forecast transmission peaks in our region and manage load reductions in non-capacity constrained production processes to coincide with those Transpower peak periods.

IMPACT OF THE PROPOSED RESIDUAL CHARGE ON NZ Steel

4. The removal of a strong coincidental peak pricing signal (i.e. the RCPD charge) and its replacement with an untested nodal pricing signal could leave us without a financial incentive to avoid external peak demand coinciding with Transpower peaks. In some circumstances that could increase peak loads in the region by more than the 75MW increase modelled by the Authority for the whole country.²³
5. Our dual position as customer of Transpower and consumer of electricity, as well as a high percentage of load requirements being met by cogeneration that has a very high correlation to iron production, contributes to the uniqueness of the Glenbrook site. NZ Steel and Transpower both benefit from NZ Steel's unique direct connection with the Transpower grid.
6. The Authority has a duty to promote competition in, reliable supply by, and the efficient operation of the electricity industry for our long-term benefit as a major consumer, and as part of the long-term benefit of consumers generally. Preserving the mutual benefit of our current approach to load scheduling is very much in the interests of consumers generally (extra peak load capacity costs will fall on all consumers) and it is part of treating consumers (including us) equitably. NZ Steel has made this position clear to the Authority since the early stages of the TPM development process.
7. Based on the Authority's modelling, charges to our Glenbrook site would ultimately increase by \$9.5 million. That is a 200% (3 times) increase to our current charges from Transpower.
8. The size of this increase is due to the one-size-fits-all approach taken by the Authority without taking into account the uniqueness of the Glenbrook site.²⁴ The Authority incorrectly assumed that major users will have a greater capacity to pay higher residual charges than other customers, repeatedly stating that size is an indicator of willingness and ability to pay.²⁵ We have not seen the Authority's reasoning for this theory. But capacity for payment cannot be measured based on a customer's gross AMD without consideration of any other factors like our use of cogeneration. More importantly it depends on our sensitivity to the energy element of our production cost. Once it gets markedly out of line with our international competition, our size in the NZ market becomes entirely irrelevant to whether we can continue to pay. At a point we would cease to be viable. We face competition from world steel pricing. Energy, in the form of electricity and natural gas, is one of our three major costs – the other two being coal and labour. When energy cost increases put our production cost over an achievable sale return our "capacity to pay" could soon become zero (this is not to claim that it is presently expected only because of

²³ Electricity Authority '2019 issues paper: Transmission pricing review – Consultation paper', 23 July 2019 (**Issues Paper 2019**) at [4.73].

²⁴ We do acknowledge the planned cap on price increases and the phase-in temporary cost increase relief this would provide, but that will not provide long-term relief.

²⁵ See for example Electricity Authority 'Transmission pricing methodology 2020 Guidelines and process for development of a proposed TPM: Decision', 10 June 2020 (**Decision Paper**) at [10.37 "The Authority's view is that gross AMD is a proxy for customers' size and ability to pay. It is a better measure of size and ability to pay than net demand. In principle, the fact that some customers manage their use of the grid using embedded co-generation should not have the effect of reducing their allocation of the residual charge".

transmission costs). I mention this as a logic error to show the fallacy of the Authority assumption that size indicates capacity to pay. We have less capacity to carry energy costs that are not properly related to cost of supply than would most small consumers whose energy content as a cost of production is small.

9. The point of the TPM is to allow Transpower to recover costs associated with owning and running the electricity transmission grid and to encourage more appropriate investment. It is not meant to operate as a tax on electricity. The reason the Authority proposed to get rid of the high voltage direct current ('HVDC') charge was because it acted as a 'tax' on South Island generators and encouraged inefficient investment and increased cost to consumers.²⁶ The Authority should be careful to avoid imposing new 'taxes' for the same reasons. We expect a TPM to require us to meet our fair share of the net cost imposed by our connection to and interaction with the grid. That is expressly not addressed by intuitive "capacity to pay" claims.

ALLOCATION OF THE RESIDUAL CHARGE

10. The Authority said its purpose was to use the residual charge to allocate Transpower's remaining costs in a non-distorting way.²⁷ However, as it affects NZ Steel, its final proposal causes arbitrary and unequal treatment of us as a consumer. Though described as 'residual', the residual charge as proposed will make up over 50% of transmission charges to consumers for years to come. The proposed transitional pricing cap provides limited financial relief. We commissioned a report by NZIER ('**Report**') which calculated that the total residual cost under the method proposed in the 2019 Issues Paper (which was ultimately adopted without material variations) would be \$494 million per annum. The way recovery of the residual is calculated will have a significant effect on all consumers. Of that NZ Steel could be billed just over \$9 million. We shared the Report with the Authority and made a number of submissions on this issue over the years to point out the flaws in the Authority's proposal.
11. The issues with the allocation of the residual charge are explained in more detail below.

ISSUE A: allocating the residual cost to consumers (not generators)

12. The Authority early on in the TPM policy development process (in the 2015 TPM Options Working Paper) ruled out the option of extending the Residual charge (full or in-part) to generators, except to the extent they have load.²⁸ The Report calculated that only 1.7% of the residual charge would be allocated to generators with load under the 2019 proposal.²⁹ The 2020 Decision Paper said this would amount to \$7.4 million for all generators.³⁰

²⁶ Issues Paper 2019 at p ii.

²⁷ Decision Paper at [10.4].

²⁸ Electricity Authority 'Transmission Pricing Methodology Review: TPM options: Working paper', 16 June 2015 (**Options Paper 2015**) at [6.98].

²⁹ New Zealand Institution of Economic Research, Memorandum to Alan Eyes 'TPM 2019 Anytime Maximum Demand Analysis', 27 January 2020 (**NZIER Report**) at p 7.

³⁰ Decision Paper at p 104.

13. The Authority thought that charging generators would mean that consumers would pay higher wholesale prices. This is not necessarily the case and if so, becomes subject to competition within the market and consumer choice.
14. NZ Steel did not labour this point once it became clear that the Authority was not going to change its mind on this issue. But we have never conceded they were correct.

ISSUE B: basing the residual charge allocation on AMD rather than coincident peak demand

15. The new Guidelines “provide that the allocation of the residual charge is based on transmission customers’ gross anytime maximum demand (AMD)”.³¹
16. This approach ignores the efforts some industrials, like NZ Steel, make to manage load down at peak times. As explained, NZ Steel plans cogeneration outages to avoid peak times and actively manages load so they don’t stretch grid capacity. AMD at Glenbrook does not occur during peaks on the Transpower grid which in this part of the country occurs mid-winter when most other consumers have peak electricity requirements. Managing peak load is a key part of optimising grid investment and performance and it can be vital to the integrity of the grid. If poor peak load management is not discouraged, it can accelerate the need for new investments and upgrades to the grid that wouldn’t be necessary if peaks were properly managed. Unnecessary grid investments must be paid for, and consumers end up paying for investments that could have been avoided or deferred at less cost. NZ Steel incurs cost to avoid coincident peak load. The proposed Guidelines materially reduce our reasons for incurring the costs of doing so with real uncertainty as to the adequacy of nodal pricing to provide the required pricing signal.
17. It will also result in transmission charges that are higher than if they were calculated on actual use for other kinds of customers. The NZIER Report compared the AMD and coincident peak measures of four EDBs.³² The AMD measurements for large consumers were between 1.2 and twice as high as the coincident peak measurements. Residential and small business connections AMD were between 1.3 and 4 times coincident peak demand. Based on available data, the Report also found that the sum of AMD for EDB individual connection groups was 2.5 time higher than the AMD estimated by the Authority in its reports.
18. The current RCPD charge (which is being discontinued) is more reflective of demands placed on the grid than AMD.

ISSUE C: basing the calculation on historic AMD rather than current usage

19. The allocation is based on a historic snapshot of AMD. While the Authority has added a rolling adjustment factor, the formula can still be classified as arbitrary. We do not understand the Authority’s assertions that historical demand is a good basis for allocation of future charges.³³

³¹ Decision Paper at A.47.

³² NZIER Report at p 11.

³³ Decision Paper at 10.28.

Cost recovery measures need to be based on actual usage, not an estimate of use in an attempt to prevent customers and consumers from making efficient business decisions.

20. This further highlights the flaws in the Authority's general approach to allocating transmission charges. With so much dependent on the residual charge until new investments (with benefits-based allocation) are underway, the Authority has backed itself into a corner of needing to impose distorted charges to enable Transpower to recover costs.

ISSUE D: calculating AMD from the grid exit point ('GXP') rather than the installation control point ('ICP');

21. The Authority said the residual allocation will be "calculated at the level of each of a customer's grid exit points (that is, points of connection). This involves aggregating a measurement at the GXP with an estimate of concurrent generation behind the GXP."³⁴
22. This decision exacerbates the problem with the Authority's approach to using AMD as an allocator and means that effectively it treats EDBs as if they were consumers, when they are only Transpower customers. The nature of EDB connections to the grid mean that the EDB consumers end up paying after diversity maximum demand ('**ADMD**') charges, whereas direct connect consumers cannot ameliorate the problem of AMD charges as they do not have the benefit of load diversity.
23. The proposal applies AMD at the Transpower (GXP) customer level, rather than the end consumer level. Most of Transpower's customers are not end consumers and EDBs will apportion this charge to their customers at the ICP level.
24. In 2015, the Authority suggested allocating the residual charge to EDBs based on the sum of nominal capacities of active ICPs in their network areas.³⁵ According to the Report, the allocation of cost to NZ Steel under that model was \$1 million (using the TPM 2019 total residual charge of \$494 million).³⁶ However, this proposal was withdrawn in the next round of proposals. The proposed measurements are now taken from the various GXPs, rather than ICPs. The cost difference to NZ Steel is large – over \$8 million. The Report concluded that under the 2015 approach, only 2% of the residual charge to be allocated under TPM 2019 would be allocated to direct connect customers. Under the 2019 proposed approach, 12% will be allocated to direct connect customers.³⁷ This is because allocating the EDB charge at the GXP levels allows EDBs to take greater advantage of diversity than measurements at the ICP level. EDB customers pay a lesser proportion of the residual charge under the 2020 Decision Paper model while direct connect customers pay substantially more. For NZ Steel, this means that an anticipated residual

³⁴ Decision Paper at A.47.

³⁵ Options Paper 2015 at 6.102(a).

³⁶ The residual charge in the 2015 Paper was approximately \$344 million. This was increased to \$494 million under the 2019 Paper: see NZIER Report at p 9.

³⁷ NZIER Report at pp 1, 4, 7.

charge of \$1 million under the 2015 methodology has now skyrocketed to \$9.6 million under the 2019 model.³⁸

25. EDB charges are effectively allocated on an ADMD basis. The ADMD of each household, for example, is not the same as their anytime demand; it's averaged out of a large group of consumers through diversity. The actual AMD of a household or business consumer is a multiple (and in some cases this may be substantial) of the deemed maximum demand that results from sharing the benefits of ADMD.³⁹ These consumers end up paying charges based on average demand rates whereas NZ Steel, because of its position as a direct connect customer, is charged on its gross AMD.
26. NZ Steel and others argued to the Authority that that, if AMD is to be used, it should be calculated at the ICP level. In its 2020 Decision Paper, the Authority agreed that “[t]heoretically, an ICP-based residual has merit by being a more granular indicator of size and ability to pay and treating otherwise similar customers equally.”⁴⁰ Yet it found that ICP data is not accurately measured and would have to be estimated and that it “was likely to overestimate AMD, which would result in higher charges for distributors as compared to industrials.”⁴¹ The Authority considered this was a disadvantage. However, smart meter data negates many of these practical issues.

ISSUE E: ALLOCATION OF THE RESIDUAL CHARGE BASED ON GROSS VS. NET LOAD

27. The Authority has stated it wants to avoid distortions when calculating the residual charge and that a charge based on net use “would risk creating an artificial incentive for investment in distributed generation”.⁴²
28. Cogeneration is not the same as distributed generation. Distributed generation involves the generation of electricity behind the meter through the likes of solar panels and diesel. Cogeneration is associated with on-site processes and as a by-product that increases resource efficiency by generating electricity. In NZ Steel’s case it is an environmentally friendly use of off-gasses and waste heat produced as a result of the iron-making industrial process.
29. The Authority considered but rejected the idea of making a special exception for cogeneration. That was justified on the basis that AMD reflects size and ability to pay better than net demand.⁴³ We made plain to the Authority our concern that such reasoning was illegitimate.
30. This proposal misstates the purpose of transmission charges – they are not a tax. They should be a way for Transpower to recover the costs of owning and operating the grid, related as far as

³⁸ NZIER Report at p 9.

³⁹ NZIER Report at p 10.

⁴⁰ Decision paper at A.51.

⁴¹ Decision Paper at A.51.

⁴² Decision Paper at 10.34(b) and (c).

⁴³ Decision Paper at 10.34(b).

is practicable to the consumer's use of the grid. That assessment must take into account efforts by consumers (like NZ Steel) to manage peak loads.

NZ Steel 'S INVOLVEMENT IN THE DEVELOPMENT OF THE NEW TPM GUIDELINES

31. I have been involved in the development of the new TPM Guidelines in my capacity as Energy Manager for NZ Steel since circa 2012. NZ Steel presented its views to the Authority (directly and/or through MEUG) on a number of occasions over the 10-year development process covering the issues outlined above, including:
- (a) 17 July 2011 on the Transmission Pricing Discussion Paper published by TPAG for consultation on 7 June 2011.⁴⁴
 - (b) 28 February 2013 submission and cross submission on the TPM Issues Paper 2013.⁴⁵
 - (c) 25 March 2014 on the TPM: Beneficiaries pay working paper 2014.⁴⁶
 - (d) 28 October 2014 on the Problem definition working paper 2014.⁴⁷
 - (e) 11 August 2015 on the TPM options working paper 2015.⁴⁸
 - (f) 26 July 2016 on the TPM second issues paper 2016.⁴⁹
 - (g) 24 February 2017 on the Second issues: supplementary consultation paper.⁵⁰
 - (h) 1 October 2019 on the 2019 Issues Paper.⁵¹
 - (i) 31 October 2019 cross submission on the 2019 Issues Paper.⁵²
 - (j) 2 March 2020 Q&A document NZ Steel benefits before and after cogeneration netting.⁵³
 - (k) 13 September 2020 letter from NZ Steel to the Authority regarding concerns about consultation process and Authority response.⁵⁴

⁴⁴ NZ Steel Submission on the TPAG's Transmission Pricing Discussion Paper, dated 14 July 2011.

⁴⁵ NZ Steel Submission on 'Transmission Pricing Methodology (TPM): issues and proposals – Consultation Paper, 10 October 2012', and cross-submission dated 28 March 2013.

⁴⁶ NZ Steel Submission on 'Transmission Pricing Methodology (TPM): beneficiaries pay working paper, 21 January 2014', dated 25 March 2014.

⁴⁷ NZ Steel letter to Electricity Authority 'TPM Problem Definition Working Paper 16 September 2014', dated 28 October 2014.

⁴⁸ NZ Steel letter to Electricity Authority 'Transmission Pricing Methodology Review: TPM options working paper of 16 June 2015', dated 11 August 2015

⁴⁹ NZ Steel 'Submission on TPM Guidelines', 26 July 2014.

⁵⁰ NZ Steel 'NZ Steel Submission on the Authority's December Options Paper', 24 February 2017.

⁵¹ NZ Steel Submission on 'Consultation Paper – Transmission pricing review', 1 October 2019.

⁵² NZ Steel Submission on 'Consultation Paper – Transmission pricing review: 2019 Issues Paper', 31 October 2019.

⁵³ NZ Steel benefits before and after cogeneration netting spreadsheet, 2 March 2020.

⁵⁴ NZ Steel letter to Electricity Authority 'Transmission Pricing Review Consultation Paper – Consultation timeframes', 13 September 2019; and Electricity Authority reply letter to NZ Steel, 20 September 2019.

- (l) Emails between NZ Steel and the Authority in March 2020 and NZIER memorandum on allocating residual transmission costs.
 - (m) 3 March 2020 on 2019 Issues Paper: Supplementary consultation paper.⁵⁵
 - (n) 21 October 2020 Transpower consultation on Transitional Congestion Charge.⁵⁶
 - (o) 18 November 2020 Transpower consultation on Prudent Discount Policy.⁵⁷
 - (p) 14 December 2020 Transpower consultation on BBC and Adjustments to charges.⁵⁸
32. I participated (with few or any exceptions other than while on leave) in all opportunities to engage on TPM with the Authority and Transpower. This has included:
- (a) review of papers and submission processes directly on behalf of NZ Steel and/or as a member of the Executive Committee of MEUG.
 - (b) TPM conference in 2013.
 - (c) Workshops.
 - (d) Direct engagement with Authority staff in the early years.
 - (e) Oral submission to the EA Board on 2 December 2019.
33. Engagement on TPM in the past few years has been largely limited by the Authority to formal written submission processes, without the initial process of being able to discuss in person the detail and practical implications of proposals. I cannot be confident that the Authority has properly understood some of our submissions in the way that we could in earlier periods.

EXPERIENCE DEALING WITH THE AUTHORITY

34. The TPM process has involved copious and voluminous discussion documents with opportunity to provide written submissions and cross submissions. The earlier stages of my involvement in the process did provide opportunity to engage directly with the Authority and discuss issues and ramifications of proposals. However, of recent years consultation has largely been limited to more structured and written communication with limited feedback as to understanding and acceptance or otherwise of submission points.

⁵⁵ NZ Steel Submission on 'Transmission pricing methodology 2019 issues paper dated 11 February 2020', dated 3 March 2020.

⁵⁶ NZS Steel submission <https://www.transpower.co.nz/industry/transmission-pricing-methodology-tpm/tpm-development-project-exploring-transitional>

⁵⁷ NZ Steel submission <https://www.transpower.co.nz/industry/transmission-pricing-methodology-tpm/tpm-development-project-prudent-discount-policy>

⁵⁸ NZ Steel submission <https://www.transpower.co.nz/industry/transmission-pricing-methodology-tpm/tpm-development-tpm-options-consultation>

35. At various stages, key issues (e.g. allocation of the residual to load, not generation customers), have been made by the Authority and these decisions have predetermined further stages in development of the TPM Guidelines.
36. As an example of restricted communication channels, we were not given a lot of notice of the meeting with the Board on 2 December 2019, which fell at a time when we were also involved with consultations for the Emissions Trading Scheme, the review of the Electricity Allocation Factor and the Review of the Crown Minerals Act. I made an oral submission to the Board with Gretta Stephens, Chief Executive of NZ Steel. We highlighted NZ Steel's unique position and dealt with the key issues that affected our business. We only had half an hour allocated to present our views, most of which was spent on answering questions from the Board. Given the time constraints, we could do little more than identify areas we would like the Board to re-examine and provide high-level responses to the questions we were asked. The Board did seem genuinely interested in our points and appeared to want to understand areas where the proposal could have perverse impacts. Because the Board told us their objective was to achieve a mechanism that can't be "gamed", but without producing unintended negative consequences, we offered suggestions for how they could achieve this, for example. They seemed interested and keen, for example, on having a mechanism to differentiate co-generation customers, such as NZ Steel, from those they describe as undertaking inefficient investment in generation just to avoid peak charges. We asked for an opportunity to speak with them or Authority staff later in more detail about these issues, which are difficult to cover fully in half an hour. The Board seemed keen to learn more.
37. On 18 December 2019, I emailed the Board and TPM review team with an overview of our submission and asking them to confirm points for further engagement, the timing and process of this. I sent a follow up email on 14 February 2020. On 8 March 2020, the General Manager Market Design, Rob Bernau, who was in charge of the consultation process, told me that they would accept the finalised NZIER report, but that the Authority considered that NZ Steel has had "appropriate opportunities to engage with the Authority and submit its views." I was told that the TPM team would contact me if they needed further information.
38. We were not invited to speak to the Board again and our arguments were not adopted in the final decision document. That was unexpected because generally the Authority tries to show that it has at least taken into consideration most lines of submission. Authority staff in charge of the review were less willing to listen to us than the Board and I don't know whether the Board genuinely did want to know more but never got the chance to ask us.

CONCLUSION

39. NZ Steel is having to plan for its future, without any confidence that the TPM is and will be disciplined by the Authority's proper objective of operating an efficient system for the long-term interests of consumers. The practical outcomes of the decision discriminate against us in a way that could leave us facing energy costs unrelated to the true costs and benefits of transmission, and unrelated to costs likely to be faced by competing steel producers. NZ Steel cannot find in

the Guidelines a foundation for assurance that we will not be seen as a convenient deep pocket to tax, right up until we could be forced to close. At that point the share of transmission costs we have been carrying would have to be transferred elsewhere.

40. NZ Steel's long-term planners want to know that consumers will not be treated differently without sound reason. NZ Steel decision-makers on sustained investment will fear the implications of that a methodology that can penalise for long-term efforts to manage grid peaks and minimise the need for unnecessary investment.
41. The proposed AMD approach does not distinguish between distributors, who are Transpower customers, and end consumers whose benefit is supposed to be the governing purpose of the Authority and the TPM. The Authority is meant to protect and ensure efficient operation of the industry for *consumers*. NZ Steel as a direct connect consumers is significantly disadvantaged compared to retail or other consumers who get their electricity from the EDBs where they will effectively share an ADMD charge.
42. The historic basis for the calculation prevents any amelioration of the problem, for example by NZ Steel choosing to become a customer of its adjacent EDB and organising with it to manage loads to mutual benefit (and the benefit of Transpower in smoothing peak demands). The Authority has deliberately blocked such action.⁵⁹ We have not seen an explanation for the final decision's lack of response to our concern that this does not meet the Authority's objective of operating an efficient system for the long terms interests of consumers.
43. Nor does that or the approach to gross load show the Authority as being reasonable. The residual allocator treats consumers (and customers) differently without appropriate reason disadvantaging consumers like NZ Steel.
44. We also have considerable doubt as to the ability of the nodal pricing mechanisms to control peak load, potentially bringing forward new investment, again at a cost to consumers.
45. Our dealings with the Authority have always been cordial but have left us with the impression that they were not open to considering alternatives that strayed outside the proposals. As the TPM process progressed, the Authority did not seem willing to budge on issues, so we focused our attentions on the topic of the hour. In the last round, our attempts to engage substantively with the Authority about our concerns and suggestions were refused, even when the Board initially seemed keen to understand more.
46. NZ Steel concluded from our dealings with the Authority that it closed off early some alternatives to their proposals.

⁵⁹ Decision Paper at 10.43 – 10.48.

APPENDIX 2

NZ STEEL OUR HISTORY AND ROLE IN THE NEW ZEALAND ECONOMY

1. There are critical benefits of having a domestic steelmaker in New Zealand. Those benefits (and conversely their loss in the case of premature closure) are highly relevant to regulatory frameworks and settings. Since 1965, NZ Steel's Glenbrook Steel Mill has used a unique New Zealand-specific process to convert iron sands into steel products.⁶⁰ We produce around 670,000 tonnes of steel a year. We are the only domestic fully integrated producer of flat, rolled steel and long products for the construction, manufacturing and agricultural industries.
2. NZ Steel's business is heavily focused on supplying the New Zealand market. Approximately 80% of our steel products are supplied to New Zealand businesses, with a further 10% being supplied to the Pacific Islands. We meet a large amount of the steel demands of the New Zealand construction, infrastructure, manufacturing and agricultural sectors. The case studies included at the end of this Appendix provide examples of how our domestically produced steel cannot be replaced by imported steel product without adverse impacts on New Zealand businesses and communities. Consequently, the transition of steelmaking to a low or zero emissions future needs to be handled with flow on effects in mind.
3. As a building material, in most cases there is no substitute for steel. In particular:
 - a. Steel is extremely ductile meaning it does not buckle, distort, warp or splinter. These properties make it an essential component in earthquake prone areas of New Zealand,⁶¹ and provides superior structural performance in cases of building fires.
 - b. The longevity and durability of steel (including its resistance to the impacts of weather) means that buildings constructed with steel tend to have longer useful lives and lower maintenance and replacement requirements. Consequently, the embodied carbon associated with their construction is extended over a longer period with less need for replacement or structural changes.⁶²
 - c. Steel is also infinitely recyclable. Steel can be recovered and recycled, resulting in almost zero construction/demolition waste. There is a very healthy international steel scrap market, which means that steel as a building material is uniquely positioned to be able to contribute to the circular economy.⁶³
 - d. Finally, steel can easily be prefabricated, which not only contributes to improved construction time and cost efficiencies, but also contributes to reducing construction material waste – which is a major issue for other building material alternatives.⁶⁴ In the context of New Zealand's affordable housing shortage, steel prefabrication presents opportunities for homes to be constructed quickly, with lower construction costs,

⁶⁰ Since 1989 NZ Steel has been privately owned. It is a fully owned subsidiary of international steel manufacturer BlueScope, one of the world's leading manufacturers of painted and coated steel products.

⁶¹ See for example Pacific Steel's EISMIC® Grade 300E Bar and Coil product, which meets the demanding requirements of the seismic structural design methods employed in New Zealand as required by local standard AS/NZS 4671.

⁶² World Steel Association, 'Sustainable Steel: At the core of a green economy' available [here](#).

⁶³ For information on the recyclability of steel see the World Steel Association webpage [here](#).

⁶⁴ Prefab NZ, 'How to Prefab: A series of New Zealand offsite construction case studies', February 2019, available [here](#).

maximising usable living areas on small sites and minimising construction amenity impacts on neighbours.⁶⁵

4. Steel is also an essential component in many of the applications that are necessary to support New Zealand's net zero transition.⁶⁶ The urban intensification and public transport developments that are essential for the reduction of transport emissions will undoubtedly rely on steel products and components. The electrification of process heat and transportation systems will rely on steel components (see **Case Study Two**). Electricity generation and transmission infrastructure will also rely on steel inputs and components (**Case Study Three** below).
5. We are proud of our role as a major employer and contributor to the New Zealand and Auckland economies. Specifically:
 - a. NZ Steel makes a substantial contribution to the Auckland and New Zealand economies:
 - i. Nationally, we contribute approximately \$600 million per annum to New Zealand's GDP. New Zealand's balance of trade would be worse by approximately \$2 billion per annum under a full steel import model;
 - ii. Regionally, we have direct expenditure of some \$960 million in the Auckland economy, and when taking into account indirect impacts, our total expenditure equates to almost \$1.2 billion.
 - b. NZ Steel is a significant employer in South Auckland, with approximately 1,340 people employed directly in high-skilled, well-paid jobs. In addition, NZ Steel's operations result in the direct and indirect employment of more than 4,000 people.
 - c. NZ Steel is a significant contributor to higher living standards⁶⁷ and skills training for New Zealanders because of its broad contributions through manufacturing and employment. As an example, currently, more than 25 young Kiwis are in our apprentice and graduate programmes – with thousands participating in such programmes since our inception in the 1960s.
 - d. New Zealand also benefits from the skills, knowledge and industry know-how of the steelmaking industry. Our staff, together with scale and connections that come with being a member of an international corporate group means that NZ Steel provides absorptive capacity to New Zealand. Absorptive capacity plays an essential role in supporting innovation and productivity.
6. Should New Zealand lose its only domestic steelmaker, not only would it make construction sectors reliant on imported steel products, but it would also effectively be forgoing the above contributions that NZ Steel makes to the lives and wellbeing of New Zealanders.

⁶⁵ See Prefab NZ, 'My Whare', April 2020, (webpage [here](#)) which discusses the merits of steel as a prefabrication material suited to 'tiny homes'. See also COLORSTEEL® case studies available [here](#), which illustrate the speed of prefabricated steel construction as well as the merits with respect to insulation.

⁶⁶ NZ Steel products are currently being used in major renewable energy generation and transmission projects throughout Aotearoa – we expect this trend to continue due to increased renewable generation requirements.

⁶⁷ The average wage for NZ Steel employees is approximately \$125,000 p.a.

7. NZ Steel's role as a domestic steel producer is also pivotal in ensuring that our local construction, agricultural and infrastructure sectors have a secure supply of high quality, reliable product that can be promptly delivered. For example:
 - a. There is a considerable difference in the lead times for imported steel (commonly three months or more) and our domestic steel (typically five weeks or less, under normal conditions). International shipping issues have exacerbated these issues in the last 12 – 18 months (See **Case Studies One and Two**).
 - b. Domestic steel production also provides resilience for New Zealand in the event of natural disasters, international supply chain and shipping disruptions, trade wars, or global commodity shortages. Such risks are significant for relatively small and isolated economies like New Zealand's, which are highly dependent on trade.
 - c. Steel produced by NZ Steel is made for New Zealand conditions, including (and especially) our unique seismic conditions. The reinforcing bar product that our Pacific Steel plant manufactures in Ōtāhuhu is specifically designed to withstand the seismic profile unique to New Zealand and a handful of other countries.
 - d. Domestic steel production allows New Zealand businesses to utilise a steel that is produced in accordance with our strict environmental, employment, social, safety and quality standards. By comparison, there is limited visibility or assurance as to the environmental, social, employment or safety conditions in which most imported steel is produced.
 - e. Having an available domestic steel supply option provides important competition and scarcity protection for New Zealand businesses that rely on steel products. Domestic steel supply optionality ensures that international steel suppliers offer steel products to New Zealand businesses at reasonable prices and within reasonable timeframes. Effectively, domestic steel production provides a benchmark for imported steel products, which ensures that import timeframes and prices are kept in check. As illustrated in cases where NZ Steel has discontinued specific product lines, the lack of supply by a domestic steelmaker results in imported product price inflation and increased delivery lead in times (See **Case Study Five**).

8. The above benefits of having a domestic steel provider are highly relevant to New Zealand's ability to transition to a net zero economy. Steel is an essential component in many of the infrastructure projects that New Zealand's net zero transition is reliant on. For example:
 - a. The electrification of New Zealand's energy systems will require a significant expansion of renewable generation, which is heavily reliant on steel products (See **Case Study Three**);
 - b. The necessary reduction of transport emissions requires investment in transport infrastructure, which similarly requires steel as a construction material (See **Case Study One and Four**).
 - c. The transition of process heat to low emission energy sources, including biomass, relies on steel componentry (See **Case Study Two**).

9. Having a domestic steel producer provides security and resilience for these essential projects. Reliance on overseas manufactured steel products would increase the cost, quality, and delivery timeframe risks. These impacts should be fully assessed when developing the ERP.

CASE STUDIES: CRITICAL APPLICATIONS FOR NZ STEEL

Case Study One - Prompt supply of domestic steel minimising delays and adverse economic impacts - Auckland Harbour Bridge repairs

The regional economic effects of the September 2020 Auckland Harbour Bridge accident were materially reduced because NZ Steel was able to supply the plate steel required for the section replacement within one day.

By contrast, importation of the same steel component would have likely involved months of delays if imported steel were necessary.



Photo Credit: NZ Herald

Case Study Two – Domestic steel lead in times supporting process heat biomass conversion – Fonterra’s Stirling biomass conversion

As part of Fonterra’s decarbonisation commitment, it is upgrading its Stirling cheese plant in Otago to use wood biomass. By switching to wood biomass, the site’s annual emissions will reduce by 18,500 tonnes of CO₂ – the equivalent of taking more than 7,000 cars off the road. The project involves the installation of new, and conversion of existing, boilers to biomass.

NZ Steel has been assisting in the Stirling biomass project by expediting the production of steel pipes that are critical to Fonterra’s project. NZ Steel’s ability to supply Fonterra has enabled the project to continue on its critical path timeline, with domestically produced steel being delivered to the manufacturing site within 4 weeks. By comparison, Fonterra faced delivery lead in times of at least 10 weeks for imported steel products from offshore manufacturers.



Photo Credit: Fonterra

Case Study Three – Steel use in renewable energy projects – Harapaki Wind Farm and Tauhara Geothermal Power Station

New Zealand's transition to a net zero future relies on electrification of energy systems, which requires the expansion of existing renewable electricity generation. Steel produced by NZ Steel is used in a wide range of renewable electricity generation applications. For example, starting in November 2021, 3,100 tonnes of NZ Steel's locally made reinforcing steel will be supplied to Meridian Energy's new **Harapaki Wind Farm Development**. This will be New Zealand's second-largest wind farm with 41 turbines generating 176 MW of renewable energy, enough to power over 70,000 average households.

Aside from wind energy, steel is also an essential component in geothermal generation. NZ Steel subsidiary, Steltech Structural Limited, is supplying 500 tonnes of welded steel beams and columns for use as the primary structural steel used by contractors at Contact Energy's **Tauhara Geothermal Power Station**.



Photo Credit: Meridian Energy



Photo Credit: Think Geoenergy

Case Study Four – Innovative steel design supporting public transport development - City Rail Link

New Zealand's low emissions transition is also reliant on significant reductions in transport emissions, including through investment in public transport infrastructure. Auckland's City Rail Link (CRL) is New Zealand's first ever underground railway. It is made up of a 3.45km twin-tunnel which runs up to 42 metres below the Auckland city centre and links up to the already established rail network. The project is due for completion in 2024 and aims to double the rail capacity, meaning more trains, more often.

In January 2017 NZ Steel was given the challenge of producing a 50mm reinforcing steel bar for the CRL. We quickly committed the required time and resources to make this happen, pulling together our manufacturing, technical and supply chain expertise to develop a product solution, the first of its kind to be manufactured in New Zealand. These 50mm steel bars are now holding up the historic Chief Post Office building, under which the rail tunnels run, helping to advance Auckland's future transport network and preserve a historic landmark. Approximately 25,000 tonnes of locally produced reinforcing steel will be used in the CRL project over a three to four-year period.

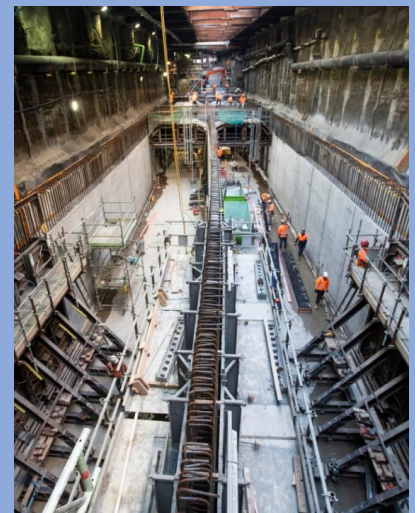


Photo Credit: NZ Herald

Case Study Five – Price inflation experience in steel product markets without a domestic steel provider - Steel hollows market following NZ Steel exit

Late last year, NZ Steel discontinued our production of a specific steel product line - 'hollows' (i.e. steel piping and rectangular sections). Since that date the New Zealand market for hollows has been supplied exclusively by overseas steel manufacturers.

The impact of there being no domestic producer on price and deliver lead times for hollows (compounded by current global supply chain issues) has been significant. Prices have increased by approximately 40% and product delivery lead times have increased to 6 months.



Photo Credit: BlueScope

1 October 2019

Submissions
Electricity Authority
PO Box 10041
Wellington 6143

By email: submissions@ea.govt.nz

Consultation Paper – Transmission pricing review – New Zealand Steel submission

1. Thank you for the opportunity to comment on the Electricity Authority's consultation paper, *2019 Issues Paper – Transmission pricing review*, released on 23 July 2019 (**2019 Issues Paper**).
2. This submission should be read in conjunction with the submission being provided by the Major Electricity Users Group.

SUMMARY

3. New Zealand Steel has serious concerns about the methodology underpinning the Authority's revised Transmission Pricing Methodology (**TPM**) proposal. The Authority's proposal fails to meet the principles of good regulatory practice, as the proposal is not proportionate, fair or equitable in the way that it treats regulated parties, and is inconsistent with the Authority's statutory objective.
4. Specifically, NZ Steel is concerned that:
 - (a) The Authority's residual charge is disproportionately large and the methodology for gross anytime maximum demand (**AMD**) as the allocator is arbitrary and contrary to objective of efficiency. A demand-based allocator is more correctly applied against net load, not gross load, to take into account cogeneration arrangements such as NZ Steel's cogeneration at Glenbrook (which is intertwined with and fuelled by off-gases and waste heat from the iron making process).
 - (b) The proposed AMD allocators for the benefits-based charge and the residual charge are applied on an inconsistent basis. For direct connect consumers, AMD would apply. For consumers connected through distribution networks, the benefits of demand diversity would apply.

- (c) The impact of the proposals would be to shift the burden of cost recovery to different users, which compromises the achievement of the Authority's efficiency objective. Such redistribution lacks credible economic support. It ignores the risk of significant damage to dynamic efficiency from moving to imperfect and largely arbitrary rules for allocating transmission costs to customers.
 - (d) The Authority's proposal fails to take into account the critical importance of peak pricing in the TPM. Removing the peak pricing signal will result in reduced demand response, and could result in peak load increases and therefore over-investment. Transpower has clearly set out the importance of peak pricing in its report on the role of peak pricing for transmission, stating that it considers that "an affordable and just transition to a low-emissions economy is promoted by retention of peak pricing in the TPM".¹ Relying on nodal pricing signals alone will not be sufficient to efficiently influence grid use at peak times.
 - (e) NZ Steel has responded in an appropriate, efficient and responsible way to the incentives it has previously faced in the market. The Authority's proposal fails to recognise that the costs for the transmission system imposed by an individual user's AMD will depend on the extent to which this coincides with the peak loads of other users. To the extent that the capacity of the transmission system is effectively determined to meet peak load, consumers that structure their demands to peak during off-peak periods are reducing their impact on transmission system costs. As such, the Authority's proposal would penalise efficient past actions which have efficiently deferred the need for grid investment, and encourage unnecessary and inefficient grid upgrades in the future. In addition, even though the Authority's proposed AMD-based calculations are backward-looking, they will nevertheless have forward-looking efficiency implications because of their impact on the consequences of past efficient actions.
 - (f) The proposed benefits-based charge is complex and uncertain, and there is a lack of economic support for applying beneficiaries-pay charges to existing assets.
 - (g) The proposed cap on transmission charges does not go far enough to remedy the deficiencies relating to the residual and benefits-based charges, and will not stop price shocks. In addition, as the cap is only temporary, it will not be able to offset the severe damage that the Authority's proposal will cause to dynamic efficiency.
5. The Authority's process also creates considerable regulatory uncertainty. It has been over seven years since the Authority commenced the current review of the TPM, which has created significant expense and distraction to participants and still has not resulted in any acceptable outcome. The findings of the Electricity Price Review Panel, which have not yet been made public, have the potential to further change the TPM requirements.

¹ Transpower, *The role of peak pricing for transmission*, 2 November 2018, p. 5.

6. Rather than seeking to radically reform the TPM, the more pragmatic and durable approach would be to focus on improving the key issues identified with the current regime. This may be more efficiently achieved by Transpower undertaking an operational review of the current TPM.

INTRODUCTION TO NZ STEEL

7. In this section, we provide an overview of the NZ Steel business, the electrical connection at Glenbrook, and dynamics of the electrical load. It is important to understand the uniqueness of NZ Steel's electrical setup and how this interacts with the transmission grid, as these factors underlie key issues raised in this submission.

The NZ Steel business

8. NZ Steel began production in 1968 and major expansions completed in 1987 created an integrated steel mill. The company is located in Glenbrook, South Auckland on a site of approximately 560 hectares on the southern shores of the Manukau Harbour.
9. For over 50 years, NZ Steel has been producing high quality steel products from its Glenbrook facility utilising local resources, including ironsand, limestone, coal and energy.
10. NZ Steel makes a substantial contribution to the lives and wellbeing of New Zealanders. NZ Steel contributes \$600 million per annum to the New Zealand economy. It is also a significant employer in South Auckland, with more than 1,400 people employed directly in high-skilled, well-paid jobs.
11. In addition, NZ Steel's operations result in the indirect employment of a further 2,500 people. As a consequence, NZ Steel is a significant contributor to higher living standards for New Zealanders due to its broad contributions through manufacturing and employment. As an example, currently, 40-plus young Kiwis are in NZ Steel's apprentice and graduate programmes, with thousands participating in such programmes since the company's inception in the 1960s.

Uniqueness of NZ Steel's position in electricity market

12. In addition to the main site at Glenbrook, NZ Steel has two other physical sites of significant size electrically. These are embedded in electricity distribution networks. At this stage, it is not known how the proposed new TPM will impact charges that distributors charge consumers who are connected to distribution networks. Site specific comments in this submission are therefore focused on Glenbrook.
13. From a national perspective, NZ Steel at Glenbrook is the second largest consumer of electrical energy. The plant operates continuously and the Glenbrook site is one of the few industrial load sites in the country that is directly connected to the transmission network.²
14. The point of supply at Glenbrook is said to be one of the most complex in the country. There are two grid exit points (**GXPs**). One solely accommodates NZ Steel load. The other provides

² Supply is via a 20km single tower 220kV dual circuit line from the main grid switching station at Drury. This line and terminating substation are classified and charged as connection assets (ie, the costs of Transpower assets from Drury to Glenbrook are met directly by the parties connected, namely NZ Steel and Counties Power).

for NZ Steel, BOC Gas, Alinta Energy generation, and Counties Power. A map and photo providing an overview of the site is set out in Appendix 1 to this submission.

15. On average, 60% of NZ Steel's electricity requirements come from the Alinta-owned cogeneration plant, which is part of the NZ Steel iron making facility. The cogeneration is principally fuelled from off-gases and waste heat from the iron making processes. The generation only exists because of the iron making facility and generation is directly related to how much molten iron is being produced. There are two cogeneration plants. The smaller connects direct into the plant. The larger unit connects directly to one of the Transpower Glenbrook substation's 33kV busbars.
16. NZ Steel can shift large amounts of its load between trading periods. It manages load carefully to minimise draw on the transmission system at times of high demand in the Upper North Island (UNI) region. This includes working with Alinta to schedule planned generator maintenance outside winter peaks.
17. The cogeneration at Glenbrook is the largest generation north of Huntly. In fact, the only other generation of significance in the UNI is the Top Energy geothermal plant. While we rarely have a net export, the Glenbrook plant contributes to voltage and frequency stabilisation, and maintains a high power factor.
18. Our iron plant melter load is offered into the reserves market. Typically, this is up to 70MW and contributes significantly to the stability of the grid during unexpected trips of large generation units or a Transpower line.
19. The above factors mean that NZ Steel does not benefit from the transmission grid to the extent that other participants do. As outlined further below, this is an important factor that must be taken into account by the Authority when considering the allocation of transmission charges, particularly given the Authority's focus on the beneficiaries-pay principle.

Impact of Authority's proposal on NZ Steel

20. The Authority's proposal will have a significant financial impact on NZ Steel. Based on the Authority's modelling, the estimated charges for NZ Steel would increase by \$9.5 million per annum without a cap,³ and be \$3.5 million higher than they currently are with a temporary proposed cap in place.
21. To put this amount into perspective, the reported EBIT for NZ Steel for 2018/19 was \$87 million,⁴ with only \$8 million of this recorded in the second half of the year. The previous five years had an average underlying EBIT of \$34 million. The impact of the Authority's proposed changes to the TPM is therefore a significant factor in the cost model when NZ Steel's parent company, BlueScope, is considering future international investment/re-investment options, and may impact the longer term sustainability of the business.

³ Based on the proposal pre-cap being \$11.9 million and status quo being \$2.4 million, as set out in Table 12 of the 2019 Issues Paper.

⁴ <https://www.bluescope.com/investors/financial-information/>. Note EBIT numbers have been converted from AUD to NZD at \$0.93 and are rounded.

22. The impact of the Authority's proposal on NZ Steel and on economic efficiency, particularly dynamic efficiency, will be felt in the short, medium and long term.
23. The first response of a firm when facing an increase in its costs will be to try to pass on that cost increase to its downstream customers. In this case, however, prices are linked to the international market and NZ Steel's downstream customers can purchase steel from China and South East Asia instead. The international market is extremely competitive, and the cost increase faced by NZ Steel will not affect its rivals in that market.
24. The economic literature relating to cost pass-through provides very few simple rules to help determine when a firm will pass on a cost increase to its customers. However, one clear rule provided by that literature is that there is very little scope for a firm operating in an extremely competitive market to pass on a cost increase that only affects that firm (rather than all firms in the industry).⁵ That means that there will be very little scope for NZ Steel to pass on any increase in its transmission costs to customers. Those costs will have to be absorbed by the business.
25. In the medium term, as discussed further below, the very real threat of appropriation of rents by Transpower or the Authority will deter NZ Steel from making the ongoing investments needed to maintain its operations in New Zealand. This increased risk, along with the inability to pass on the cost increase to its downstream customers, could put NZ Steel's operations in New Zealand at risk.
26. In the longer term, other firms will be deterred from investing in industries that rely on electricity in New Zealand because of the fear that the Authority will simply change allocation rules to transfer wealth with a redistributive outcome that is, at best, divorced from and, at worst, at odds with an efficiency objective.

GOOD REGULATORY PRACTICE AND THE AUTHORITY'S OBJECTIVE

Authority's TPM proposal fails to meet principles of good regulatory practice

27. The principles of good regulatory practice include that regulatory systems have processes that produce predictable and consistent outcomes for regulated parties across time and place, and are proportionate, fair and equitable in the way that they treat regulated parties.⁶ The Government's *Expectations for Good Regulatory Practice* notes that durable outcomes of real value to New Zealanders are more likely when a regulatory system meets such principles.
28. The Authority's TPM proposal fails to meet these fundamental principles of good regulatory practice. As detailed further below, the methodologies underpinning the residual and benefits-based charges are not proportionate, fair or equitable in the way that they treat regulated parties.

⁵ RBB Economics, *Cost pass-through: theory, measurement, and potential policy implications. A report for the Office of Fair Trading*, February 2014 and RBB Economics and Cuatrecasas, Goncalves Pereira, *Study on the Passing-on of Overcharges*, Final Report to the European Commission, 2016.

⁶ Government Expectations for Good Regulatory Practice, April 2017, p. 2.

29. For example, the Authority's proposal means that consumers that are directly connected to the grid may be treated differently to consumers connected to a distribution network, by having transmission charges allocated based on historic gross AMD (rather than after diversity maximum demand or **ADMD**). As acknowledged by the Authority on 9 September 2019 in response to our question relating to this issue:

A potential disadvantage of using AMD as the residual allocator is that a load customer might (depending on how transmission charges are passed through in distribution charges) pay less if it were embedded than it might pay if it were grid-connected, as a result of the diversity issue ... This potential artificial advantage could distort load customers' decisions on location and connection.

30. Similarly, as discussed further below, the proposed reallocation of costs of past grid investments is not fair or equitable, and would result in unpredictable and unanticipated outcomes for participants. NZ Steel has responded in an efficient way to the incentives provided by the current transmission pricing arrangements. It is not fair or equitable to penalise users such as NZ Steel who have taken efficient action in the past to shift load and efficiently deferred the need for additional investment to increase grid capacity.
31. The Authority's process also creates considerable regulatory uncertainty. It has been over seven years since the Authority's current review of the TPM commenced. Over that time, there have been multiple proposals put forward by the Authority. Participants have had to expend considerable time and resources to try to understand and digest the Authority's proposals. The consultation paper for the current proposal emphasises that this new proposal differs in significant ways from the Authority's earlier proposals. This highlights the complexity and uncertainty of the Authority's approach to the TPM review.

Outcomes of Electricity Price Review create further uncertainty

32. The Authority has not referred to the findings of the Electricity Price Review Panel relating to the TPM in its 2019 Issues Paper. Although the final report has not yet been publicly released:
- (a) the Panel stated during the course of its review that the extent to which transmission or any other shared national infrastructure prices should vary between users or regions is best settled with clear guidance from elected governments; and
 - (b) the Options Paper released by the Panel in February 2019 recommended that the Government issue a government policy statement to the Electricity Authority setting out how it should prepare fresh guidelines for setting transmission prices.⁷
33. The release of the Authority's 2019 Issues Paper before the final report of the Electricity Price Review has been made public, or a government policy statement has been considered, creates regulatory uncertainty and is likely to create additional costs for participants in continuing to respond to varied proposals.

⁷ Electricity Price Review, *Options Paper*, 18 February 2019, pp. 22-23.

34. NZ Steel's submission on the Electricity Price Review Options Paper (22 March 2019) submitted that the Authority's proposal would need to be a pragmatic and broadly accepted proposal, and that a GPS may be the best way forward if that did not occur. Our submission is that the Authority's proposal is very unlikely to be durable, and there is now a risk that a government policy statement will be introduced that will further extend the lengthy TPM review.

Current proposal is inconsistent with the Authority's objective

35. The objective of the Authority is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.
36. The focus of the Authority's TPM proposal is on the objective of promoting the efficient operation of the electricity industry for the long-term benefit of consumers. However, as detailed further below, the Authority's proposal is inconsistent with this objective. For example, the Authority's proposal will penalise efficient load shifting, and encourage unnecessary and inefficient grid upgrades. There is also no apparent logical basis for the Authority's inconsistent treatment of:
- (a) large consumers (who are directly connected to the grid), who will have charges allocated based on their AMD;
 - (b) other consumers, who are supplied through an electricity distribution business and are likely to have charges allocated based on ADMD rather than AMD.
37. The Authority's proposal has also failed to take into account the efficiency effects that could result from the wealth transfers under the proposal. The Authority's general position, as set out in its *Interpretation of the Authority's Statutory Objective* document, is that wealth transfers should be excluded when considering benefits to consumers, but must be taken into account when there are efficiency effects.⁸
38. In this case, the Authority's proposal appears to shift the burden of cost recovery towards certain users, including NZ Steel. The wealth transfers result from changes in the allocation rules from one imperfect system to another, and result from a clear policy of the Authority to rebalance transmission prices. In cases such as this, although it is not directly relevant to the Authority for the purpose of calculating or measuring consumer benefits, the significance of the burden imposed on industrial users is a clear sign that the Authority should be cautious in exercising discretion when making changes to allocation rules to recover common costs of a network, given the implications of the changes to commercial operations such as NZ Steel.
39. The Authority's proposal will result in NZ Steel bearing a significantly higher proportion of transmission costs than it currently does. Irrespective of the adverse efficiency effects implied by the proposals (as discussed further below), the proposal will result in an unjustified wealth transfer from NZ Steel's shareholders.

⁸ As noted in Electricity Authority, *Interpretation of the Authority's statutory objective*, 14 February 2011, at [A.24] and [A.64].

40. More significantly, wealth transfers such as these can be expected to affect efficiency adversely (despite the Authority's claims that its proposals avoid this), and this must be factored into the Authority's decision-making process. The Authority's *Interpretation of the Authority's Statutory Objective* document notes that wealth transfers should be taken into account when evaluating proposals if they seriously undermine confidence in the pricing process or in the electricity industry more generally, and inhibit efficient entry and investment decisions. The importance of dynamic efficiency is also acknowledged in the 2019 Issues Paper, which observes that, where a trade-off between static and dynamic efficiency is required, "significant weight should be given to the promotion of dynamic efficiency".⁹
41. In this case, the Authority's proposal clearly does affect dynamic efficiency. NZ Steel has responded in an appropriate, efficient and responsible way to the incentives it faced in the market. On average, 60% of NZ Steel's electricity requirements come from the Alinta-owned cogeneration plant, which is part of NZ Steel's facilities. NZ Steel can shift load between trading periods and manages its load carefully to minimise draw on the transmission system at times of high demand. In other words, NZ Steel has responded efficiently to the incentives provided by the current transmission pricing arrangements. The Authority's proposal effectively seeks to appropriate those benefits, which is deeply inefficient.
42. The Authority's proposal presents a serious risk of harming dynamic efficiency in this market as a result of the redistributive effects of the Authority's policy proposals. This harm comes about because firms such as NZ Steel will be more reluctant to invest in improvement projects or new assets, if they have reason to think that the Authority will extract the value created as a result of those cost savings or investments through increased transmission charges. In his keynote address to the RBB Economics Conference in Australia in 2016, the Chairman of the ACCC expressed a similar concern in the context of the charges levied by a port operator on coal miners at the Port of Newcastle:¹⁰

There is also a broader issue at stake here. The threat of appropriation of rents by a monopoly service provider in such a situation does not merely result in a pure transfer. Rather, the threat of such appropriation can limit future investment and innovation by the upstream firms. What miner would invest in reducing its extraction costs if it knew that the lower extraction costs could simply be met by higher port charges? More generally, what miner would invest in its mines knowing that the benefits of that investment could be appropriated by a monopoly somewhere else in the supply chain?

43. NZ Steel has invested in ensuring that it can manage its load so as to minimise its transmission charges. This has reduced the need for new investment in the grid, which is of benefit to New Zealand as there otherwise would have been a greater need for grid investment (which would result in higher transmission costs). The Authority's proposal disincentivises NZ Steel and others from taking action that could reduce the need for more grid investment.

⁹ 2019 Issues Paper, p. 188.

¹⁰ Rod Sims, Chair of ACCC, [Keynote Address: RBB Economics Conference](#), 27 October 2016.

THE TPM FROM A BROADER PERSPECTIVE

44. The 2019 Issues Paper does little to advance proposals for wholesale changes to the TPM. The Authority has put forward a further proposal that seemingly has minimal support and as such will not be durable (ie, affected parties will continue to press for change, given the inequitable and inefficient nature of the Authority's proposal). As noted above, there is now also a risk of further uncertainty as a result of a possible government policy statement relating to transmission pricing following the Electricity Price Review.
45. Before discussing specific issues with the Authority's proposal, it is useful to put the proposal into context by considering the wider landscape.

Role and place of the transmission grid

46. The transmission grid is an essential element of transporting electrical energy from generation to distribution networks and direct connect consumers. In an ideal situation, generation and load would be located in close proximity to each other, but for various reasons this is not the situation in New Zealand. Much of this relates to the high percentage of generation being hydro and from other renewable sources, which is necessarily located remotely from load centres.
47. Consumers only want to connect to a distribution network (and the grid) because they have a better outcome than standalone options. Grouping together forms a kind of cooperative in that a better result comes from the differing electrical energy needs (diversity) of consumers. However, advancing technology is increasing the availability of viable alternatives to grid connection. This is particularly so for mass-market consumers.
48. Despite claims to the contrary, the TPM proposals continue past thinking of one-way energy flows. The future is more likely two-way energy flows, with micro-grids, interconnected through local distribution networks connecting to a backbone transmission grid. Such potential changes highlight the importance of ensuring that any changes to the TPM are durable and take into account the development of viable alternatives to grid connection.

Regulatory setting

49. The current regulatory regime provides for the full economic costs of Transpower's services to be allocated and recovered. This guarantee of return itself results in inefficiency. This is particularly the case given it can be expected that technological advances will change the most efficient options for grid investment, but the guaranteed return will not necessarily incentivise Transpower to investigate the most efficient option.
50. Although the Authority's proposed guidelines require that the TPM must avoid creating inefficient incentives for a large consumer or generator to shift its point of connection, the regulatory regime is likely to increasingly force consumers to choose between the costs of remaining connected to the grid and the costs of standalone supply.

Authority has a limited role in transmission pricing

51. The Authority's role in transmission pricing is limited to providing guidelines for Transpower to develop a pricing methodology that provides for Transpower to recover its maximum allowable revenue set by the Commerce Commission.
52. Although the Code provides for the Authority to review an approved TPM if it considers that there has been a material change in circumstances, the Authority is not required to radically reform or undertake a wholesale rewrite of the TPM if there has been a material change in circumstances.
53. The fact that the Authority's current review commenced in 2012 (over seven years ago), and there has still been little progress in reaching an acceptable position, highlights that wholesale reform at this time is not a durable or pragmatic approach.
54. Even if the Authority makes the changes that it is currently proposing, the lack of economic or industry support for the proposal means that the proposal is unlikely to be durable. The 2019 Issues Paper observes that durability issues will arise if people are increasingly charged for services that primarily benefit others, and that perceptions of unfairness can detract from the durability.¹¹ However, the Authority fails to acknowledge that its revised proposal will also result in inequitable allocation of transmission costs and perceptions of unfairness, which will also raise durability issues. The Authority's assertion that the current TPM is not durable is based on the statement that there "has been long-term and consistent pressure for the TPM to be reformed", which "creates significant costs in reviewing regulations and lobbying for and against change".¹² However, the inefficiency and unfairness of the Authority's current proposal means that there will continue to be pressure for the TPM to be reformed and the Authority's durability objective will not be met.
55. The fact that the current TPM has continued to operate while the Authority's lengthy review of the TPM has been ongoing indicates that the current TPM may be more durable than initially thought. This is especially so given there is limited discontent with the current methodology. For example, on the demand side, Pacific Aluminium is the main party claiming disadvantage from the current TPM. As Pacific Aluminium accounts for around 14% of the total New Zealand electricity usage and its usage is at least four times larger than the individual usage in the next group of large consumers, the uniqueness of Pacific Aluminium's situation could be addressed through the TPM review rather than trying to adopt a radically different, "one-size fits all" approach.

The fundamental challenge and Authority's proposal

56. As noted in Covec's *Expert Review of Expert Reviews of Transmission Pricing Methodology Proposals*, devising a TPM is a difficult economic problem for which there is no perfect solution.¹³ The issue is that transmission networks are capital intensive and characterised by economies of scale and scope, meaning that they display strong natural monopoly

¹¹ 2019 Issues Paper, pp. 6-7.

¹² 2019 Issues Paper, p. 7.

¹³ Covec, *Expert Review of Expert Reviews of Transmission Pricing Methodology Proposals*, 23 February 2017.

characteristics. The implication of that from an economic perspective is that the price that maximises economic efficiency (short-run marginal cost) is unlikely to generate enough revenue to enable the network owner to recover their costs.

57. The Authority's proposal falls well short of the goal of allowing the network operator to charge an economically efficient price (short run marginal cost) to the users of the network and recovering the shortfall from users in a way that does not distort their decision making.
58. Although the Authority claims that its proposal achieves this objective, the Authority's proposal ignores the risk of significant damage to dynamic efficiency (as a result of firms such as NZ Steel being more reluctant to make investment or cost-cutting decisions due to the risk that the Authority will extract the value created as a result of those decisions through increased transmission charges). To comply with administrative law principles and meet the threshold of reasonableness, the Authority's decision must be rationally connected to the reason given for making it.¹⁴ As was made clear in the case of *Watson v Chief Executive of Department of Corrections*, unreasonableness in an administrative law sense can include a case where a decision-maker had more than one option but the decision reached was unsupported by reasoned justification. It may also include where the decision was so disproportionate in its weighing of competing factors, that the outcome was unreasonable.¹⁵
59. Given the length of time that the Authority has spent unsuccessfully trying to reform the TPM, and the significant expense and distraction that the reform process creates for participants, the Authority should now adopt a more durable and pragmatic approach. We submit that the better approach would be to focus on improving the key issues identified with the current regime (eg, tweaking the Regional Coincident Peak Demand (**RCPD**) formulae given a different formula may be appropriate for different parts of the grid).¹⁶
60. The Code provides for Transpower to review and submit proposed variations to the TPM. In our view, in light of the above, an operational review by Transpower of the current TPM is likely to more efficiently achieve a result that is pragmatic and durable.

SPECIFIC CONCERNS WITH AUTHORITY'S PROPOSAL

Residual charge methodology is arbitrary and contrary to objective of efficiency

61. For the reasons set out in this section, the Authority's proposal to remove the RCPD charge and allocate the residual charge based on historical gross AMD is arbitrary and flawed.
62. Our concerns about the residual charge methodology are particularly significant given the "residual" charge will (at least initially) form the bulk of the charges that are proposed to replace the current RCPD and HVDC charges. That is, although the Authority's aim is to introduce a

¹⁴ *Watson v Chief Executive of Department of Corrections* [2015] NZAR 1049 at [67].

¹⁵ *Watson v Chief Executive of Department of Corrections* [2015] NZAR 1049 at [26].

¹⁶ For example, one option that could be explored is amending the RCPD formulae so that the strength of the signal relates to the degree of capacity the grid can accommodate within regions, which may involve extending the number of regions beyond the existing four regions and in some cases increasing the 100 measurement periods. Such an approach would enable regions of the country that have no transmission constraints, or are unlikely to have constraints in the foreseeable future, to have reduced pricing signals over peak periods.

benefits-based approach to allocating transmission costs, the modelling indicates that the residual charge will form over 70% of the new charges when they are introduced. Even if the residual charge is expected to reduce over time, having such a large percentage of the total left to be allocated on the arbitrary basis of historic gross AMD basis highlights the failure of the Authority's proposal to appropriately allocate transmission costs.

Anytime maximum demand allocator penalises efficient use

63. Consumers connect to an electricity grid to access the pool of generation and supporting transmission/distribution assets – the benefits of which cannot generally be achieved from standalone on-site generation. Electricity grids are designed, built, and maintained to cater for peak demands. Peak loads are determined by the after-diversity load (ie, taking into account that the AMD for each ICP/consumer does not occur at the same time).
64. Allocation based on AMD is arbitrary and unduly penalises customers such as NZ Steel whose demands on the grid are proportionately lower over system peaks compared with other customers. Placing less demand on the grid during peak times extends the time before which further investment in the grid is required.
65. The AMD does not measure peak use of the grid or take into account individual load characteristics. For industrial customers like NZ Steel, the AMD occurs when there are no load constraints on the grid (ie, outside peak times), rather than during peak times such as a winter weekday evening. If NZ Steel had not adopted this approach to managing its load, there may have been a need for greater grid capacity and inefficient capacity increases.
66. The proposal will therefore be inconsistent with the Authority's statutory objective. In particular, adopting guidelines for a pricing methodology that penalises efficient load shifting and encourages unnecessary grid upgrades is contrary to the objective of promoting the efficient operation of the electricity industry for the long-term benefit of consumers. It is also contrary to the goal of facilitating "efficient investment in the electricity industry through providing incentives for the most efficient investments to occur at the most efficient time and in the most efficient place".¹⁷ As discussed above, the wealth transfers under the Authority's proposal will adversely affect efficiency, particularly dynamic efficiency, given the Authority's proposal effectively seeks to appropriate the benefits of NZ Steel's efficient response to the current transmission pricing arrangements.
67. We are aware that using MWh as an allocator has also been suggested. However, like AMD, this is a crude instrument and takes no account of load factor or ADMD. It would mean that a low load factor consumer, running over system peak, would be heavily subsidised by other consumers.

¹⁷ 2019 Issues Paper, p. 188.

Allocation based on gross load is inappropriate

68. Although the Authority has proposed using a net load approach for the benefits-based charge, it has proposed using a gross load approach for the residual charge. We disagree that the residual charge (if there is one) should be allocated based on gross demand.
69. Using a gross load allocator is inappropriate for a range of consumers, as it fails to take account of different user circumstances. For example, it fails to recognise the benefits of cogeneration such as that at NZ Steel where it is integrated into the production process. As outlined above, NZ Steel's cogeneration arrangement with Alinta is an efficient use of the off-gases and waste heat from the iron making process. It reduces NZ Steel's reliance on the grid, and delays or avoids the need for further investment in the grid. NZ Steel's incentives to schedule cogeneration maintenance outside peak times will be reduced if the RCPD charge is removed and replaced with the gross AMD allocator.
70. In the 2019 Issues Paper, the Authority states that its preferred option is that the residual should be allocated based on a gross load approach because "gross demand is a better proxy for customers' size (and so their willingness and ability to pay) than net demand" and "allocation of common costs based on this is consistent with what would occur in a workably competitive market".¹⁸ We disagree, and consider that the Authority's claims lack economic support, because:
 - (a) Customer size is not a proxy for willingness to pay (or ability to pay). Willingness to pay is the maximum that a consumer would be prepared to pay for a product or service, and is related to their value for the service. It is not related to size as such.
 - (b) Using gross load rather than net load would penalise users such as NZ Steel for taking action in the past that resulted in less reliance on the grid and deferred the need for upgrades to the grid. It directly contradicts the beneficiaries-pay philosophy that apparently guides the Authority's proposal generally.
 - (c) Similarly, an allocation based on AMD would be inconsistent with a beneficiaries-pay approach since it would not appropriately reflect the burden imposed on the system by individual users' actions. Specifically, it fails to recognise that the costs for the transmission system imposed by an individual user's AMD will depend on the extent to which this coincides with the peak loads of other users. To the extent that the capacity of the transmission system is effectively determined to meet peak load, consumers that structure their highest demands to occur during off-peak periods are reducing their impact on transmission system costs. As such, the Authority's proposal would punish rather than reward efficient past actions.
 - (d) The Authority's discussion of workably competitive markets in Appendix D of the 2019 Issues Paper is not correct. The Authority claims that pricing in a workably competitive market would lead to prices that reflect the benefit or value that consumers get from the product or service in that market. However, prices in a workably competitive market will

¹⁸ 2019 Issues Paper, p. 154.

reflect costs, not customer value or benefit (although the price will reflect the value or benefit of the *marginal* customer in a workably competitive market). Prices in those markets may well be higher than the level that promotes static efficiency (namely, short-run marginal cost), but they will often be below the value that consumers place on the product or service. That value can be measured by the demand curve, and the difference between the demand curve and the equilibrium price in the market reflects the surplus available to consumers in that market.

71. The Authority has in part acknowledged the weakness of its proposed residual allocator, by including a provision in the draft guidelines that would enable Transpower to use another method if it would better meet the Authority's statutory objective. However, the default allocator will be based on historical gross demand, and the guidelines will therefore create a presumption in favour of that option.
72. NZ Steel urges the Authority to reconsider RCPD as a preferred allocation method. Whether this is best on a localised, regional, national, or mix-and-match basis, is a matter to be determined. While NZ Steel acknowledges that RCPD requires refinement, we submit that it is still a substantially better allocator than AMD or other methods identified in the 2019 Issues Paper.

Application of demand-based allocator will result in inconsistent treatment of different consumers

73. There is no principled basis for allocating transmission charges for direct connect consumers (ie, consumers who are directly connected to the Transpower grid) on a different basis to the way that transmission charges will be allocated for consumers connected to a distribution network.
74. Transpower customers include a few large consumers such as NZ Steel who are directly connected to the grid, as well as entities such as electricity distributors. Consumers of electricity are the ultimate user of energy (ie, at the ICP level), and include residential consumers as well as large consumers such as NZ Steel. The modelled proposal uses an AMD allocator applied at the Transpower customer level (ie, on the demand side to electricity distribution businesses and a handful of direct connect consumers). AMD is particularly punitive for direct connect customers, who (unlike consumers connected to a distribution network) have no ability to negotiate with an electricity distributor for recognition of the benefit given for diversity of demand.
75. Electricity distribution businesses will allocate transmission costs through a distribution pricing methodology. This is likely to be based on in something other than absolute AMD of a consumer, and recognise that not all consumers connected to the distribution network will incur their individual AMDs at the time of the distribution system peaks (which forms the basis for the AMD for the distributor). That is, consumers connected to a distribution network have the benefit of 'group' buying where smoothed averaging occurs. No such allowance is proposed for our Glenbrook direct connect site, for which the site's AMD derived by the Authority has been

used in the Authority's modelling. As outlined above and in NZ Steel's previous submissions, NZ Steel's AMD at Glenbrook does not occur at a time of high UNI system loads.¹⁹

76. As has been pointed out in previous submissions, inconsistent application of AMD can be further illustrated by extrapolating the TPM proposal to a residential consumer. In the 2016 second issues paper, the allocator used for the mass market was "Nominal MVA". For residential consumers this was set at 20kW.²⁰ At that time, by applying the same logic as the Authority's modelling for NZ Steel's Glenbrook site, we calculated the transmission allocation for "Residual" to each residential ICP in the South Auckland area as \$1,063 per annum. Considering this is approximately half of what the average household pays now for their total electricity, clearly something is wrong. In reality, this would not be the case because application of the formula and the same input parameters would lead to an over-recovery of total revenue. However, it demonstrates the inappropriateness of a blanket application of AMD at the Transpower customer level, and the over allocation of costs that inevitably eventuates for direct connect and other identified consumers. An allocator exclusively based on gross capacity for the Transpower load customers is not appropriate. If gross AMD is to be used, it must be applied to all consumers (ie, down to ICP level within electricity distribution networks).
77. Consistent with our previous submissions, we urge a substantial refocus of the methodology on the end consumer. We think a number of the difficulties and risk in what is proposed could be avoided or mitigated with a shift away from the continued focus on the Transpower customer. The end consumer is the stated beneficiary of the law governing the TPM, and the end consumer's benefits and the incidence of costs should be a more prominent target and reference point.

Peak pricing is a critical component of TPM

78. Removal of the RCPD price signal will result in reduced demand response and could result in peak load increases, requiring further investment.
79. As Transpower set out in its report on the role of peak pricing for transmission:²¹

Peak pricing is a critical component of optimising the utilisation or capacity factor of transmission assets (flattening demand and enabling more energy to be supplied through the same assets), and so lowering per-unit transmission charges payable over-time. A TPM without peak pricing will materially heighten the prospect we invest in new transmission capacity earlier than we have to and in assets that become obsolete following mass uptake of new technologies.

We consider an affordable and just transition to a low-emissions economy is promoted by retention of peak pricing in the TPM...

80. RCPD is on balance a more appropriate allocator compared with gross capacity or even gross throughput. The Authority has not established a sufficient reason for removing the RCPD

¹⁹ See, for example, paragraph 15 of NZ Steel's submission on the second issues paper (17 May 2016) dated 26 July 2016.

²⁰ Electricity Authority, *Transmission Pricing Methodology Review: TPM options - working paper*, 16 June 2015.

²¹ Transpower, *The role of peak pricing for transmission*, 2 November 2018, pp. 4-5.

charge. We acknowledge that there are some concerns about the current RCPD charge methodology, but consider that the Authority should assess refining the RCPD charge to address the concerns rather than removing the peak pricing signal altogether.

81. In our view, a strict application of the Authority's stated principles (ie, a service based, cost reflective and market orientated approach) points to retention of a substantial factor that reflects the investment importance of coincidental demand for all consumers. Including peak pricing as part of the TPM is also more proportionate, fair, and equitable than the Authority's proposal, and therefore more consistent with the principles of good regulatory practice.

Risks of relying on nodal pricing signals alone

82. As one of New Zealand's largest electricity users, we know the impact that moving load can have on the UNI total. We caution against over reliance on nodal pricing as a means of managing system peaks.
83. Despite the Authority's apparent confidence in nodal pricing, NZ Steel does not agree that nodal pricing will be sufficient to efficiently influence grid use at peak times. As noted above, removal of the RCPD price signal will see reduced demand response and could result in peak load increases, requiring further investment. The risks of getting it wrong in the methodology are high because:
 - (a) On one hand, there is a risk of inefficient over-investment in the grid in relying on nodal pricing to signal peaks.
 - (b) On the other hand, there is a risk that nodal pricing will not signal an actual looming load increase in time to meet demand (ie, the capacity of the grid will not be sufficient to meet increased peak demand).
84. We understand that the Authority's cost/benefit modelling has assumed an increase in peak system load of 75MW. NZ Steel questions the accuracy of this number, given we estimate that the expected increase in NZ Steel's load alone at peak times if the peak pricing component of the transmission charge is removed would be 25-30MW on an 'average' day, and could well exceed the 75MW modelled for all New Zealand on a 'bad' day (subject to a very high spot price or other strong signal). It also appears that the Authority's table 7 in paragraph 4.68 of the Issues Paper refers to changes in demand based on average MW, whereas networks need to be built based on peak (not average) demand.
85. The Authority has proposed a transitional peak charge in recognition of the dangers of moving solely to rely on nodal pricing. However, the transitional peak charge is unlikely to be sufficient as it is limited in its application (to areas which "would experience congestion without a transitional peak charge") and proposed to be temporary/transitional only.
86. The guidelines should therefore continue to provide for a coincidental peak demand allocator.

Benefits-based charge is complex and uncertain

87. As outlined in NZ Steel's previous submissions, NZ Steel agrees in principle with the economic rationale for a benefits-based charge.

88. However, the benefits-based charge creates significant complexity, and it is unclear how Transpower will undertake a calculation of private benefits and costs. Although there will be some investments that clearly benefit some users, it is difficult (and often not possible) to attribute specific investment to particular users. Any attempt to do so will introduce a new set of (often arbitrary) allocation rules that have the potential to harm dynamic efficiency in ways discussed above.
89. Although some investments will benefit some users more than others, the benefits cannot be precisely attributed (despite the level of precision implied in Schedule 1 of the Authority's proposed guidelines). In practice, a customer will "purchase" any service that provides it with some benefit and will pay a market price for that service. In the TPM context, theoretically, Transpower and its customers would determine what investments are needed, and then engage in a negotiation to pay for those investments which would be reflected in long-term contracts. That does not work in this case (because transactions costs are so high), so some other mechanism is needed to get the beneficiaries to "pay" for the investments that Transpower makes. However, the (regulatory) mechanism cannot possibly replicate what would happen if the market could have solved the problem, so any regulatory rule is, at best, a second-best solution relying on some arbitrary allocation rule.
90. A number of experts have raised concerns that beneficiaries will be unable to reliably estimate the way their charges will change in response to particular new investments, which undermines the potential for benefits-based charges to guide participants and consumers toward efficient conduct.²² As the Authority itself acknowledges in the 2019 Issues Paper, uncertainty is not conducive to making long-term investment decisions.²³
91. If a benefits-based charge is introduced, it will therefore be essential that the basis for allocation of benefits-based charges is transparent and predictable.
92. Transpower must also be required to take into account the fact that the benefit to a customer of being connected to the grid for back-up/insurance purposes (ie, customers who are less dependent on the grid) may be substantially less than the benefit for a customer who has normal load. We therefore agree in principle that taking a net load approach (ie, net of generation) is appropriate, as it better reflects the benefits that customers receive from grid-delivered electricity. However, for the reasons outlined above, we consider estimating the benefits based on AMD as an allocator is arbitrary and not necessarily reflective of the benefit derived.
93. Our other concern about the benefits-based charge is that it involves the reallocation of the costs of past grid investments, even though participants such as NZ Steel have had little opportunity to influence or contribute to investment decisions that they will now be asked to pay for. This is inconsistent with the need for regulatory systems to be proportionate, fair and equitable, and contrary to the principles of good regulatory practice. As the Authority

²² Covec, *Expert Review of Expert Reviews of Transmission Pricing Methodology Proposals*, 23 February 2017, p. 13.

²³ 2019 Issues Paper, p. iv.

recognises in the 2019 Issues Paper, “[p]erceptions of unfairness can detract from the durability, associated certainty and so the efficiency of the TPM”.²⁴

94. The problems with the Authority’s proposed inclusion of existing investments in the benefits-based charge have been canvassed in detail in previous expert reports submitted to the Authority. For example, Covec’s *Expert Review of Expert Reviews of Transmission Pricing Methodology Proposals* outlined expert views on the lack of economic logic for retrospectively applying beneficiaries-pay charges to existing assets, stating:²⁵

Retrospective changes to liability for the cost of existing assets sit uneasily with some of the economic logic behind a beneficiaries-pay approach. ...

The expert reports challenge the EA’s view that re-allocating liability for costs already incurred can lead to more efficient future investment decisions. PwC advocated “avoiding the retrospective reallocation of sunk costs”. Compass Lexecon said: “as long as these charges are applied to existing assets, the proposal fails to implement the minimum distortion principle for sunk cost recovery”. CEG said: “there can be no dynamic efficiency benefits associated with applying a ‘beneficiaries pay’ approach to reallocating the sunk costs of past investments”.

95. Concerns with applying beneficiaries-pay charges in this way to existing assets have also previously been expressed by the Authority’s expert, Professor Hogan. The Authority’s *Beneficiaries-pay in the USA* report states that Professor Hogan did not approve of applying beneficiaries-pay to historic investments, saying that for historic investments “we are where we are” (which the report states was taken to be a reference to the fact that it is no longer possible to influence an investment decision that has already occurred).²⁶ In contrast, Professor Hogan is reported to have subsequently stated that “there was nothing that he was aware of that was inefficient or inappropriate in applying benefit-based charging to existing assets, provided no incentives for inefficient entry or exit are created”.²⁷
96. Before the apparent retraction of Professor Hogan’s initial view on the application of beneficiaries-pay to historic investments, Professor Hogan had expressed a strong (and economically correct) view. The subsequent retraction or clarification is unsatisfactory, as it could be read as essentially saying that you can use any allocation rule to apply beneficiaries-pay to historic investments provided incentives for efficient entry or exit are not undermined. In other words, a rule that allocated historic investment costs to beneficiaries based on an arbitrary allocator (even one unrelated to the electricity industry) would be acceptable based on this view, provided it did not lead to inefficient entry or exit decisions.
97. The unusual approach that the Authority has taken in relation to the proposed benefits-based charge has also been recognised by the Electricity Price Review Panel, which has noted that

²⁴ 2019 Issues Paper, p. 7.

²⁵ Covec, *Expert Review of Expert Reviews of Transmission Pricing Methodology Proposals*, 23 February 2017, p. 11.

²⁶ Electricity Authority, Commerce Commission and Transpower, Joint Report: *Beneficiaries-pay in USA: Discussions on implementation of beneficiaries-pay cost allocation for transmission investment*, 20 June 2018, at [5.9].

²⁷ 2019 Issues Paper, p. v. See also 2019 Issues Paper at p. 117.

“We are unaware of any other country undertaking retrospective reallocation of past grid investments”²⁸

98. A more principled approach would be for the benefits-based charge to only apply to future grid investments (for which the costs are outweighed by benefits to consumers).

Proposed cap on transmission charges will not stop price shocks

99. NZ Steel supports a cap on transmission charges. However, the Authority’s proposal does not go far enough to remedy the deficiencies relating to the residual and benefits-based charges discussed above.
100. The Authority’s concession that a cap is needed highlights the significant impact that the Authority’s proposal will have on consumers. The Authority has said that the cap will give households and businesses certainty about the level of charges in advance. However, if the cap only applies for a short initial period, the cap will only delay the inevitable price increases and will therefore not mitigate potential price shocks in future.
101. The Authority’s proposed cap also fails to take into account cogeneration, as the proposed capped increase is based on a customer’s total electricity bill. We submit that the cap should take into account cogeneration arrangements, such that the cap for customers who have cogeneration arrangements is lower in recognition of the benefits that cogeneration provides.
102. The Authority’s assumptions in its modelling include an assumption based on the cost of energy for the 12 months leading up to August 2018. Given recent prices have been significantly higher than for this period, the Authority’s modelling may therefore downplay the potential amount of increases to prices, resulting in a higher cap.

AUTHORITY’S QUESTIONS

103. NZ Steel’s response to specific questions asked by the Authority in the consultation paper are set out in Appendix 2 to this submission.

INADEQUATE CONSULTATION PROCESS

104. As set out in our letter to the Authority dated 13 September 2019, we are concerned that the Authority has not provided a reasonable opportunity for interested parties to consider and make submissions on the Authority’s proposal.
105. Although the Authority provided a period of 10 weeks for submissions, it did not hold workshops or release technical information relating to the proposal until late in the consultation period. This included holding a workshop on the details of the cost benefit analysis and charges modelling components of the proposal on 10 September 2019, just three weeks before the due date for submissions. Contrary to the Authority’s assertion in its response dated 20 September 2019 that it was not necessary for stakeholders to attend a workshop or consider the cost benefit technical files to be able to make an informed submission, we consider that the workshops and technical information are integral aspects of the consultation process.

²⁸ Electricity Price Review, *First Report*, 30 August 2018, p. 50.

106. Given the fundamental importance of ensuring that any changes to the TPM are durable and consistent with good regulatory practice, we expect the Authority to undertake a more thorough consultation process, which provides a better opportunity for participants to engage and discuss the proposal with the Authority, and more time to assess the potential implications of the proposal on affected parties and the long-term interest of consumers. We are disappointed that the Authority's response dismissed our concerns, and failed to acknowledge the time that it can take participants to understand and test complex proposals that have taken the Authority many months (if not years) to formulate.
107. We will continue to consider and assess the issues with the Authority's proposal. We expect that the Authority will have regard to any further submissions, which will enable it to make a more informed and robust decision on any proposed changes to the TPM.

CONCLUDING COMMENTS

108. For the reasons set out in this submission, we urge the Authority to reconsider its proposal and to work further with participants to develop changes to the TPM that are more consistent with the Authority's objective and principles of good regulatory practice. Rather than seeking to radically reform the TPM, a more pragmatic and durable approach would be to focus on improving the key issues identified with the current regime.

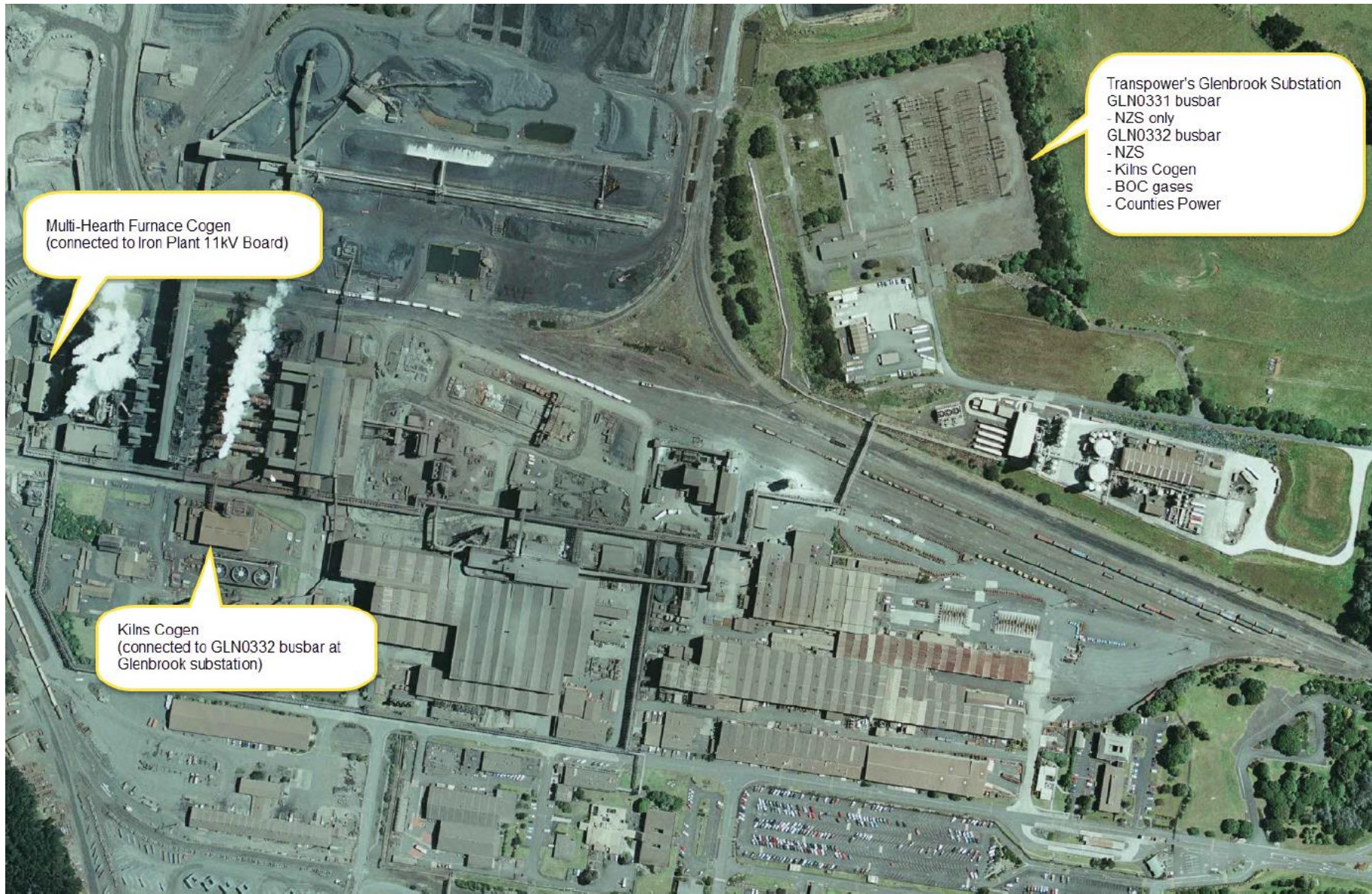
Yours sincerely

A handwritten signature in black ink, appearing to read 'Gretta Stephens', written in a cursive style.

Gretta Stephens
Chief Executive

APPENDIX 1 – OVERVIEW OF GLENBROOK SITE





Multi-Hearth Furnace Cogen
(connected to Iron Plant 11kV Board)

Kilns Cogen
(connected to GLN0332 busbar at
Glenbrook substation)

Transpower's Glenbrook Substation
GLN0331 busbar
- NZS only
GLN0332 busbar
- NZS
- Kilns Cogen
- BOC gases
- Counties Power

APPENDIX 2 – RESPONSE TO SPECIFIC QUESTIONS IN CONSULTATION PAPER

Question		NZ Steel response
1	Have the problems with the current TPM been correctly identified? In what ways does the current TPM work well?	The Authority has set out what it perceives to be problems with the current TPM. We do not agree. The current TPM is clearly understood and provides price signals for a dynamic environment. It discourages load regionally at peak times, thus reducing the need for further investment in peak generation, the transmission grid, and distribution networks. This is particularly important where load growth is occurring/expected.
2	What are your overall views on the Authority's proposal for changes to the TPM guidelines?	Our overall views on the Authority's proposal are set out in the body of our submission.
3	Does the CBA provide a reasonable estimate of the costs and benefits of the proposal? If not, what changes to the methodology and / or assumptions would improve the estimate?	No. Please refer to the MEUG submission and accompanying NZIER report.
4	Do you have any comments on the matters covered in chapter 4?	The 2019 Issues Paper makes repeated claims that consumers value electricity most highly during peak times. While this will be true for many consumers, it is not the case for all. NZ Steel is a 24 hour operation, but peak times are not when we have the highest requirement for grid supplied electricity.
11	Should the current guidelines on connection charges be largely retained or are changes required?	This has not been a focus of attention as broadly the current provisions are considered acceptable.
13	Do you think introducing a benefit-based charge for future grid investments will promote efficiency and the long-term benefit of consumers?	As set out in the body of our submission, NZ Steel agrees in principle with the economic rationale for a benefits-based charge.
14	Should the cost of pre-2019 investments be recovered in some other manner than through the residual charge, and if so how? Which pre-2019 investments should be recovered in this manner? In particular, do you consider that the cost of some past investments should be recovered through a benefit-based charge?	Please refer to the body of our submission (including paragraphs 88 to 98).

Question		NZ Steel response
18	Should the guidelines require Transpower to adopt a net load or a gross load approach in determining customer benefits, or should flexibility be allowed?	As set out in the body of our submission, net load should be used. Gross load is not relevant. Any benefits to consumers of an investment will come from net load.
19	Should the guidelines distinguish between high-value and low-value investments?	Yes. A pragmatic approach should be used, taking into account the size of the project and range of benefits. We suggest that consideration be given to whether the Commerce Commission approval process should include an assessment of how the charge will be allocated.
20	If so, should the costs of low-value investments be allocated via the residual charge or via the benefit-based charge using a simple method?	This cannot be answered until issues surrounding the proposed residual and benefits-based charges are addressed.
22	What are your views on the Authority's proposal to determine a benefit allocation for seven major existing investments (including the proposed and alternative methods)?	Please refer to the body of our submission (including paragraphs 88 to 98).
24	Should charges be revised if there has been a substantial and sustained change in grid use? If so, what threshold would be appropriate to define such an event?	<p>It is hard to imagine a durable TPM that does not have provision for such occurrences. Situations will also arise where the customer exits the market or disconnects from the grid. We have seen this in recent years with Auckland based generation.</p> <p>However, keeping Transpower whole with regard to revenue is the real issue. In a workably competitive market, the shareholder would take the loss, not have the revenue short-fall recovered from other customers.</p>
27	Should the guidelines provide for a single residual charge or multiple residual charges?	Please refer to the body of our submission (including paragraphs 61 to 62). The proposed residual charge would initially recover well over 50% of Transpower's total revenue. Further breakdown of this is essential and necessary to move forward to find appropriate allocators. Please also refer to the MEUG submission.
29	Should the residual charge be allocated based on AMD, annual consumption, a mixed approach, or some other approach?	As set out in the body of our submission (see paragraphs 63 to 77), neither of these allocators are appropriate. They are arbitrary and, given the size of the residual, would create significant inefficiencies.

Question		NZ Steel response
30	If the residual charge is to be allocated based on AMD, how should multiple points of connection be treated?	If the residual charge is to be allocated based on AMD (which we disagree with), multiple points of connection at a single Transpower point of supply (ie, a substation similar to Glenbrook) should be treated as a single connection point.
31	Should demand be measured using a net load or gross load approach for the allocation of the residual charge?	There is clear logic for using net load rather than gross load (see paragraphs 68 to 72). As set out in those paragraphs, the assertion in the 2019 Issues Paper that "...gross demand is a better proxy for customers' size (and so their willingness and ability to pay) than net demand" ²⁹ is strongly refuted.
32	If a gross load approach is used for the residual charge, should injection by both distributed generation and behind-the-meter generation be taken into account, or distributed generation only?	As outlined in the body of the submission, we disagree that the residual charge (if there is one) should be allocated based on gross demand, including because the gross load approach fails to recognise the benefits of cogeneration. If a gross load approach is used for the residual charge, the answer to the Authority's question about whether injection by both distributed generation and behind-the-meter generation should be taken into account is not straightforward when NZ Steel's Glenbrook site is considered. For the reasons outlined in the body of our submission, cogeneration should be taken into account when determining load.
33	Is there any other available data that should be used to allocate the residual charge instead of data from the Reconciliation Manager?	NZ Steel is unable to answer this question at this time. In the time available, we have not been able to reconcile the inputs used in the Authority modelling with what we consider to be the actual figures.
35	Should a customer's residual charge allocation be adjusted to account for a substantial change to demand due to factors over which it has no control?	Yes, for the reasons and with the implications outlined in the answer to Question 24 above.
36	Should the residual charge apply to both generation and load customers, or only to load customers?	Please see the answer to Question 27 above.
37	Are the proposed provisions relating to adjustments appropriate?	The situations outlined should be expected to arise at some stage. In addition, the Auckland region is experiencing increased growth in ICPs. This will lead to increased investment in the grid.

²⁹ 2019 Issues Paper at [B.213].

Question		NZ Steel response
		It is necessary for the TPM to accommodate such situations in a dynamic way. We are not confident the current regulatory settings enable a workable and durable solution to be included in the TPM.
39	Should the TPM include a price cap? Does a price cap of 3.5% of total electricity bills provide a reasonable balance between the desirability of limiting price shocks and the desirability of transitioning to the new TPM?	Please see paragraphs 99 to 102 of this submission.
44	Should the guidelines include a peak charge? If so, should it be a core component of the proposal or an additional component?	Please see paragraphs 78 to 86 of this submission.
45	Should the peak charge be applied only where the grid would otherwise be congested?	A peak charge should be applied to signal potential congestion, not only when the congestion arises. An appropriate peak signal will encourage optimisation of asset use, avoiding/delaying the need for investment. Clear long-term pricing signals are required, given consumers make long-term investment decisions (often involving decades) and grid investments usually require a number of years to plan and build.
52	Do you agree with the conclusions of appendix D?	Please see paragraphs 22 to 43 and 56 to 60 of this submission.
53	Do you have any comments on the matters covered in this appendix D?	Please see paragraphs 22 to 43 and 56 to 60 of this submission.
54	Do you agree with the conclusions we draw from Transpower's report <i>The role of peak pricing for transmission</i> ?	No. Peak pricing is a critical factor to the operation of, and investment in, the grid. NZ Steel considers more weight should be placed on the Transpower recommendations. There is high risk in moving to a nodal pricing signal for congestion. When congestion does factor into the nodal prices, consumer investment decisions will have been made, and it will usually be too late to rely on demand-side management as an efficient tool to manage the congestion.
55	Do you agree that nodal prices enhanced by RTP, and supplemented if necessary with administrative demand control, are the most efficient means of constraining grid use to capacity?	The level of nodal prices will be the determinant each trading period as to constraining grid use. However, as outlined in the response to Question 54 above, this will not be efficient.

Question		NZ Steel response
56	Do you agree that the benefit-based charge, in conjunction with the Commerce Commission regulatory regime and nodal prices, is sufficient to ensure efficient investment in the grid and by grid users?	No. Insufficient peak signalling will encourage load, leading to the need for earlier than necessary investment. By the time this shows up in nodal prices, it will be too late to factor into efficient decision making by consumers, and will negatively impact Commerce Commission processes for timely consideration of Transpower investment proposals.
58	Do you agree that it would not be efficient to provide for a permanent peak based charge in addition to nodal prices?	No. Please see paragraphs 78 to 81.
68	Do you agree with the approach we have taken to net distributed generation? Do you agree with the application of our netting policy for particular generator(s)? If not, please provide details of particular generator(s) so that we can consider whether to amend our netting arrangements.	Please see the "Introduction to NZ Steel" section of this submission for information on the NZ Steel site cogeneration. It is integrated into the iron making facilities and process.
69	Do you consider that the data used in the impacts modelling (in particular, demand and generation volumes) should be adjusted? If so, please provide reasoning/quantitative calculations.	Please see the response to Question 33 above.