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ISP Methodology Consultation Paper

The Major Energy Users is pleased to respond to the AEMO request for a submission to its consultation paper related to its ISP methodology.

About the MEU

The MEU was established by very large energy using firms to represent their interests in the energy markets. With regard to all of the energy supplies they need to continue their operations and so supply to their customers, MEU members are vitally interested in four key aspects – the cost of the energy supplies, the reliability of delivery for those supplies, the quality of the delivered supplies and the long-term security for the continuation of those supplies.

Many of the MEU members, being regionally based, are heavily dependent on local staff, suppliers of hardware and services, and have an obligation to represent the views of these local suppliers. With this in mind, the members of the MEU require their views to not only represent the views of large energy users, but also those interests of smaller power and gas users, and even at the residences used by their workforces that live in the regions where the members operate.

It is on this basis the MEU and its regional affiliates have been advocating in the interests of energy consumers 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.

As noted in its response to the Issues Paper on the draft ISP methodology, the MEU recognises that AEMO has dedicated considerable effort into the preparation of the ISP IASR and the methodology. The MEU is pleased to note that AEMO has actively sought to address many of the suggestions and concerns raised by stakeholders in their responses to the Issues Paper. While the MEU might not fully agree with all of

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the response that AEMO has provided to the concerns raised, it does understand and accept, in most cases, the reasoning provided by AEMO for the positions it has taken.

The MEU has one over-riding concern about the issues discussed in the consultation paper regarding the annuity approach that it considers that AEMO still has not appropriately addressed. The MEU also has comments regarding a few other aspects.

The use of annuity approach

The MEU sees this as a major concern. While the MEU can see that forecasting benefits far into the future (noting that benefits are possible beyond the horizon of the modelling period), the MEU points out that the costs that consumers will incur due to long lived assets will also continue beyond the modelling horizon.

On page 28 of the consultation paper, AEMO comments:

“This [annuity] approach avoids making assumptions on the ongoing benefits of project investments beyond the modelling period. This is equivalent to assuming that costs and benefits are balanced beyond the modelling horizon.”

The MEU points out that the annuity approach effectively embeds the assumption that by the end of the modelling period, accrued benefits are most likely to be less than the cost of the investment. To deliver an overall net benefit of the investment, benefits beyond the modelling horizon have to be much greater¹ than the accrued annuity costs after the modelling period to ensure that there is a net benefit of the project over the entire life of the project. To quote Sir Humphrey from “Yes Minister” this is indeed a “courageous decision” to make in such a fast-changing environment.

AEMO further observes that (page 28):

“AEMO has observed that forecasts of market benefits in the later years of the horizon are generally higher, so the annualisation approach is more likely to underestimate total benefits for consumers in most instances by ignoring the continued benefits.”

AEMO refers to charts in appendix 2 of the 2020 ISP to support this assumption. What the charts show is that the projects depicted are heavily “back ended” in their benefits, highlighting these benefits lie in the period where AEMO has concerns about the accuracy of its forecast² yet despite this concern, AEMO makes the statement that the benefits will exceed the terminal cost that exists at the end of the modelling period.

¹ This is the case because on an NPV basis the value of the benefits has to be much greater in the later years to offset the high known costs that have already been incurred.

² The MEU also has significant concerns about the accuracy of forecasts this far into the future, especially with the rapid change being experienced.

AEMO then provides a view that discount rates used will address some of the concern in that higher discount rates will ensure that the bulk of the impact of benefits will be seen within the modelling period, implying that this will effectively reduce the terminal value of the investment, leading to a lesser concern about the assumption. The MEU agrees that a higher discount rate will reduce in NPV terms the value of future benefits projected beyond the modelling period, and notes that its members all advise that the discount rates they use are in the 10-12% range for this very reason. They also advise that a common modelling horizon is usually of no more than 15 years as benefits beyond that are quite questionable and so they need to see the targeted return on major investments achieved within this period³.

With a higher discount rate, this reduces the value of the future benefits, but the recovery of the investment costs continues regardless. Further, the MEU notes that the value of the annuity is based on current assessments of interest rates which are currently very low. This means that when assessing the value of the annuity for future years, there has to be a recognition that the annuity will increase as interest rates rise following the requirements of the NER determines the cost of capital each year for network investments. This reinforces the need to carry out an NPV approach over the whole of the life of the asset based on the capital cost invested to address both of these concerns.

AEMO observes that the annuity approach allows the assessment of multiple projects, but the net benefit of each project must be assessed in isolation so the annuity approach for individual projects is no longer a necessity.

A further concern with the annuity approach, is that the ISP (in 2021) is forecasting new transmission assets needed later in the modelling period (eg in 10 years time or even later). The benefits that flow from an investment at that time, are even less certain highlighting the disconnect between the certainty of the costs of the investment (including the value of the annuity) and the uncertainty of the benefits that might be delivered.

The MEU sees that a real problem for a cost/benefit analysis lies with the technical life of the assets being proposed (50-60 years) when the modelling horizon is much less than the technical life and the benefits identified lie so far into the future. In previous years, this would be less of a problem, but now the assets that generate the benefits have a life up to 50% of transmission assets, increasing the risk that the benefits might not be achieved, and to achieve the benefits relies on a decision as to whether the generation assets will be replaced, or even if the replacement assets will need the transmission assets provided – the MEU sees the risk of stranding of these transmission assets is significant but this is not addressed within the annuity approach.

Overall, despite the AEMO preference for an annuity approach, the MEU considers that this approach has considerable risk for the consumers that fund most of the

³ MEU members have pointed out that for smaller projects, they need to achieve a simple payback period of no more than 3-5 years

transmission assets. To overcome this increase in risk, the MEU sees that the modelling needs to incorporate three major changes.

1. The discount rate needs to be much higher than is currently used.
2. The benefits need to match the investment cost within the modelling horizon if a commitment to the investment is needed within the period between the current ISP and the next ISP.
3. If an annuity approach is used, then the value of the annuity needs to be based on the reality that, under the NER, the cost of money will change (most likely increase) so the annuity needs to be increased to reflect this trend into the future – the annuity cannot be based on just the current costs of capital calculated under the NER processes.

The hydrogen strategy

In our submission to the Issues Paper, we expressed concern about the aspect of the approach to providing the impact of hydrogen generation. We accept that the scenario (hydrogen super-power) is just one of the scenarios identified and that a weighting for all scenarios is still to be developed.

While we accept that the generation of hydrogen is an appropriate scenario to be included, based on the view that there are some that consider significant generation of hydrogen will occur (and many more that hope that this will be the case), we are still very concerned about how this scenario can be modelled.

As the MEU pointed out in its response to the Issues Paper, there is no certainty as to the location of electrolyzers and of their size, and it is these decisions that will have a major impact on the shape of the transmission network under this scenario. With this in mind, the MEU suggests that the most likely scenario for investment in hydrogen electrolyzers lies within the bounds of each state/region and that the need for investment in electricity transmission assets to accommodate these will be through regional transmission networks rather than the ISP development. This means that for the purposes of the ISP, the hydrogen super-power scenario should just address the increased demand that might occur in each state as a result of electrolyser investment rather than trying to be more definitive in size and location of electrolyzers.

Definition of “need” and non-network solutions

Despite the observations by AEMO and changes it has made as a result of the MEU response to the Issues Paper, the MEU remains concerned that AEMO still has not fully reflected the aspect of the definition of need and the resultant ability to implement non-network solutions in the ISP and subsequently by TNSPs.

While AEMO observes that the involved TNSPs will be required to examine non-network solutions as part of their RIT-T processes (and potentially in their applications for contingent projects), the fact that if an actionable ISP project identifies a network

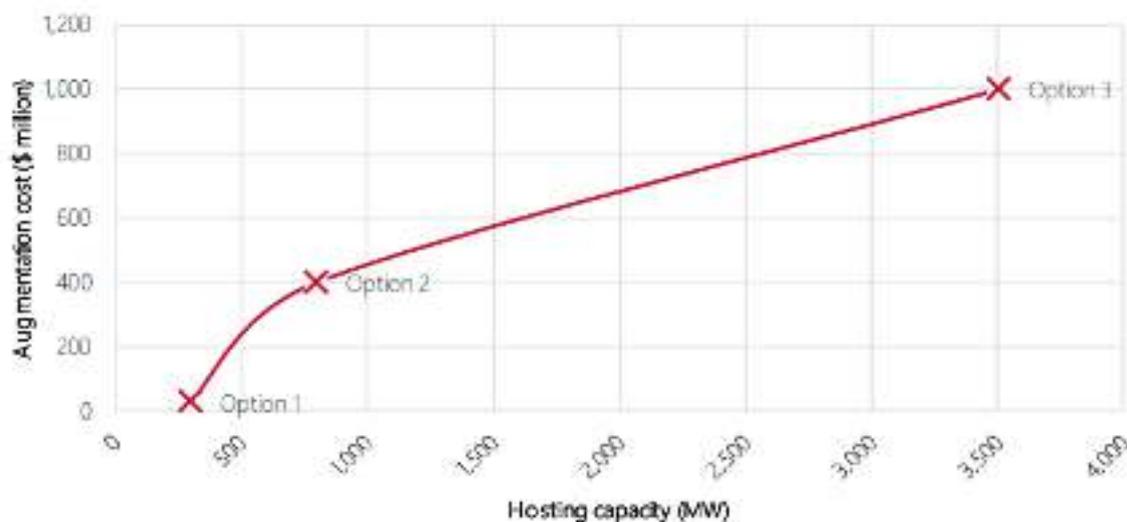
solution this provides a clear signal to the TNSPs what AEMO considers is the optimum solution. Further, the process beyond the ISP states clearly that the TNSP can implement the actionable ISP solution as its primary (possibly only) option and providing the costs are much the same, proceed through the RIT-T and contingent project application processes based exclusively on the ISP preferred option.

If the need is clearly defined, then AEMO can also look at non-network solutions as part of the ISP process and this also means that stakeholders can ensure that in reviewing TNSP RIT-T processes, other options (including non-network solutions are examined in addition to the ISP proposed option.

REZ network expansion

The MEU notes that AEMO plans to develop the costs for each REZ based on the design characteristics of each REZ rather than costing based on a formula using MW capacity as the basis for the costs. The observation provided by the MEU at the Issues paper stage assumed that AEMO would use figure 3 to generate REZ costings.

Figure 3 Cost and capacity of REZ network expansion options



The MEU pointed out that the chart is wrong on the basis that historically costs increase to the power 0.7 with an increase in size⁴ leading to the conclusion that interpolation will give a different answer than following a linear path.

As AEMO apparently intends to assess the cost of each REZ based on an actual concept design for the ISP, the MEU concern is unnecessary.

⁴ Not to the power 1.0 as implied by the Issues Paper reference to straight line association.

System Strength

The MEU observes that there is an error in the consultation paper. On page 25, AEMO states that the MEU:

“...include[s] the suggestion that consumers should bear the costs associated with system strength costs...”

This is not correct. What we did say in our response to the Issue Paper was that:

“[t]here is a fundamental issue with regard to system security costs - and this relates to who pays. If a generator is aware that they will incur these costs, then they might make different decisions which will impact the design considerations by AEMO eg if generators pick up the costs for system strength then they might consider relocating or buying inverters that don't cause the SS issues. In contrast, if consumers are allocated the costs, then VRE generators will look for the lowest cost for their generation. This dichotomy needs to be recognised in the modelling.”

The point being made is that modelling for system strength needs to reflect who pays as VRE generators could make different locational decisions based on who pays.

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 0417 397 056

Yours faithfully



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