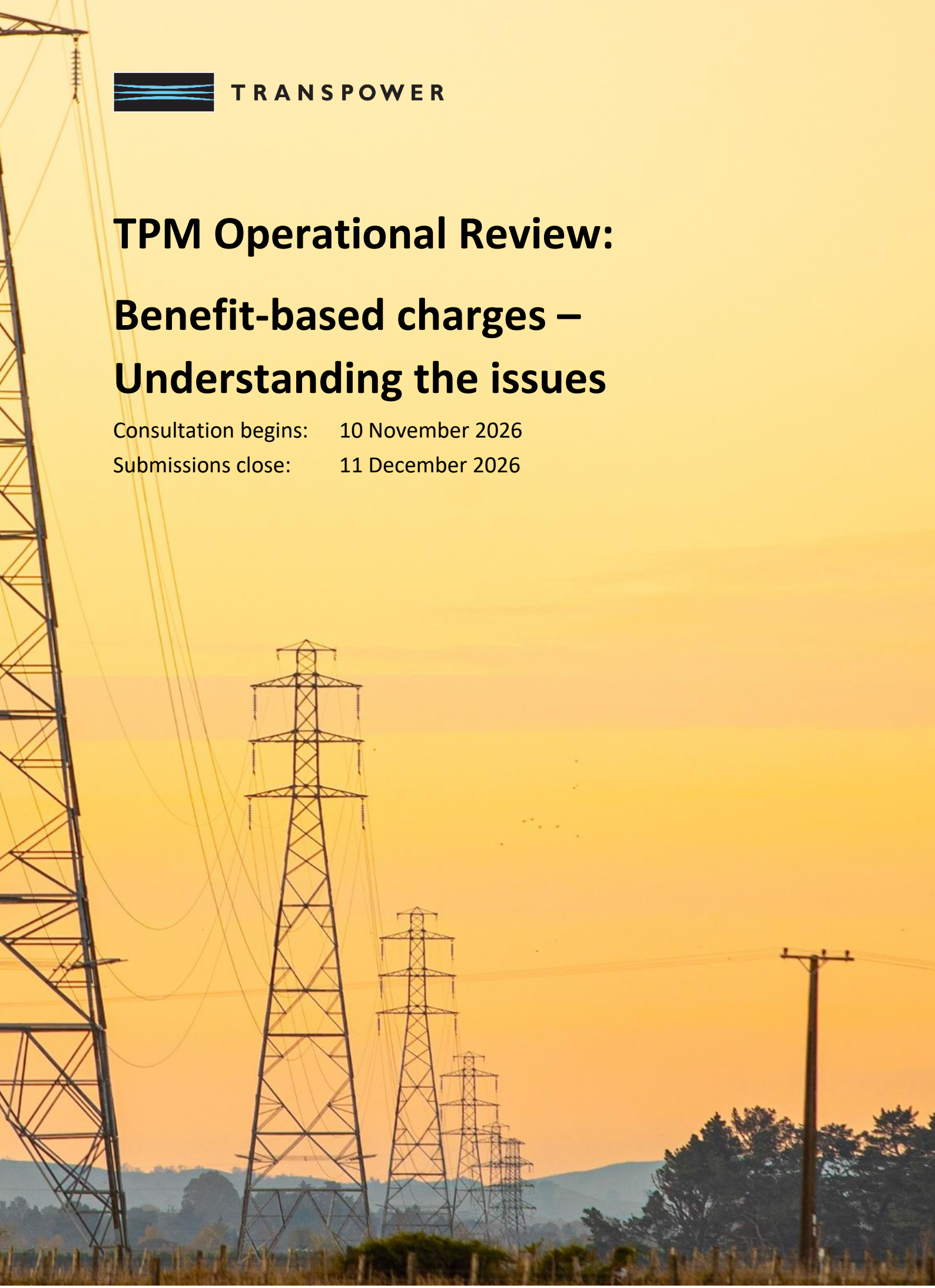
TRANSPOWER

TPM Operational Review:

Benefit-based charges – Understanding the issues

Consultation begins: 10 November 2026

Submissions close: 11 December 2026



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1 Executive summary

1.1 Purpose

This consultation seeks stakeholder feedback on Transpower's preliminary problem definition for the simple and standard methods used to calculate benefit-based charges (BBCs) under the transmission pricing methodology (TPM).

This consultation and the wider TPM Operational Review reflect Transpower's responsibility for implementing transmission pricing in a way that supports a competitive, reliable and efficient electricity system.

We are seeking feedback on whether the issues described by our problem definition accurately reflect stakeholder experience, are supported by evidence and capture the underlying causes of any issues with the current arrangements. Establishing a clear problem definition is vital. It will help ensure issues are identified and evidenced before forming views on materiality and pursuing potential (and proportionate) solutions. This reduces the risk we tackle symptoms rather than root causes, or propose piecemeal changes to the Electricity Authority (the Authority). Any issues identified through this consultation process relating to policy will be out of scope of this Operational Review and this consultation. We have agreed with the Authority to refer any such matters to it for information.

This consultation does not set out to consider solutions.

Unlike the technical amendments made to the TPM since its implementation in 2023, this consultation examines the overall workability and effectiveness of BBCs and the outcomes they produce. This matters because BBCs will increase in number and recover a growing share of transmission costs over time.

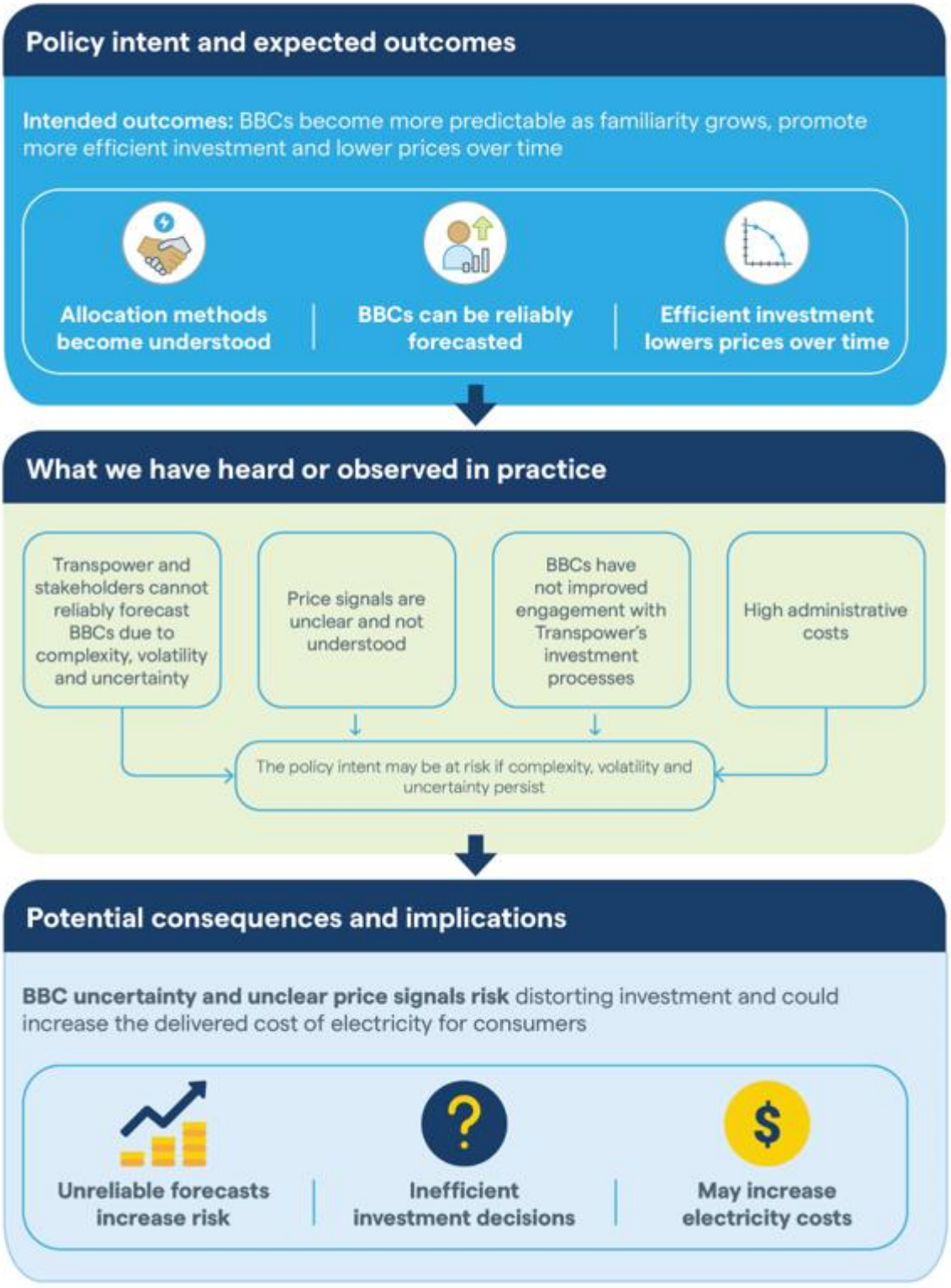
The infographic on the following page summarises:

1. Transpower's understanding of the policy intent and outcomes expected from implementing the BBCs.

2. What Transpower has heard, or has observed, in the three years since the BBCs were introduced.

3. The potential consequences or implications of what we have heard or observed.

BBCs - expectations vs experience



1.2 We want to hear from stakeholders

Transpower recognises that a range of stakeholders have concerns about aspects of the TPM, including the complexity, volatility and uncertainty associated with BBCs. Similar concerns were identified through the TPM Post-Implementation Review (PIR)[1] and through Transpower's engagement with grid users, market participants and other stakeholders.

We acknowledge these concerns and place customers' and stakeholders' experience at the centre of this review. We are committed to understanding and, where possible, addressing their concerns. Even technically sound arrangements may create problems if customers and market participants cannot understand them or use them to inform grid-use and investment decisions. Stakeholder experience is therefore an important part of the evidence for defining the problems.

This consultation will test and refine the preliminary problem definition before we reach conclusions about the nature, significance or causes of these concerns. We particularly welcome stakeholders' experience of operating with current BBCs, and evidence that supports or challenges the issues identified in this paper.

Our Industry Working Group advised that early consultation on the problem definition would be good practice. Giving customers and stakeholders an early opportunity to provide real-world data and context will strengthen the analysis, help identify root causes and reduce the risk of misdiagnosing issues.

Early engagement will also help us identify and target the type of analysis and evidence, including quantified analysis, that will be needed to complete the problem definition.

In parallel, to help us determine the materiality of the issues, we are commissioning an independent assessment of the problems identified in this paper. We expect to publish this report early next year, alongside any decisions on next steps.

We will consider the submissions to this consultation, alongside the independent analysis report, to guide next steps on the BBC workstream. Any issues relating to policy will be referred to the Authority for information as agreed.

This paper focuses on defining issues, not developing solutions. Stakeholder feedback will help determine whether further work is warranted and whether any future changes are best progressed by Transpower, the Authority or through broader industry discussions.

1.3 High-level problem statement

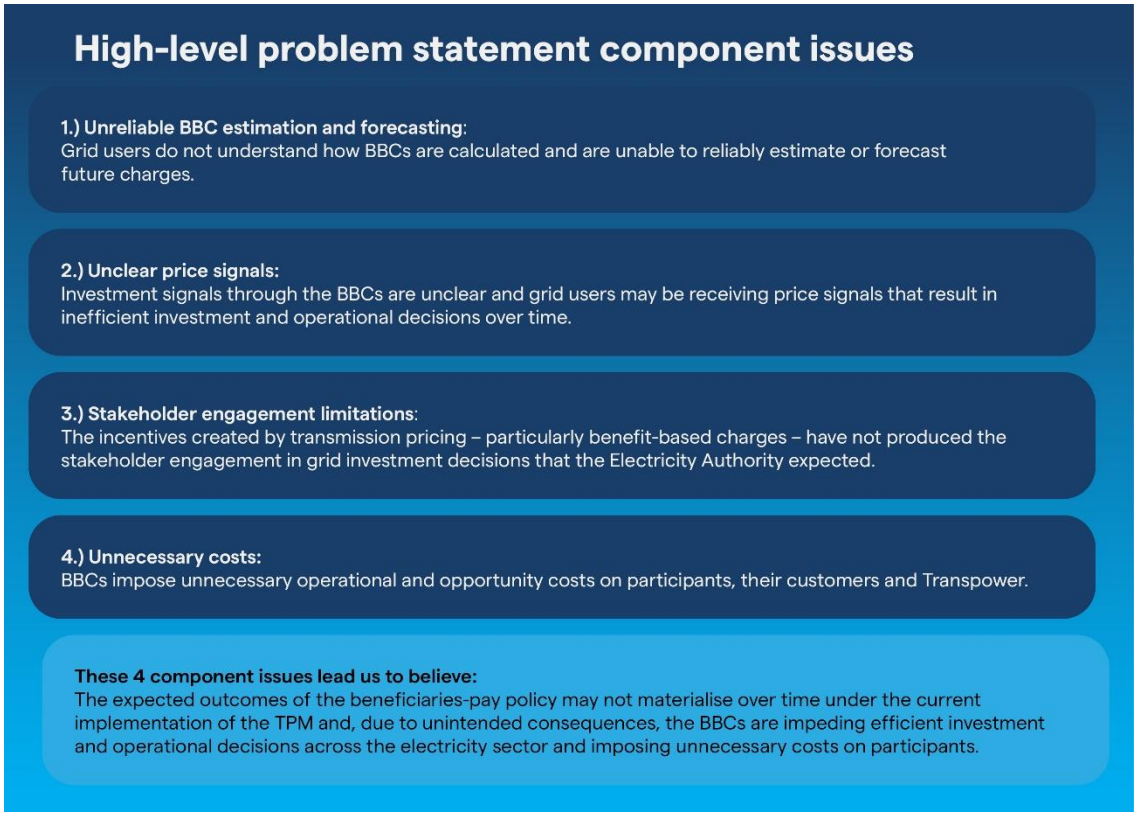
We have developed an overarching problem statement and four component issues that, as we understand it, contribute to the problem. The problem statement and component issues are highlighted in the graphic below. Together, they provide a framework for testing whether BBCs are supporting the outcomes expected from the beneficiaries-pay approach in practice and, if not, to help target potential solutions.

The problem statement we wish to test is that:

> *The expected outcomes of the beneficiaries-pay policy may not materialise over time under the current implementation of the TPM and, due to unintended consequences, the BBCs are*

[1] Further details on the PIR are provided in Appendix A.

impeding efficient investment and operational decisions across the electricity sector and imposing unnecessary costs on participants.



The four component issues that may contribute to the high-level problem are:

1. ***Unreliable BBC estimation and forecasting****: Grid users do not understand how BBCs are calculated and are unable to reliably estimate or forecast future charges.*

   Grid users report difficulty understanding, estimating and forecasting future BBCs. Three years after the TPM was implemented, uncertainty remains significant. This raises the question of whether uncertainty is inherent in the methodologies rather than a transitional issue.

   Grid users often ask Transpower for guidance or indicative estimates of future transmission charges. Reliable forecasts are difficult because BBC allocations depend on:

- the status, timing and location of future investments;
- uncertain future system conditions; and
- the inputs and assumptions used in the calculations.

   These forecasting challenges affect both Transpower and its customers.

   Such uncertainty may increase investment risk, leading investors to incorporate risk premiums into business cases and thus influence investment and operational decisions across the electricity sector. In some circumstances, future BBCs could materially affect expected project returns, particularly where charges are difficult to forecast or may exceed the private benefits a customer expects to receive from an investment. This could make otherwise-efficient investments more challenging to progress commercially. Potential

consequences would become more significant as transmission investments increase and a growing proportion of transmission costs are recovered through BBCs.

2. ***Unclear price signals**: Investment signals through the BBCs are unclear and grid users may be receiving price signals that result in inefficient investment and operational decisions over time.*

   Transpower has heard concerns that BBC price signals are unclear, difficult to interpret or may not operate as the Authority intended. Stakeholders have questioned whether BBCs provide meaningful shadow price signals, behave as fixed or fixed-like charges, and complement other transmission-related signals such as nodal prices.

   Feedback from the PIR, Operational Review and Industry Working Group (IWG) reflects uncertainty about whether BBC price signals are received, understood and able to support efficient investment and operational decisions over time.

   Stakeholder confidence may be a problem if customers cannot:

   - forecast their charges;
   - understand how charges are allocated;
   - link investment decisions to future charges; or
   - rely on predictable charging outcomes.

   Even if the method is sound, these difficulties may weaken price signals and lead to inefficient outcomes.

3. ***Stakeholder engagement limitations**: The incentives created by transmission pricing – particularly benefit-based charges – have not produced the stakeholder engagement in grid investment decisions that the Authority expected.*

   The Authority expected transmission pricing to give grid users stronger incentives to scrutinise investments and engage more actively in transmission planning and approval processes.

   To date, Transpower has not identified evidence that BBCs have increased stakeholder engagement or improved the information available for transmission investment decisions. Stakeholder engagement remains vital, but it more often focuses on broader investment needs, service levels or TPM concerns than on the link between investments and future BBC allocations.

4. ***Unnecessary costs**: BBCs impose unnecessary operational and opportunity costs on participants, their customers and Transpower.*

   Transpower has observed that BBCs are the main driver of additional TPM compliance and administration costs. These costs fall on Transpower and current and prospective grid users. They include direct costs and the opportunity costs of specialist staff, management time and external advice.

   The BBC framework was expected to increase costs. A particular concern, however, is that a significant share of those costs relates to ongoing difficulty understanding, estimating and managing BBC uncertainty.

1.4 Next steps

The submissions we receive and the independent analysis will inform the next stage of this workstream.

When the consultation closes, Transpower will assess submissions and supporting evidence, refine the problem statement and its components where necessary, and identify any further analysis needed.

The independent analysis tests whether the problem statements set out in this consultation paper are credible, material, attributable to the current implementation of the TPM, and capable of creating inefficient outcomes. Together, the consultation evidence and independent analysis will confirm or revise the issue framing and subsequent options assessment and investigation. Transpower is building a clear understanding of the issues so we can work with the Authority to agree the best way forward. This could include advising on changes to BBC arrangements and solution options, if warranted. Any issues identified through this consultation process relating to TPM policy will be out of scope of this Operational Review and referred to the Authority for its information.

We will continue to work with the IWG in this next stage and coordinate closely with the Authority.

Any future change to the TPM would remain subject to the Authority's consideration and approval.

2 Introduction

2.1 Purpose of this consultation

This consultation seeks stakeholder feedback on the preliminary problem definition for the simple and standard methods used to calculate benefit-based charges (BBCs) under the transmission pricing methodology (TPM).[2] The consultation will test whether the issues Transpower has identified to date accurately reflect stakeholder experience, are supported by evidence and capture underlying causes.

Our operational review aims to identify practical improvements that would reduce complexity, volatility and uncertainty, and then to propose potential changes for the Authority to consider. It is important that TPM design supports investment confidence, better scrutiny of transmission investment and more efficient long-term outcomes for consumers.

In this paper, "beneficiaries-pay approach" means the Authority's underlying policy objective that those who benefit from transmission investment should contribute to its cost. "Benefit-based charging framework" means the TPM mechanisms used to implement that approach, including BBCs.

Since the TPM was implemented in April 2023, practical issues have emerged through stakeholder experience, the Post-Implementation Review (PIR),[3] Transpower's administration of the TPM, and subsequent Authority and Transpower work on potential TPM refinements. While some issues may respond to targeted amendment, we consider it important to step back and test whether the underlying issues with BBCs are clearly understood before considering potential solutions.

The PIR focused on identifying and documenting stakeholder concerns and implementation experience. It provides an important foundation for this consultation, which tests whether those concerns point to identifiable, material issues, explores their causes and considers whether further work is warranted.

Future transmission investment is expected to increase the share of costs recovered through BBCs. It is therefore timely to test whether current arrangements support efficient investment, operational decisions and the outcomes intended when the TPM was introduced. Any shortcomings are likely to become more significant for grid users over time.

We particularly welcome evidence about stakeholders' experience of the current framework: the practical impacts and predictability of BBCs, the price signals they create, and their influence on investment and operational decisions. This feedback will help determine whether the issues warrant further analysis and whether future changes should be considered.

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2 We have provided Information Sheets to help stakeholders better understand the TPM, including for BBCs and covered costs. Covered costs is the total amount of costs required to be recovered through BBCs for a BBI under the TPM. The covered cost of a BBI includes capital components (return on and of investment) and an allocation of Transpower's total operating costs (including overheads). An extensive range of information explaining the TPM is available on our website.

3 Further detail on the PIR is provided in Appendix A.

2.2 Relationship to wider TPM Operational Review

Workstream 1 of the TPM Operational Review[4] identified practical changes and 'quick wins' that, subject to Authority approval, could be implemented by Transpower ahead of the next pricing year (starting 1 April 2027). The Authority also identified aspects of the TPM it considers are not working as intended and where refinements could improve efficiency and workability. The Authority consulted on these matters as part of its Transmission Pricing Methodology Amendments 2026 Consultation Paper, 29 June 2026.

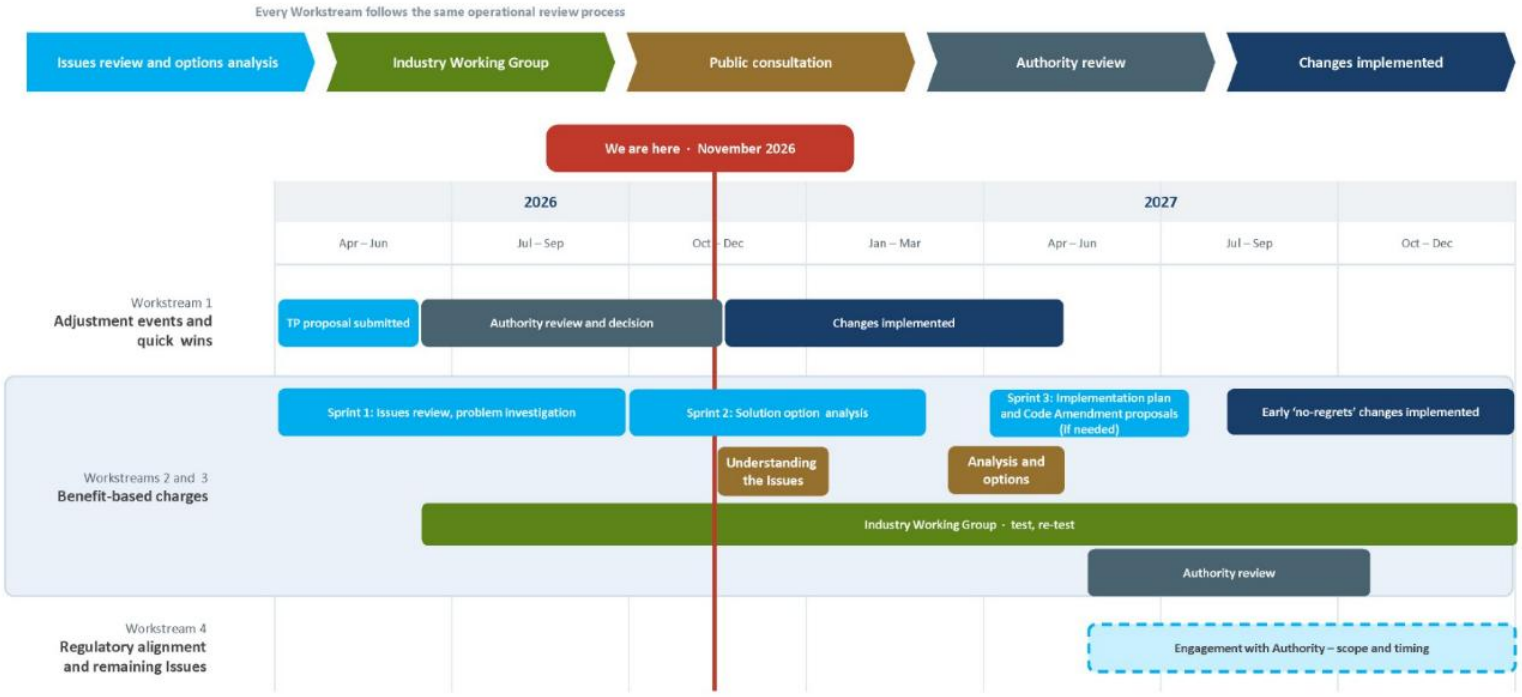
This consultation builds on that work by examining whether the benefit-based charging framework operates as intended in practice.

An overview of our wider TPM Operational Review programme is provided on the next page. Dates are subject to change.

4. TPM Operational Review | Transpower.

Transmission Pricing Methodology (TPM) Operational Review programme overview · all workstreams

Indicative · as of November 2026



Workstream 1 · in flight

Adjustment events and 'quick wins' were delivered between April and mid-June 2026 and are complete and with the Authority for their process, their decision is expected end November 2026.

Workstreams 2 and 3 · in flight

Benefit-based charges is in Sprint 1, consulting on issues and evidence (November to December 2026). The workstream will proceed to Sprint 2 - analysis and options at the end of 2026. If Code amendment proposals are required, no-regrets proposals will be prioritised for Authority consideration early 2027.

Workstream 4 · regulatory alignment

Covers any remaining issues identified but not resolved in the earlier workstreams. Expected to follow the same operational review process, with timing still to be confirmed.

Indicative programme-level view. See the detailed roadmap for sprint-level timing. Dates are subject to change as the programme progresses and following industry consultation.

2.3 Context provided by the Authority's policy intent

The Authority's objectives and expectations provide a benchmark for assessing stakeholder experience, identifying differences between intended and actual outcomes, and considering whether improvements are warranted.

The Authority has reconfirmed with Transpower that it considers the framework – centred on benefit-based charges – continues to make sense. Those who benefit from investments should pay for them; where there is no useful role for a pricing incentive, charges should be non-distortionary.

The Authority has also reconfirmed that it is committed to the ongoing improvement of the TPM while providing a stable and predictable framework for investment.

The Authority had the following overarching objectives and expectations in setting the TPM in 2022:[5]

> *The new TPM will bring substantial benefits to consumers in the years ahead, through stable, robust, and efficient transmission pricing. The new benefit-based approach will lay solid foundations for the substantial investment that will be required to meet our decarbonisation goals, by promoting the right investments being made at the right place, at the right time. Over time, the new methodology is expected to contribute to lower electricity prices for consumers and support New Zealand's efficient transition to a low-emissions economy.*[6]
>
> *At the heart of the new TPM is a benefit-based approach. Under this approach, those who benefit from transmission investments would pay for them. A customer or region may benefit from better energy prices and a more reliable energy supply resulting from the transmission investment, for example. Transmission charges would also be more fixed; they would generally not change if customers change their use of the investment once it has been built. This helps to avoid incentives for participants to take inefficient actions to shift costs to others.*[7]
>
> *Benefit-based charges are intended to promote more efficient investment by transmission customers and increase scrutiny of proposed transmission investments. Consumers who would benefit and end up paying for a grid investment would have a greater interest in having a say on that investment, to make sure it is fit for purpose and better than alternative solutions. This should result in better information for Transpower and the Commerce Commission on grid investment proposals, and solutions to capacity issues that best meet the needs, at the lowest cost, of the affected transmission customers. It should also discourage customers from proposing or supporting projects that benefit them but are inefficient and supported only because they would largely be paid for by other customers.*[8]

The Authority's statements suggest several key expectations for the TPM:

- The approach should provide a durable and enduring framework that remains fit for purpose as the electricity system evolves, while continuing to support efficient transmission investment and New Zealand's long-term transition to a low-emissions electricity system.

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5 We provide more specific details of the Authority's intent in relation to different aspects of the TPM in our discussion of the different components of the problem definition.

6 Letter from Electricity Authority to Transpower, March 2023.

7 Electricity Authority, TPM decision paper, 2022, page ii.

8 Electricity Authority, Proposed Transmission Pricing Methodology, Consultation Paper, 2021, para 5.2.

- People who benefit from transmission investments should pay for them.
- Benefit-based charges are intended to support efficient investment decisions by encouraging scrutiny of proposed investments and consideration of efficient non-transmission alternatives.
- Grid users who pay for investments should have stronger incentives to ensure projects are efficient, fit for purpose and represent value for money.
- The approach aims to discourage inefficient investments that could otherwise be funded by parties who receive little benefit.

2.4 What has changed since the TPM's implementation

Changes across the electricity sector make efficient transmission pricing increasingly important for investment and operational decisions.

We agree with the Authority that "The importance of efficient transmission pricing has become even more apparent" as New Zealand seeks to facilitate major investment in new generation and the transmission infrastructure to support electrification.[9]

Since the TPM was developed, the electricity sector has continued to evolve. Electrification has accelerated, capacity constraints are becoming more significant, and demand-side flexibility has become increasingly important as batteries, distributed energy resources (elecrification as accelerated and capacity constraints have become more significant. Demand-side flexibility has also become increasingly important as batteries, distributed energy resoures (DER) and flexble demand have expanded. These changes increase the value of efficient transmission pricing and the importance of effective investment and operational signals.

Expectations for anticipatory investment have also increased, and a larger pipeline of major transmission investment is emerging to support electrification and new generation. As more transmission costs are recovered through BBCs, those charges must support efficient investment and operational decisions.

These developments make it important to test whether the TPM delivers the expected outcomes and whether experience since implementation points to issues that warrant further consideration through the Operational Review.

2.5 Role of the Industry Working Group

Transpower established a TPM Industry Working Group (IWG), with an Independent Chair, to provide expert input and challenge as the Operational Review progresses. IWG members participate as subject matter experts rather than representing the views of their organisations.

9 Electricity Authority, Transmission pricing methodology amendments 2026 Consultation paper, 29 June 2026, paragraph 3.2(b).

For this consultation, the IWG has helped to test PIR findings, to identify issues with alignment between pricing and expenditure approval processes, refining the preliminary problem definition[10] and providing insight into practical consequences for different types of grid users.

The IWG terms of reference, membership and feedback to Transpower is published on the Grid Pricing page of Transpower's website. Of particular relevance to this consultation are the following letters from the IWG to Transpower:[11]

- 12 June 2026
- 1 July 2026
- 11 August 2026.

Transpower thanks IWG members for contributing their expertise, experience and time.

2.6 Pre-consultation engagement with the Electricity Authority

The views expressed in this consultation document are those of Transpower except where attributed to other parties, such as the IWG.

The Authority has engaged with Transpower throughout the TPM Operational Review, including attending IWG meetings as an observer. The Authority is broadly supportive of our overall review and is actively involved at both analytical and senior management levels.

As part of our engagement process, we shared a draft of this paper with the Authority and the IWG before publication. We appreciate the Authority's constructive feedback.

The Authority's feedback does not constitute endorsement of this paper or any potential changes. If Transpower proposes TPM changes, the Authority will consider them through its usual process. Its own consultation may test alternative views and trade-offs.

2.7 Scope of this consultation

Consulting early in the development of the problem definition gives customers and stakeholders an opportunity to provide real-world evidence, data and context. This will help identify root causes and guard against confirmation bias. Our observations and discussions inform the review, but customers' and stakeholders' experience of the TPM is central to it.

We also acknowledge that even if we consider elements of the TPM we developed to be technically sound, if our customers and other market participants don't understand it or can't apply it to grid usage and investment decisions, then the TPM may be a barrier to efficient investment decisions. We consider stakeholder experience an important part of the evidence required for problem definition development.

We want to understand what additional analysis stakeholders would consider useful. We recognise that additional analysis is likely to be valuable, particularly while at the initial problem definition

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10 We have included a short summary of the problem definition - root cause analysis session undertaken with the IWG in Appendix C.

11 You can find out more about the TPM IWG here.

development stage.[12] However, we want to avoid the risk of undertaking analysis where stakeholders already understand the issues, or where the consultation itself could help reveal root causes for the issues.

This could include, by way of example, analysis of actual customer charge outcomes and what is driving them. This could include breaking down changes into the underlying causes, including matters such as transmission investments and establishment of new benefit-based investments (BBIs), Commerce Commission approved revenue changes, etc. We remain cautious about the feasibility of this analysis, as the complexity of the BBCs means that modelling the effects of different variables can be complex and resource intensive.

Early engagement will help us to identify and target the types of analysis and evidence required for a fully developed problem definition. It will also help ensure that we do not form views about potential solutions before the nature and materiality of stakeholders' issues with BBCs are properly understood.

We seek feedback on whether the preliminary problem statement accurately captures the key issues with BBCs, their causes and their practical impacts.

In particular, we welcome evidence on:

- whether BBCs are delivering the outcomes intended (as well as the Authority's overarching objective of promoting competition, reliability and efficiency);
- the extent to which grid users can estimate and forecast BBC allocations;
- whether BBCs are supporting efficient investment, operational and planning decisions;
- whether BBCs are creating unintended incentives or behaviours; and
- whether the BBCs impose unnecessary cost for grid users and Transpower.

This paper includes specific questions covering the four areas of the preliminary problem statement. The questions are also provided in a separate Word document for submitters' convenience.

We also welcome feedback on other opportunities to improve the TPM.

2.8 How to make a submission

Consultation period: 9 November 2026 to 5pm on 11 December 2026 (five weeks).

We will hold a webinar in November to introduce the consultation and discuss the issues and evidence. Visit our website for details and a calendar invite. We welcome questions before and during the webinar; send advance questions to tpmreview@transpower.co.nz.

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12 Our initial thinking is that it could be useful to undertake economic analysis of the level of uncertainty associated with BBCs and the implications for system efficiency (this would produce a range of risk premiums and quantify wholesale energy cost impacts plus economic costs of altered decisions by offtake). There is also possible value in assessing the extent to which nodal price plus shadow price provides efficient forward-looking price signals.

Email submissions to tpmreview@transpower.co.nz. We will acknowledge each submission and publish submissions on our website when consultation closes.

If your submission contains confidential material, clearly identify it and provide a version suitable for publication. To discuss or elaborate on your submission, request an interview using the email address above.

Please note that all information provided to Transpower is subject to potential disclosure under the Official Information Act 1982.

Send questions about the consultation to tpmreview@transpower.co.nz. We will publish questions and responses on our website for other submitters and stakeholders.

2.9 Timeline and next steps

After consultation, Transpower will consider submissions and supporting evidence, refine the problem definition where necessary, and confirm which issues require further analysis through the Operational Review. We may also undertake targeted engagement to understand specific issues or obtain additional evidence.

In parallel, we are commissioning independent analysis to strengthen the evidence base for the next stage of work. We expect to publish the report early next year, alongside any decisions on next steps.

The next stage of the BBC workstream will assess the materiality of identified issues and whether TPM changes may be warranted. It will consider whether issues are best addressed through operational improvements by Transpower, potential TPM amendment proposals or broader policy consideration by the Authority.

The next stage of the BBC workstream will focus on assessing the materiality of identified issues and considering whether changes may be warranted. This will include exploring whether any issues are best addressed through operational improvements by Transpower, potential TPM amendments, or broader policy consideration by the Authority.

In parallel, we may investigate any no-regrets improvements that could enhance the operation, transparency or efficiency of the TPM while any broader issues (if identified) continue to be assessed.

Any TPM amendments Transpower might propose as a result of the Operational Review would remain subject to Authority consideration and approval under the Electricity Industry Participation Code 2010 ('the Code').[13]

In undertaking this consultation, we are guided by the main objective under section 15 of the Electricity Industry Act 2010 ('the Act'), including the objective of promoting the efficient operation of the electricity industry for the long-term benefit of consumers.

The indicative timeline for the next steps for the BBC Workstream is as follows:

- publish submissions on this consultation – December 2026;

[13] Essentially, that the consultation process requirements under section 39 of the Electricity Industry Act have been satisfied.

- assess submissions and supporting evidence – late 2026/early 2027;
- publish independent analysis report – early 2027;
- refine the problem definition, assess materiality and consider whether changes may be warranted – early 2027;
- publish update on next steps and confirm issues in scope of the TPM Operational Review and matters referred to the Authority for consideration – early 2027;
- if appropriate, develop and consult on potential options – early/mid 2027; and
- develop any TPM amendment proposals and submit to the Authority (if required) – to be confirmed.

3 Preliminary problem definition

This section describes the preliminary problem definition and invites stakeholder feedback so we can refine and develop before deciding next steps.

Problem definition is foundational; it helps ensure the *actual* issues are identified and evidenced before pursuing potential solutions. This reduces the risk we tackle symptoms rather than root causes or make piecemeal changes.

The information and analysis in this paper draws on our experience in implementing and operating the BBC methodologies, including the feedback we have received from customers. It also draws on the PIR, discussions and feedback from IWG, and stakeholder feedback received during the first stage of the Operational Review.

This consultation is not intended to be a definitive view on stakeholder issues or concerns with the TPM, especially regarding BBCs. Rather, our goal is to test stakeholder concerns, understand their root causes and assess their impact.

Our views will continue to evolve as we hear from stakeholders and consider additional evidence.

The preliminary problem statement is intended to provide a structured starting point for consultation and discussion. It seeks to bridge stakeholders' experience of the TPM, including concerns about complexity, volatility and uncertainty, with the outcomes the Authority intended to achieve when the TPM was introduced.

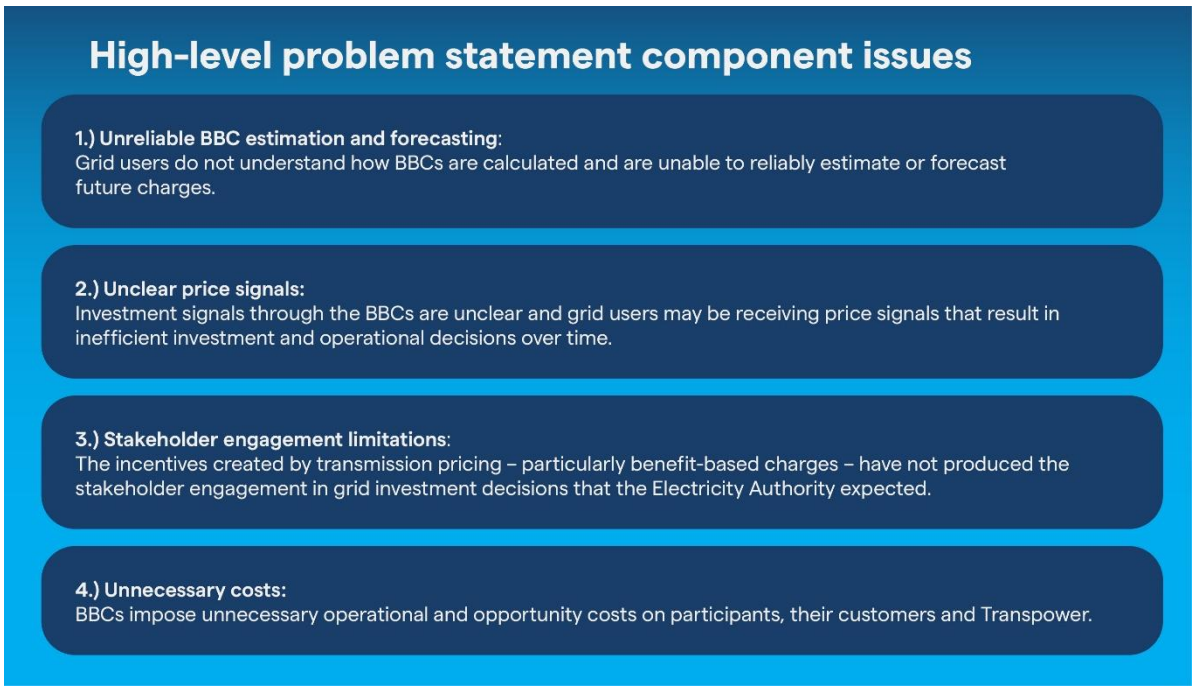
3.1 High-level problem statement

We have developed a high-level problem statement that aims to capture the key concerns identified through stakeholder feedback, including insights from the PIR, findings from this Operational Review to date and discussions with the IWG.

Our work with stakeholders, including the IWG, identified an overarching concern about how the BBCs are working and four specific component issues contributing to that concern:

> *The expected outcomes of the beneficiaries-pay policy may not materialise over time under the current implementation of the TPM and, due to unintended consequences, the BBCs are impeding efficient investment and operational decisions across the electricity sector and imposing unnecessary costs on grid users.*

The four specific component issues that may contribute to this problem are:



The remainder of this paper examines each of these component issues in more detail. For each issue, we describe the relevant policy intent and expected outcomes as we understand them. We summarise what we have heard or observed about each issue, and discuss its potential implications and materiality.

BBC problem statement questions

Q1 Do you consider the benefit-based charging framework is generally operating as intended? Please explain what works well and provide examples where possible.

Q2 What aspects of the current benefit-based charging framework aren't working well, including any issues we have not identified?

Q3 Do the issues described affect different stakeholders differently? If so, how?

Q4 What risks may arise if these issues are not addressed?

Q5 Do you consider the current TPM supports efficient operational and investment decisions during the energy transition? Please explain.

Q6 Are there any other changes to the way BBCs are calculated, explained or forecast, that you consider Transpower should explore as part of the Operational Review?

4 Unreliable BBC estimation and forecasting

Part 1 of our high-level problem statement is:

> **1.) Unreliable BBC estimation and forecasting**:
> Grid users do not understand how BBCs are calculated and are unable to reliably estimate or forecast future charges.

4.1 Relevant policy intent and expected outcomes

4.1.1 Concerns remained when the TPM was adopted

Stakeholder feedback throughout the TPM development indicated widespread concern that the new TPM, particularly the BBCs, would increase complexity, volatility and uncertainty, creating risks for both efficiency and policy effectiveness.

In its 2022 TPM decision paper, the Authority responded to submitters' concerns about the TPM's complexity and uncertainty making it difficult to forecast transmission charges. The following are excerpts from this response:[14]

Transitional uncertainty

- *The Authority acknowledges that, like any change, the transition to the new TPM involves uncertainty. Over time, we consider the new TPM will increasingly support reasonable predictions and projections of charges. (14.17, p.100)*
- *With the new TPM finalised, Transpower will, over time, work to establish what further information could be produced to help stakeholders understand the new TPM, and within what timeframes. […] (14.19, p. 101)*
- *Stakeholders will continue to invest time and resources to the extent they consider it necessary in understanding the factors that matter to them in particular during the transition and the start of the new TPM. We expect stakeholders will continue to engage on investment proposals and scrutinising their costs and benefits. (14.20, p.101)*

General predictability of transmission charges

- *We consider that uncertainty about future transmission charges is more driven by stakeholders' initial unfamiliarity with a new TPM during the transitional period and by uncertainty about the location, timing and size of transmission investments (which would exist even if the TPM did not change) than by the methodologies for the* allocation *of transmission costs in the TPM. […] (14.21, p. 101)*

[14] Electricity Authority, Transmission Pricing Methodology 2020, Decision paper, published 12 April 2022.

- *The Authority is confident the new TPM will not ultimately lead to uncertainty that would be a barrier to future electricity-related investments. We note that:*

(a) *Allocations (and overall charges) are reasonably predictable for the connection charge, residual charge, and BBCs for Appendix A investments. These will likely make up a significant portion of charges overall, in particular during the early years of the TPM (see Figure [4]).*

(b) *Ongoing benefit-based allocations of simple method BBIs will also be predictable with allocators set for five years. The location and timing of investment are less certain.*

(c) *Allocations related to investments under the BBC standard method will be more challenging to predict; investments will be flagged in advance (eg, through the ITP[15]). Stakeholders, as they engage with the new TPM, will become increasingly familiar with the new TPM allocation methodologies over time. (14.23, p.102)*

In summary, the Authority recognised stakeholders[16] had concerns that the complexity, volatility and uncertainty of the proposed TPM (developed in accordance with those TPM Guidelines) would make it difficult to forecast transmission charges. However, the decision paper presented the argument that uncertainty would largely be transitional and unpredictability would not exceed those expected in the course of normal business.

4.2 What we have heard or observed

Transpower has heard and observed that BBCs, calculated using the simple and standard BBC methodologies, are difficult to understand, estimate and reliably forecast.

Historically, grid users have often sought guidance or indicative estimates of future transmission charges. However, the current BBC methodologies and adjustment mechanisms limit Transpower's ability to provide reliable forecasts beyond the current regulatory control period. The ability to estimate and forecast transmission charges over investment horizons is the principal issue. To work well, price signals need to be clear, predictable, practical to act on, and trusted by the customers and market participants who receive them.

The challenges observed with BBCs do not reflect information asymmetries between Transpower and its customers and cannot be solved by Transpower providing its customers more information. Rather, there are too many variables for predictability and certainty about future BBCs. This includes uncertainty about the status, timing and location of future investments; sensitivity of future BBCs to unknown future conditions; and the number of inputs and assumptions that will determine BBC allocations.

Transpower acknowledges that external factors (e.g. Commerce Commission investment approval and price reset decisions) can impact transmission charges. However, the BBC methodology design

15 Integrated Transmission Plan

16 These stakeholders are listed in the Decision paper: Contact Energy, Counties Energy, IEGA, Mercury, Meridian, Network Waitaki, Nova, Orion, Oji Fibre Solutions, Tauhara North No 2 Trust, Trustpower, and Vector.

can either moderate or exacerbate these factors. For example, Transpower may know how much it will spend in aggregate in a given year, with a reasonable degree of accuracy, but it is unlikely to know exactly which simple method region that spend will be made in or allocated to.

Stakeholders have asked whether Transpower can provide a tool or model to help estimate BBCs. Following tests, we do not consider it practical to provide a customer-facing model. The inputs and calculations are complex and require a strong understanding of the TPM. If used incorrectly, the model could produce misleading results and be more harmful than helpful.

Instead, we provide an annually updated BBC map on our indicative pricing page,[17] showing combined indicative BBCs in $/MWh for offtake or injection by location (the values are not forecasts, they are a snapshot of the current state), the range can be wide and, in some areas, materially affected by whether a customer connects to the 110 kV or 220 kV network.

Even full access to Transpower's BBC models is unlikely to enable a stakeholder to reliably estimate or forecast its future BBCs through the simple and standard methods, or total transmission charges. There are multiple process steps to perform, investment / beneficiary regions to identify, and regulatory interpretation / judgements to make to produce a forecast that would be of an acceptable range of certainty for different stakeholders.[18]

4.2.1 Uncertainty about future BBCs is not just initial unfamiliarity

The Authority expected uncertainty about future transmission charges to be driven mainly by initial unfamiliarity with the new TPM during the transition.

The Authority's expectation was formed prior to development of the BBC methodologies. Evidence to date suggests that the Authority's expectation may have underestimated the uncertainty inherent in the BBC methodologies. The PIR, which started two years after the TPM was implemented, noted the following:

> *Stakeholder feedback suggests these expectations were incorrect or underestimated the degree of CVU [complexity, volatility and uncertainty] inherent in the new TPM. Despite their [Transpower's] best efforts, the TPM so far remains a 'black box' to stakeholders.*
>
> *We asked explicitly whether this is due to an initial unfamiliarity or rather the methodology itself, and the responses overwhelmingly suggested the latter.*

[17] Indicative pricing | Transpower

[18] The user must: (1) identify the adjustment event type; (2) for each BBI, determine the plant's beneficiary region (and whether beneficiary or not), and customer group, which may vary between BBIs; (3) identify the correct RNPB, regional IRA, and total NPB, and, for simple-method BBIs, distinguish between the investment and beneficiary regions; (4) for Appendix A and simple-method BBIs, identify the electrically closest customer of the same type; and (5) if the plant is in a future beneficiary group, calculate the RNPB and IRA using the formula in the BBI decision.

The IWG also considered that inability to forecast BBCs is unlikely to ease over time, and may grow because:

- significant new load and generation are expected to materially change power flows and therefore BBCs, with the granularity of the simple method exacerbating localised volatility; and
- the shift in revenue recovery from residual charges to BBCs compounds uncertainty over longer investment horizons.

4.2.2 Significant effort invested to understand and forecast BBCs

Transpower is aware that grid users have invested significant time and resources, including procuring expert advice to understand the BBCs, and to estimate and forecast BBCs.

Transpower has also invested significant time and resources to understand and communicate how the BBCs work to grid users.

Appendix B provides additional information on steps taken by stakeholders to understand, estimate and forecast BBCs, and Transpower's efforts to support this.

4.2.3 BBCs are increasing, but it is unclear by how much, where and when

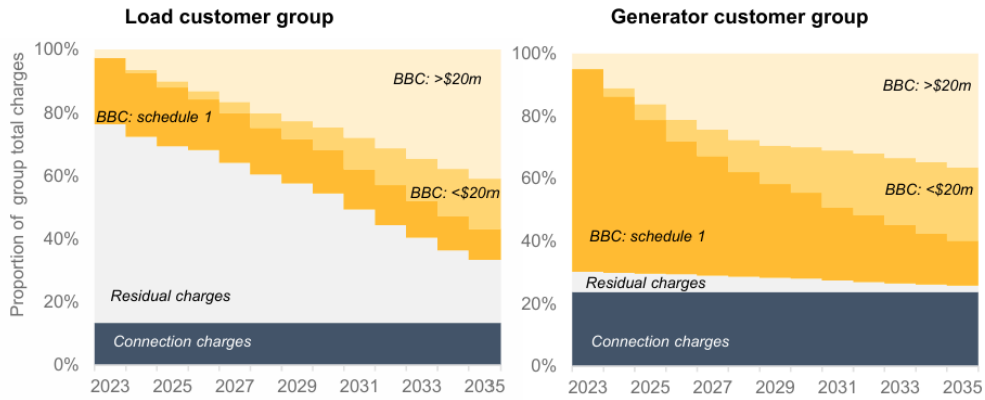
Transmission costs are expected to increase, and BBCs are expected to significantly increase in both absolute and relative terms (as a proportion of total transmission charges). This includes both an increase in the revenue recovered through BBCs and an increase in the number of different BBCs (and the benefit-based investments (BBIs) sitting behind each BBC). These increases in transmission costs and BBCs are due to:

1. Increasing grid costs, including the need to:
    a. maintain and renew ageing assets
    b. enhance and develop the grid to meet growing demand and changing requirements on the power system.
2. The intentional shift in cost recovery from the residual charge to BBCs over time.

The Authority's 2022 TPM decision paper included the following diagram to illustrate how BBCs would increase as a proportion of total transmission charges over time, for load customers and generator customers:[19]

[19] The threshold is now $30m, not $20m. We note that the representation of the relativity between standard and simple method (in the diagram as > $20m and < $20m respectively), significantly understates BBCs derived by the simple method (BBCs < $30m). For future regulatory control periods, the simple method will recover the majority of BBC revenues for each period.

Figure 4 Material components of charges are relatively certain and predictable



Note: The generator customer group charge includes an illustrative residual charge, reflecting generators' charges in their capacity as load customers. In the 2021/22 indicative prices the share of generators' charges made up by residual charges varied widely across generators from 3% to over 50%. Depending on circumstances, some generators' projected charges will more closely resemble that of the load customer group.

The table below shows revenue by BBC charge type since the TPM was implemented from 2023–24, to the current year 2026–27. For the current year 2026–27, the simple method BBCs comprise approximately 35% of total BBCs revenue, and standard method comprise 5%.

	2023/24*	2024/25	2025/26**	2026/27
Total Benefit Based Charge (BBC) Revenue ($m)	**257.31**	**264.10**	**302.34**	**335.05**
Appendix A BBC revenue ($m)	**205.85**	**193.89**	**201.40**	**201.14**
Simple method BBIs (<$30M)*** BBC revenue ($m)	**48.26**	**63.75**	**89.23**	**118.12**
Standard method BBIs (>$30M)*** BBC revenue ($m)	**3.19**	**6.47**	**11.71**	**15.80**

*On 12 April 2022, the Electricity Authority announced its decision to adopt a new Transmission Pricing Methodology (TPM). The new TPM came into effect from 1 April 2023
** on 25 September 2024 Commerce Commission announced its decision of Cost of capital determination for EDB and Transpower for RCP4 period (2025 - 2030)
*** on 1 April 2025 the high-value/low value test in the TPM changed from $20M to $30M.

4.2.4 Complexity, volatility and uncertainty is likely to increase rather than decrease

Although the Authority's diagram suggests a national-level shift in grid cost recovery from residual charges to BBCs, this does not translate into certainty or predictability for individual grid users. BBCs are difficult to estimate beyond the very near term, and cannot reliably be forecast over investment horizons, because charges depend on multiple uncertain and changing factors.

This uncertainty is not simply a transitional issue or a lack of familiarity; it is inherent in the way BBCs respond to investment, usage patterns, adjustment events[20] and changing market conditions.

Key drivers of this uncertainty include, but are not limited to:

1. Adjustment events becoming more frequent, with each event changing BBC allocations for all grid users.

[20] Adjustment events are defined in Part F of the TPM. These events trigger changes to customer TPM charges. See Transpower's information sheet on BBC adjustment events.

2. Simple method BBI regions are reset every five years, creating a new set of BBI regions and allocations for each of the regions.[21]

3. Changes on both the supply and demand sides alter power flows, increase volatility in simple method charges, and make standard method outcomes more sensitive to assumptions and judgement.

Taken together, BBC estimation and forecasting uncertainty is persistent, difficult to mitigate through information alone, and likely to become more significant as BBCs increase. The practical consequence is that grid users may price this uncertainty into investment and operational decisions, potentially resulting in inefficient investment decisions.

4.3 Potential implications and materiality

Uncertainty about BBCs may affect investment decisions because investors (generation or offtake) need to manage, mitigate or price that risk.

The Authority recognised that uncertainty is one of a range of factors investors consider when making investment decisions:

> *A business case for an investment (in generation or other plant) must take into account uncertainty around many relevant parameters. Any uncertainty around transmission charges is not out of step with other uncertainties typically considered in investment business cases.*

It is true that investors account for uncertainties when deciding whether to commit capital, and that certainty and risk are features of competitive markets and can be efficiency enhancing.

However, a distinction should be made between uncertainty inherent in markets—such as future prices shaped by supply and demand—and uncertainty created by regulation. Any TPM will involve some uncertainty because Transpower's allowable revenue is influenced by factors such as demand, technological change affecting investment, and interest rates. Uncertainty and risk arising from the design of BBCs, however, warrant greater concern.

The transmission charge component of an investment decision could be economically material for a specific customer, even if small relative to the project cost, and could influence the investment decision.

Therefore, while transmission costs represent approximately 8% of the delivered cost of energy, transmission costs can have a material influence on investment decision making.

The impact of BBC uncertainty can be particularly pronounced when charges could potentially exceed the *actual benefits* to the customer of the investment. (The BBC methods merely provide estimates of unknown and unknowable private benefits. There is no inherent reason to expect that

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[21] Starting allocations within each five-yearly simple method period are fixed (unless adjustment events occur). When a new period commences, a new set of regions and allocations applies. Allocations for the first simple method period remain in place for investments made during the first simple method period - If the next simple method period also includes 21 simple method regions, grid users will receive allocations for up to 42 BBIs under the simple method alone.

they would provide a close or accurate approximation of actual private benefits.) This means that future, uncertain BBCs can not only affect the return a grid user receives from an investment, they could also result in efficient and economic investments becoming commercially non-viable after an investment has been made.

4.3.1 Investor caution and risk premiums

We have heard from a range of parties that BBCs present a growing source of uncertainty, and that this is affecting generation and offtake investment decisions. Investors are currently responding in different ways. Some investors report that they are already incorporating BBC risk premiums in investment decisions. For these investors, investments will not proceed until project economics support the investment, including the BBC risk premium.

Other investors are aware of BBC risk but are as yet unsure how to account for it in investment decisions. For these investors, BBC risk may be treated as part of an enlarged 'contingency' or be carried on the investor's balance sheet.

Transpower has heard and observed that the level of uncertainty, and therefore risk, associated with future BBCs is growing. While it is not straightforward to estimate how individual investors will quantify uncertainty, and therefore risk premiums, we have heard that BBC risk premium could be:

- as high as $9/MWh for generation in some location, but closer to $3/MWh overall;
- as high as $20/MWh for offtake in some locations, mainly driven by the higher allocation (62.5%) to offtake.

The effect of such uncertainty will differ by project and investor. We have developed two case studies to help show how BBC uncertainty could be affecting investment decision making.

1. Case study one: a customer considering a generation investment.
2. Case study two: a large offtake customer considering converting production from gas to electricity.

We believe these case studies to be a faithful representation of issues faced by investors (grid users). Rather than representing Transpower's opinions, or the experience of a specific individual or organisation, they have been developed through broad discussions and interviews with investors.

While case studies can be a useful way to understand how an investor might respond in certain circumstances, it is important to remember that each project has its own characteristics. Different investors also have different levels of familiarity with the NZ energy market, appetite for risk, and options for managing risk. We welcome feedback on the case studies.

Case study one: Investor progressing a new generation project

The project is nearing financial investment decision.

Contingent contracts for plant, construction, operations and maintenance and offtake are in place. It has a small contingency for risks not able to be efficiently contracted for.

The project owner has contracted with Transpower for the cost of connection through a Transpower Works Agreement (TWA) and has a good understanding of ongoing connection charges.

The project is not exposed to residual charges but is increasingly exposed to BBCs and needs to forecast these in the business case as they will have an effect on project economics.

Transpower has provided a BBC estimate equivalent to $3 MWh in year one and a forecast for the remaining years in the regulatory period. Transpower is unable to guarantee this, noting changes could arise due to:

- planned but not yet allocated investment to be recovered through simple method BBIs;
- known but not yet allocated large BBIs that will be recovered through the standard method; and
- as-yet unconfirmed investment that may be recovered through the simple or standard methods.

Transpower is unable to provide any estimates beyond the 3-year period, but notes grid investment is increasing and that will be recovered through BBCs.

The Investment Manager responsible for the generation project is increasingly concerned about increasing BBCs and inability to narrow the range of uncertainty.

Last month, the Investment Manager tried to explain to the Board what the BBCs are, how they work and the potential risk they create. This did not go well; the Board became frustrated and made clear that a significant overrun in BBCs would not be acceptable.

The Investment Manager has been in close contact with Transpower for several months and has tested different charging scenarios – a low, medium and higher case, and a worst case. This results in a wide range, equivalent to $3/MWh, i.e. potential doubling of charges between the medium and worst case.

The Investment Manager wants the project to go ahead. However, the Board's warning is front of mind and, as planning for the worst case would probably stop the investment, the manager decides to plan on the basis of the high-case charging scenario. This requires prices to be $3/MWh higher; if BBCs turn out to be lower, the project will just be more profitable.

The proposal causes a slight delay, but the higher price is accepted and the investment progresses.

4.3.2 BBC uncertainty may be affecting generation investment and energy prices

BBC uncertainty appears to be having a growing effect on generation investment, with uncertainty potentially inefficiently delaying or preventing otherwise-economic projects from proceeding, and/or reducing participation by some investors. If this is the case, BBC uncertainty could have the added impact of driving higher energy costs and undermining supply security.

From an investment perspective, it is reasonable that a risk premium would require a generation project to recoup additional incremental revenue at least equivalent to that premium before the project passes final investment decision. For example, if a project needed to earn $100/MWh including the base estimate of BBCs (but without the BBC risk premium) then a rational investor could be expected to require that project to earn at least $100 *plus* the risk premium to proceed.

Prior to committing, an investor – and in some case the investor's financiers – will require the project to provide a credible revenue forecast, alongside other financial forecasts. That projection may involve:

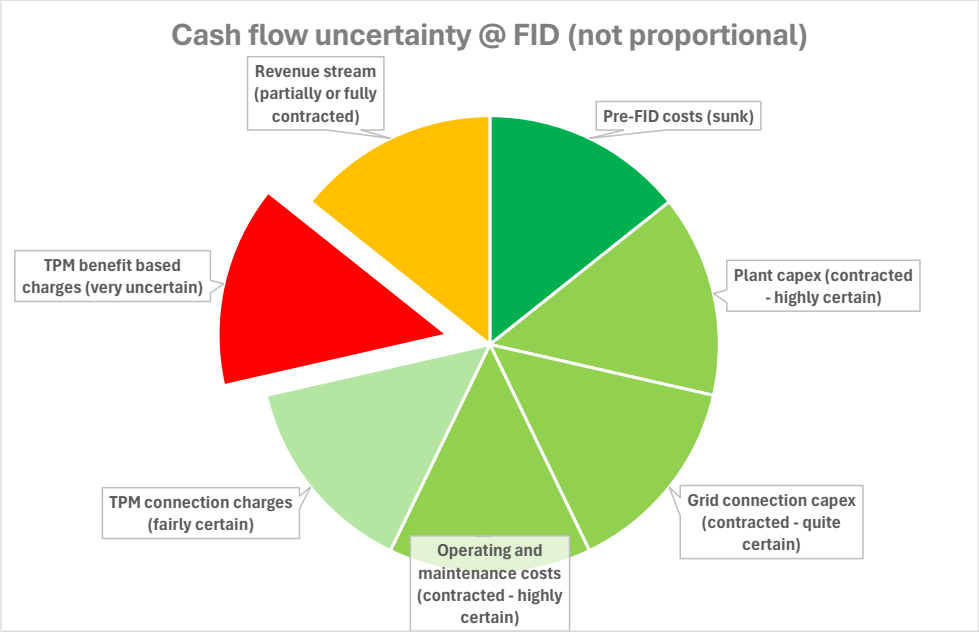
1. An independent forecast of wholesale prices;
2. Offtake agreement(s), a PPA or equivalent with a contracted price for output; or
3. A combination of 1 and 2.

The probable effect of the scenario described above (and in case study one) is, essentially, to shift the price curve by the amount of the risk premium. It's important to note that caution is warranted in reaching this conclusion. Generators have differing risk appetites, and investments in varying circumstances. There are also other drivers affecting wholesale and contract prices. However, in an expanding market, one might reasonably expect that prices will rise in response to the risk premium, ultimately reaching a level that reflects the value of the premium.

In its 11 August 2026 feedback to Transpower, the IWG commented on the impact of uncertainty and risk premiums generally (relevant to generation and offtake):

> *Uncertainty and the risk this creates for planning and investment decision-making are real. Where risk cannot be managed through contract or other mechanisms, as is the case for BBCs, then a risk premium will be applied to the project valuation, and this* ***will*** *be reflected in prices required to make the project economic.*
>
> *One can diminish the impact of BBC uncertainty as "small in the scheme of things" but this is a mistake. By the time a project is approaching financial close, most of the major cashflow risks will be either sunk (consenting, design), contracted (build, fuel, O&M, revenue) or, where that is*

not possible, actively managed. In this context, BBC uncertainty will remain one of key risks for investors at financial close.



BBC uncertainty is cumulative over time. This is particularly relevant for new load or generation investments that often have lifespans greater than 15 years. BBC uncertainty represents a 'wedge' of risk that may change at a very different rate to any changes in fuel, O&M or PPA contracts. Regardless of how the BBC costs evolve in reality, consumers pay a premium because investors need to add a risk premium for the BBC uncertainty over the investment horizon.

Case study two: Industrial user converting production from gas to electricity

The project is nearing investment decision.

Contingent contracts for plant, construction, operations and maintenance are in place, with a small contingency for execution risk. Negotiations are advanced for energy. A Transpower Works Agreement (TWA) is in place, and ongoing connection charges are understood.

Transpower has provided an estimate of BBCs[1] for the next 3 years indicating BBCs will increase by 7% per annum. Transpower is unable to guarantee this, noting changes could arise due to:

- planned but not yet allocated investment to be recovered through simple method BBIs and known but not yet allocated large BBIs that will be recovered through the standard method;
- as yet unconfirmed investment that may be recovered through the simple or standard methods; and/or
- changes in the use of the grid.

Transpower is unable to provide any estimates beyond the 3-year initial period, but notes grid investment is increasing and that this will be recovered through BBCs.

The investment manager is concerned about the level of uncertainty for BBCs so has attempted to estimate future BBC costs and sought independent advice for this purpose. However, this analysis and expert advice raised more questions than it answered, with a wide range of potential BBCs.

The range of uncertainty is very material for the project – at lowest-case charging scenario, the project is viable today. However, at the highest-case charging scenario, the project is not viable for at least 5 years. Even then, the better option might be simply to cease production and exit the market.

The Investment Manager wants the project to go ahead but can't ignore the risk and presents the facts to the Board.

The Board also wants the project to proceed but isn't willing to take the risk. It decides to delay the investment to utilise the existing gas-fired plant and revisit options in a few years.

Outcome: project does not progress.

4.3.3 How BBC uncertainty affects offtake investment

Transpower is aware that investment by offtake is increasingly driven by the desire or need to electrify and such investments usually involve very large capital investments. Capital investment is the primary consideration for investment decision-making. However, operating costs, including transmission costs, are a material consideration as well. This is particularly true for customers directly connected to the grid, and for very large distribution-connected parties (who may have a direct pass through of BBCs).

While an offtake grid user's transmission charges consist of both residual charges and BBCs, significant uncertainty over future BBCs complicates investment decisions and has a similar impact

at the margin as for generation investment. That is, it can alter investment economics and decision-making.

The decision taken in case study two, to defer and potentially not make an electrification investment, is rational for the investor. It defers or avoids the point of decision on a potentially loss-making investment and supports prolonging the life of existing assets.

It is notable that in this scenario an investor may alter decisions as the result of a charge that is intended to be fixed and non-distortionary. This suggests the charge is not behaving as intended. Further, the uncertainty-driven risk premium further distorts decisions: if the risk premium were lower (or did not exist, i.e. transmission costs could be reliably estimated) the investment would proceed today.

Delaying the investment has a range of consequences, not all of which are taken on by the investor. For example, New Zealand gas production is in decline. While the investor can acquire sufficient gas for itself, using this gas instead of converting to electricity creates wider system impacts that are not reflected in the investor's decision-making. For example, it could result in reduced gas availability for other consumers and increased future transition costs. These considerations are not relevant to the individual offtake investor in our case study but should be relevant to policy makers.

4.3.4 BBC uncertainty may affect entrants and international investors disproportionately

Uncertainty and the inability to forecast BBCs may disproportionately affect smaller generators, new entrants and overseas investors considering investing in New Zealand.

The following infographic presents possible scenarios that relate to generation, but similar issues are likely to apply for offtake investors.



4.3.5 Operational decisions

Transpower is aware that a combination of unclear or unintended price signals and BBC uncertainty are affecting grid users' operational decisions.

We discuss these issues further in the next section, which discusses price signals provided by the BBCs.

Unreliable BBC estimation and forecasting

Q7 To what extent do you consider complexity, volatility and uncertainty associated with BBCs to be a significant issue? Please explain.

Q8 What aspects of BBC calculations are most difficult to understand, explain, forecast or manage?

Q9 Do you consider BBC uncertainty has been greater than you expected when the TPM was introduced?

Q 10 To what extent do you consider Transpower's publicly available information, regulatory forecast and indicative pricing tools useful? Please explain.

5 Unclear price signals

Part 2 of our high-level problem statement is:

> **2.) Unclear price signals:**
> Investment signals through the BBCs are unclear and grid users may be receiving price signals that result in inefficient investment and operational decisions over time.

Price signals and the incentives they create play an important role in shaping both operational and investment decisions across the electricity sector. They influence how grid users utilise the network, when and where they choose to invest, and ultimately the level and timing of transmission investment.

If transmission pricing signals are unclear, difficult to interpret, inefficient or provide incentives that differ from those intended, investment and operational decisions may become less efficient. This could affect decision-making by both grid users and Transpower, resulting in outcomes that are inconsistent with the objectives the Authority sought to achieve through the TPM.

5.1 Relevant policy intent and expected outcomes

Transpower understands the Authority's intention was that nodal price signals and BBCs would work together as complementary components of the TPM.[22]

Nodal prices would provide efficient short-run signals relating to transmission losses and constraints:[23]

> *Nodal prices provide customers efficient signals about the short-run cost of using the existing grid at a point in time and provide information about when a grid expansion is justified …*[24]

While BBCs would recover the costs of certain transmission investments in a largely fixed and non-distortionary manner:

> *… annual benefit-based and residual charges will be more fixed by design, which significantly reduces the incentive to take actions that shift costs to other consumers… where there is no useful role for a pricing incentive, charges should be non-distortionary*.[25]

The Authority also expected the prospect of future BBCs would provide a forward-looking shadow price that would influence investment decisions and support efficient long-term outcomes:

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22 Electricity Authority, Transmission pricing methodology 2020 Guidelines and process for development of a proposed TPM Decision, 10 June 2020, paragraph 9.41.

23 The role of nodal pricing to send efficient short-run pricing signals is most comprehensively detailed in the Authority's LRMC working paper: Electricity Authority, Transmission Pricing Methodology Review: LRMC charges Working paper Discussion paper, 29 July 2014.

24 TPM Decision Paper, 10 June 2020, paragraph 9.41.

25 TPM Decision Paper, 10 June 2020.

The expectation of benefit-based charges associated with transmission expansion would give forward-looking price information.[26]

… if users know they will pay their share of new grid investments, they will pay more attention to such costs when they make location and other investment decisions than they do now.[27]

The Authority also noted in its Distribution Pricing Practice Note, that differences in historical costs between locations may influence investment:

As a growing share of grid costs are recovered through BBCs, each connection location will end up with a different total transmission charge that reflects how many benefit-based investments (BBIs) it has been exposed to (and the value and age of those investments). Locational variations in charge levels are a corollary of imposing benefit-based charges, rather than being the primary goal. However, the locational differences that arise are potentially helpful – i.e., differences broadly indicate how dependent each location is on grid assets.[28]

5.2 What we have heard or observed

The policy rationale described above relies on several assumptions. First, grid users need to understand the signals the TPM is intended to provide. Second, those signals need to be sufficiently clear and predictable to influence behaviour. Third, the resulting incentives need to support efficient outcomes. Feedback received through the PIR, Operational Review and IWG suggests a need to examine whether BBCs are enabling each of these assumptions.

5.2.1 Participants do not understand the intended signals

While nodal prices and the signals they provide are generally well understood, the same cannot be said for BBCs, with stakeholders expressing genuine uncertainty and confusion.

If customers cannot understand or confidently forecast their charges, link investments to future charges, or rely on a predictable charging regime, pricing signals may not be received, may not be actionable and therefore not support efficient outcomes—even if the underlying pricing policy is sound.

This was explored in the IWG where consistent feedback was received and is reflected in [excerpts from] the IWG's 12 July 2026 letter to Transpower:

Members were not clear on what price signals were intended to be provided by BBCs or how these were expected to be conveyed i.e. the hypothesis that participants would be able to anticipate future BBCs and efficiently calibrate their own operational and investment decisions and engage on an informed basis on Transpower investments.

…

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26 TPM Decision Paper, 10 June 2020, paragraph 9.41.
27 TPM Decision Paper, 10 June 2020, paragraph 9.33.
28 Electricity Authority, Distribution Pricing: Practice Note, Second Edition v 2.2, October 2022.

At present, it appears that participants do not receive a clear transmission price signal. The IWG considers this is and will continue to result in sub-optimal operational and investment decisions that result in higher system costs over time.

…

In discussion, it became evident that the classification of different expenditure types … and the recovery vehicle for each was a complicating factor and was not well understood and served to further muddy intended and actual price signals.

Factors contributing to uncertainty over the price signals / incentives that are intended to be provided by the BBCs appears to be related to:

- the intended price signal/incentive for the three BBCs (Appendix A, simple method, and standard method) and how those price signals / incentives are expected to operate:
    - for sunk versus prospective investment
    - for different types of Transpower investment
        - replacement and refurbishment or 'lifecycle' investment
        - enhancement and development or 'growth and efficiency' enabling investment
    - for expenditure approved through different regulatory processes
        - the 5-yearly individual price-quality path (**IPP**) process
        - Major Capex Project (**MCP**) processes
        - Listed Project processes

5.2.2 Signals may not be sufficiently clear, stable or conducive to efficient outcomes

A key assumption underpinning the Authority's policy rationale is that BBCs operate as fixed or fixed-like charges. The Authority has been clear that "benefit-based charges and residual charges, … are intended to be largely a fixed charge" and "are not intended to influence customers' network use decisions".[29]

However, feedback from stakeholders suggests this assumption may not hold for prospective investment decisions by grid users because future BBCs remain avoidable until the relevant investment decision is made and the associated costs become sunk. Transpower recognises the limitations in trying to establish a genuinely or perfectly fixed charge for electricity transmission.

[29] Electricity Authority, Distribution Pricing: Practice Note, Second Edition v 2.2, October 2022.

The Authority also acknowledged this point in its 2022 Decision Paper that "the proposed TPM affects new (or expanding) customers' locational and capacity decisions at the time of entry" [30] and that:[31]

> *For a new load customer deciding whether to enter, its expected transmission charges will have similar incentives as variable charges before entry, which may influence a customer's decisions on location and capacity. After entry, benefit-based charges and residual charges are fixed-like, with residual charges adjusting only very gradually with a material lag. This design seeks to minimise inefficient incentives. [footnote removed]*

This issue is relevant for all grid users but may be particularly significant for prospective investors in generation and electrification projects.[32] An investor considering where to locate a new project may take account of expected BBCs when comparing locations. Where BBCs are materially higher in areas that have experienced significant transmission investment, there is a risk that investment is discouraged from locations with available network capacity.

We have heard concerns that BBCs may, in some circumstances, weaken or offset the locational signals provided by nodal prices. This may occur where transmission investment relieves constraints in a region, reducing congestion-related costs reflected in nodal prices, while at the same time increasing BBCs for customers connected to that region.

The issue is not whether BBCs provide a locational signal. Rather, whether the combined effect of nodal prices and BBCs encourages investment in locations that make efficient use of available network capacity and supports efficient long-term outcomes.

This raises the question of whether the locational incentives created by BBCs always complement, or may sometimes offset, the locational signals provided by nodal price. The Authority acknowledged in its 2020 Decision Paper "that the benefit-based charge in respect of pre-2019 grid investments could result in potential distortion to location decisions by load and generation."[33,34]

Feedback received through the Operational Review suggests distortion may be occurring. For example, one generator noted:

> *… thought that it would be a good idea to build in a particular place, but the BBC charge for that place was really high and kept changing. We chose not to build there. The price signal from the TPM told us it wasn't a good spot, even though other price signals told us it was good.*

A further issue is the potential to deter locational diversity for intermittent generation, in particular wind. This issue was flagged by the IWG in its letter of 11 August 2026:

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30 Electricity Authority, Transmission Pricing Methodology 2020, Decision paper, 12 April 2022, B.47.

31 Electricity Authority, Transmission Pricing Methodology 2020, Decision paper, 12 April 2022, B.45.

32 There is an argument that electricity distributors may be more insulated from this risk (but not their customers) because transmission charges are a pass-through charge. To a certain extent, different arbitrary allocations may not have a such a major impact, but we would welcome perspectives on this point.

33 TPM Decision Paper, 10 June 2020, paragraph 9.46.

34 For completeness, the Authority went on to say that "This potential cost has been taken into account in the cost-benefit analysis and is outweighed by the estimated benefits. Further, applying the charge only to future investments would create an uneven playing field for generation and so would not promote competition."

At a macro level, BBCs (and therefore BBC uncertainty) would be higher for generation remote from load, by virtue of the amount of transmission between the generation and load that could potentially be upgraded over the 25-year generation project life. The [draft consultation] paper does not fully explore the effect of the incentive that this creates:

As an example, BBCs encourage more wind in the lower North Island, closer to load compared to, say, the lower South Island (as this reduces the BBCs and the impact of BBC uncertainty). However, locating more wind in the lower North Island concentrates risk by reducing diversity. That will increase the impact of localised "dunkelflaute"[35] and, in turn, increasing reliance on more expensive firm generation. This is a complex area, but we see a credible risk that this incentive created by the BBCs may cause higher delivered energy costs.

At this stage, we have not formed a view on the extent to which BBCs and nodal prices are providing complementary or conflicting locational signals. However, stakeholder feedback suggests this is an area that warrants further examination, particularly given the increasing scale of future transmission investment and the growing role of BBCs in recovering transmission costs.

5.2.3 The resulting incentives may not support efficient outcomes

Stakeholders have also questioned whether any shadow price signal created by BBCs is strong enough to influence, or capable of influencing, behaviour in the way the Authority expected. The issue is not only whether future BBCs can be estimated per se, but whether grid users can use that information to make practical decisions about investment timing, location or demand response.

Feedback through the PIR and IWG suggests any shadow price may be heavily discounted or not materialise where grid users cannot assess:

- whether their response would influence the investment outcome;
- how that response would affect future charges; or
- how other parties might respond to the same signals.

This means that, even if future BBCs were broadly understood, the resulting behavioural response may not be strong or reliable enough to improve investment outcomes.

The IWG made a similar point, noting uncertainty about whether replacement signals are visible and credible enough to affect decisions before major transmission investment choices are made.

Vector raised related concerns in submissions to our Workstream 1 consultation[36] and to the Energy Competition Task Force[37], arguing that the current arrangements do not provide a visible, forward-looking signal of future transmission augmentation costs.

Taken together, the feedback raises three distinct questions:

- whether grid users *understand* the price signals the Authority expected BBCs to provide;

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35 "Dunkelflaute', or 'dark doldrums', describes periods with low solar and wind generation. Also known as a 'variable renewable energy drought'.

36 TPM Operational Review - Workstream 1 | Transpower.

37 Vector, Energy Competition Task Force submission, February 2026.

- whether those signals are being *received* in practice; and
- whether those signals, if received, support efficient investment and operational decisions.

The evidence to date suggests uncertainty on all three points, supporting further examination of whether BBC-related price signals are understood, visible and capable of influencing efficient decisions.

5.2.4 Too much reliance on nodal prices?

Separate from concerns about whether BBC shadow prices are visible and actionable, we have heard concerns that too much reliance may be placed on nodal prices to signal the cost of future transmission investment.

The Authority has previously observed that "nodal pricing is likely to result in price signals systematically below long-range marginal cost (LRMC)".[38] This means nodal prices may provide useful short-run signals about losses and congestion while still falling short of the long-run signal needed to guide future transmission, generation, electrification and flexibility decisions. Constraints may become visible only after demand, generation or electrification decisions have already been made, reducing the practical value of the signal for long-term transmission investment planning.

Feedback received through the PIR and Operational Review suggests nodal pricing may under-signal future transmission costs for a combination of reasons. One stakeholder described the reliance on nodal prices to signal transmission constraints as "all you can eat, until it is too late". For example,

- wholesale electricity prices often reflect generation scarcity more strongly than transmission constraints;
- widespread use of hedging can mute locational price signals; and
- transmission investment decisions are frequently made before material transmission constraints are reflected in nodal prices.

The third point is particularly important. The Authority has previously made similar observations, including that transmission investment can systematically result in prices below LRMC.[39] The relationship between nodal prices and transmission investment depends on the driver of the investment. In some cases, transmission investment is undertaken to relieve emerging constraints and may be expected to reduce transmission losses and congestion costs. In other cases, investment is required to maintain reliability standards and is typically identified through forward-looking planning processes well before material transmission constraints emerge.

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38 Electricity Authority, Transmission Pricing Methodology Review: LRMC charges Working paper Discussion paper, 29 July 2014.

39 The Authority detailed that this includes because "transmission planners err on the side of caution in determining the transmission capacity required to meet future demand". Refer to Electricity Authority, Transmission Pricing Methodology Review: LRMC charges Working paper Discussion paper, 29 July 2014, paragraph 8.11.

The Authority has recognised similar issues in its discussion of LRMC pricing, noting that economies of scale and prudent planning requirements often result in transmission capacity being provided ahead of need.[40] The explainer below provides a high-level overview of the different drivers of transmission investment and their implications for transmission pricing signals.

Differentiating between grid investment drivers

Grid investment to relieve generation constraints can be expected to result in a reduction in the cost of transmission losses and constraints.

That reduction in losses and constraints is less likely for grid investment to maintain reliability of supply. Such investment is subject to the Grid Reliability Standards (GRS) in Part 12 of the Code. The GRS differentiates between:

1. the 'core grid' for which a deterministic N-1 standard applies
2. the 'non-core grid' for which an economic standard applies.

For both core and non-core grid, Transpower is required to invest to maintain the GRS. Transmission investments driven by the GRS are typically identified through forward-looking reliability assessments undertaken to meet Code requirements e.g. N-1 security.

The final investment decision is usually made well before the associated transmission constraints impact nodal prices.

5.3 Potential implications and materiality

Transpower's preliminary view is that BBC price signals are not well understood and do not appear to be clearly received by grid users. In some cases, grid users may be receiving unintended signals that influence decisions in inefficient ways. For example,

1. Inefficient use of, investment in, or lack of investment in, generation, distributed energy resources, demand-side flexibility and distribution networks;

2. Unnecessary or poorly timed capacity expansion in the transmission grid and, potentially, distribution networks; and

3. Weaker incentives to develop non-network alternatives that could reduce whole-of-system costs.

In a period of rapid growth, change and innovation across the electricity system, the potential consequence is that inefficient or unclear signals could undermine dynamic efficiency and reduce the ability to capture network efficiency opportunities, including those associated with smarter use of demand-side flexibility and distributed resources.

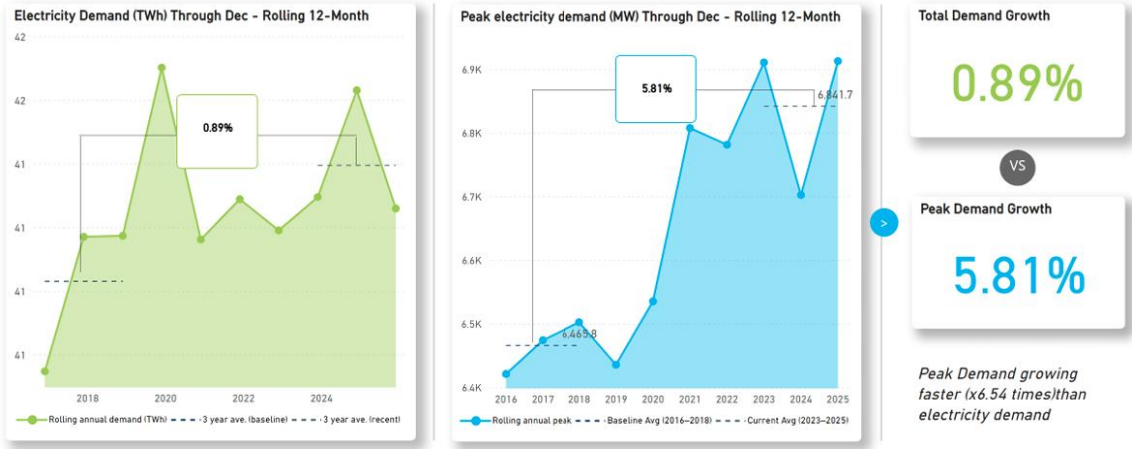
[40] Electricity Authority, Transmission Pricing Methodology Review: LRMC charges Working paper Discussion paper, 29 July 2014.

5.3.1 Divergence between peak and energy growth is concerning

Transpower is aware of concern among grid users and other stakeholders about the absence of a peak or effective forward-looking transmission price signal.

As we understand it, the concern is that BBCs do not provide an effective forward-looking price signal and therefore under-signal the cost of transmission as well as the value of demand management and other flexibility. This may result in unnecessary and inefficient investment in the grid. The concern is heightened by recent changes in consumption and the potential for this trend to continue or accelerate.

The charts below show that peak demand is increasing significantly faster than energy demand.



Source: Transpower analysis of EMI data

On a rolling 12-month average, electricity demand increased by 0.89% between 2018 and 2025 while peak demand increased by 5.81%, or 6.5x energy demand.[41] It is notable that the delta between peak and energy above that first emerged in 2021/22 has continued to today.

This divergence between energy demand and peak demand growth is likely to be driven by multiple factors. For example, changing usage patterns with less industrial demand and higher residential demand (which is 'peakier'), distributed generation (which reduces recorded energy demand), and the expected consequence of the Authority's decisions to remove avoided cost of transmission (ACOT) and the regional coincident peak demand (RCPD) charge in the previous TPM.

However, it remains a potentially concerning trend as:

- the ratio of peak demand to energy demand is an indicator of system 'smartness' – if energy demand grows faster than peak demand a system is getting smarter, and vice versa;
- peak demand is the main driver of grid investment to meet GRS that Transpower is required by the Code to maintain; and

41 Transpower analysis for the Energy Transition Framework, quarterly update report, page 18.

- Transpower has previously estimated[42] that smarter system utilisation could avoid approximately $1.5 billion in infrastructure investment for each 1 GW in avoided peak demand growth.

Unclear price signals

Q11 To what extent does uncertainty regarding future BBCs influence investment or grid-use decisions? What other impacts has this uncertainty had?

Q12 Do you have any comments or evidence on the case studies included in the consultation paper?

Q13 To what extent do you consider that BBCs achieve their intent to be fixed and incentive-free? And what pricing signals do you consider they may actually convey?

Q14 To what extent do you consider that anticipation of future BBCs provides an efficient forward-looking price signal to grid users vs, for example, a demand or peak-based price?

42 Transpower's *A Roadmap for Electrification* report estimated that every gigawatt (GW) of avoided peak electricity demand growth saves consumers approximately $1.5 billion (avoided generation and network costs).

6 Stakeholder engagement in transmission pricing decisions – limitations

Part 3 of our high-level problem statement is:

> **3.) Stakeholder engagement limitations**:
> The incentives created by transmission pricing – particularly benefit-based charges – have not produced the stakeholder engagement in grid investment decisions that the Electricity Authority expected.

Grid users pay for grid investment. Typically, they have localised knowledge and technical expertise; many have deep knowledge of grid assets and asset management.

Grid users' ability to contribute to grid investment planning and decisions is affected by the information available to them, the presentation of that information, and their understanding of its impacts on the efficient operation of the grid, including in relation to their own grid usage (and potential future grid-usage).

While there has been a focus on the line-of-sight between transmission investments and transmission charges grid users will pay, the impact of transmission investment is much broader than the TPM. It impacts grid users' operational and investment decisions, and their commercial results, regardless of how transmission charges are set, and whether there are direct or indirect links between investment and transmission prices, or any link at all.

6.1 Relevant policy intent and expected outcomes

We understand the Authority's policy intent and expectation was that adoption of the beneficiaries-pay concept or BBCs would increase scrutiny of grid investment by grid users. The Authority's reasoning was that grid users would have the ability and incentive to scrutinise grid investment and to engage in grid investment planning and approval processes if it impacted the amount of their future transmission charges.

The Authority considered that scrutiny and engagement would provide better information to Transpower in planning grid investment and by the Commerce Commission in evaluating proposed grid investment. This is summarised in the Authority's 2020 TPM Guidelines decision:[43]

> *"The Authority considers that benefit-based charges should increase scrutiny of proposed transmission investments. Consumers who would benefit and end up paying for a grid investment will have a greater interest in having a say on that investment, to make sure it is fit for purpose and better than alternative solutions. This should result in better information for Transpower and the Commerce Commission on grid investment proposals, solutions that best meet the needs of those who would use the grid investment and greater consumer acceptance of grid investment decisions in their regions."*

43 https://www.ea.govt.nz/documents/1887/26851TPM-Decision-paper-10-June-2020.pdf.

This reasoning has shaped various elements of the Authority's subsequent thinking and decision-making on the TPM, including that it should avoid 'socialising' costs. In the context of recent consultations on anticipatory investments, the Authority has maintained that the approach of recovering half the cost through benefit-based charges "ensur[es] there are incentives on transmission customers to scrutinise proposals for anticipatory capacity to help mitigate the risk of inefficient overbuilding that is present when costs are fully socialised". The Authority made clear it considers that this serves "as a counter to the risk of inefficient overbuilding that is present when costs are fully socialised."[44]

6.2 What we have heard or observed

Transpower values stakeholder engagement in its investment processes and benefits from the information, perspectives and challenge that stakeholders provide. This input supports robust, well-informed investment decisions.

The PIR[45] commented that:

> *"The TPM may skew stakeholder input to Transpower's investment consultations. For many stakeholders, their motivation to engage has increased where they have been identified as potential beneficiaries of proposed Transpower investments. Minimising transmission charges and contributing to sound investment outcomes are both important drivers; however, anecdotal evidence consistently suggests some engage primarily to minimise their transmission charges."*

This suggests that, while the TPM may encourage greater participation in the grid investment approval process, some stakeholders may be motivated to downplay the benefits they expect to receive—and therefore their potential charges—rather than provide information solely to support sound investment decisions.

The PIR indicates that transmission customers' and indirect beneficiaries' incentive to support efficient and prudent investment may not always align with their incentive to minimise their share of future transmission charges. Evidence supporting an investment may also demonstrate that a customer is a significant beneficiary and should therefore bear a greater share of its cost. This tension does not diminish the value of stakeholder engagement, but it reinforces the importance of considering participants' incentives when assessing the information provided.

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44 Electricity Authority, Transmission pricing methodology amendments 2026 Consultation paper, 29 June 2026.

45 The full PIR report can be found here.

6.2.1 The TPM has had some unintended consequences for engagement on Transpower investment and revenue approval processes

With hindsight, it is not clear that beneficiaries-pay or BBCs have increased stakeholder engagement with Transpower or the Commerce Commission during investment approvals or led stakeholders to provide information that would otherwise be difficult to obtain. We have seen evidence that the TPM affects stakeholder engagement, but not necessarily as the Authority intended.

For example, for our most recent RCP consultation, the bulk of submissions supported our proposal, but disagreed with how TPM/BBC allocations worked at a fundamental level. This is highlighted by MEUG's TPM commentary in response to the Commerce Commission consultation on the IPP for RCP4:

> *Pass-through of charges will be determined by the TPM: How these costs over RCP4 are passed through to consumers will ultimately be determined by how they are allocated out under the Transmission Pricing Methodology (TPM) and passed through by both distributors and retailers. MEUG has concerns with the current TPM, as it is overly complex, and too large a proportion of costs are recovered via residual charges, rather than benefit-based charges. The TPM also lacks a peak pricing signal to incentivise the smoothing of demand – instead the focus continues to be on building networks to meet the ever-increasing level of peak demand.*[46]

6.2.2 We have not identified evidence that BBCs have resulted in improvement in stakeholder engagement or information provision

Transpower has observed an apparent misalignment between the TPM pricing process and the investment planning and approval processes run through Transpower and the Commerce Commission. Stakeholders are asked to engage on expenditure proposals before they have clear, reliable information about how those investments may flow through to future BBCs.

This timing gap matters because the information needed to assess an investment proposal is not the same as the information needed to understand future BBC exposure. Investment planning focuses on need, timing, option selection, asset scope, cost and deliverability. BBC allocations require more detailed and different data, including the relevant BBI, applicable method, benefit regions, modelled benefits, counterfactuals, customer data, demand and generation assumptions, and potential adjustment events.

Those data requirements often become sufficiently clear only later in the process, once the investment has been more fully scoped or approved. Transpower could estimate these inputs and potential beneficiaries, however, it is unclear whether the margin of error would be acceptable to stakeholders.

In practice, this limits the intended link between BBCs and stronger scrutiny of investment proposals. Stakeholders may support, oppose or comment on the need for investment, service levels or overall expenditure, but still be unable to assess how the proposal will affect their future

46 MEUG, Transpower IPP 2025 – draft decision, 26 June 2024.

charges or whether the resulting allocations are likely to reflect relative benefits with any confidence.

Starting allocation consultations provide a useful illustration of this process misalignment. They occur after the investment decision is well advanced or approved, when pricing data can be applied more concretely. However, that is too late for stakeholder feedback on allocations to materially improve the investment planning decision itself.

6.2.3 Process alignment: complexity weakens engagement and scrutiny

Complexity within the simple and standard methods makes it difficult to align pricing information with expenditure planning and approval processes. This affects grid users' ability to understand how proposed investments may affect future charges:

- We apply the simple method to allocate charges to investments under $30M. In this paper, we refer to this group of investments as "Simple method investments". The number and granularity of benefit regions for simple method investments makes it difficult to present expenditure information in a way that links planned expenditure to future charges.

- For standard method investments, long-term forecasts, modelling assumptions and the Schedule 12.4 clauses 51 or 52 choice[47] can materially affect allocations and may change late in the planning process.

These factors appear to create additional friction for Transpower and grid users and may detract from, rather than enhance, grid-user engagement with and scrutiny of investment proposals.

6.2.4 IWG feedback

The expectation that BBCs would drive meaningful stakeholder engagement in transmission investment decisions has not been borne out in practice.

The expressed intent within the BBC mechanism design was that grid users potentially impacted by a proposed grid investment would be able to evaluate the value to them of that investment and influence the investment decision. The reality has been something quite different for a variety of reasons.

The IWG commented on this issue in its 11 August 2026 letter:

> *The role of BBCs in encouraging efficient grid investment is doubtful. It is true that grid users are incentivised to advocate in their own interest. However, useful price information is not available until after the investment is approved – whether recovered through simple or standard method BBIs.*

[47] Clause 51 is ccalculation of Market Regional Net Private Benefits, based on Quantity. Clause 52 is calculation of Market Regional Net Private Benefits based on Price and Quantity.

6.3 Potential implications and materiality

The issues identified in this chapter are material because they weaken the intended link between BBCs and improved scrutiny of transmission investment. The Authority expected grid users who would pay for investments to have stronger incentives to engage in planning and approval processes. However, the TPM pricing process, Transpower's investment planning processes and Commerce Commission expenditure approval processes do not currently align in a way that gives stakeholders clear, timely and usable information about future BBC exposure.

This misalignment is significant because the data needed to understand future BBC allocations is often different from, and available later than, the information used to assess investment need, scope, timing and cost. By the time BBI-specific pricing information can be applied with confidence, the investment decision may be well advanced or approved. This limits stakeholders' ability to use pricing information to test whether an investment is efficient, fit for purpose or preferable to alternatives.

The practical implication is that stakeholder engagement may occur, but not in the way the Authority expected. Instead of providing better information on whether an investment is needed, efficient or appropriately scoped, engagement may focus on broader expenditure concerns, service levels, or later disputes about whether BBC allocations reflect relative benefits. In those circumstances, BBCs may add complexity and friction without materially improving investment planning or information available for Commerce Commission scrutiny.

The materiality of this issue is likely to increase as more transmission investment is recovered through BBCs. If the process misalignment remains, stakeholders may continue to face difficulty understanding how investment decisions translate into future charges, while Transpower and the Commerce Commission may not receive the improved information and scrutiny that was expected to support better investment outcomes.

Stakeholder engagement in transmission pricing decisions

Q15 Have BBCs increased your organisation's interest in, or engagement with, transmission investment planning? Please provide specific examples.

7 Unnecessary costs imposed by BBC administration

Part 4 of our high-level problem statement is:

> **4.) Unnecessary costs:**
> BBCs impose unnecessary operational and opportunity costs on participants, their customers and Transpower.

Transpower has heard and observed that costs to apply and be subject to the new TPM are significantly higher for Transpower and current and prospective grid users than the previous TPM.

The change in cost is attributed to BBCs. That is because the connection charge is largely unchanged while the residual charge is relatively straightforward for Transpower to calculate and grid users to understand.

7.1 Relevant policy intent and expected outcomes

While significant debate occurred over the costs and benefits of the new TPM during its development, the main focus was on overall implementation and operating costs for Transpower (rather than for BBCs specifically, or for grid users more widely).[48]

However, the Authority recognised that the new TPM would impose higher administrative costs on Transpower and grid users than the previous TPM. This would be a byproduct of the expected increased focus on grid investment and more active consideration of the cost of those investments for grid users.

There would be corresponding costs for Transpower in considering feedback on investment plans from grid users.

7.2 What we have heard or observed

The unnecessary or inefficient costs discussed in this section are distinct from costs arising from issues with estimation and forecasting, price signals and the other issues discussed earlier in this paper.

Transpower has heard and observed that costs fall into one of two areas; they are:

1. The direct costs of time: for pricing and technical experts, management and Boards within, and advisers to, Transpower and grid users.

[48] TPM Decision paper, 2020, paragraph 15.25.

For Transpower, the operating cost (alone) to apply the TPM is approximately 400% higher than the previous TPM. This includes the cost of administering the TPM and time engaging with grid users to obtain information required to prepare price estimates and to provide and explain those estimates. Transpower also incurs materially higher capital costs associated with information systems required to apply the TPM. These costs flow through to grid users.

The cost to grid users is more difficult to estimate although we note the IWG's comment in its 11 August letter:

> *It is certainly true that the current TPM imposes significantly higher administrative costs for grid users than the preceding TPM.*

2. The opportunity cost of:

    a. technical experts, who would otherwise be engaged in productive endeavours. This cost is particularly high at the present time as these technical experts within Transpower and grid users are in short supply and are required to support their businesses and customers in navigating the technological and market change currently underway.

    b. management and Boards, for whom TPM is, on one hand, a 'black box' that they cannot realistically develop a detailed understanding of, but on the other hand, an increasingly critical business risk that is affecting operational and investment decisions.

Transpower is aware that these costs affect different grid users differently. For example, the below costs are borne by specific groups.

- Producing and adjusting BBCs (Transpower)
- Explaining BBCs to current and prospective customers (Transpower and Electricity Distribution Businesses (EDBs))
- Trying to understand applied BBCs and reflect these in network pricing (EDBs, grid users)
- Trying to forecast BBCs and estimate BBC risk (grid users, investors).

7.3 Potential implications and materiality

From what Transpower has heard and observed, TPM uncertainty (and specifically BBC uncertainty), and added effort to mitigate or manage this uncertainty – is driving higher costs for grid users.

BBCs are the main driver of additional cost for Transpower's pricing function and a significant resource cost for grid users. These costs include both direct staff and adviser time, and opportunity costs, where scarce technical expertise is diverted away from investment, customer or operational work.

In its 11 August 2026 letter, the IWG comments:

> *Higher costs are not a problem necessarily, if those costs led to clarity and predictability and better decisions by grid users and/or Transpower. However, this just does not appear to be the case.*

The same letter goes on to say:

> *We should be honest that precision does not equate to reliability or accuracy in the estimation of benefits and prices. It is a fact that such estimates are:*
>
> - *made at a point in time based on assumptions and judgements*
> - *those assumptions and judgements will invariably be wrong, potentially wildly wrong*
> - *the pace of change on the electricity system further reduces their reliability.*
>
> *Yet it appears that a large part of those costs, much of the complexity and uncertainty driven by BBCs is incurred in pursuit of precision. Trading off the benefits of predictability / certainty and availability of information for false precision is an expensive and profitless endeavour.*

While direct costs of administering and engaging with the BBCs are likely to be comparatively small in relation to the costs discussed earlier in this paper, it remains important to avoid unnecessary costs where possible.

Indirect costs, such as the opportunity cost of technical expert and management time, are more difficult to quantify but potentially have greater impact on outcomes for electricity users.

Unnecessary costs imposed by BBC administration

Q16 Has the current BBC framework created any administrative, compliance or transaction costs for your organisation? If so, do these costs affect your engagement with transmission pricing, investment planning, forecasting, or investment decision making?

Appendix A: TPM post-implementation review

Transpower commissioned Concept Consulting to undertake a post-implementation review (PIR) of the TPM following its introduction on 1 April 2023. The PIR sought stakeholder feedback on how the TPM was operating in practice. It also sought to understand whether the TPM was delivering the intended benefits and whether any implementation issues had arisen. The summary report, published in October 2025, recorded widespread industry concern and prompted an Operational Review.

The TPM PIR report provides a useful starting point for the BBC problem definition. It identified recurring concerns with the TPM, and specifically the BBCs, from electricity distributors, generators, and large industrial consumers. These included:

- **Complexity:** Stakeholders broadly characterised the new TPM as a "black box".
- **Volatility:** Stakeholders reported that small data adjustments led to unpredictable and sharp changes in pricing.
- **Forecasting:** Severe difficulties were experienced in budgeting or calculating long-term transmission costs.
- **Planning Barriers:** Deteriorated transparency in transmission investment planning hindered prospective, distribution-level customer connections.

The PIR captured stakeholders' views that the complexity, volatility and uncertainty in the TPM, and specifically within the BBCs, is:

- Impacting generation and demand side investment. Investors are unable to forecast (or obtain from a third party) transmission costs and the resulting uncertainty and profitability risk is delaying / stalling investment.
- Introducing general cost uncertainty to all customers (in addition to the risk to potential investors above) and limiting EDBs' ability to flow transmission price signals through to distribution prices.
- Consuming much of Transpower's advanced modelling capacity, reducing capacity for business/customer modelling. Stakeholders do not have the capability and/or capacity to replicate Transpower's modelling and/or challenge it.
- Reducing the opportunity for effective engagement with Transpower's investment proposals, as the inputs and assumptions driving pricing outcomes are not transparent to stakeholders.
- Leading to general disengagement and 'TPM fatigue', particularly for stakeholders that have invested to understand but continue to see it as prohibitively complex and inaccessible.
- Necessitating highly skilled staff in organisations (that many do not have) and access to skilled consultants, making it also costly.

Subsequent analysis through the Operational Review, including engagement with the IWG, has helped clarify and refine issues raised through the PIR.

The PIR provides an important evidence base for this consultation by identifying recurring stakeholder concerns about the workability, predictability and transparency of BBCs. Through this consultation, we are seeking to test those concerns, understand their materiality, and determine whether they indicate issues that warrant further consideration through the BBC Workstream.

Appendix B: Efforts to understand and forecast BBCs

Stakeholders have invested effort to understand and estimate BBCs

Since commencing the Operational Review, we have held in-depth group and one-on-one discussions with grid users, independent experts and IWG members. These discussions have helped test and probe the PIR findings, including the effort stakeholders have made to:

- understand BBCs, how the BBC methodologies operate, and the price signals they are intended to provide; and
- estimate and forecast the BBCs both in the near and longer term, and according to BBC type (ie, simple and standard – see Appendix A).

We have learned that grid users have invested significant time and resources, including procuring expert advice to understand the BBCs, and to estimate and forecast BBCs.

The IWG's feedback, after a series of education sessions in May and June 2026, was instructive. In its letter of 12 June 2026, the IWG observed:

> *The IWG had six hours of in-depth BBC education sessions with Transpower's pricing and grid investment teams. The aim of the education sessions was to give all members a firm understanding of the two BBC methods and their application.*
>
> *Going into the education sessions, members could confidently explain the BBCs in concept – the policy level explanation provided by the Authority. However, none could confidently explain how the charges actually worked or how charges might change in response to their actions or the actions of other grid users (including Transpower).*
>
> *Having completed the sessions:*
>
> - *members appreciate time given by Transpower experts and the ability to probe and clarify how the simple and standard methods operate*
> - *the sessions were valuable, mostly in revealing the intricacies of the charges and demonstrating just how complex both methods are, and concerns in attempting to reconcile the output from the two*
> - *no member was able to confidently explain how the charges worked or might change in response to their actions or the actions of other grid users (or Transpower).*

The IWG went on to observe:

> *The IWG is concerned that this could be the case for a group of sector experts with a direct interest in transmission pricing, access to dedicated briefings and discussion with Transpower.*
>
> *No member was able to, or was aware of any party outside of TPM component specialists within Transpower, that was able to replicate or even approximate BBC charge outcomes. In this context, members queried whether anyone in New Zealand truly understands the BBCs or the price signals they seek to provide.*

Although not statistically representative, the discussions and interviews included a cross section of grid users – the IWG, selected for their industry and pricing expertise, EDBs (large and small), generators (large and mid-sized) and offtake users (large).

Transpower has invested considerable time and effort to help stakeholders

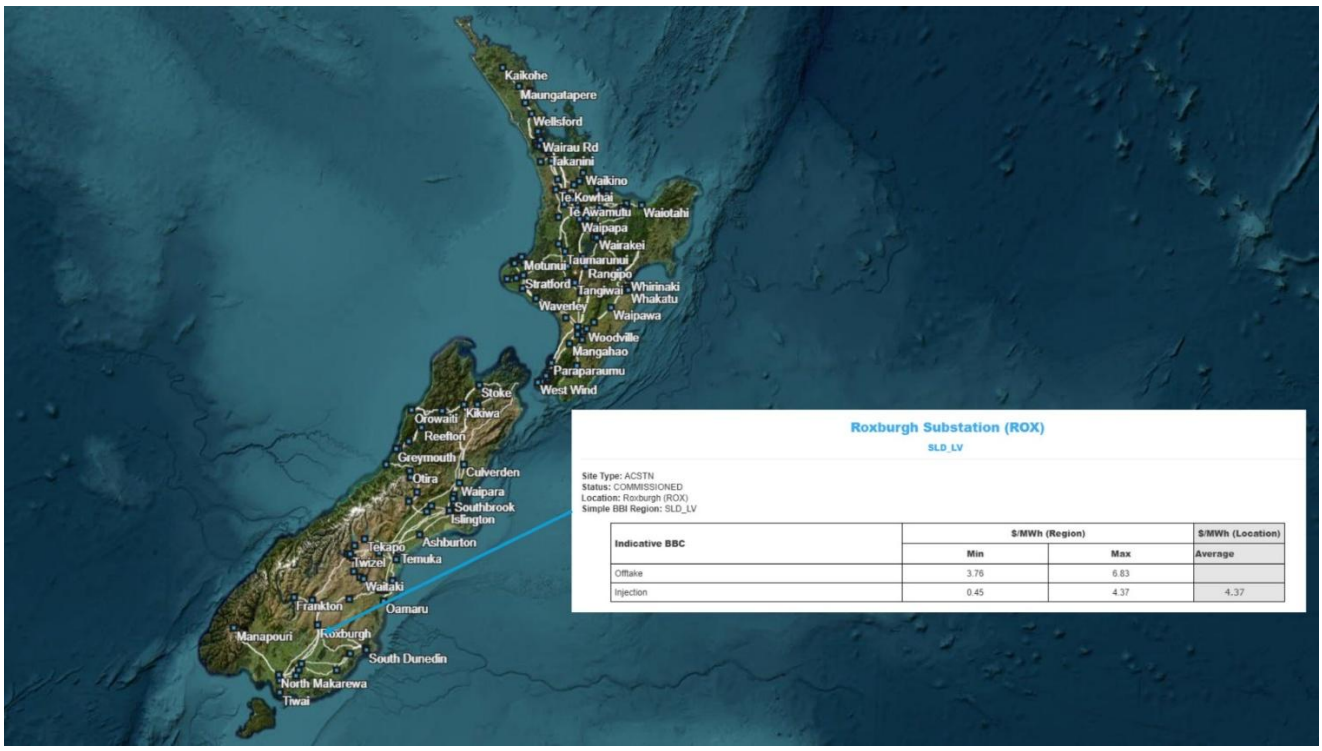
Transpower has made significant and sustained efforts over time to help stakeholders understand the TPM. However, this has not resolved uncertainty about future transmission charges.

Transpower has provided open briefings, customer-specific support, price estimates and updated information to help existing and prospective customers understand the TPM and plan for future charges.

Resources available via our Grid Pricing webpage include:

1. Publishing information on current and historical grid prices
2. Explanatory resources, information sheets and historical resources
3. Learning pages for specific customer types
4. Indicative pricing information, including to support customers' own estimations
5. Frequently asked questions

An interactive map on the site allows click-through to see indicative BBCs for offtake and injection (generation) across New Zealand. (The map is available at Indicative pricing | Transpower)



Appendix C: Root-cause analysis for BBC problem definitions

As part of the problem investigation phase, Transpower hosted a full--day, in-person workshop with the Industry Working Group (IWG) on 1 July 2026. Electricity Authority staff also participated as subject matter experts rather than in a formal capacity. You can find these materials on Transpower's website.

The workshop used structured analytical techniques to surface and explore issues with the benefit-based charging framework and gather feedback on draft problem hypotheses. Participants were specifically asked not to identify potential solutions.

Two well-established techniques for root-cause problem solving were used to explore and map the identified issues. The first was a "fishbone analysis", which helped identify potential contributing factors. The second was a "five whys" analysis which built on the findings from the fishbone exercise to further examine underlying, root causes. All examples below are illustrative.

First exercise - Fishbone analysis
A fishbone analysis (also called a cause-and-effect diagram) is a technique used to identify and organise the possible root causes of a given issue. The analysis helps identify all plausible causes of an issue; with plausible causes grouped into separate categories:

- the problem is the "head" of the fish;
- the categories are the "bones"; and
- each bone is populated with possible causes.

The purpose of fishbone analysis is to explore the full range of plausible causes before forming conclusions. Complex issues often arise from multiple factors, rather than a single reason. By identifying and considering a broad set of possible explanations, the analysis reduces the tendency to identify the first plausible explanation and assume it is the cause of the problem. Jumping to a single cause can lead to solution bias.

For example, if participants are expressing that "we cannot forecast benefit-based charges," a plausible explanation could be "the problem is that the standard method is too complex." However, while this may be a plausible explanation, it could be one of several possible contributing causes; other explanations include:

- Is it a data, information and/or communication issue?
- Is it customer capability or engagement?
- Is it a policy design issue?

Only after mapping the full set of possibilities can the causes be properly tested to assess which are material / influential and supported by evidence.

Second exercise – five whys

After the fishbone exercise, participants considered which causes appeared most likely to be materially contributing to the problem. These causes were prioritised for further analysis using the five whys technique. The question "why" is applied repeatedly (five times) to a cause to explore this in greater depth. Each answer forms the basis of the next question. The purpose of the five whys is to distinguish symptoms from underlying drivers and test whether an observed issue can be traced back to a more fundamental cause.

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