Submission on Transmission Pricing Review Consultation Paper

NZ Wind Energy Association Submission

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Submissions
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Introduction

1. The New Zealand Wind Energy Association (NZWEA) welcomes the opportunity to comment on the Transmission Pricing Consultation Paper (TPCP).

2. The Association did not submit on the Transmission Pricing Methodology (TPM) 2016 consultation but did so on the Distributed Generation Pricing Principles (DGPP). In submitting on the DGPP the Association also made several comments on the TPM which are attached as appendix 1.

3. The Association acknowledges the work undertaken by the Electricity Authority (EA) and recognises there is a case for changing aspects of the allocation of transmission charges.

4. While a number of positive refinements to the 2016 proposal have been proposed in the latest TPCP the Association is concerned about the intended and unintended consequences on renewable electricity generation and the NZ electricity system.

5. The importance of finalising a new TPM to provide improved investment certainty as the electricity industry enters a period of significant growth to support a reduction in energy sector emissions is also recognised.

6. In this submission the Association focuses on principles and aspects of the proposed TPM which are considered most relevant to an efficient electricity sector with a higher level of renewable generation.

Executive Summary

7. NZWEA supports revising the TPM and considers there are issues with the current methodology which do not best support the future development of the electricity sector given rapid technological change and the expected growth required to enable a decarbonisation of the energy sector.

8. The Association agrees the key issues the EA has articulated that:

   - A high percentage of Transpower's revenue that is recovered through a peak demand charge potentially over-emphasising the cost of new investment over the value provided from existing assets.

- HVDC pricing creates a North Island generation investment bias.
- New investment costs are spread over all customers potentially imposing cost on those who do not benefit from the investment and reducing the consideration of alternatives from those who do benefit.

9. The two key outcomes the wind industry seeks in relation to transmission pricing are:

- Ensuring a form of peak pricing signal is retained that signals to customers that their demand drives future investment in transmission and distribution infrastructure investment and improves the ability of renewables such as wind energy to meet demand based on a flatter demand profile that reduces consumer total energy costs.
- Placing South Island generation on a level playing field with the North Island to better enable the renewables potential in the South Island to be developed and create greater geographical dispersion of wind generation to reduce short-term variability.

10. As identified in the Electricity Price Review (EPR) Options Paper transmission pricing poses difficult and contentious issues that it should be settled sooner rather than later.[1] The Options Paper references several guiding principles proposed by Transpower should the Government decide to issue a Government Policy Statement on transmission. The principles are simple and implementable, incremental change and the importance of signalling peak usage.

11. The Association considers these principles should also apply to the current EA consultation and has concerns the extent of the proposed change creates a high level of risk which could be mitigated by simplifying the proposal yet still achieving a significant improvement in transmission pricing.

12. The Association notes and supports the changes from the 2016 proposal to provide more discretion to Transpower to utilise a peak price signal, having a simpler method for lower value investments and to be able to propose another residual charge allocator.

13. The key aspects of NZWEA's submission are as follows:

Potential inconsistency with the Government's climate change agenda	▪ The TPM proposal is expected to increase demand during peak periods which, based on current trading, will require more thermal generation, thereby increasing electricity sector emissions. ▪ The Association considers that the carbon emissions impact should be assessed to ensure consistency with the Government's climate change agenda.
Complexity and level of change creates excessive risk	▪ Recognising the extensive nature of the proposed changes NZWEA considers a simplified approach is required or at the very least having a defined period to transition fully to the new TPM. ▪ A full risk assessment should be completed to identify the key risks and issues of the proposed

[1] Electricity Price Review Options Paper February 2019 Section E.

	methodology to ensure they can be appropriately mitigated. ▪ The Association considers substantial benefits could be realised with a less complex more incremental approach.
An effective peak pricing signal is required	▪ One of the key objectives of transmission pricing should be to signal to consumers that peak demand drives future investment in capacity. ▪ The nodal price only includes the SRMC of transmission which is about the present use of the grid not a price signal for future investment which requires a LRMC. ▪ In the Association's view nodal pricing therefore does not provide an effective peak pricing signal which should arbitrage a consumption decision against an increase in benefit charge in the future. ▪ Given RCPD is an absolute measure of network capacity utilisation the option of revising the methodology to increase the duration of the peak pricing signal and also introducing another measure related to aggregate volume would better support a renewables based electricity sector and mitigate any unintended consequences from disincentivising either demand response or distributed generation.
The HVDC has national benefit	▪ The Association concurs that the HVDC has benefits beyond South Island generators and current pricing disadvantages new renewables development and needs to change. ▪ Achieving greater geographical dispersion will reduce wind short term variability.
Using a gross demand measure for the residual charge does not recognise the benefits of distributed generation	▪ DG is largely renewable and an important component of the electricity supply system and includes 45% of all current wind capacity. ▪ Transpower's analysis for the ACOT implementation confirmed that DG is an effective equivalent to transmission investment. ▪ The proposal that the residual charge be recovered based on gross demand does not recognise the benefit of reduced grid demand distribution businesses obtain from DG and the transmission benefit of avoided investment. ▪ The Association supports having the residual charge based on net demand.
Inconsistency between the transmission and distribution pricing methodology's	▪ The EA notes distribution network costs are driven by periods of peak demand and that more efficient pricing models have a fixed and variable (marginal cost) charge that align prices with the cost drivers. [2]

[2] EA publication It's Time to Reform Distribution Pricing.

	▪ The Association questions whether distribution pricing principles are consistent with the TPM as: o It is unclear to what extent the benefits-based approach includes elements of a variable charge (over time) other than relying on nodal pricing. o Having a residual charge based on anytime maximum demand set at each GXP does not provide an effective transmission peak demand signal that new transmission investment may be required.
Benefits based pricing of new investment supported in principle	▪ As a broad principle the Association supports the proposed benefits-based charge (BBC). ▪ The Association also recognises the electricity system will undergo rapid change and the importance of ensuring the BBC has flexibility to adapt. ▪ NZWEA questions whether a simpler regional volume-based benefits allocation may deliver most of the intended benefits.
Simplified development process	▪ The Association considers Transpower should be allowed sufficient time for thorough analysis and formal consultation while developing the methodology based on the EA's guidelines.

Detailed Comments on the TPCC

14. This section expands on each of the key aspects of the Association's response to the TPCC.

1. Potential inconsistency with the Government's climate change agenda

15. The Government has set an aspirational target for the electricity sector to be 100% renewable by 2035 in a normal hydrology year. In addition, a 2050 net zero emissions target for greenhouse, other than biogenic methane, is included in the Climate Change Response Amendment Bill.

16. NZWEA acknowledges the EA has a single statutory objective to promote competition in, reliable supply by, and the efficient operation of the electricity industry for the long-term benefit of consumers which does not allow consideration of pan-industry externality policies such as lower carbon emissions.[3]

17. While the EA is clear in its statutory objective the impact of a TPM on the energy sector and future carbon emissions, given the Government's climate change agenda, warrants careful assessment.

18. Indeed, this was the view of The Interim Climate Change Committee (ICCC) who recommended that *"regulators be required to take the objective of reducing emissions*

[3] EA publication Interpretation of the Authority's Statutory Objective, February 2011 para1.1.1 and A.67.

into account through mechanisms such as Government Policy Statements". [4]

19. The transition to an electricity sector with a higher-level of renewables generation with an increased variability leads to challenges in meeting peak demand periods that historically have been met with thermal generation. Internationally the focus has been on utilising storage and demand response initiatives to shift load to balance supply and demand.

20. The proposed TPM and the removal of the RCPD pricing signal is forecast to result in higher electricity demand peaks, with potentially less demand side response which could result in higher levels of thermal generation, electricity prices and sector emissions.

21. The Association also considers that distributed generation, which is largely renewable, is undervalued with the residual charge being based on gross demand.

22. The Association references the Productivity Commission's Low-emissions Inquiry Report. [5]

"Demand response (DR) and distributed energy resources (DER) will play an important role in reducing the need for fossil-fuelled peaking in a future electricity market. First DER and DR have the potential to add to grid-scale wind generation to reduce the need to use hydro to balance demand at peaks or when wind is unavailable. This will make it easier to store water and reduce the use of fossil-fuelled generation to meet dry-year resource adequacy needs. Second, increasing the contribution of DER and DR will lower the need for investment in additional grid scale generation and transmission capacity, and so lower the cost for consumers."

23. The Productivity Commission further comments on the importance of voluntary demand response based on price signals.

"By dampening demand at peaks DR has the potential to reduce the use of on-call fossil-fuelled generation"

24. The Association considers the definition of the EA's function creates a disconnect at an industry governance level and that insufficient consideration has been given to carbon emissions particularly as peak demand is expected to increase. The carbon emissions impact of the proposed TPM should be assessed as an important consideration of the TPM's consistency with the Government's climate change agenda.

2. Complexity and level of the proposed changes creates risk

25. The EPR noted that TPM principles should be simple and implementable and incremental change. In the Association's view the more complex and far reaching the changes the greater the risk at a time when the electricity sector is being asked to play a key role in decarbonising the energy sector.

26. The proposal represents a significant and fundamental change in approach and while the Association supports revising the TPM for the reasons outlined in paragraph 8 we question whether a lower risk approach could address the identified weaknesses in the TPM.

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[4] ICCC Accelerated Electrification April 2019 Report, recommendation 6.
[5] Low-emissions Inquiry Report section 13.5.

27. The key risk areas the Association sees include:

- The change to nodal pricing as the key peak pricing signal.
- The complexity of the benefits-based charge which will only increase with future grid investment.
- Having the residual charge based on gross demand thereby undervaluing the value of distributed generation.
- Delayed implementation as the complexity of the methodology is developed into operational policies and procedures.

28. Recognising this level of uncertainty NZWEA would prefer to see a simpler approach taken or at the very least having a defined period to transition fully to the new TPM. The benefit of a transitional approach is that it would enable the impacts of changes to be assessed particularly if a weakened peak price demand signal is implemented.

29. In the Consultation paper the EA has identified other options that have been considered and discounted. NZWEA considers a simpler approach could include:

- Retaining RCPD as a peak demand signal but increase the number of periods measured.
- Add a utilisation measure such as mean or median demand to reflect ongoing grid utilisation.
- Introduce a benefits-based charge to improve targeting that is based on wider regional assessment of benefits rather than the current national postage stamp approach.

30. A combination of RCPD for more periods and a utilisation measure would reduce the strength of the peak period price signal to reflect cost structures and improve consistency with preferred distribution pricing reforms.

31. Section E.13 to E.26 of the TPCP references Transpower's Report on The Role of Peak Pricing for Transmission[6] which concludes that "*peak pricing is a vital component of the TPM now and for the future and that nodal energy pricing is not a substitute for network peak pricing".*

32. The Association considers the TPM should be simplified and a full risk assessment completed to identify the key risks and issues of the proposed methodology to ensure they can be appropriately mitigated.

3. An effective peak pricing signal is required

33. One of the key objectives of transmission pricing should be to signal to consumers that peak demand drives future investment capacity to help defer grid investment.

34. The Association agrees that having interconnection charges allocated based on consumption during just 100 regional peak trading periods in a year creates a strong price signal to consumers that does not fully value transmission access and usage.

[6] The Role of Peak Pricing for Transmission November 2018 pages 4 and 5.

35. The price signal clearly influences electricity distribution businesses to optimise their existing network investment by focusing on demand side management and, where aligned, benefiting from distributed generation at times of peak transmission usage.

36. At some point, given expected electricity industry growth, regional peak transmission capacity levels will be reached. At this point those consumers who have taken action to manage peak demand and distributed generation will have assisted in extending the useful life of existing transmission assets and effectively delayed the cost of new investment.

37. In the Association's view nodal pricing reflects largely the short run marginal cost of generation based on the availability of fuels and generation type at a given location at a point in time. While transmission losses and constraints influence the source of generation and therefore energy costs, they do not provide insight on the cost of relieving a constraint and is therefore not a substitute for transmission peak pricing to support grid optimisation and the flow on impact on distribution networks.

38. The spot price therefore only includes the SRMC of transmission which is about the present use of the grid not a price signal for future investment which requires a LRMC of transmission.

39. The Association notes that current loss and constraint rentals of around $50m p.a, while expected to increase under the proposal, are not material in the context of transmission investment relative to investment in new generation or transmission capacity to meet an increase in peak demand.

40. Ideally, with effective planning, potential transmission constraints should also be identified in advance material constraints occurring thus preventing price separations and market constraints which may impact wholesale market competition.

41. If nodal pricing is going to become more volatile through increases in peak demand and potentially deferred transmission investment the importance of ensuring a liquid and efficient hedge market becomes paramount.

42. The proposed introduction of a transitional peak charge is a positive improvement on the 2016 TPM proposal however NZWEA considers that flexibility should prevail and that if Transpower deem some form of peak pricing in addition to, or in place of, anytime maximum demand for the residual charge, this should be permitted.

43. The Association also notes that with higher levels of renewable generation the importance of managing peak demand periods by energy storage and demand side management responding to pricing signals also increases if high cost low efficiency thermal peaking generation is to be avoided.

44. As noted in para 15 to 24 the Association therefore questions the extent to which the Government's climate change response and aspirational target of 100% renewable electricity generation is supported by the TPM's intention to rely solely on a nodal pricing signal.

45. The ICCC has also recommended that "*the regulatory system facilitates the timely investment in the transmission network that optimises the development of new lines with the building of new generation and enables consumers to get the right price signals to engage in demand response and make the best use of new technologies".* [7]

[7] ICCC Accelerated Electrification April 2019 Report, recommendation 6.

46. In relation to the proposed residual charge NZWEA considers maintaining a regional coincident peak demand (RCPD) is a better measure of consumer use of the grid than Anytime Maximum Demand (AMD) in the context of additional investment as RCPD measures the peak use of the grid. AMD does not distinguish between access to the grid during periods of high or low demand by other users and therefore captures consumers who make their maximum use of the grid when it is less heavily used overall.

47. The Association also notes that having a default AMD allocation based over at least two years of historical consumption does not in any way support the cost reflective management of transmission peaks.

48. While historical AMD is the EA's preferred option, we support that Transpower may use another method if that would better meet the EA's statutory objective. [8]

49. Given RCPD is an absolute measure of network capacity utilisation the option of revising the methodology to increase the duration of the peak pricing signal and also introducing another measure related to aggregate volume would in the Association's view better support to a renewables based electricity sector and mitigate any unintended consequences from disincentivising either demand response or distributed generation.

4. The HVDC has national benefit

50. The Association concurs that the use and benefits of the HVDC have changed with upgrades and with recent trading conditions electricity now more often flows southwards and provides more widely spread benefits such as through its role in the provision of ancillary services.

51. As only South Island generators pay the HVDC charge and North Island generators do not face an equivalent charge this distortion can result in investments in higher-cost generation in the North Island taking precedence over lower-cost South Island investments.

52. While wind energy is very consistent on a seasonal and annual basis achieving geographical dispersion and exposure to different weather patterns is important to minimise short term variability. The Association therefore support the proposal to remove the HVDC charge from being only attributed to South Island generation.

5. Using a gross demand measure for the residual charge does not recognise the benefits of distributed generation

53. The installed capacity of distributed generation (DG) assets in New Zealand is over 1,200MW which, at over 10% of total installed capacity, makes DG an important component of the electricity supply system. Of the installed DG capacity wind and hydro are the largest forms of generation.

54. New Zealand's current total installed wind capacity is 690MW of which 315MW (45%) is distributed generation so any changes effecting DG impact wind generation.

55. Transpower's analysis for ACOT implementation identified that around 80% of existing DG was required for the transmission network to meet grid reliability standards. The

[8] TPCP para's B.204 and B.205.

use of DG therefore exists an effective equivalent to transmission investment.

56. In particular, NZWEA considers the EA is not recognising the long-term nature of investment in distributed generation assets and is assessing the value of DG and demand response at a point in the investment cycle after a significant step level increase in transmission investment has occurred. To put in place a fundamental change to pricing methodology and remove a mechanism which has significantly assisted managing peak loads, we consider to be high risk and inefficient as demand grows before the next major transmission investment cycle commences.

57. The EA has also overlooked the other benefits that a number of DG wind farms provide in supporting ancillary services such as voltage support which are currently not subject to any pricing payments.

58. Investment in DG and policy consideration on how best to support wider community energy is under review by EECA at the request of Minister Woods. The Association sees a significant growth potential for smaller distributed wind farms potentially in local consumer interests including industrial load looking to reduce emissions.

59. The proposal that the residual charge, at around 70% of Transpower's costs to be recovered, be based on gross demand effectively discounts any benefits distribution businesses obtain from DG and the transmission benefit of avoided investment.

60. The Association therefore does not support having a residual charge based on gross demand which may also limit future DG investment opportunities and considers the EA rationale in relation to the benefits-based charge also applies to the residual charge.[9]

"The Authority considers the net load approach would be best in most circumstances, as it is likely to provide load customers with appropriate incentives with respect to future investment. This is because a net basis for calculating benefit-based charges better reflects the benefits that customers receive from grid-delivered electricity. That is, a load customer that derives a substantial proportion of its electricity requirements from distributed generation does not benefit from the grid to the same extent as a load customer of similar size that lacks distributed generation."

61. NZWEA considers the residual charge should be based net demand which ensures consistency with the proposed business benefit charge.

6. Inconsistency between the transmission and distribution pricing methodology's

62. As noted in the Electricity Authority's "It's time to reform distribution pricing" publication current standard distribution prices do not signal when the network is congested nor when there is plenty of capacity. The EA notes distribution network costs are driven by periods of peak demand and that more efficient pricing models have a fixed and variable (marginal cost) charge that align prices with the cost drivers.

63. The Productivity Commission's Low-emissions Inquiry Report recommended that:

"The Electricity Authority should continue its programme of work to update pricing and regulation to facilitate the integration of distributed energy resources and demand response into the electricity system. The programme should cover changes to pricing

[9] TPCP para B.115.

to better incentive investment in DER and DR capability and changes to regulations."[10]

64. There is a strong alignment of cost structures and cost drivers between transmission and distribution businesses and given they together comprise around 40% of the average electricity bill ensuring consistency of approach is important.

65. NZWEA considers that the principles that apply to distribution pricing should also apply to transmission pricing and that one of the key objectives of transmission pricing should be to signal to customers that their demand drives future investment in transmission capacity to help defer grid investment.

66. The Consultation Paper references distribution pricing principles as being consistent with the TPM. The Association questions this as:

- It is unclear to what extent the benefits-based approach includes elements of a variable charge that can change over time so to influence asset utilisation and therefore avoid future additional investment decisions other than relying on nodal pricing.

- Whether the residual charge based on anytime maximum demand set at each GXP provides an effective cost signal that new investment is required.

7. Benefits based pricing of new investment supported in principle

67. As a broad principle the Association supports the proposed benefits-based charge as a user pays approach should lead to improved investment decisions and having a two-tier approach to determine net private benefits based on the value of investments.

68. The Association recognises that while currently benefits based pricing is a relatively low percentage of Transpower's costs to be recovered this will change over time based on new investment and the residual charge on existing assets recovered.

69. The Association also recognises the electricity system will undergo rapid change with innovation and growth to support energy sector decarbonisation. It is therefore essential that robust principles are established to ensure benefits-based charges allocate costs based on net private benefits but also provide appropriate pricing signals to optimise usage and future investment.

70. As is well recognised transmission investment is high cost, lumpy in nature and generally has a long life of around 30 to 40 years.

71. In addition, we know the electricity sector is undergoing rapid change from technology innovation where business models will change. The sector is also about to enter a sustained growth phase in support of decarbonisation.

72. Under the proposal Transpower would determine the share of the benefit-based charge allocation to customers at the time the investment is commissioned. The fixed nature of benefits allocation at the time of the investment:

- Assumes a static electricity sector where grid usage and the allocation of net private benefits from the investment will largely not change over its useful life except in exceptional circumstances.

[10] Recommendation 13.5.

- Does not provide any ongoing basis of managing the shared optimal usage of the investment other than relying on nodal pricing.

73. The Association therefore has concerns with the complexity of the BBC in relation to assessing net private benefits and the timeframes to improve new investments and the ongoing relevance of fixed charges given the level of transformation the electricity sector is expected to undergo.

74. NZWEA questions whether a simpler regional volume-based benefits allocation may deliver most of the intended benefits of a more targeted user pays approach.

8. A simplified TPM development process

75. The Association notes that the implementation process outlined in the TPCP [11] has Transpower developing the proposed TPM with less formal stakeholder engagement methods and once the EA has approved the proposed TPM from Transpower it will consult on the proposal.

76. The Association considers Transpower should be allowed sufficient time for thorough analysis and formal consultation while developing the methodology based on the EA's guidelines.

77. If Transpower completes consultation and engagement with industry stakeholders while considering options and developing the methodology it puts to the Authority in the final step when the Authority consults on Transpower's proposal the proposal which should be well anticipated and transparent.

78. This will ensure the EA is well informed on the industry views on the TPM and in our view is consistent with good regulatory practice.

About the NZ Wind Energy Association (NZWEA)

- The NZWEA is an industry association that promotes the development of wind as a reliable, sustainable, clean and commercially viable energy source.
- We aim to fairly represent wind energy to the public, Government and energy sector.
- Our members are involved in the wind energy sector and include electricity generators, wind farm developers, lines companies, turbine manufacturers, consulting organisations and other providers of services to the wind sector.
- By being a member of NZWEA you are assisting the development of wind energy in New Zealand and helping to reduce our greenhouse gas emissions to meet climate change targets.

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[11] TPCP section 6 para 6.19.

Appendix 1 - Key aspects of the Association's 2016 DGPP submission that related to the proposed TPM

- NZWEA considered the proposal did not recognise the long-term lumpy nature of transmission investment and the benefit that peak demand pricing signals provide in improving transmission and distribution efficiency by delaying the requirement for new investment. In particular, the influence of transmission pricing signals on distribution investment when distribution costs in total represent a significantly larger percentage of an end consumers invoice.

- A move to capacity pricing may also reduce the incentive for distribution companies to invest in and pass pricing benefits to end customers for participating in demand side management initiatives.

- In relation to the proposed residual charge NZWEA considered maintaining a regional coincident peak demand (RCPD) is a better measure of consumer use of the grid than Anytime Maximum Demand (AMD) in the context of additional investment as RCPD measures the peak use of the grid. AMD does not distinguish between access to the grid during periods of high or low demand by other users and therefore captures consumers who make their maximum use of the grid when it is less heavily used overall.

- We were concerned that removing a locational price signal such as RCPD could remove the signal to avoid transmission services and cause an unintended spike in demand that had hitherto been suppressed, bringing on investment that is inefficient.

- In respect of the proposed area of benefit (AoB) charge NZWEA considered that in most interconnected grid investment decisions it will be difficult to determine a common basis for calculating charges in proportion to shares of the positive net benefits expected for generators and distributors.

- This was particularly so when power flows can change direction for a number of reasons such as hydrological conditions, the emergence of new users and future investment decision which may alter the calculation and share of new benefits from any given investment decision.