TRANSMISSION PRICING FOR THE FUTURE

THE ELECTRICITY AUTHORITY (THE AUTHORITY) IS PROPOSING A NEW APPROACH TO TRANSMISSION PRICING. WE CONSIDER THIS PROPOSAL WILL DELIVER SIGNIFICANT BENEFITS TO CONSUMERS IN THE LONG TERM, AND SUPPORT THE TRANSITION TO A LOW-EMISSIONS ECONOMY AT THE LEAST COST TO CONSUMERS.

TPM REFORM IS NECESSARY AND URGENT

The Authority considers a new transmission pricing methodology (TPM) is necessary and is becoming increasingly urgent.

The current TPM enables Transpower to recover its maximum allowable revenue, and signals to customers that their demand drives future investment in transmission capacity.

The Authority believes the current TPM encourages inefficient use of the transmission grid and inefficient investments in alternatives to the grid.

THERE ARE SIGNIFICANT FLAWS WITH THE CURRENT TPM

The Authority considers there are significant flaws with the current TPM that are leading to inefficient investment and consumption outcomes:

- The current charges spread the cost of regional transmission investments across New Zealand, regardless of the benefit the users (electricity consumers and generators) get from the grid.
- Interconnection charges are allocated based on consumption during just 100 regional peak trading periods in a year. This is called the regional coincident peak demand (RCPD) charge. The RCPD price signal is far too strong relative to the true cost of using the national transmission grid.

  This creates significant problems because the RCPD charge:

  - discourages electricity use at times when consumers most value it, even when there are no grid congestion issues
  - encourages customers to unnecessarily invest in technologies such as batteries and distributed generation to avoid paying transmission charges, shifting costs to others.
- South Island generators pay for all of the costs of the high voltage direct current (HVDC) line that transports electricity between the South and North Islands. The HVDC charge has been about 10 percent of the wholesale price of electricity. The charge is like a ‘tax’ on South Island generation and encourages investment in otherwise more expensive North Island generation.

INCREASING CONSUMER COSTS

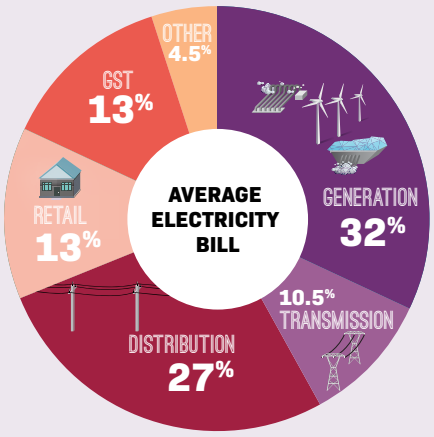
The current TPM increases costs for consumers. These costs are likely to continue to increase as more grid investments are needed to support growing regions and the transition to a low-emissions economy, and technologies such as distributed generation and batteries become more affordable.

The Authority is proposing new TPM guidelines to address these problems. The Authority considers a TPM consistent with the proposed TPM guidelines would unlock considerable long-term net benefits for consumers. If we do not act now, consumers will get less benefit from the electricity system and pay more for using it in the long run.

TRANSMISSION AND TRANSPOWER

The transmission grid is a central and crucial part of the electricity system that provides households and businesses with safe and reliable access to electricity all day, every day.

The transmission grid is owned and operated by Transpower. The maximum revenue Transpower can recover is set by the Commerce Commission. The Authority sets the guidelines for how Transpower can set its charges to recover the approximately $850m annual cost from mid 2020 onward of building and running the national transmission grid to electricity generators, distributors and direct consumers. This cost is expected to rise to over $1 billion in the next ten years.



*NB: This is based on an average bill. These proportions may vary from year to year. *GST is 15% of the pre-GST cost and therefore 13% of the GST-inclusive amount.*

BENEFIT-BASED TRANSMISSION PRICING

Consumers should pay for the transmission assets they benefit from, and not pay for those they do not. That's not how the current charges work. Under the current TPM, the costs of regional transmission investments are spread across all consumers, regardless of where they live or the benefits they get.

The Authority proposes a benefit-based approach to allocating transmission costs. This means transmission customers who benefit from specific grid investments would pay for them.

We propose two new charges to replace the current RCPD and HVDC charges:

- A **benefit-based charge** to recover the costs of new grid investments and the depreciated costs of seven major existing investments based on their benefits to transmission customers
- A **residual charge** to recover any remaining transmission costs in a way which does not distort incentives to invest or use the grid.

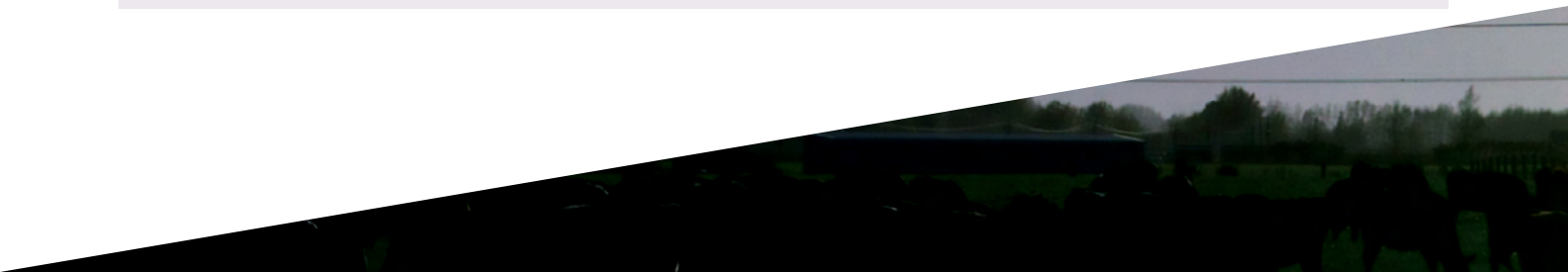
These new charges are designed to be hard to avoid in order to minimise inefficient grid use and inefficient investments.

The new charges would send better signals to consumers about the economic cost of using the grid, without distorting grid use or investment in grid-connected generation and transmission alternatives.

This approach to pricing is aligned with the new distribution pricing principles the Authority recently released.

DISTORTED DECISIONS

A dairy plant owner seeking to electrify a plant could upgrade the capacity of its connection to the grid at its current location, which might require an interconnection upgrade, or do something else that does not require an interconnection upgrade (eg, install renewable distributed generation). Under the current TPM, the plant owner has an unintended incentive to choose an upgrade of grid capacity, even if other electrification options are more cost-effective. This is because the majority of the full costs of the grid upgrade would be paid for by other consumers.



UNDERGROUNDING

Consumers in parts of Auckland have been petitioning for the undergrounding of all urban transmission lines. Underground cables are generally 5 to 15 times more expensive to install and maintain than overhead lines. Under the current TPM, Auckland consumers would only pay a fraction of the actual cost of underground lines; the rest would be spread across all New Zealand consumers. If the local authority changes its planning rules to eliminate overhead lines, Transpower would have little choice but to underground lines in the future. We would expect it to be contentious for many New Zealanders to have to pay for something for which they receive no benefit. We believe this approach to charging is not sustainable nor in the long-term interests of New Zealand consumers.

WHOLESALE MARKET PRICES AND THE TPM

Some form of peak pricing will continue to play a key role in the management of demand in the case of congestion, and to defer grid investment until the timing is right. The best design of such a charge has been a topic of much consideration and debate.

New Zealand has well-established mechanisms to determine wholesale market prices at grid exit and injection points – known as nodal pricing.

The Authority considers nodal prices can do a better, more targeted job of signalling the actual cost of grid congestion at specific locations than the RCPD charge or an alternative long run marginal cost (LRMC) charge.

Emerging technologies, real-time pricing, and new business models will make this an increasingly responsive and efficient tool to manage grid congestion.

This approach will not discourage consumers from making use of the grid where there is spare capacity available, as happens under the current RCPD charge. It would only generate higher prices where grid congestion actually exists, until prices indicate that grid investment is efficient.

MANAGING UNCERTAINTY

There is some uncertainty regarding the immediate impact of removing the RCPD charge. For example, it is not known with certainty how distributors would adapt their demand responses through technologies like ripple control of water heating. The proposal provides an option for Transpower to introduce a transitional peak charge, to operate alongside nodal prices, at specific points in the grid that would otherwise experience congestion.

However, the Authority believes any need for a separate peak transmission charge will disappear over time as new technology and demand response arrangements emerge and real-time pricing comes into effect.

UNPREDICTABLE OUTCOMES

Electricity Ashburton's transmission charges increased by $10 million. The charges went from $6.5 million in 2018-19 to $16.7 million in 2019-20. This was not because grid capacity or quality had increased or because their grid use was significantly higher. It was because of a change in the timing of the top 100 half hour demand periods used to determine transmission charges for each customer in the upper South Island region.

The network's delivery prices for irrigators and major users in the network were unexpectedly up by almost 40 percent on the previous year and up 10 percent for general consumers. To reduce future bills, the distributor asked irrigators to reduce their demand by 35 percent. This could affect farm productivity and, if successful, it will just shift costs to another customer in the region as the total cost of transmission has not changed. This volatility is highly problematic.

A DURABLE TPM – INCLUDING SOME HISTORIC INVESTMENTS

The Authority's proposal includes recovering the depreciated costs of some major existing grid investments through the benefit-based charge. It is not a retrospective charge.

The key reason for this part of the Authority's proposal is to make a new TPM durable. This is important to stop ongoing uncertainty about the TPM, and to achieve the considerable efficiency benefits.

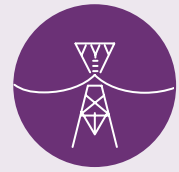
In the Authority's view, pricing arrangements are more durable when you 'pay for what you get'. The pricing arrangements for connection charges have not been contentious because they are based on that principle: customers pay for the connection assets they use and do not pay for other customers' connections. This proposal aims to extend the same principle to key existing interconnection and HVDC assets.

The proposed charging for these major grid investments is consistent with the Authority's approach to distribution pricing. The distribution pricing principles do not promote – and, to the Authority's knowledge, distributors are not contemplating – reform of their pricing structure that would only apply to future investment in the distribution network.

The Authority is confident the seven major investments proposed to be subject to the benefit-based charge have significant benefits for the transmission customers that would pay for them under the proposal. The proposal also provides Transpower with the option to apply benefit-based charges to a wider range of historical assets, provided it can show that doing so would better meet the Authority's statutory objective than not doing so.

SEVEN

EXISTING GRID ASSETS



- The HVDC
- North Island Grid Upgrade
- Upper North Island Dynamic Reactive Support
- Wairakei Ring
- Bunnythorpe-Haywards Reconducturing
- Lower South Island Reliability
- Lower South Island Renewables.

PAYING FOR THE FUTURE AND THE PAST

With a benefit-based charge Christchurch consumers could expect to pay most of the $283 million cost of the new switching station and new transmission line into Islington that Transpower is planning to build. The same consumers would also continue to pay nine percent of investments that benefitted mainly North Island consumers, such as the $876 million North Island Grid Upgrade – unless these costs are recovered through the benefit-based charge.

LARGE BENEFITS FOR CONSUMERS

The Authority has included in this proposal a cost-benefit analysis (CBA) which shows a TPM consistent with the proposed guidelines would deliver significant benefits to consumers between implementation and 2050.

Key CBA results are approximately:

a. A net benefit of $2.7 billion for our proposal over the current TPM for the main scenario within a broader estimated range of $0.2 billion to $6.4 billion

b. A net benefit of $858 million compared to the alternative option we modelled, which replaces existing charges with a broad-based usage charge.

The benefits would come from:

- $2.36 billion from reducing electricity costs and increasing its use at peak times, when consumers value it the most (after taking into account some increased costs)
- $200 million from more efficient investment in technologies such as grid-scale batteries where they would otherwise be used mainly to avoid paying transmission charges
- $145 million from more efficient investment in transmission and generation and consumer decisions about connection, electrification and location.

PROTECTION AGAINST HIGH PRICE RISES

Under the Authority's 2019 proposal some consumers and businesses may face higher charges initially, while others may have less to pay.

This is a consequence of our proposal to distribute more of the costs to those who benefit from specific grid investments and to make the benefit-based and residual charges hard to avoid. These charges would make almost all consumers significantly better off in the future.

Our proposal includes a price cap to give all electricity consumers – households and businesses – reassurance that there would be no large price impact should a TPM based on our proposal be introduced.

In most areas where charges would increase initially, such as Auckland and Northland, the initial impact for households and businesses is low – an average of $21 in that year on an average residential bill.

In 12 networks the transmission charges on the average electricity bill would decrease by an average of $20. This covers consumers served by Alpine Energy, Centralines, Eastland Network, Electricity Ashburton, Electricity Invercargill, Electricity Southland Marlborough Lines, Powerco, Scanpower, Unison Networks, Waipa Networks, and Wellington Electricity.

Charges for the Tiwai aluminium smelter would reduce as it would no longer pay for past North Island grid upgrades, but charges would rise for other industrial consumers like NZ Steel and Pan Pacific. Charges would rise for North Island generators, and fall for South Island generators.

The rebalancing of transmission charges would not increase the total amount Transpower charges.

TRANSMISSION PRICING METHODOLOGY REVIEW – A DECADE OF ADVICE AND SUBMISSIONS

There has been long-term and consistent pressure for TPM reform. Some of the issues with the TPM date to the late 1990s, when pricing was introduced that allocated costs of the HVDC in full to South Island generators and allocated interconnection charges on a measure of peak demand only.

The current TPM took effect on 1 April 2008 and the Electricity Commission initiated a review in April 2009.

Since then, the Authority has worked with industry to review the TPM. We have consulted widely and considered a wide range of options through working papers, consultation documents and submissions.

There have been significant costs and ongoing uncertainty, which is not conducive for making long-term investment decisions in the interests of New Zealand consumers.

The Electricity Price Review also emphasised the need to bring the TPM review to a conclusion.

MAKE A SUBMISSION

The Authority is consulting on its proposal for TPM guidelines. You can read the full 2019 issues paper on our website – www.ea.govt.nz. This consultation paper sets out in detail how to make a submission. We welcome all views on this topic.

The consultation closes 5pm on 1 October 2019. We will then have four weeks for cross submissions until 5pm on 30 October 2019

Following consultation on the proposed TPM guidelines, the Authority will consider submissions and decide if new TPM guidelines are warranted. Transpower would then take steps to develop a proposed TPM based on any new TPM guidelines.