Transmission pricing methodology review

Questions and answers

10 October 2012

General

1. **If implemented, what would the proposal mean for my household bill?**

The overall effect on households' electricity bills will be a minor reduction in electricity costs relative to what they would otherwise have been. The proposal would alter the regional distribution of transmission charges as it seeks to align transmission charges more closely to regions that benefit from transmission upgrades.

Electricity transmission costs today make up about 7% of a household's total electricity cost. With the wave of new transmission investment currently being undertaken or committed to, this will rise to around 10% of a household's total electricity cost. Although the Authority is proposing a more efficient approach to recovering the costs of transmission, the costs to households is likely to continue to rise as a result of the heavy investment programme needing to be paid for.

2. **Are there any changes in the amount paid by generators?**

Generators currently pay charges for connection services they receive from Transpower, and South Island generators pay for the costs of the HVDC link (which runs from Benmore in the Canterbury region to Haywards near Wellington). Under the current regime generators pay for interconnection services only to the extent they draw power from the grid.

The Authority is proposing to group HVDC and interconnection charges together and apply the same approach to both. Generators will now pay for a portion of interconnection as well as HVDC costs, depending on their share of the benefits they receive from those assets. The Authority is proposing to retain essentially the same connection charge on connection parties (including generators).

This is analogous to the situation in workably competitive markets where sellers pay the costs of getting their goods to the market. The Authority's decision-making and economic framework consultation paper gave the example of potato farmers taking their goods to market. It was noted that if Oamaru potato farmers wish to sell their potatoes in Auckland they pay the transport costs of getting their produce to Auckland. They may have to compete with potatoes sold by Pukekohe famers who will have much lower transport costs. The Oamaru potato farmers will, however, be prepared to pay for the costs of transport to Auckland provided this is profitable – i.e. their private benefits exceed their costs. The Authority's beneficiaries-pay charge will work in the same way – generators will be charged for the cost of transmission investments (up to the private benefit they receive from the wholesale market) that allow them to get their electricity to consumers at each off-take point.

3. **Won't the charges on generators simply flow through to higher wholesale market prices, and through to higher retail prices for consumers?**

The extent of pass-through of the charges proposed to be levied on generators will depend on the effect of the charge on the relative costs of competing generators. Generators in different locations will face different charges so may have to absorb the charge in order to be dispatched. However, where generators face the same costs as a result of transmission charges as their competitors they are likely to have the ability to pass on some or all of the costs of the charge in their offers to the wholesale market, and this would be reflected in higher wholesale market prices.

One factor that may offset any pass-through that may eventuate is the fact that generators will be paying transmission charges that were formally paid for by consumers, and are likely to have to absorb at least some of the costs of this. To the extent generators absorb these costs, costs on consumers will fall. Further, if the effect of the charges on generators is more efficient transmission investment, this may also result in lower costs on consumers as the transmission costs they bear may also fall.

4. **Why not just stay with the current approach for HVDC and interconnection charges?**

The Authority considers that the current approach for HVDC and interconnection charges is inefficient and creates significant costs which are ultimately borne by customers. These costs arise primarily from the current regime discouraging efficient generation, encouraging over-investment in the HVDC, inefficiently bringing forward the need for new investment in transmission assets and dis-incentivising efficient peak demand reductions.

Further, the indirect, non-beneficiaries-pay approach of the current approach for the HVDC and interconnection make it the most contentious component of the TPM. It has been reviewed multiple times since 1994 and is remains the subject of considerable lobbying and requests for change. The constant potential for change does not promote efficient investment. Hence, the Authority's desire to implement an efficient regime for these assets that rests on a beneficiaries-pay approach as parties generally accept charges where they can identify the link between the charges they pay and the benefits to them.

5. **Why not just adopt the recommendations TPAG made to the Authority last year?**

The Transmission Pricing Advisory Group (TPAG) was unable to reach a unanimous view on the key issue of who should pay for the HVDC costs. The TPAG was split almost evenly, with a large minority view that wanted to stay with the current approach and a majority view that wanted to lump the HVDC charge on consumers via the interconnection charge.

The Authority went back to first principles and developed, in consultation with participants, a decision-making framework that provided for an efficient and robust mechanism for recovering transmission costs. The application of the framework approach indicates that a beneficiaries-pay charging regime based on the SPD method is viable for the HVDC and interconnection assets and that this approach provides significantly greater economic benefits than either the minority or majority view in the TPAG report.

6. **Why does the Authority believe that its proposal will be more durable and acceptable than other proposals?**

The approach proposed by the Authority will be more durable than other approaches because it aligns payment for shared transmission assets (i.e. HVDC and interconnection assets) with the benefits received from them. For connection assets, the proposed market approach intrinsically ensures that the benefits a party obtains from a connection asset will be factored into the price/cost it is prepared to pay for that asset. For the HVDC and interconnection the proposed "administrative" SPD beneficiary-pays charge approach provides a method for linking payment with private benefits. Inherently a regime will be more durable, when a party that benefits from an asset pays for that asset, or conversely when a party that doesn't benefit doesn't pay.

7. **Will the Authority's proposal dis-incentivise South Island generation being built to ship power to the North Island?**

No. Relative to the status quo, the Authority's proposal will enhance incentives to build generation to ship power to the North Island. This is for three main reasons. First, South Island generation will only pay for transmission capacity from which they benefit, and the charge will be capped at each party's private benefit. There would therefore be an incentive to invest in generation where the annualised cost of transmission paid for by South Island generators is less than their private benefits. Second, unlike the status quo, North Island generators will also have to pay for transmission capacity from which they benefit. This means that South Island generation would be more competitive with North Island generation relative to the status quo. Third, to the extent that all generators face common transmission costs from transmission charges they may be able to pass on these costs in their wholesale offers.

8. **How much economic benefit will the Authority's proposal deliver?**

The economic benefit of the Authority's proposal, after accounting for the costs is estimated to be $173.2 million in today's dollars. The table below shows the benefit and cost break down.

PV of economic costs and benefits	Authority's proposal
Economic costs	$50.1m
Economic benefits	$223.3m
Net economic benefit	$173.2m

9. **Don't the relatively high implementation costs make the Authority's proposal a risky one?**

The Authority considers the implementation costs involved with its proposal could in fact be substantially lower than those used in the cost-benefit analysis (CBA), as the CBA figures do not take into account the possibility that third parties will offer joint-services to the participants. If this occurs, this would reduce the need for each participant to undertake calculations themselves, and result in a lower overall cost. In any case, the Authority has been deliberately conservative its choice of counterfactual and assumptions to ensure the conclusions from the CBA are robust to a range of future scenarios.

10. **How robust is the Authority's cost-benefit analysis for the proposal?**

The Authority has undertaken a detailed CBA of its proposal. The great majority of the net benefits are attributable to the proposed SPD beneficiaries-pay approach to HVDC and interconnection and the proposed changes to reactive support. In relation to reactive support, the Authority has adopted the CBA benefit determined by the TPAG, which was generally supported by submitters. In relation to the SPD approach, the Authority has used an approach based on multiplying total revenue by a factor estimated from qualitative information. This approach has been used by the Commerce Commission to estimate efficiency benefits, especially dynamic efficiency benefits, and upheld by the Courts. The Authority notes that the CBA, which is conservative, estimates considerable net benefits from its proposal across a range of sensitivities.

11. **Why did the Authority undertake this review so soon after the last TPM had been adopted in 2008?**

The Electricity Authority's predecessor, the Electricity Commission, commenced this review in 2009 as a result of its decisions to approve Transpower's investment in pole 3 of the HVDC link, shortly before then. Following the establishment of the Authority in later 2010, several generator and lines company participants informed the Authority they thought the issue should be the number one priority for the Authority.

Significantly, the Authority considers that there has been a material change in circumstances since the TPM came into force – the establishment of a new electricity regulatory regime in 2010,Transpower's significant capital expenditure programme, and significant advances in computer modelling that enable modelling methods to be undertaken that were previously not possible or infeasible.

12. **Has the beneficiaries-pay approach been adopted elsewhere?**

A beneficiaries-pay approach to transmission charging is emerging as common practice internationally. The trend reflects moves by decision-makers to adopt a principle that ensures that only those parties benefiting from transmission facilities are charged for the associated costs. For example, case law from the United States of America has established that the Federal Energy Regulatory Commission (FERC) cannot approve a transmission pricing scheme that requires parties to pay for facilities from which they derive no benefits, or face charges where the benefits to them are trivial in relation to the costs sought.[1] FERC has adopted these principles in its order No. 1000, issued in July 2011, and recently confirmed them after considering submissions.

In the Argentinean and New York state electricity markets beneficiaries-pay approaches have been applied[2] although the approach adopted in these jurisdictions differs to that proposed by the Authority, as the charges are based on anticipated benefits rather than actual market outcomes. The Authority examined these approaches but considers its proposal to use the Scheduling Pricing and Dispatch (SPD) method (see next page for questions and answers on the SPD method) is superior in efficiency terms for the following reasons:

- since the beneficiaries pay charge under the Authority's proposal reflects actual market outcomes rather than anticipated benefits the charge is likely to more accurately reflect the actual benefits parties receive from transmission assets;
- the Authority's proposal is flexible to changing use of the grid but a method based on anticipated benefits is not;
- the Authority's proposal enables a consistent charging method to be applied to both new and existing assets but a method based on anticipated benefits can only be applied to new investments; and

[1] Illinois Commerce Commission v FERC, 576 F.3d 470, 476 (7th Cir., citations omitted), available at, http://www.ferc.gov/legal/court-cases/opinions/2009/PT1FG750-opinion.pdf.

[2] Until 2012 in Argentina

SPD is well accepted in the electricity industry and is a robust linear programming model. It has been used to clear, dispatch and price electricity in the wholesale market since 1996.

Modelling results

13. **Why has the Authority not provided more detailed modelling information which shows the effects on participants and consumers of its proposal?**

The Authority is proposing the key principles for the TPM and is proposing a specific method (called the SPD method) for determining the allocation of the costs of HVDC and interconnection services. The SPD method allows these charges to vary over time depending on the grid configuration and the pattern of generation and demand on the grid.

This flexibility is essential but it would require substantial more work to estimate the initial impact of the Authority's proposal, and even then that work won't show what the charges will be thereafter. However, the Authority's proposal is to directly link the SPD charges to each party's share of private benefits they receive from HVDC and interconnection services. Hence, a party's charges will increase only if their private benefits increase, which means they should be able to pay the higher charges.

During the 10-week consultation period, the Authority will be receptive to reasonable requests from interested parties to simulate particular charging scenarios. The results will be made public by publishing them on the Authority's website.

The SPD method

14. **Does the approach that the Authority is proposing for recovering the costs of the HVDC and interconnection assets (post 2004) capture all the benefits of a true beneficiaries approach?**

The Authority recognises that the SPD beneficiaries-pay charge for recovering the costs of the HVDC and interconnection assets is not a perfect analogue for a theoretically perfect beneficiaries-pay approach and hence charges will not exactly match actual private benefits. In particular, it is not a behavioural approach. However, it is preferable, from an efficiency point of view, to the current postage-stamp regime that applies to interconnection charges and other proposals (such as the majority view of TPAG) to move to postage stamping the HVDC. The Authority considers that it not practicable to create a perfectly efficient approach. Nevertheless, a move in that direction is beneficial. Furthermore, over time as technology improves it is expected that incremental changes to the proposed approach will enable refinement of the approach to more closely match the charge with the benefit.

15. **Will the SPD beneficiary-pay charge proposal for identifying beneficiaries provide sufficient certainty to parties regarding their share of transmission costs?**

For those transmission assets proposed to be covered by the SPD beneficiaries-pay charge, parties will only be charged for transmission when they benefit from it, as the charge will reflect their share of benefits in the wholesale market. Consequently, transmission charges are likely to track the value parties derive from the wholesale market.

The exception to this is assets provided for reliability purposes, where the charge would be set by the cost of a peaking generator alternative to the transmission asset when it is the only asset available to supply electricity demand, but the charge will be limited to the cost of the transmission asset. The Authority will ensure that the charging basis for these assets is well understood in advance of implementation of the approach.

Furthermore, although the charge under the SPD beneficiary-pay charge will vary over time, the methodology for calculating the charge will remain stable.

16. **Why has the Authority proposed to apply the SPD beneficiaries-pay charge to assets after 28 May 2004 and pole 2?**

The Authority considers that there are efficiency benefits from applying the SPD-beneficiaries-pay charge to assets already in place, as well as new investments. In general, this is because:

- it ensures that existing and new assets are charged on a broadly comparable basis, thus providing pricing signals to parties considering investments that would be affected by transmission investment;
- it assists in making the charge more durable since assets providing similar services in different areas and implemented at different times would be charged on the same basis; and
- it provides information on the efficiency of investment decisions, thus helping inform future investment decisions.

These signalling benefits are likely to become more diffuse the more historic the transmission investment, so the Authority has proposed that the SPD charge would not apply to investments built before 28 May 2004, which is when the Electricity Commission was first able to approve transmission investment. Pole 2 was implemented before this date but the Authority considers that to promote the durability of the charge it is appropriate that it is charged on the same basis as pole 3. Using a “cut-off” date of 2004 will mean that the SPD beneficiaries-pay approach applies to the numerous large transmission investments made in recent years.

17. **Why has the Authority proposed to apply the SPD beneficiaries-pay charge on a half-hourly basis?**

There are three reasons for this: first, it ensures that the calculation of benefit is able to accurately reflect the benefit from assets beneficiaries derive on the wholesale market. Second, calculating the charge each half hour will limit distortion to behaviour from the charge because parties will have little ability to avoid the charge, except by not generating or consuming in any particular period. Third, because the charge is based on a half-hourly basis, the per unit amount will be less than it would be if it was based on a less frequent basis (say 1 day) – which will also limit distortion to behaviour in order to avoid the charge.

18. **Can parties avoid charges by wholesale market bid/offer strategies?**

Yes, but only to the extent that a party does not benefit from a transmission asset. The Authority considers that this is a positive attribute of the proposal as it will help make transparent the extent to which a transmission investment is efficient.

19. **How robust is the SPD method?**

The SPD method employs the very same data and models used to settle the wholesale electricity market every half hour. These systems have been in real world testing since 1996. The market is by now very familiar with a system that forms the basis of about $4B per annum in trading. The use of existing data and models is seen as a distinct advantage of the SPD method in terms of robustness.

Consultation process

20. **Where do I get more information?**

The Authority has released an easy to read "layperson" overview paper to its proposal for Transmission pricing, which is available at http://www.ea.govt.nz/our-work/consultations/priority-projects/tpm-issues-oct12. In addition, as discussed in an answer to a question above, the Authority is happy to meet with interested parties to outline and discuss its proposal.

21. **How much time do I have to make a submission on this proposal?**

The Authority has provided for a seven-week consultation period (ending on 30 November 2012) to be followed by a three-week cross-submission period (ending on 21 December 2012). This timing is to ensure that the consultation period is sufficiently long to enable parties to understand its proposal and make informed submissions, and ensures consultation is completed prior to the Christmas holiday period. The consultation period is longer than the six-week consultation period that the Authority has provided of late and makes allowance for cross-submissions; and much longer than the four-week period the Authority indicates in its Consultation Charter that it will ordinarily provide.

22. **Are there any public forums that I can attend to better understand the proposal?**

The Authority is holding three discussion forums – in Auckland (19 October), Wellington (17 October) and Christchurch (18 October) to enable parties to discuss with the Authority Board members and staff the Authority's proposal. In addition, Authority staff will meet with parties who request such meetings over the consultation period.

23. **What are the next steps in the process to amend the TPM?**

Following the 10-week period for submissions and cross submissions, the Authority will consider submissions made on the issues paper. Following considering submissions and the results of any necessary further consultation, the Authority will determine the final guidelines and process for Transpower to follow in preparing a TPM and request Transpower to submit a proposed TPM. The Authority will then consider the proposed TPM and either approve it for consultation or amend it before the proposed TPM is published for consultation. After considering submissions, the Authority will make a decision on the proposed TPM (including the commencement date). The Authority's aim is for any revision to the TPM to be in place in time for it to apply from the April 2015 pricing year.