

TPM guidelines for development of the Transmission Pricing Methodology

Published under clause 12.83(b) of the Electricity Industry Participation Code 2010 on [insert date]

Introduction

1. These guidelines for the development of the transmission pricing methodology (**TPM**) are published by the Electricity Authority (**Authority**) under clause 12.83(b) of the Electricity Industry Participation Code 2010 (**Code**).

Interpretation

2. In these guidelines, the following terms have the meaning given to them in the Transpower Capital Expenditure Input Methodology Determination [2012] NZCC 2, including each amendment to that determination, in force on the date of these guidelines:
 - (a) base capex:
 - (b) capital expenditure:
 - (c) commissioned:
 - (d) completion date:
 - (e) major capex:
 - (f) major capex project:
 - (g) major capex proposal:
 - (h) non-transmission solution:
 - (i) programme:
 - (j) project.
3. Unless the context otherwise requires, any other term that is defined in Part 1 of the Code, and used but not defined in these guidelines, has the same meaning as in Part 1 of the Code.

General

4. To be consistent with the Authority's statutory objective specified in section 15 of the Electricity Industry Act 2010 as required by clause 12.89(1)(b) of the Code, the TPM must be directed at—
 - (a) facilitating efficient investment in the electricity industry by providing incentives for the right investments to occur at the right time and in the right place. Those investments may be in the transmission grid, generation (including distributed generation), distribution networks or the demand-side; and

- (b) facilitating efficient operation of the transmission grid, generation (including distributed generation), distribution networks, and demand-side management. This means providing incentives so that the day to day operation of transmission, generation, distribution, and demand-side management involves an efficient trade-off between reliability and cost; and
- (c) in order to achieve the objectives in paragraphs (a) and (b), setting charges in a way that is as cost-reflective and service-based as is practicable in the circumstances; and
- (d) as far as is practicable, facilitating competitive neutrality between grid-connected generation, distributed generation, and demand response.

Connection charge

- 5. Subject to clause 47 of these guidelines, the TPM must—
 - (a) include a definition of connection asset that—
 - (i) corresponds to the definition of connection asset in the TPM in force on the date of these guidelines; and
 - (ii) to the extent practicable, provides for the allocation to each connection asset of any of Transpower's overhead and other expenses that relate to the connection asset; and
 - (b) charge for connection assets on the same basis, and with the same effect, as under the TPM in force on the date of these guidelines.

Area-of-benefit charge

- 6. The TPM must include an area-of-benefit charge that recovers—
 - (a) the full cost of all assets (excluding connection assets) included in an eligible investment (calculated as if the area-of-benefit charge had applied to the eligible investment since it was commissioned or completed (as the case may be)), including the capital cost of each asset, and an allowance for the weighted average cost of capital for the eligible investment; and
 - (b) to the extent practicable, an amount allocated to each eligible investment for any of Transpower's overhead and other expenses that relate to the eligible investment.
- 7. The TPM may provide for a suitable proxy to be used to determine the full cost of an eligible investment commissioned before the date of these guidelines, if it is not practicable to use the method included in the TPM under clause 6.
- 8. The eligible investments must include the following—
 - (a) a project or programme of base capex or major capex (including any non-transmission solution), that is commissioned or completed on or after the date of these guidelines:

- (b) the following investments:
 - (i) the North Island Grid Upgrade Project, approved by the Electricity Commission on 5 July 2007:
 - (ii) the Upper South Island Dynamic Reactive Support Project, approved by the Electricity Commission on 25 July 2007:
 - (iii) the Otahuhu Substation Diversity Proposal, approved by the Electricity Commission on 30 August 2007:
 - (iv) the HVDC Project, approved by the Electricity Commission on 25 September 2008:
 - (v) the Wairakei Ring Project, approved by the Electricity Commission on 20 February 2009:
 - (vi) the North Auckland and Northland Project, approved by the Electricity Commission on 30 April 2009:
 - (vii) the Upper North Island Dynamic Reactive Support Project, approved by the Electricity Commission on 5 July 2010:
 - (viii) the Lower South Island Renewables Project, approved by the Electricity Commission on 9 August 2010:
 - (ix) the Lower South Island Reliability Project, approved by the Electricity Commission on 6 September 2010:
 - (x) the Bunnythorpe-Haywards Reconductoring Project, approved by the Commerce Commission on 9 May 2014:

(c) Pole 2 of the HVDC link.

9. Subject to clauses 10 and 11, the TPM must include a standard method or methods for calculating the area-of-benefit charge, to apply to all eligible investments from the date on which the TPM comes into force.
10. The TPM must include a simplified method or methods for calculating the area-of-benefit charge, to apply to eligible investments valued at less than \$5 million at the time the investment is commissioned, or at the completion date, as the case may be.
11. The TPM must provide that the method or methods described in clause 10 must be applied from the earlier of—
 - (a) as soon as reasonably practicable after the standard method for calculating the area-of-benefit charge has been applied to the eligible investments described in clause 8(a) to (c), excluding investments to which the simplified method or methods must apply; and
 - (b) 3 years after the date on which the TPM comes into force.

12. In determining the standard method and the simplified method or methods for the purposes of clauses 9 and 10, Transpower must weigh the economic benefits of sending accurate price signals against the economic costs of developing and administering the relevant method.
13. Subject to clauses 14 and 15, each of the methods described in clauses 9 and 10 must—
 - (a) for each eligible investment, identify the areas-of-benefit (in the case of the standard method) or the main areas-of-benefit (in the case of the simplified method or methods). An area-of-benefit is an area in which at least one designated transmission customer is expected to receive a positive net private benefit from the eligible investment; and
 - (b) apportion charges to each area-of-benefit based on the aggregate expected positive net private benefit to the designated transmission customers to which positive net private benefits are expected to accrue in that area-of-benefit; and
 - (c) apportion the area-of-benefit charge between eligible investments, if a project or programme provides for replacement or refurbishment of assets contained in 2 or more of those eligible investments.
14. If Transpower considers it necessary to ensure a robust estimate of benefits for eligible investments, the TPM may provide for benefits to be calculated by taking the average of the benefits under two or more likely scenarios.
15. The TPM must provide that Transpower may apply to the Authority for a determination as to whether the assumptions that Transpower proposes to adopt are reasonable, if Transpower considers that the method in clause 14 has not resulted in a robust estimate of benefits.
16. The standard method must—
 - (a) to the extent practicable, provide for charges to be allocated to designated transmission customers in an area-of-benefit so that each customer is allocated the proportion of the charges that corresponds to the proportion of the aggregate positive net private benefits the customer is expected to receive from the eligible investment in that area-of-benefit; and
 - (b) to the extent that the method in paragraph (a) is not practicable, provide for—
 - (i) charges to be allocated to each load designated transmission customer in the area-of-benefit using the same method as is used to allocate the residual charge; and
 - (ii) charges to be allocated to each generation designated transmission customer in the area-of-benefit on the basis of each customer's average injection; and
 - (c) to the extent practicable, limit the need for Transpower to exercise discretion; and

- (d) result in charges that are consistent with the identification of benefits (if any) in relation to the relevant investment proposal; and
 - (e) be consistent in its application as between major capex and base capex; and
 - (f) provide for Transpower to consult with interested parties about the areas that are likely to benefit from the investment, and the extent of any such benefit; and
 - (g) be as accurate as is reasonably practicable.
17. The simplified method or methods must—
- (a) to the extent practicable, be simple to apply and administer; and
 - (b) to the extent practicable, be simple for a party paying the charge to ascertain why the party is subject to the area-of-benefit charge; and
 - (c) for each eligible investment, identify each designated transmission customer that is expected to receive a positive net private benefit from the eligible investment, unless doing so would unduly prejudice meeting the requirements of paragraphs (a) and (b), in which case the method must identify the designated transmission customers expected to receive the majority of the positive net private benefits; and
 - (d) to the extent practicable, provide for the allocation of charges to the beneficiaries identified as specified in paragraph (c), so that each beneficiary is allocated the proportion of the charges that corresponds to the share that the beneficiary is expected to receive of the aggregate positive net private benefits expected to be received by all identified beneficiaries; and
 - (e) to the extent that the method described in paragraph (c) is not practicable, provide for—
 - (i) charges to be allocated to each identified beneficiary that is a load designated transmission customer using the same method as is used to allocate the residual charge; and
 - (ii) charges to be allocated to each identified beneficiary that is a generation designated transmission customer on the basis of each customer's average injection.
18. For the purposes of clauses 13(a) to (b), 16(a), and 17(c) to (d), the TPM must provide for expected net private benefits to be assessed as follows:
- (a) for eligible investments commissioned before the date on which the TPM comes into force, from that date, for the expected remaining life of the investment:
 - (b) for all other eligible investments, from the date of commissioning or the completion date (as the case may be), for the expected remaining life of the investment.
19. To avoid doubt, for the purposes of calculating the area-of-benefit charge, a designated transmission customer's net private benefit in relation to an investment is to be calculated

taking into account any increase or decrease in the amount of loss and constraint excess the designated transmission customer would receive following the commissioning of the investment.

20. The TPM must provide that designated transmission customers may apply to Transpower to have the value of an asset in an investment valued at \$5 million or more at the time the investment is commissioned, or at the completion date (as the case may be) (high value investment), optimised.
21. The TPM must provide that, if Transpower receives an application to have the value of an asset in a high value investment optimised, Transpower must optimise the value of the asset in the following circumstances:
 - (a) for an asset in a high value investment commissioned before the date of these guidelines, if the optimised value of the asset is less than 80% of the non-optimised value for the asset:
 - (b) for an asset in a high value investment commissioned on or after the date of these guidelines and before the investment has been commissioned for the period of time specified in the TPM for the purposes of this paragraph, if—
 - (i) a single customer disconnects from the grid causing the optimised value of the asset to reduce by more than 20%; and
 - (ii) the optimised value of the asset is less than 80% of the non-optimised value of the asset:
 - (c) for an asset in a high value investment commissioned on or after the date of these guidelines and after the investment has been commissioned for the period of time specified in the TPM for the purposes of this paragraph, if the optimised value of the asset is less than 80% of the non-optimised value of the asset.
22. The TPM must—
 - (a) include a method and process for Transpower to determine the optimised value of an asset; and
 - (b) specify a period of time for the purposes of clause 21(b) and (c), which must be sufficient to ensure that the prospect of optimisation has a negligible impact on customers' motivation to seek new investment; and
 - (c) provide for Transpower to have the discretion to revise the optimised value of an asset, if demand for the asset changes by more than 20%.
23. The TPM must provide that Transpower has a discretion to remove optimisation altogether if, following a revision under clause 22(c), the criteria for optimisation are no longer met.
24. The TPM must include a method and process for—

- (a) Transpower to review the application of the area-of-benefit charge for a high value investment if there has been a material change in circumstances, and adjust the charge if necessary; and
 - (b) Transpower to decide when a material change in circumstances has occurred, which must include consultation with interested parties about whether there has been a material change in circumstances before proceeding to review any area-of-benefit charge.
25. The TPM must provide for the area-of-benefit charge to include an allocation for maintenance and operating expenses that is at least broadly cost-reflective.

Method to determine annual amount to be recovered under the area-of-benefit charge

26. The TPM must include a method for Transpower to determine the annual amount to be recovered under the area-of-benefit charge in relation to an eligible investment.
27. The method must—
- (a) result in annual area-of-benefit charges in relation to an eligible investment increasing over time in line with a price index determined by Transpower; or
 - (b) be another method that is service-based and cost-effective, if that would better promote the Authority's statutory objective.
28. The method included in the TPM under clause 26 must promote an efficient trade-off between—
- (a) the economic benefit of sending accurate price signals to customers; and
 - (b) the economic cost of developing, implementing, and administering the valuation method.
29. If the method included in the TPM under clause 26 would result in over-recovery of Transpower's recoverable revenue in relation to assets in eligible investments described in clause 8(b) and (c), the TPM must provide for a method to—
- (a) first, scale back the amount to be recovered by the residual charge, excluding the overhead and unallocated costs; then
 - (b) to the extent that the over-recovery remains unresolved, scale back the amount to be recovered in relation to overhead and unallocated costs; then
 - (c) to the extent that the over-recovery still remains unresolved, scale back the amount recovered by the area-of-benefit charge in relation to eligible investments commissioned or completed before the date of these guidelines.
30. Transpower may alter the time profile of area-of-benefit charges over an investment's remaining expected life, if the method included in the TPM under clause 26 would result in charges that are manifestly inconsistent with the services provided by the investment at different times in the life of the investment.

Residual charge

31. The TPM must provide for a residual charge that allows Transpower to recover any revenue that Transpower is permitted to recover that is not otherwise recovered under the TPM.
32. The method for calculating the residual charge must—
 - (a) use load to identify designated transmission customers that must pay the residual charge, and the extent to which those customers must pay; and
 - (b) correct for double counting and other charging anomalies; and
 - (c) result in broadly equivalent charges to customers that are in broadly equivalent circumstances; and
 - (d) to the extent that it can be economically achieved, be designed such that a customer's residual charge will not change as a result of the customer's actions or the actions of another party other than Transpower, such that it does not create incentives or opportunities for designated transmission customers to inefficiently avoid the residual charge; and
 - (e) be related to the size of the load of each designated transmission customer so that the allocation of charges is durable; and
 - (f) be designed so that any distributed generator that is paid or credited for transmission charges avoided by the relevant distributor would not receive such payment or credit in respect of the residual charge component of the relevant distributor's transmission charges (for example, by adding back a value representing the load supplied by the distributed generator for the purpose of calculating the residual charge).
33. The method for calculating the residual charge must be one of the following—
 - (a) historical anytime maximum demand;
 - (b) another method.
34. Clause 35 applies if a large consumer—
 - (a) ceases to be connected to the grid and instead becomes connected to a distributor; or
 - (b) ceases to be connected to a distributor and instead becomes a direct consumer; or
 - (c) ceases to be connected to one distributor and instead becomes connected to another distributor.
35. The TPM must provide that area-of-benefit and residual charges attributable to the large consumer must—
 - (a) in the circumstances described in clause 34(a) and (c),—

- (i) be deducted from the area-of-benefit and residual charges payable by the distributor to whom the large consumer was previously connected or by the large consumer (as the case may be); and
 - (ii) be added to the area-of-benefit and residual charges payable by the distributor to whom the large consumer becomes connected; and
- (b) in the circumstances described in clause 34(b),—
 - (i) be deducted from the area-of-benefit and residual charges payable by the distributor to whom the large consumer was previously connected; and
 - (ii) be added to the area-of-benefit and residual charges payable by the large consumer.

36. The TPM must provide that, if any of the circumstances described in clause 34 arise in the period from 13 December 2016 to the date on which the TPM comes into force, those circumstances are deemed to have arisen on the date on which the TPM comes into force.

Overhead and unallocated operating expenses

37. The TPM must provide for such of Transpower's overhead and unallocated operating expenses as are not recovered through the connection charge under clause 5(a)(ii) or the area-of-benefit charge under clause 6(b) to be recovered—
- (a) from generation designated transmission customers, through the connection charge; and
 - (b) from load designated transmission customers, through the residual charge.
38. Transpower's overhead expenses that are not recovered through the connection charge under clauses 5(a)(ii) or the area-of-benefit charge under clause 6(b) must be allocated on substantially the same basis, and with the same effect, as under the TPM in force on the date of these guidelines.

Allocation of charges to new designated transmission customers

39. The TPM must allocate charges to a person that becomes a designated transmission customer after the new TPM comes into force on the same basis as if the customer was an existing customer on the date on which the new TPM takes effect.
40. The area-of-benefit and residual charges for a new designated transmission customer must be based on a proxy for, but must not be dependent on, the allocator for the residual charge after the participant becomes a designated transmission customer.

Prudent discount policy

41. The TPM must include a prudent discount policy on the same basis (and with the same effect) as the prudent discount policy in the TPM in force on the date of these guidelines, except as provided for in clauses 42 to 46.

42. The TPM must provide that a prudent discount applies for the expected life of the asset to which the prudent discount relates, unless a shorter prudent discount is agreed between Transpower and the party receiving the prudent discount.
43. The TPM must provide that a prudent discount would be available if it is privately beneficial for a load designated transmission customer to disconnect from the grid and source alternative supply, but not efficient and not for the long-term benefit of consumers.
44. The TPM must—
 - (a) provide that a prudent discount will be available if a load designated transmission customer's transmission charges exceed the standalone cost of delivering electricity to the load designated transmission customer; and
 - (b) include a method for determining whether standalone cost is exceeded for the purposes of this clause.
45. The TPM must provide that a prudent discount must not result in a customer paying less than the incremental cost of supplying it with transmission services.
46. The TPM must include methods and processes for assessing applications and calculating prudent discounts in the circumstances described in clauses 42 to 45.

Additional components

47. The TPM must include any or all of the following additional components if their inclusion is practicable and consistent with the requirements of clause 12.89 of the Code:
 - (a) a requirement that, if an asset that will ultimately not be classified as a connection asset is commissioned such that it meets the definition of connection asset, it must be charged for as a connection asset while it meets that definition:
 - (b) a method to ensure that the charges that apply to assets that provide connection services are not affected by a person (other than Transpower) connecting assets to assets owned by Transpower:
 - (c) a method for allocating operating and maintenance costs in relation to which the area-of-benefit charge or connection charge applies to parties that pay charges in relation to that asset, on an actual-cost basis:
 - (d) a long-run marginal cost (LRMC) charge that—
 - (i) is designed to promote the efficient use of Transpower's grid assets that are not connection assets, so as to efficiently defer investment; and
 - (ii) complements or augments, but does not duplicate, the price signals provided by nodal pricing, other charges under the TPM, and any grid support arrangements relied on by Transpower to efficiently defer transmission investment:
 - (e) a kVar charge on reactive load:

- (f) a method for adjusting a customer's charges in relation to each standard investment commissioned on or after the date of these guidelines, to reflect any marginal saving to Transpower from the customer's credible commitment to reduce its demand for transmission services, if that reduction in demand would result in Transpower changing its investment plans resulting in a reduction in Transpower's costs:
 - (g) a method for determining the annual amount to be recovered in connection charges in relation to each connection asset, which is the same as the method included in the TPM for the area-of-benefit charge under clause 26:
 - (h) a method for including further assets as eligible investments, if doing so would promote the Authority's statutory objective.
48. If an LRMC charge is included in the TPM, the TPM must specify that the purpose of the LRMC charge is to promote a change in the use of the interconnected grid in order to efficiently defer investment, after taking into account nodal prices, other transmission charges, and any grid support arrangements relied on by Transpower to efficiently defer transmission investment.
49. Transpower may only include an LRMC charge in the TPM if a price signal over and above the price signal provided by nodal pricing (or that could be provided by nodal pricing with direct refinements to the spot electricity market), other transmission charges, and any grid support arrangements relied on by Transpower to efficiently defer transmission investment is necessary to promote efficient investment in, and use of, the interconnected grid.
50. If an LRMC charge is included in the TPM, the TPM must specify a method for adjusting charges under the TPM to take into account revenue recovered by the LRMC charge.
51. If a kVar charge is included in the TPM, the TPM must specify the circumstances in which the kVar charge would apply, and in which regions.
52. If a method for including further assets as eligible investments is included in the TPM under clause 47(h)—
- (a) the TPM may specify a transition for the application of the arrangements described in 47(h); and
 - (b) the TPM must specify a simplified method or methods for calculating the area-of-benefit charge to apply in relation to the further assets, if applying the standard method to those assets would not be practicable.
53. If Transpower does not include any of the additional components in the TPM initially developed under these guidelines, it would be desirable for Transpower to keep each of the components not included under review and consider whether to propose a variation under clause 12.85 of the Code to include any one or more of them.

Cap on annual increases in transmission charges for pre-guidelines assets

54. The TPM must provide for a price cap on transmission charges to distributors and direct consumers.
55. In clauses 56 to 60, base value for each year means—
- (a) for a distributor, the estimated total of the electricity bills (including all charges in respect of transmission, distribution, energy, levies, and taxes) of all of the distributor's customers in the 2019/20 pricing year, plus inflation (CPI); and
 - (b) for a direct consumer, the direct consumer's estimated total electricity bill (including all charges in respect of transmission, distribution, energy, levies, and taxes) for the 2019/20 pricing year, plus inflation (CPI).
56. The cap must be set—
- (a) for a distributor, at 103.5% of the distributor's base value; and
 - (b) subject to clauses 59 and 60, for a direct consumer, at 103.5% of the direct consumer's base value.
57. In clauses 58 and 61, the net charge for a distributor or direct consumer for a year means an amount calculated according to the following formula:

$$A = B - C$$

where

A is the net charge for the year

B is—

- (a) for a distributor, the sum of the estimated electricity bills of all of the distributor's customers for the year, including all charges in respect of transmission, distribution, energy, levies, and taxes; and
- (b) for a direct consumer, the direct consumer's estimated electricity bill for the year, including all charges in respect of transmission, distribution, energy, levies and taxes

C is the amount payable by the distributor or direct consumer for the year in respect of—

- (a) any LRMC charge;
- (b) any kvar charge;
- (c) any charge attributable to assets commissioned after the end of the 2019/20 pricing year;

- (d) any area-of-benefit charge for assets included as eligible investments under the arrangements described in clause 47(h); and
 - (e) any increase in a distributor's or direct consumer's uncapped charges as a result of the optimisation of an investment or a material change in circumstances.
- 58. The TPM must provide that, if a distributor's or direct consumer's transmission charges would increase in a year such that the distributor's or direct consumer's net charge would exceed the amount of the cap, Transpower must reduce the distributor's or direct consumer's transmission charges for the relevant year such that the net charge would not exceed the amount of the cap.
- 59. The TPM must provide for the arrangements described in clause 60 to apply from the earlier of—
 - (a) The date on which Transpower begins to apply area-of-benefit charges to assets included as eligible investments under the arrangements described in clause 47(h); or
 - (b) 3 years after the date on which the TPM comes into force.
- 60. The TPM must provide that, if the cap has resulted in a reduction in transmission charges for a direct consumer in a year, in the next year the cap must be set at 105.5% of the direct consumer's base value, increasing by 2 percentage points on the base value in each subsequent year (for example, 105.5% in the first year for which this clause applies, 107.5% in the following year).
- 61. The TPM must provide that, if a distributor's or direct consumer's total transmission charges, minus the components that comprise the variable C in the formula in clause 57, would be below incremental cost in a year, those charges must be set at incremental cost.
- 62. The TPM must provide that if, in any year, the cap does not result in a reduction in transmission charges for a distributor or direct consumer, no cap applies to the distributor's or direct consumer's transmission charges in any subsequent year.
- 63. The TPM must provide that, if there is a material increase in a distributor's or direct consumer's load, Transpower must adjust the cap for the distributor's or direct consumer's transmission charges by the same percentage as the percentage increase in the distributor's or direct consumer's load.
- 64. The TPM must provide that, if any of the cap arrangements provided for in clauses 54 to 61 would prevent Transpower from recovering its recoverable revenue, all caps must be increased proportionally so that it is possible for Transpower to recover its recoverable revenue.
- 65. The TPM must provide for Transpower to conduct a review of the operation of the arrangements described in clauses 54 to 64 in relation to distributors and direct consumers whose charges continue to be reduced by the cap, to be carried out in 2025 and completed no later than the end of that year.

66. If, as a result of the review described in clause 65, Transpower considers that it would promote the Authority's statutory objective to amend the arrangements described in clauses 54 to 64, it would be desirable for Transpower to propose an amendment to the TPM.