Major Energy Users Inc.

13 August 2019

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**Victorian Reactive Power Support Project**

**RIT-T PADR**

The Major Energy Users is pleased to respond to the AEMO Project Assessment Draft Report (PADR) of its proposed Victorian Reactive Power Support Project.

The MEU was established by very large energy using firms to represent their interests in the energy markets. As most of the members are located regionally and are the largest employers in these regions, the MEU is required by its members to ensure that its views also accommodate the needs of their suppliers and employees in those regional areas. It is on this basis the MEU and its regional affiliates have been advocating in the interests of energy consumer for over 20 years and it has a high recognition as providing informed comment on energy issues from a consumer viewpoint with various regulators (ACCC, AEMO, AEMC, AER and regional regulators) and with governments.

The MEU stresses that the views expressed by the MEU in this response are based on looking at the issues from the perspective of consumers of electricity but it has not attempted to provide significant analysis on how the proposed changes might impact generators, TNSPs and other stakeholders.

The MEU has reviewed the PADR and is concerned that AEMO has opted to implement the most expensive option in order to address the concerns raised about the risk of low minimum demands in the Victorian region, coupled with the growth of renewable generation that has little capacity to manage voltage; AEMO observes that currently this issue is managed through non-market ancillary services. AEMO considers there is a risk that in the future the cost of these services will further increase and this cost might be managed at a lower cost by increasing the assets providing transmission services.

The MEU welcomes the AEMO review and agrees that, on the surface, the proposal for reactive power made by AEMO has merit. However, the MEU does not agree with AEMO as to which of the proposed solutions provides the greatest value to the Victorian consumers that will incur the cost for the proposed investment.

In particular, the MEU is concerned that the highest cost option (option 2) – and the one AEMO prefers – includes a significant increase in the capital costs for little

additional benefit to Victorian consumers, in that the benefits generated by option 2 over the option 1B are essentially from lower dispatch costs in NSW (and Queensland) and export to NSW. The value of this benefit is shown by the differences between figures 14 and 17 in the PADR.

**Figure 14 Option 1B gross benefits and investment costs**

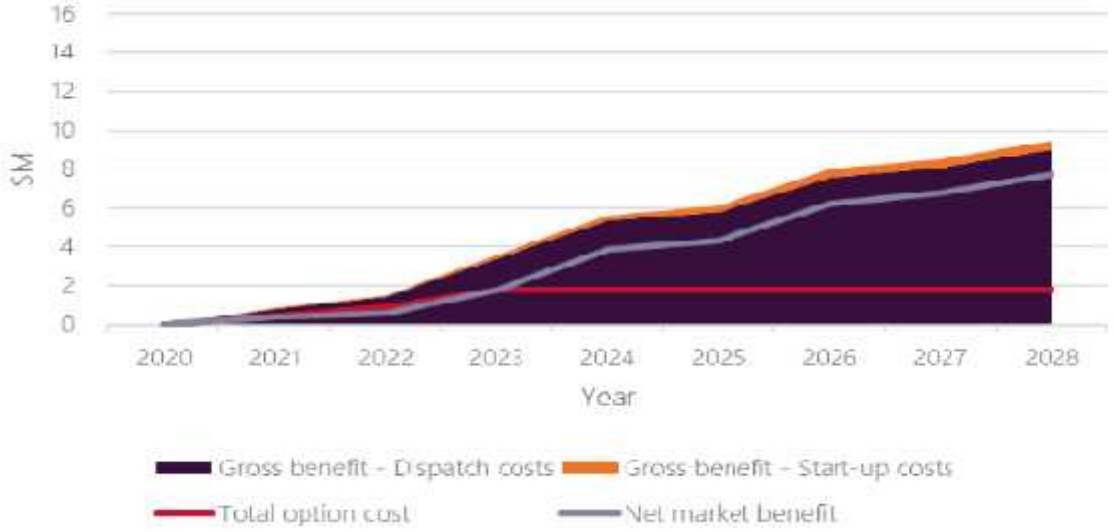
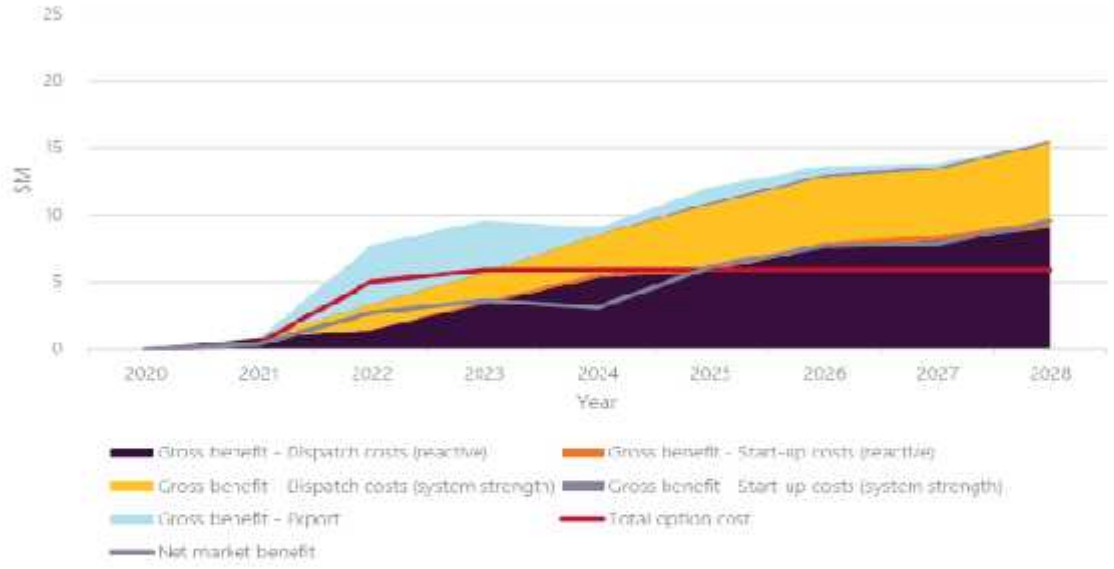



**Figure 17 Option 2 gross benefits and investment costs**




The Option 2 gross market benefits include the additional benefits from increasing the Victoria to New South Wales export limit. These benefits are highest in 2022 and 2023 and decrease from 2024 onwards as additional investment in the transmission network (see Section 5.2.7) increase the export limit in the 'do nothing' base case.

The MEU is also concerned that this PADR is being assessed in isolation of the PSCR proposed for the VNI upgrade which also looks to increase the ability to export from Victoria. The MEU notes that the VNI upgrade (a core element of the ISP modelling)

includes for a considerable increase in the export capacity of power from Victoria to NSW which are the same benefits claimed for option 2 over option 1B of this PADR. Further, in order to provide stability improvement, the PSCR (page 8) states that as part of the upgrade investment it will provide:

> "… dynamic reactive plant (FACT device), at selected locations, including batteries, Static Var Compensation (SVC), STACOM, synchronous condensers, and any other equivalents"

It is quite clear that there seems to be some doubling up between this PADR and the PCSR published for the VNI upgrade with regard to increasing reactive power supply, and whether this reactive power would be provided by a "syncon" at South Morang (as in this PADR) or from other reactive power sources envisaged by the PSCR for the VNI upgrade.

The MEU notes that option 1B and option 2 include much the same investment except that option 2 includes for a large synchronous condenser to be located at South Morang. What is also clear is that the inclusion of the synchronous condenser at South Morang adds little to the overall net benefit of option 2 (~$17.6m) for the massive increase in cost of $53.9m – this is shown in the table 7 form the PADR but expanded by the MEU to reflect the difference between option 2 and 1B (see added line "option 2-1B").

**Table 7 Weighted net market benefits for each augmentation option**

| Option | Capital Cost, $M (2019-20) | Capital + O&M Cost, $M (NPV) | Neutral - Net Market Benefit $M (NPV) | Fast Change - Net Market Benefit $M (NPV) | Slow Change - Net Market Benefit $M (NPV) | Weighted - Net market benefit $M (NPV) | proportional weighted net benefit |
|---|---|---|---|---|---|---|---|
| 1A | 19.1 | 16.7 | 48.2 | 14.9 | 144.1 | 63.9 | **384%** |
| 1B | 25.4 | 21.5 | 53.0 | 15.1 | 165.4 | 71.7 | **334%** |
| 1C | 31.7 | 26.9 | 53.5 | 13.8 | 178.9 | 74.9 | **279%** |
| 1D | 38.8 | 32.3 | 51.4 | 10.8 | 185.2 | 74.7 | **231%** |
| 2 | 84.7 | 72.3 | 64.9 | 18.5 | 208.7 | 89.2 | **124%** |
| 2- 1B | 59.3 | 50.8 | 11.9 | 3.4 | 43.3 | 17.6 | **35%** |

**Source: PADR table 7, MEU calculations**

While the proportional weighted net market benefit to cost (capital + O&M NPV) for option 1B is 334%, the proportional benefit to cost for 2-1B is a mere 35% implying that the significant additional cost for the South Morang project might not be warranted compared to the risk of not achieving the expected benefits. This aspect is even more stark for the fast change option where the proportional net benefit to cost for option 2-1B is only 7% (ie that the benefit of the South Morang project is much the same as its cost).

This analysis shows that the bulk of the benefits for option 2 come from option 1B and the benefit of the synchronous condenser at South Morang is only small; this benefit might be even more marginal following the announcement made recently by AGL that it intends to extend the life of Liddell power station past the summer of 2022/23 which will reduce the benefits of export to NSW. Under the fast change scenario, the benefits of the South Morang "syncon" might now be even negative!

The MEU is aware that there are many changes occurring in the south of the NEM with massive investment in more renewable generation, the development of the interconnection between SA and NSW (EnergyConnect) and the proposed augmentation of the western Victorian transmission network (WestVic). With all this occurring we are effectively seeing a "fast change" scenario actually occurring now, implying that the 25% weighting of the fast change scenario in the weighted net benefits might be too low. Increasing the weighting of the fast change scenario reduces the weighted benefit of the proposal.

We also need to reflect that increased exports to NSW are likely to drive prices higher in Victoria, noting that Victoria currently has the highest electricity prices in the NEM. Increasing prices for the supply of electricity and adding the capital and operating costs of the South Morang project, makes the South Morang project quite marginal from the viewpoint of the Victorian consumers that will pay for the project.

With this in mind, the MEU considers that the most value for Victorian consumers comes from either option 1A or option 1B and there appears to be no technical reason why the South Morang investment needs to be carried out concurrently with the other reactive power additions included in this PADR. However, it is also clear that the South Morang option needs to be considered as part of the proposed VNI upgrade, as the VNI is focused on increasing the benefit of increased power flows to NSW which is the main benefit provided by the South Morang project.

Overall, the MEU considers that the South Morang project needs to be excised from this PADR and either assessed with a separate RIT-T analysis in the future when there is a clearer need identified for it or for it to be included in the RIT-T process for the VNI upgrade.

The MEU is happy to discuss the issues further with you if needed or if you feel that any expansion on the above comments is necessary. If so, please contact the undersigned at davidheadberry@bigpond.com or (03) 5962 3225

Yours faithfully

David Headberry
Public Officer