

23 September 2014

Submissions
c/- Electricity Authority
PO Box 10041
Wellington 6143

by email: submissions@ea.govt.nz

SUBMISSION ON TPM LRMC WORKING PAPER

- 1 Orion New Zealand Limited (**Orion**) welcomes the opportunity to comment on the “Transmission Pricing methodology Review: LRMC charges” discussion paper (the **paper**) released by the Electricity Authority (Authority) in July 2014.

Introduction

- 2 In short, we agree with the summary in para 1.23 of the paper that “LRMC charges could provide net benefits relative to the status quo.” and that further analysis is required. We would go further and say that, even if LRMC based pricing is not superior to the status quo, it is still superior to the beneficiaries-pay method as that method has been developed through the Authority’s TPM consultation so far. We judge that the weight of submissions, both by number and quality, is that the Authority’s proposal as it currently stands is inferior to the status quo.¹
- 3 The Electricity Network Association (ENA) has also prepared a submission on the paper. Orion supports the ENA submission.

General comments

- 4 The paper is mainly a review of the various attributes of and potential issues with LRMC pricing. We make no comment on the specifics of that discussion. Instead we focus on our own approach to LRMC-based pricing which might help the Authority progress further work in this area.

¹ We acknowledge that we have not had time in preparing this submission to review the Authority’s recent TPM “problem definition” paper which might have provided new information and arguments.

5 Orion has maintained an LRM based approach to distribution pricing for more than 20 years. The pricing has maintained a consistent price signal against which consumers large and small can invest, and have invested. We believe it has worked well and provides the basis for the following comments:

- The fact that LRM, as calculated using the methods in the paper, might produce a volatile result does not mean that *prices based on LRM* need to likewise be volatile. If LRM based pricing is ever going to be effective in reducing (or deferring) network investment over time, it must in Orion's view provide consistent price signals over time. (This is not to say that targeted demand response programmes cannot work well to deal with short term local issues, and we identify such opportunities in our asset management plans.²)
- Observed demand is not separate from historical pricing. Whether one considers a point in time maximum demand, or a time series of maximum demands, the level of the demand will differ depending on what the pricing approach has been. Thus in Orion's case we estimate that the maximum demands we observe of our network are more than 150MW (nearly 20%) lower than they would be had consumers not responded at all in various ways³ to our LRM based price signals. Likewise our forecasts of future demands, no matter what growth rate we assume, will track lower than they would if there was no demand response. If we now took the view that there will be no further growth and no need for further capacity we might conclude (under the methods in the paper) that the LRM component of our pricing should be zero. But this would, in time, cause a significant reduction in existing demand response that would eventually lead to the need for further investment, which we should presumably signal via LRM!
- Demand response includes long-term investments made by consumers, for example the dedication of space in a new house to a storage hot water heater to support choices about how that water is heated. In the absence of a consistent signal such investments might not be made and the option value of them would be lost.
- Demand response that is not coordinated is not as valuable as demand response that is. We do not believe that price signals *alone* can lead to demand response that will effectively reduce or defer network investment. Our LRM pricing occurs within the context of active load management that tells consumers and retailers *when* the network is constrained. In the absence of

² See for example Orion's "Asset Management Plan: A 10-year management plan for Orion's electricity network from 1 April 2014 to 31 March 2024", p248, Table 5-6h.

³ Methods include but are not limited to:

For major (large business) consumers: managing thermal storage, managing processes, running generators

For residential consumers: having peak load controlled hot water cylinders, heating water only at night, use of night store space heaters, choosing to undertake certain activities of peak (eg dishwashing, laundry).

such signals customers would only find out after the event that they should have done something that would have helped defer or avoid investment that had to be made because they didn't!

- While in principle LRM differs for various parts of the network, care needs to be taken in attempting to price on this basis. The further 'up' the network you go, the more the same capacity is shared amongst more and more consumers. At one extreme, all upper South Island consumers share the capacity of the transmission circuits from further south, and the same LRM applies across the region. Within distribution networks the relatively few sub-transmission circuits are shared by quite large numbers of consumers, and as we work our way down the network increasingly few consumers share an increasingly large number of circuits until we get to each consumer's dedicated service main. There could be many thousands of paths⁴ from the top to the bottom of this inverted tree, each in principle having a different LRM reflecting the amounts associated with all the branches, each having peaks at different times, including some that peak in summer rather than winter. We do not believe attempting to estimate these many thousands of LRMs is practical or useful in most cases.
- The fact that efficient network investment is both lumpy and must occur ahead of time should not blind us to thinking of it as being much more incremental for pricing purposes. Again this is about effective price signals needing to be consistent over time.
- Orion takes a somewhat different approach to the calculation of long-run average incremental cost (LRAIC, our version of LRM) to those discussed in the paper. Without going into much detail here, we estimate the LRAIC by:
 - (a) calculating the capacity of the network as measured by maximum demand (kVA),
 - (b) estimating the replacement cost (RC) of various levels of the network, allocating a portion of that RC as 'load dependent' (recognising that some proportion of most assets is not load dependent (eg kiosk shells), some assets are not load dependent at all (eg our head office building) and some assets are provided for resiliency and security, rather than to meet loading levels).
 - (c) dividing (b) by (a) to get an LRAIC as \$ per kVA.
 - (d) applying a factor to account for return, depreciation etc to produce an annualised LRAIC as \$ per kVA per year.

⁴ And this ignores the complexity that many connections can be supplied along more than one path.

- Separate calculations are done for the HV and LV networks, and since LV consumers must use the HV network as well, 'their' LRAIC is the sum of the HV and LV values. The calculated LRAICs are the key drivers of the cost reflective 'peak' components of our pricing, which are applied to coincident peak demands.
- 6 We have not provided this information to suggest that LPMC pricing is easy, or that Orion's way of doing it is the best available. We simply want to highlight that it can and has been done, we believe with reasonable success, at least in the case of distribution pricing.

Concluding remarks

- 7 Thank you for the opportunity to make this submission. Orion does not consider that any part of this submission is confidential. If you have any questions please contact Bruce Rogers (Pricing Manager), DDI 03 363 9870, email bruce.rogers@oriongroup.co.nz.

Yours sincerely



Bruce Rogers
Pricing Manager