

Major Electricity Users' Group

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Greg Williams Senior Advisor Wholesale Markets Electricity Authority By email to <u>greg.williams@ea.govt.nz</u>

Dear Greg

Improved modeling of AC transmission losses

- This is a submission by the Major Electricity Users' Group (MEUG) on the Electricity Authority (EA) information paper¹ "Improved modelling of transmission losses" dated 2nd December and published 23rd December 2014 along with a report by the System Operator and a more detailed final report on the analysis by the EA.
- 2. MEUG members have been consulted in the preparation of this submission. This submission is not confidential. Some members may make separate submissions.
- 3. Feedback on the proposal is set out in paragraph 4 below. This proposal raises important questions about how to prioritise similar work that may have modest economic welfare improvements but highly material benefits to end consumers in terms of lower prices. That issue is discussed in paragraphs 5 to 8.
- 4. MEUG supports the proposal to change how Alternating Current (AC) branch losses are estimated in the Scheduling, Pricing and Dispatch (SPD) model from 3 to 6 segments to come into effect midnight 31st March 2015 because:
 - a) We agree the proposal is welfare enhancing.

In particular the analysis in section 3.3 of the Information Paper, based on solving vSPD for the three years 2010 to 2012 with different loss segments and adjusting for demand and supply elasticity's, gives an expected present value over 15 years for allocative efficiencies of between \$513k and \$554k and this exceeds expected implementation costs of \$337k. In addition there will be productive and dynamic efficiencies that have not been estimated.

b) There are no material risks (or enhancements) to reliability as noted in paragraph 3.2.3 of the Information Paper.

¹ All papers found at <u>http://www.ea.govt.nz/development/work-programme/wholesale/improving-transmission-loss-modelling-in-spd/development/information-paper-on-improving-transmission-loss-modelling</u>

- c) Changing to six segments to estimate AC branch losses now seems reasonable and doesn't preclude future re-consideration of more segments being used for AC and Direct Current (DC) branches if there are further improvements to computing software and hardware to overcome the issues noted on page 9 of the TASC 028 report.
- 5. MEUG suggests there is a lesson on how the EA prioritises work given the history of this proposal. Mr Graeme Everett of Norske Skog Tasman wrote to the System Operator in 2004 regarding concerns on how transmission losses were modelled in SPD. Within the first three weeks of the EA being established, on 19th November 2010, MEUG wrote to the EA suggesting the number of loss tranches be increased². The EA replied on 22nd November 2010 noting an initial focus would be on the section 42 New Matters listed in the then just recently enacted Electricity Industry Act 2010. The Authority also noted increasing loss tranches would be considered as part of the EA's remaining work programme.
- 6. It's understandable the EA needed to initially focus on the s.42 work. However given that even in 2010 it was expected no Code amendments were required we were expecting the work on loss tranches would have been advanced quicker than has actually occurred. We are unsure why it will have taken almost 4 ½ years to implement assuming that occurs on 31st March 2015. Allowing a year to focus on s.42 matters plus another year for implementation; then analysis of changing the number of loss segments could have been a perception economic welfare gains were negligible and most of the effect would be wealth transfers from generators to end consumers and hence the work was given low priority.
- 7. The wealth benefits to consumers are indeed very large relative to the economic benefit. The EA analysis³ of the 3 years 2010 to 2012 estimates that had 6 instead of 3 loss segments been used then wholesale prices would have been 1.4% lower equal to a change of \$0.97/MWh. This change over total NZ demand of ≈39,000 GWh pa would have led to lower wholesale prices of \$37m pa. For a large TOU consumer using 100 GWh pa this would have reduced wholesale spot purchases from \$6.947m to \$6.850m, a saving of \$97,000 pa (1.4% saving).
- 8. MEUG suggest that in future proposals that have a material welfare benefit to consumers, even though they may have a relatively small economic welfare benefit, be given a higher priority than they have in the past. In this case where there is no scenario where expected economic benefits might be negative, that is no downside risks and negligible implementation costs, then the work should be accorded a very high priority.

Yours sincerely

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Ralph Matthes Executive Director

² MEUG letter found at URL <u>http://www.meug.co.nz/includes/download.aspx?ID=113275</u> web page <u>http://www.meug.co.nz/Site/2010_Publications_archive.aspx</u>

³ EA, Analysis of improved loss modelling in SPD, Final Report, 23rd December 2014, table 3, p15