

6 July 2011

Attn: Sara Procter, Assistant Director
Inquiry into State Underground Power Program Cost Benefit Study
Economic Regulation Authority
PO Box 8469
PERTH BC WA 6849

Submission in response to Draft Report - Inquiry into the State Underground Power Program Cost Benefit Study

Dear Sir/Madam,

As an economist who recently estimated the household benefits of undergrounding in Canberra, I read the Authority's Draft Report with interest. Like the Authority, my colleagues and I examined two sources of information on the economic benefits of undergrounding to households – a hedonic property price (revealed preference) study and survey (stated preference) responses. I would like to take the opportunity to share some lessons learned from our research with respect to the estimation of economic benefits from these sources.

Neither the Marsden Jacob Associates (MJA) hedonic property price study nor the ratepayer surveys undertaken as part of the State Underground Power Program (SUPP) allows the Authority to estimate the total of consumers' maximum willingness to pay (WTP) for the benefits of undergrounding, which is the correct measure of economic benefits. As a result, they need to be carefully interpreted when applied in the cost-benefit analysis.

Revealed preference

The Authority has rightly turned first to revealed preference data as a means of estimating the economic benefits of undergrounding. The implicit price of underground networks as a property attribute gives an *indication* of WTP for underground networks as revealed through purchases in the real estate market. However, the implicit price is not equivalent to average WTP and one must therefore be careful when drawing inferences about economic benefits.

The implicit price depends not only on demand for underground networks, but also on the *supply* of underground networks. It represents the value placed on underground networks by the *marginal* purchaser of that attribute in the real estate market. It provides no estimate of the value placed on underground networks by all of the other purchasers in the market. In other words, the implicit price provides one point on the demand curve for the underground networks property attribute. This point reveals little about the total benefits of undergrounding, which are equal to the area under the demand curve.¹ For a more detailed discussion of this matter, see my article co-authored with Peter Abelson in the Australian Economic Review (McNair and Abelson, 2010).

¹ Rosen (1974) outlined a second stage of hedonic analysis in which the demand function can be estimated, in principle. In practice, however, this stage is often hampered by identification problems and costly data requirements. MJA recognise this point in their report (p17). The implicit price can nonetheless provide

It appears the Authority has treated the implicit price as though it is equal to average WTP when calculating economic benefits. The report would be strengthened if this assumption was noted and justified. The assumption is unlikely to sway the result of the cost-benefit analysis given that the breakeven level of average WTP reported in section 6.2.5 of the report is just one third of the implicit price. However, it may affect the optimal funding shares.²

Stated preference

The ratepayer surveys discussed in section 5.5.2 are another source of evidence of economic benefits – quite compelling evidence in my view and worthy of more attention in the analysis. As noted by the Authority, these surveys are consequential in the sense that councils can credibly claim to be able to enforce payment if the provision rule is met. In fact, it seems the SUPP ratepayer surveys have all the necessary characteristics of an ‘incentive compatible’ survey mechanism (Arrow *et al.*, 1993; Carson and Groves, 2007). This is a very reliable type of stated preference survey because respondents cannot benefit from misrepresenting their WTP.

Section 6.2.5 reports a breakeven level of ratepayer benefits of \$3,662 per household. In all areas listed in Table 5.8, the median WTP for undergrounding exceeds this amount quite comfortably, since the ratepayer contributions exceed the breakeven level and more than 50 per cent of ratepayers voted to pay the contributions. While the mean rather than the median is the correct measure of economic benefits, under an assumption of a symmetrical distribution of WTP over the population, this evidence suggests that undergrounding is economically viable in these areas. The report would be strengthened if a similar analysis were included using ratepayer survey data from all areas in which undergrounding has taken place.

The benefits of continuing the SUPP should be measured by WTP in suburbs where undergrounding has yet to take place. In Canberra, we did so by surveying households on a range of cost levels rather than a single contribution amount (McNair *et al.*, 2011), as reported in section 5.5.2 of the Draft Report. This survey facilitated estimation of the demand curve for undergrounding; that is, the distribution of WTP over the population. I recommend the Authority undertake a similar choice modelling or contingent valuation survey in suburbs currently serviced by overhead wires in order to estimate the economic benefits of continuing the SUPP.

valuable information to policy makers, particularly in relation to the median WTP. When the supply of underground networks is low (high), the implicit price will tend to be above (below) median WTP. The implicit price is therefore most useful when the supply of underground networks is low (high) and the implicit price is lower (higher) than the breakeven WTP level in a cost-benefit analysis, as it conveys whether median WTP is above or below the breakeven level.

² This distinction may also be important in subsequent cost-benefit analyses. As the proportion of houses serviced by underground networks in Perth continues to increase, the implicit price is expected to fall, not because the population is losing its taste for underground networks, but because purchasers with lower WTP are required to clear the incremental increases in supply.

Yours sincerely,



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References

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