

28 August 2015

Chris Pattas  
General Manager, Networks (Investment and Pricing)  
Australian Energy Regulator  
GPO Box 520  
Melbourne VIC 3001

Attention: Mark McLeish

Dear Chris

### **Multilateral Total Factor Productivity benchmarking model issues**

With TasNetworks' regulatory proposal for its electricity distribution network due in January 2016, work on TasNetworks' submission is now well underway. A key part of that process has been an examination of TasNetworks' financial and operational benchmarking results.

After investigating the drivers of some contradictory benchmarking results published by the Australian Energy Regulator (AER) for TasNetworks, it has become clear that considerable care needs to be exercised when interpreting and explaining raw benchmarking scores. With the release of the 2015 Annual Benchmarking Report imminent, and the National Electricity Rules' requirement that the AER take the Report into account when evaluating TasNetworks' upcoming regulatory proposal, the purpose of this letter is to share with the AER the findings of TasNetworks' investigation of its inconsistent benchmarking results.

In the *Annual benchmarking report* for electricity distribution network service providers (DNSPs) published by the AER in November 2014, TasNetworks' was given a raw operating expenditure (Opex) efficiency score that placed it in sixth place, only slightly below the Opex efficiency frontier adopted by the AER for the purposes of its most recent revenue determinations.

The benchmarking analysis drew on data spanning eight years, in an effort to reduce the impact of random factors that may have affected the data from year to year. Analysis undertaken for TasNetworks by Huegin Consulting suggests that, without adjustment for any of the environmental variables which are not factored into the benchmarking model, distribution network Opex in Tasmania for both the last year included in the benchmarking sample (2012-13) and the year following (2013-14) was below the level which would have been deemed efficient on the basis of the AER's chosen efficiency frontier.

Huegin then repeated its benchmarking calculations – which replicate the AER’s Stochastic Frontier Analysis methodology – using total expenditure (Totex), rather than just Opex. That analysis found that with both capital and operating expenditure taken into account, TasNetworks’ raw efficiency score improved from 73 per cent, and a ranking as the sixth most efficient DNSP, to 83 per cent and fourth.

However, the Multi-lateral Total Factor Productivity (MTFP) benchmarking results published in the 2014 benchmarking report, which also take into account both Opex and Capex, portray TasNetworks as the least efficient DNSP in the NEM. The conclusion reached by the AER in its report was that Tasmania’s distribution network appeared to be the least productive, along with the networks in the Australian Capital Territory and New South Wales.

TasNetworks has invested considerable effort in an attempt to understand these seemingly contradictory results, particularly in light of the fact that in the MTFP modelling undertaken in July 2014 by Economic Insights on behalf of the AER, TasNetworks was rated as the seventh most productive DNSP. That investigation has shown that the deterioration in TasNetworks’ ranking on an MTFP basis is due to the change in the benchmarking model’s specification which occurred between Economic Insights advising the AER of its preferred benchmarking models in July 2014 and the release of the Annual Benchmarking Report in November 2014.

Specifically, Huegin Consulting’s work points to a change in the treatment of overhead lines as an input to the model as the cause of the drop in TasNetworks’ MTFP score.

Economic Insights’ preferred MTFP measure originally included four inputs, one of which was Overhead lines, with the quantity proxied by overhead MVAkms. The model underpinning the benchmarking report, however, featured six inputs. Overhead lines had been split into two separate inputs: Overhead subtransmission lines (with their quantity proxied by overhead subtransmission MVAkms) and Overhead distribution lines (proxied by overhead distribution MVAkms). A similar change in specification was made in relation to underground cables.

The demarcation point between subtransmission and distribution lines was set at a voltage of 33kV, with lines having a capacity of less than 33kV being categorised as distribution lines. It is understood that this change to the model’s specification was made in response to representations received from several DNSPs regarding the specification of the MTFP model.

TasNetworks is one of only two DNSPs in the National Electricity Market (NEM) where lines with voltages below 33kV make up a greater proportion of its overhead network than lines operating at 33kV and above. However, TasNetworks’ network configuration looks nothing like any other DNSP in the NEM. 98 per cent of TasNetworks’ overhead distribution network is made up of lines with voltages below 33kV, with much of the network comprising 11kV lines. Even Powercor, the other DNSP with more of its overhead distribution network operating at below 33kV than above it, has a more ‘conventional’ 36:64 split between overhead distribution and subtransmission lines.

The lower voltages of TasNetworks' lines are a reflection of Tasmania's lower load density. For example, greater Hobart, which might be expected to exhibit greater load density than other parts of the State, is adequately served by 11kV lines.

Even where 22kV lines have been employed, it has only been to maintain voltage over the predominantly radial feeders which make up the network in rural and regional Tasmania, rather than support demand.

While the MTFP model includes explicit weightings which are applied to outputs, weightings for inputs are reflected in the input prices calculated within the model based on the cost of capital for each input. When the higher cost attributed to distribution lines below 33kV lines is combined with the unique composition of TasNetworks' network, TasNetworks MTFP efficiency score suffers.

If the ratio of distribution to subtransmission lines characterising other networks is applied to TasNetworks' overhead network and the MVAkms calculations in the MTFP model, TasNetworks' MTFP score improves. Depending on the DNSP chosen, using the same model TasNetworks' MTFP score can increase to the point where it would be ranked within the top quartile of DNSPs, with a ranking of fifth. It is arguable that such a ranking would be consistent with TasNetworks' raw Opex efficiency scores and the efficiency score calculated by Huegin Consulting based on Totex.

Model selection and specification is clearly a significant influence on the outcomes of efficiency evaluations for individual DNSPs. No model will be perfect and TasNetworks acknowledges that the changes made to the MTFP model between July and November last year were intended to eliminate a bias which was unfairly disadvantaging a number of DNSPs. It would appear, however, that in doing so the AER has inadvertently created a model which materially disadvantages TasNetworks because of its lower network voltages.

The bias identified in the model could be construed as being consistent with the view that sub-33kV lines must be inherently less efficient than higher voltage lines. Yet for Tasmania, using 11kV and 22kV lines was, and continues to be, the economically efficient choice.

The change in TasNetworks' MTFP performance between model specifications, and in response to a notional change in network voltages, demonstrates why caution needs to be exercised when interpreting and explaining raw benchmarking scores, both in the context of the Annual Benchmarking Report and when assessing TasNetworks' upcoming distribution regulatory proposal. To simply interpret a low MTFP score as being evidence of inefficiency on the part of TasNetworks, as was the case in the 2014 *Annual Benchmarking Report*, would represent a failure to consider the inherent bias in the current MTFP model against a network with an atypical, if not unique composition.

TasNetworks continues to be supportive of the AER's efforts to improve the benchmarking process and is committed to operating its network and its business as efficiently as possible. We would appreciate the opportunity to work with the AER to ensure that the outcomes of its benchmarking accurately reflect TasNetworks' performance in this regard.

If you require further detail or have any questions about the matters raised in this letter, please contact Kirstan Wilding at [kirstan.wilding@tasnetworks.com.au](mailto:kirstan.wilding@tasnetworks.com.au) or on (03) 6271 6696.

Yours sincerely

A handwritten signature in cursive script that reads "Bess Clark". The signature is written in black ink and is positioned above the printed name.

Bess Clark  
GM Strategy and Stakeholder Relations