



11 Chews Lane
PO Box 10568
The Terrace
Wellington 6143
New Zealand

Genesis Energy Limited

Fax: 04 495 6363

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Carl Hansen
Electricity Authority
2 Hunter Street
WELLINGTON

By email: submissions@ea.govt.nz

Dear Carl

Submission on Transmission Pricing Methodology Review: LRMC charges

Genesis Energy Limited welcomes the opportunity to provide a submission to the Electricity Authority (“the Authority”) on the working paper “Transmission Pricing Methodology Review: Long run marginal cost (LRMC) charges” dated 29 July 2014.

After reviewing the paper, Genesis Energy has two recommendations for the Authority:

- First, we strongly suggest the Authority first considers feedback on its problem definition working paper before further investigating changes to the TPM.
- Second, that the Authority further explore LRMC charges as an alternative to the “beneficiaries-pay” approach considered in earlier working papers (and in the original TPM issues paper). Our initial assessment suggests there are some merits to LRMC charges that warrant further investigation by the Authority.

Our initial qualitative assessment of LRMC charges, using the “traffic light” assessment approach¹, identifies potential efficiency gains for load and new

¹ This assessment was applied in our previous submissions on the TPM review (and the supporting reports provided by Castalia).

transmission investment. These gains come from having prices that signal the value of deferring or avoiding the need for transmission investment. Further, we consider the practicality of technical and regulatory issues do not provide reasons for the Authority not to investigate LRM charges. However, these efficiency gains which we identified as requiring confidence in include:

- the Commerce Commission's grid investment test (GIT) regime; and
- the distinction between short run marginal cost (SRMC) nodal pricing signals in the wholesale market and LRM transmission charges.

We discuss these points in more detail below.

Problem definition must be clear before developing and evaluating solutions

We support the Authority revisiting the problem definition relating to interconnection and HVDC assets². We consider it is a good time to review the journey of the TPM project so far, and update the problem definition. Although we have yet to complete our substantive review of that paper, we suggest that at the very least it will enhance the Authority's proposed solutions and enable industry feedback to be more targeted.

Ideally, the problem definition would be completed prior to evaluating TPM options. Otherwise, the Authority and submitters risk wasting effort by focusing on issues that are not material to the underlying problem or would not solve the problems identified. This risk is very real in the present case. As we describe later in this submission, LRM transmission prices require a high level of confidence in the regulatory decision-making processes to approve new transmission investment to create the right incentives and behaviour. The Authority's problem definition paper suggests that the Authority does not have confidence in the current regulatory processes³.

Therefore, we strongly recommend the Authority conclude its problem definition work-stream – including publishing a decision paper on this important topic – before developing its LRM charges options and evaluating industry feedback on the beneficiaries-pay approach.

² Electricity Authority working paper on Transmission pricing methodology: problem definition relating to interconnection and HVDC assets, dated 16 September 2014

³ Section 9 of electricity authority working paper on Transmission pricing methodology: problem definition relating to interconnection and HVDC assets, dated 16 September 2014

Efficiency gains for loads and new transmission investments with LRMC charges

We evaluated LRMC charges on the ability to promote:

- dynamic efficiency gains through efficient investment decisions for load, generation and transmission; and
- static efficiency gains through wholesale and retail market opportunities.

The methodology followed is the same as for previous Genesis Energy submissions⁴. We first examine how LRMC charges are likely to affect economic efficiency in Table 1. We then contrast these efficiency impacts for LRMC charges with the efficiency impacts of alternative options in Table 2.

Table 1: Efficiency Impacts of Long Run Marginal Cost Pricing

Efficient Operational and Investment Signals	Efficiency Impact	Comments
For loads		<ul style="list-style-type: none"> ▪ High (low) LRMC charge encourages existing loads to reduce (increase) their use of the grid ▪ High (low) LRMC charge discourages (encourages) new loads from locating in areas where transmission capacity is constrained ▪ May introduce a risk that new loads locate in areas where LRMC is high to bring forward new investment that reduces the LRMC-based price. Uncertainty on the timing of new transmission investment mitigates this risk to some extent
For generation		<ul style="list-style-type: none"> ▪ Minor impacts on generation location decisions (resource location is the main driver) ▪ Stronger signal to short-lived assets because cost is spread over a smaller time period
For new transmission investment		<ul style="list-style-type: none"> ▪ Better information on investment need and timing through response to price signals ▪ Incentive for parties to bring forward investment decisions

⁴ This assessment was applied in our previous submissions on the TPM review, and the supporting materials provided by Castalia.

In wholesale market		<ul style="list-style-type: none"> ▪ Risks duplicating nodal pricing signals if SRMC nodal prices reflect future investment needs. Requires careful design to ensure compatibility between short-run and long-run pricing signals ▪ Allocation of cost to generation may create inefficient dispatch and disadvantage different types of generation
In retail market		<ul style="list-style-type: none"> ▪ No effect if LRMC charge is predictable ▪ Forward-looking application at regular intervals (such as 3-yearly) can reduce volatility (compared to SPD)
Key	<div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none">  Improves efficiency  No material impact on efficiency  Reduces efficiency </div>	

A key benefit of a forward looking charging method, such as LRMC charges, is that it will incentivise industry engagement on the level of grid investment needed for the future. LRMC charges focus on these future needs, they do not penalize grid-users for historical investment decisions nor encourage under-utilisation of built assets.

LRMC charges more closely resemble pricing dynamics in workably competitive markets.

In competitive markets, prices tend to rise before an investment is made when capacity is most scarce. But after an investment is made, prices tend to fall, reflecting competition between the owners of that capacity to meet demand. These pricing dynamics are clearly seen in the competitive wholesale market, where prices rose before recent investments were made and capacity was scarce, and have fallen after recent additions (such as Te Mihi and Nga Awa Purua).

LRMC charges more closely resemble those pricing dynamics than any other methodology being explored by the Authority. Whichever LRMC pricing design is selected, transmission charges will be highest when the need for new investment is approaching and will be lowest after those investments have been made. The benefit of these pricing dynamics is that they focus the minds of users on whether the value of their consumption is greater than the cost of supply (including the cost of having to expand the transmission network to meet future demand).

Comparison of LRMC charges against other allocation mechanisms

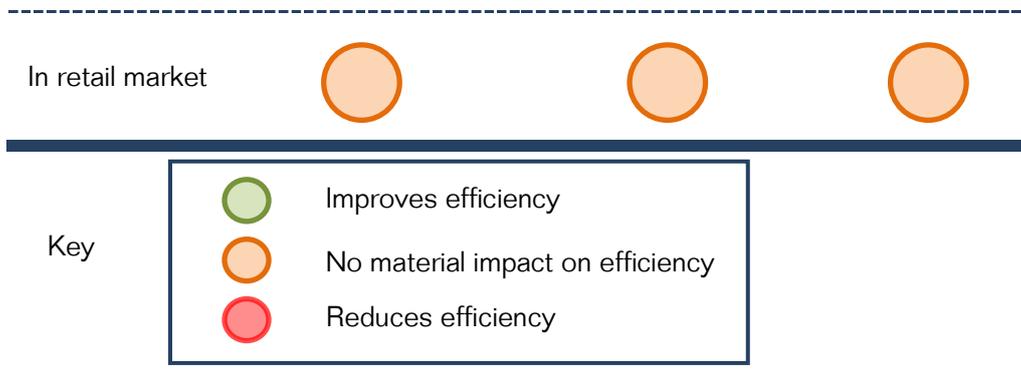
We have previously applied the above criteria to alternative transmission pricing options such as the simplified SPD charge and the area of benefit approach⁵. The simplified SPD charge calculates the private gross benefits of an investment using a simplified model of the wholesale market clearing engine (SPD), relying on revealed benefits to calculate charges and then applies them in the following year. The area of benefit approach is an alternative beneficiaries-pays approach that forecasts benefits to particular regions or GXP's and allocates the costs in proportion to expected benefits.

Table 2 summarises our evaluation of these options, and how they compare to the impacts of LRMC charges where past transmission costs are allocated based on a share of the LRMC of future transmission investments. At a high level assessment, LRMC charges alone perform better than other options against efficiency criteria. This is because LRMC pricing improves the signals for load and strengthens the link between transmission pricing and investment decisions. However, this high-level evaluation highlights that careful analysis is needed to understand how LRMC transmission prices would interact with existing nodal pricing signals in the wholesale market.

Table 2: Efficiency Impacts of Pricing Options Compared to Status Quo

Efficient Operational and Investment Signals	Simplified SPD	Area of Benefit	LRMC
For loads			
For generation			
For new transmission investment			
In wholesale market			

⁵ Genesis Energy submission on Transmission Pricing Methodology: Beneficiaries-pays options dated 25 March 2014



Technical issues are resolvable

The working paper notes that technical and regulatory implementation issues may be a major obstacle for a LRMC charge. Whilst we agree that LRMC charges will be complex to administer, we note that LRMC charges is used in other jurisdictions. This suggests that technical issues can be overcome if the Authority decides to explore this method further. We also note that similar technical concerns were raised for the beneficiaries-pay SPD charge. However, the SPD charge approach has progressed further and has been modified to address some of these concerns. This may also be possible for the LRMC approach. Finally, as LRMC charges are not unique to New Zealand’s transmission system (unlike SPD charges), there is the opportunity to learn from the UK and Ireland experiences.

Equity issues exist in other possible methodologies

LRMC charges present an equity issue akin to those found in beneficiaries-pay approaches. That is, LRMC charges may effectively force current users to cross-subsidise future users. However, we suggest that this is similar to the negative externality of paying for “unconsented” built assets evident under a backwards-looking beneficiaries-pay approach. Furthermore, we suggest that it is also inequitable for future generations to pay for undesirable over-built assets. This is because the elasticity of energy consumption is likely to become more elastic due to technology changes, leading to a decreasing demand for transmission services by future users.

Alignment with Commerce Commission's investment test regime is important

Genesis Energy has already emphasised the importance of better alignment between the Commerce Commission's GIT regime and any new TPM.⁶ However, for a LRMC charges approach to be effective, such alignment becomes even more crucial. This is because LRMC charges will be directly linked to transmission grid investment decisions made by the Commerce Commission.

LRMC charges will be highest before an investment is due to be made, and lower after the investment has been made. Therefore, the parties facing high prices will have strong incentives to try and bring forward the proposed investment. As such, it will be very important that the investment decision is robust enough to ensure that any revealed information is carefully balanced.

Further investigation: implications of co-existing pricing signals from nodal pricing

We suggest the Authority needs to investigate how the nodal pricing in the wholesale market will interact with transmission price signals from LRMC charges methodology.

We consider LRMC charges may provide complementary pricing signals to the existing nodal pricing signals along with the GIT regime. LRMC charges are forward looking and will likely provide a clearer incentive for consumers to respond to. It also incentivises greater participation in the transmission investment decision. In particular, this can be beneficial for the GIT regime. Nodal pricing in the wholesale market already provides some locational pricing signal for investment in the grid, generation, load and transmission alternatives. It reveals the SRMC related to constraints and losses, and encourages the efficient use of electricity (and transmission). In practice, the nodal price provides a limited incentive for consumers to moderate capacity demand when the grid is approaching a need to upgrade. Consumers are unlikely to respond to those signals

Despite the positive impacts mentioned above, our concern is how these two types of pricing signals, SRMC nodal prices and LRMC charges, will work together. As mentioned above, some signals are already established by the nodal price. Further work is needed to establish whether, or to what degree, the charges will overlap. It is important that any methodology strikes a balance that incentivises participation in transmission investment decisions, but avoids penalising consumers who live in remote areas with poor transmission infrastructure.

⁶ Genesis Energy submission on Transmission Pricing Methodology: Beneficiaries-pays options dated 25 March 2014

If you would like to discuss any of these matters further, please contact me on 04 495 6357.

Yours sincerely



Daisy Shen
Regulatory Advisor