



Government of Western Australia
Department of Commerce

EnergySafety

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Ms Sara Proctor
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Dear Sara

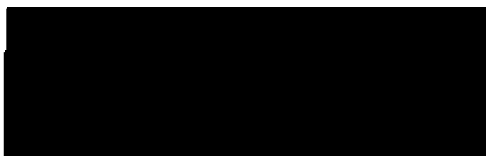
Inquiry into State Underground Power Program Cost Benefit Study

I write to provide EnergySafety's submission on ERA's draft Report on the State Underground Power Program Cost Benefit Study.

The attached submission outlines EnergySafety's view that power undergrounding has significant safety benefits that accrue to the entire community rather than any one sector.

EnergySafety consents for the attachment in its entirety to be publically displayed.

Yours sincerely



Ken Bowron
**DIRECTOR OF ENERGY SAFETY and
EXECUTIVE DIRECTOR, ENERGY SAFETY**

5 August 2011

Att.

EnergySafety comments on ERA's report

“Inquiry into State Underground Power Program Cost Benefit Study”

ERA's Draft report on the Inquiry into State Underground Power Program Cost Benefit Study has not included many safety benefits from undergrounding powerlines. It is unclear whether regional towns, other than through the Local Enhancement Projects, are included in the assessment. If not, the additional savings mentioned below perhaps should be prorated to quantify the total benefit to the State.

We suggest that the public good from the safety benefits is far wider than just a reduction in motor vehicle accidents involving power poles. Western Power should be able to quantify the benefits of eliminating direct costs from electrical contact, storm damage, pole-top fires and clashing conductors. From EnergySafety's perspective the savings detailed below can be derived from any safety incident on the metropolitan overhead systems over the last 15 years, which resulted in a serious or fatal injury.

The present value savings from car versus pole are estimated in the report to be \$13M. It should be possible to identify actual fatalities in these accidents and other causes such as electrocution from wires down and vegetation control incidents. The costs can then be calculated from estimates of the value of saving a life. For example US\$5.8M is used for traffic accidents¹ in the US and Access Economics estimate² \$6.5M in 2007. On this basis, the value of all fatalities occurring on the overhead system over the last 15 years is likely to be at least an order of magnitude greater than estimated in the report.

The report seems to have taken a narrow view of “the cost of maintaining the current distribution system” in the Terms of Reference. It consequently acknowledges ignoring end-of-life issues. There is no credit for replacing aged assets versus the incremental cost of instead undergrounding them. This should be estimated by taking the number of poles in the proposed undergrounding area older than 40 years and multiplying by the present cost of approximately \$7000 per replaced pole and its associated fittings. To this must be added the cost of (say) 200m of conductors per pole also needing to be replaced to avoid the escalating broken conductor hazards. All these poles will need to be replaced within the same timeframe as a large scale undergrounding program could be implemented. Conservatively, 150,000 poles would be involved, indicating around \$1BN in offset savings. The figure could be closer to double this value when the actual number of poles is identified and the cost of conductors included.

One method of funding these safety (and other) benefits, as done in the USA, would be to link the stated greater benefits to the increased electricity consumption of owners of higher value property. This could be achieved by increasing electricity prices to cover the annual undergrounding costs until the metropolitan area and regional towns projects are completed. It allows for an ongoing contribution from those mostly affluent areas already undergrounded. Cost sharing with NBN Co and redirection of Western Power's distribution capital budget for overhead asset replacement may significantly reduce this suggested project tariff surcharge or whatever other funding path is finally chosen.

The report's comment on the Victorian Bushfires Royal Commission needs to acknowledge that the recommendations are not relevant as they refer to undergrounding in rural areas, which is not covered by the ERA report. Similarly other analogies and assertions, refuted later in the report, may be better dealt with immediately following the assertion, to avoid giving the impression that they carry any weight.

As stated in the report, the key to superior performance of underground systems is to ensure no HV overhead sections remain on any given feeder. This then means failures are almost exclusively digging-related. These are likely to be random but during working hours, when sufficient repair crews are readily available. With overhead systems, public and worker safety is most threatened during storms, especially at night, with multiple coincident hazards far beyond the capability of normal maintenance crews. This extends repair times and consequent demands on workers in often treacherous conditions.

The report mistakenly assumes that the better performance of the underground system is the result of it being recently installed. Other than end-of-life issues, which are acknowledged as similar for overhead and underground assets, the difference is that storms, fires, trees, wildlife, vandals and vehicles only affect overhead systems. On rare occasions, underground pillars are damaged by vehicles but there have been no reports to EnergySafety of any electric shocks or injuries.

In summary, EnergySafety believes that the Western Power proposal for a fully funded large scale rollout to replace the current cumbersome and expensive evaluation process will not only provide 15 to 20% cost savings but will provide significant safety and economic benefits from the resulting accelerated program.

1. [http://www.therisktoolboxshop.com/blog/The Risk Management Tool Box Blog/post/Is your life worth US \\$58 Million/](http://www.therisktoolboxshop.com/blog/The_Risk_Management_Tool_Box_Blog/post/Is_your_life_worth_US_$58_Million/)
2. <http://www.finance.gov.au/obpr/docs/Working-paper-2-Peter-Abelson.rtf> Page 18