sapere research group

MEMORANDUM

DATE: 20 September 2011

TO: Independent Market Operator, System Management

FROM: Kieran Murray

RE: Comment on altered estimate of System Management costs

Background and context

In March 2011, I completed a high-level cost-benefit analysis (CBA) of the proposal for competitive balancing.[1] As with all CBA studies, this analysis required a range of assumptions and some judgement. The CBA was an input into a decision taken at that time to proceed with the proposal to introduce competition to balancing services.

Subsequent to the analysis (and the decision to proceed) System Management has estimated revised costs for the systems changes needed to support competitive balancing. These revisions reflect better understanding of the requirements of System Management as well as more concrete estimates of likely costs of procurement.

I have been asked to consider how these cost revisions impact on the overall results of the CBA.

Reminder of CBA results

My CBA analysis found that (in present value terms), the net benefits to the economy would range from $24.81m in the high (optimistic) scenario, to $ 8.91m in the low (pessimistic) scenario. The ratio of benefits to costs was 2.58 in the high/optimistic scenario and 1.37 in the low/pessimistic scenario. Changes to parameters and assumptions did not alter the primary conclusion that benefits would outweigh costs.

These results considered only a small number of direct, short-term benefits. In an industry as capital intensive as the electricity sector, the primary benefits of introducing competition into the balancing market will be experienced over the medium to long-term due to enhanced incentives, and therefore altered decisions and behaviour in a manner that improves outcomes for consumers. Experience from introducing competitive services in other aspects of the electricity market in Western Australia and elsewhere suggests that these qualitative benefits will greatly exceed the static benefits quantified in the CBA.

In addition, the balancing market initiative supports the Wholesale Electricity Market longer-term objective of a liberalised and efficient electricity market. Reaching this objective will require a package of (interdependent) measures, rather than a single initiative. The behaviour and systems' changes likely to arise from participation in a balancing market represent a step along the path towards this objective.

[1] The report was prepared working with Preston Davies and Ashley Milkop.

New information and the nature of the CBA

New information is an inherent, and welcome, feature of a reform process; greater understanding, new insights and better quality data are an expected outcome of a well considered implementation program. By contrast, a CBA is a "snapshot/point in time" estimate of likely costs and benefits. All of the estimated costs and the estimated benefits will naturally evolve with more time and better information. Retrospectively adjusting one component of a CBA for updated information is not best practice.

Impact on CBA would not warrant re-estimating

There are a number of reasons which suggest re-running the CBA would not be a good use of money at this time. In particular, my assessment is that the general net benefit result in the original CBA would be robust to the change in cost estimate by System Management. Given the clear difference between the proportional increase in costs and that needed to pull the benefit-cost-ratio below one, I am confident that the latest cost changes would only materially affect the positive result obtained previously in the most pessimistic scenario, all else equal. However, that assessment is made without accounting for the possibility of additional benefits, any overestimation of costs and non-quantifiable impacts.

The changed costs in part reflect enhanced functionality and capability of the systems, relative to the assumptions made for the initial costing. This enhanced functionality and capability will provide benefits additional to those assumed in the CBA, and will help position System Management for future efficiency enhancing reforms of the market. The qualitative benefits from introducing competitive balancing, which were expected to substantially exceed the costs, would therefore be further increased by the proposed investment in systems upgrades.

I also understand that costs estimated previously by generators and the IMO may also be subject to change, but I have not had access to revised estimates. Such changes further caution against updating one aspect of the CBA (i.e. one cost component) without considering the other aspects (i.e. benefits and other costs).

Cost changes

Direct comparison of costs problematic

On the face of it, the costs involved in System Management's estimates are substantial and represent between 37% and 54% of total costs considered in the CBA. It was not possible to undertake a detailed comparison between the initial and revised System Management costs because they were broken down into completely different categories and differ in the extent of refinement underpinning the costings. In addition, different assumptions were used in respect of scenarios, further complicating direct comparisons.

Robustness of costings

In terms of the relative robustness of the costings, the aim of this exercise is not to pore over the costings with a fine-tooth comb. Nevertheless, I have discussed with System Management the basis of the latest cost estimates. In addition, I have assessed written documentation and spreadsheets containing the process, assumptions and components of the costings. My assessment is that the costings represent a quantum improvement in terms of specificity and the degree of thinking underpinning them.

There are some issues, however, which I summarise below.

While being much more refined than previously, the costs are "coarse" in a particular area of interest. The estimates include costs associated with delivery of System Management requirements relating to load following. Such costs were not included in the original estimates and thus, the comparison is not strictly on an "apples with apples" basis. System Management advise that they are not able to segregate those costs relating solely to load following from those relating solely to balancing. Given load following benefits were not estimated at all in the CBA, the net effect is to inflate the costs and "deflate" the benefits. Ideally, load following costs and benefits would be assessed and considered separately but this is not possible and contributes further to the difficulty of "splicing" the additional costs into the original analysis.

In addition, System Management were not able to separate out any cost increment from providing the platform on which additional functionally could be incorporated should the industry move towards a constrained grid environment. It is possible that there may be little or no incremental cost in providing this platform to the systems required for both balancing and load following, however the CBA attributed no benefit to this preparatory element and there would be a benefit in terms of systems structure and learning should there be a move to a constrained grid. A re-working of both costs and benefits would be required to properly account for this aspect of the systems costs.

Finally, the approach taken to cost estimation is essentially "top down" in nature. This means that the starting point for the costing exercise was an estimate of what might be considered the "ideal" requirements for the new environment. From there, subsequent downward revisions were made by System Management based on further detail emerging around design and an assessment of current capacity. This may be an acceptable method for preparing the cost estimate for the business case, but for the purposes of the CBA it leaves open questions around the extent to which excess or redundancy can be fully weeded out and complementarities accounted for.

Conclusion

My assessment is that the revised estimates by System Management of its costs in systems to support competitive balancing represent a substantial improvement in terms of specificity and underpinning analysis from those available when we completed the CBA. In my view, the net benefit result obtained in the CBA analysis would be robust to the change in cost estimates. The CBA analysis found material net benefits from considering only a limited number of static impacts, with the prospect that dynamic and qualitative benefits would greatly exceed those short-term effects.

Kieran Murray