

Ms Nicola Falcon
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Australian Energy Market Operator
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By email to planning@aemo.com.au

RE: NTNDP consultation paper January 2016

Thursday 17/03/16

Dear Ms Falcon,

GDF Suez Australian Energy (GDFSAE) welcomes the opportunity to contribute to the Australian Energy Market Operator's National Transmission Network Development Plan (NTNDP) process for 2016.

1. What do you think are the material issues facing the electricity industry that the 2016 NTNDP should address?

Some of the key factors impacting the electricity sector are as follows:

- Economic performance and impact on electricity demand
- CO2 policies
- Technological developments (availability and cost)
- Renewable generation – penetration and impacts on large scale generation units
- Fuel costs and relevant sensitivities (these need to be internally consistent with corresponding economic conditions used in other parts of the modelling)
- Battery storage – suggest this be acknowledged and used to assist transmission where economic. However large scale deployment at domestic level should not be included in the “most likely” scenario (technology and cost considerations – refer to the CSIRO report for the AEMC 2014).
- Need to identify any services required to support intermittent generation, especially services not being remunerated via the energy only market.

2. What scenarios/sensitivities would you like to see examined in the 2016 NTNDP?

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Given the wide range of uncertainty, a scenario based approach would be more appropriate and more effective than trying to “crystal ball” a particular future (which by definition will be precisely wrong). The scenarios (stretching yet believable and relevant) could be developed in a structured manner (broadly following the Shell company process).

These scenarios could be developed around a limited number of key uncertainties impacting the industry, such as:

- Technology
- Economy
- Environment (carbon policies etc)
- Regulation (market based vs regulated approach)

A small number of “stretching but believable” scenarios could be developed to span a “range of uncertainty”. The objective would be that the actual future should not lie outside of the space covered by scenarios used to span the range of uncertainty.

An additional scenario would be used to describe the “most likely” given what is currently known. The “Stretching but believable” scenarios would be reviewed every 3-5 years, whilst the “most likely/planning scenario” would be refreshed annually as new information comes to light.

In the event that there is insufficient time to develop such scenarios in time for the 2016 NTNDP, a firm roadmap mapping out the future process (and continuous improvement) is considered essential.

Additional sensitivities to be modelled:

It is strongly recommended that sensitivity based on the proposed “Weak” sensitivity be included in the work scope and include the following parameters:

- Low economic performance
- Cheap fossil fuels
- No CO₂ abatement policies or regulations beyond status quo
- Low demand for electricity (overall and from large generators)

3. Is the proposed approach to modelling the impact of the COP 21 Commitment reasonable?

The future carbon policy will have a very material impact on the sector and will have a major effect on modelling assumptions. Unfortunately policy stability in this area remains elusive. Any bi-partisan support for emission reductions by 2030 is no more than an ambition statement and the size of the reduction varies between the major parties.

The suggested approach by AEMO to use a pro-rata 26-28% emission reduction from 2005 in the electricity sector is plausible and should provide valuable insights. According to AEMO this scenario is likely to result in a closure of 8,700MW of coal fired plant over time.

This represents just one of a range of possible policy outcomes. For example the impacts will be significantly different should the trading of permits be allowed and the emission cuts made elsewhere (outside the sector or internationally). The most likely approach may rely on a suite of regulations and market based schemes.

It would be quite unreasonable to assume that the 8,700MW of coal plant will close in all cases and sensitivities used for in the NTNDP.

In addition it should be noted that modelling of regulated emission reductions (plant closures based on age or emission intensities) by others clearly shows that wholesale prices would need to increase sharply and early. Such a price increase is required to make replacement generation economic (both large and small scale generation). This outcome makes such a policy approach politically and economically problematic and hence unlikely to be implemented.

Therefore, it is imperative that other policy approaches are also considered. These must also include a policy where no reductions are mandated or sought. Such a policy could be coupled with the low economic performance (also featuring low fossil fuel costs) sensitivity to reduce the total number of sensitivities modelled.

The resource cost of different policies and sensitivities should also be published to inform the sector and policy makers.

Given the significant electricity price increase of the emission reduction policies, the impact on electricity demand needs to be incorporated. It is considered unreasonable to use price/demand elasticity as the price increases are too large to be effectively dealt with by a partial derivative, as structural changes to industry and manufacturing are likely.

4. What do you think are the key challenges/opportunities for network development in the future, particularly highlighting any that were not identified in the 2015 NTNDP?

a. Intra-regional constraints

There are differences between previous studies and actual operational outcomes in relation to interconnector capability. The interconnector capacity between regions tends to be overstated and in practice will be limited by intra-regional constraints.

A recent example is the rating of the Heywood interconnector in light of the F2 intra-regional constraint. Detailed modelling of intra-regional constraints (e.g. the F2 constraint in Victoria) impacts intra-regional transfer and must be clearly modelled with sensitivities based on actual NEM dispatch/offer outcomes.

5. Do you have any suggestions on how to improve the generation outlook or transmission outlook methodologies for the 2016 NTNDP?

a. Suitability of the least cost modelling approach

Questions arise regarding the relevance of the least cost modelling approach in relation to the "Real world" market based outcomes (which are unlikely to be least cost). Whilst market modelling could be employed for the NTNDP, many additional assumptions regarding industry structure and participant behaviours would need to be made. Thus market modelling is likely to be quite subjective, be far more resource intensive and more likely to prove controversial with industry participants (due to diverse subjective assumptions). It would also be difficult to compare different sensitivities and scenarios as there would be additional parameters varying in the model.

On the other hand least cost modelling has fewer assumptions that are transparent and simpler methodology without the need for specific behavioural assumptions. This approach also makes the comparison of sensitivities and scenarios simple and objective.

For these reasons it is strongly suggested that the least cost approach should continue to be used for the NTNDP studies. However some sensitivities based on market dispatch behaviours should also be considered for completeness.

b. Revenue adequacy is an important consideration

Since the least cost modelling is cost based, there will always be "revenue adequate" for all plant used by the model. However, plant introduced by the least cost model may not be sustainable in a market arrangement since the revenue is not based on costs but market outcomes.

Consequently the report should aim to identify all plant introduced by the least cost model that is needed by the electrical system but is unlikely to be adequately rewarded in the existing market.

Some reasons that plant maybe introduced include system reliability (and firming up of intermittent energy and capacity), provision of reserve capacity, provision of new/additional ancillary services etc.

6. Are the proposed 2016 NTNDP input assumptions appropriate, and would you recommend any additions/changes to these assumptions?

a. Carbon policy assumptions

It is considered sound to adopt a scenario delivering 26-28% emission cut below 2005 levels by 2030 but additional sensitivities are needed (refer to response to question 3).

b. Basslink assumptions

The current failure of the Basslink cable does not necessarily mean that the failure rate has increased (unless new information is uncovered).

When considering future Basslink failures it is important not assume that the same preconditions to a failure will be repeated.

It is highly likely that storage levels will be managed differently in the future (but as yet these are unknown). Hence the consequence of a future failure would also be quite different.

In the event that a second Basslink is assessed in the modelling, these considerations need to be factored into a possible valuation (ie these are likely to significantly decrease any benefits).

c. Fuel price assumptions

Fuel cost sensitivities in the "Australian Power Generation Technology Report" appear extremely limited and opaque and are not presented on regionalised basis. Given the magnitude of the commodity price movements over the last 18 months, it is imperative that a much wider range of fuel prices is included in the NTNDP analysis.

It is strongly suggested that regionalised fuel prices be used and that consistent methodology with previous AEMO studies is followed.

Provision of a modelling database and format



GDFSAE doesn't use Plexos and hence does not find the provision of Plexos database of value. It would be useful if such data was also made available in a spread sheet format so that it is accessible by a wider range of participants.

GDFSAE trusts that the comments provided in this response are of assistance to the AEMC in its deliberations. Should you wish to discuss any aspects of this submission, please do not hesitate to contact me by phone, 0417343537.

Yours sincerely,

David Hoch

Regulatory Strategy and Planning Manager