

29th January 2018

Australian Energy Market Operator
Level 22, 530 Collins Street
Melbourne VIC 3000

Submission by email to: ISP@aemo.com.au

INTEGRATED SYSTEM PLAN CONSULTATION PAPER

Snowy Hydro Limited welcomes the opportunity to comment and provide feedback on Integrated System Plan (ISP) consultation paper. This submission provides feedback on the proposed modelling approach.

Snowy Hydro Limited is a producer, supplier, trader and retailer of energy in the National Electricity Market ('NEM') and a leading provider of risk management financial hedge contracts. We are an integrated energy company with more than 5500 megawatts (MW) of generating capacity. We are one of Australia's largest renewable generators, the third largest generator by capacity and the fourth largest retailer in the NEM through our award-winning retail energy companies - Red Energy and Lumo Energy.

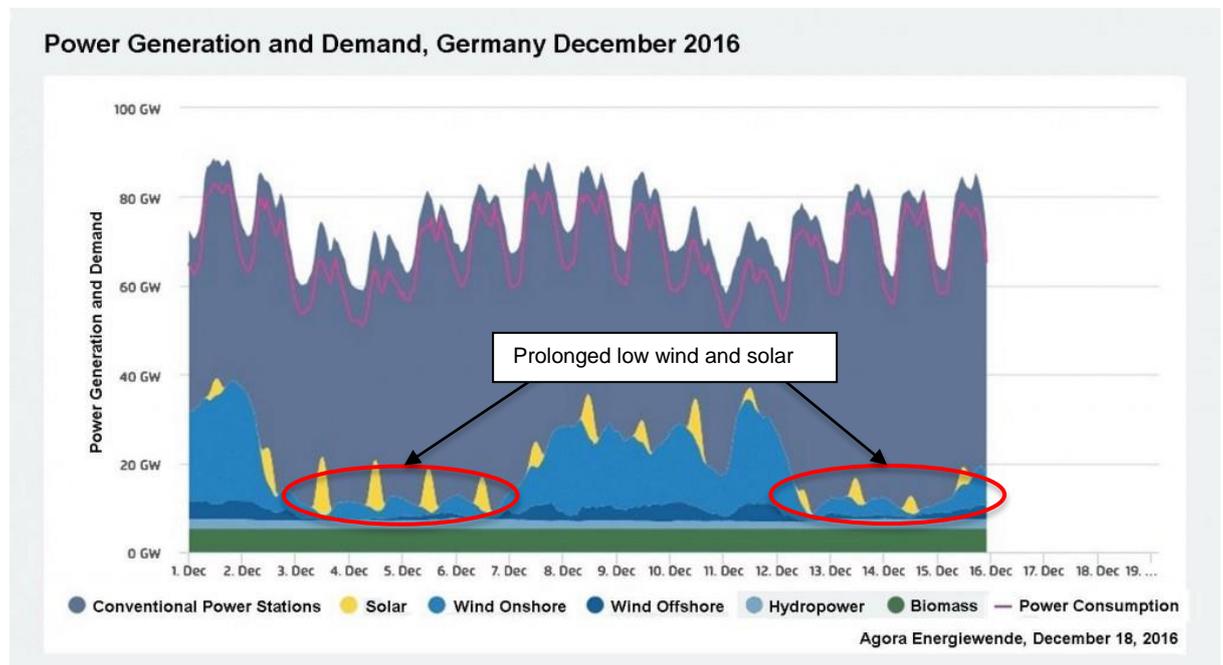
Snowy Hydro supports the primary objective of the ISP which is to consider the material issues caused by the energy transition and evolving generation mix, and to identify the most efficient pathways to deliver continued reliability and security in the NEM under a range of scenarios.

Material Uncertainties and Questions to Address

AEMO has sought feedback on material questions the ISP seeks to address in section 1.3.1 of the consultation paper. Snowy Hydro believes these questions are appropriate and provides the following comments:

1. The concept of "least-regret" generation and transmission developments which is robust to different futures is strongly supported. This is similar to the concept of option value. A transmission and/or generation project may not meet strict cost-benefit threshold in the present day but may have high option value to cater for a highly uncertain future where many facets such as the retirement of fossil fuel plant, emissions policy, technology costs, and the uptake of distributed energy resources may inherently increase the option value of this investment. In a sense this type of investment may be deemed strategic. Snowy 2.0 is a highly strategic investment which has high option value.
2. Conceptually large-scale renewable generation in targeted zones can be part of future power system development. However, our concern with these zones which may only contain wind and solar generation is the impact of prolonged wind and solar droughts.

Germany has experienced issues with the impact of prolonged multiple consecutive days of low wind and solar. For instance, in December 2016 a winter high-pressure system with dense fog throughout Germany left the wind and solar generation at extremely low levels for several weeks. Germany is much like the NEM which is undertaking an energy transition that has increased the generating capacity of intermittent energy. With approximately 20 per cent of Germany's generation coming from wind and solar, these Variable Renewable Energy sources were only able to generate less than 1 per cent of the total generation mix during relevant periods in December 2016.



As another example, the DNV GL study into the United States of America wind drought in 2015 provides some pertinent observations for the NEM. The study states¹:

The resulting drop in wind levels -- a wind drought not seen since before 1979 -- affected states from Washington to Florida and causing wind power output to fall dramatically short of expectations. In 2015, California, Oregon, Washington, Nevada, Arizona, southeast Texas and Florida were among the regions reporting their lowest recorded wind levels in more than 25 years.

The key point is without adequate large scale storage the effectiveness of these renewable energy zones would be greatly diminished thereby compromising energy affordability, emissions, and security and reliability objectives.

This is further reinforced by the text box below which highlights the immense energy storage of Snowy 2.0 which can smooth out the variability in prolonged wind and solar periods.

¹ DNV GL, <https://www.dnvgl.com/news/dnv-gl-study-el-nino-not-cause-of-2015-wind-drought--57798>

Snowy 2.0

Energy Storage: 350,000 MWh

Capacity: 2,000 MW

This means Snowy 2.0 can continuously generate at 2,000MW for over 7 days. This would cater for prolonged wind and/or solar droughts.

3. The uptake of aggregated load shifting and price-responsive load management should be modelled very conservatively. Many studies conducted by the AEMC, and the Australian Energy Council (AEC) have shown that there are no barriers to entry for these services, yet the uptake of these services is very modest (at around 250MW across the NEM). We speculate that this is due to the fact that businesses and consumers value the economic utility that comes from the consumption of electricity more highly than the economic value they receive from providing these demand side participation services.
4. Optionality - As highlighted earlier, the ISP should aim to highlight the optionality or strategic value of a new development and not just present the lowest-cost pathway for the NEM. This approach would be prudent given the uncertainties that exist in the NEM and the limitations of the modelling that underpin the ISP.

Scenarios and Sensitivities

AEMO has sought feedback on the scenarios and sensitivities the modeling will use to inform the ISP.

Snowy Hydro agrees with the proposed scenario settings shown in Table 1 of the consultation paper and the proposed sensitivities in 1.4.1. We believe that they address the material uncertainties and questions regarding the generation and transmission developments. However, Snowy Hydro suggests the Snowy 2.0 project is included in all AEMO scenarios, rather than just the Neutral outlook scenario as a sensitivity. This view is consistent with our belief that Snowy 2.0 is a strategic and least regrets project that provides high option value for the future National Electricity Market.

We welcome AEMO's decision to assess specific drivers that could impact the outlook for generation and transmission development such as the impact Snowy 2.0 will have across the NEM. With the energy industry's investment focus shifting to a combination of firm lower emissions gas generation, renewables and enabling technologies, more than 3,000 megawatts of firm generation exited the market in Australia over the last few years. Snowy 2.0 can play a crucial role in providing long term storage and dispatchable generation that can fill the void left from the exit of fossil fuel generation.

Snowy 2.0 was recently included in the National Energy Guarantee (NEG) modelling scenarios as a core Government Policy expected to help provide the flexible and dispatchable resources required. In a letter sent by Minister Frydenberg to the Energy Security Board (ESB), Snowy 2.0 was specifically asked to be included in the future generation mix:

"In undertaking this exercise, the Energy Security Board should take account of other Government policies expected to impact on the NEM including, but not limited to, the proposed expansion of Snowy Hydro".²

It is important that AEMO's modelling is built on previous analyses of the proposed NEG modelling as Snowy 2.0 could not proceed without transmission investment, which would allow Snowy 2.0 capacity to be exported to major load centres in NSW and Victoria.

Conclusion

We believe Snowy 2.0 is a strategic investment which will provide a diverse range of optionality to cater for an unpredictable future where the closure of thermal generation, the increase penetration of variable renewable generation, and the rise of the consumer will present challenges to the efficient coordination of both transmission and generation investment. In all plausible scenarios we believe Snowy 2.0 will be a vital and strategic asset which will help the National Electricity Market transition in a way that meets the National Electricity Objective and is the long term interest of consumers.

Snowy Hydro appreciates the opportunity to participate in this consultation process. For further clarification on our submission, contact me on kevin.ly@snowyhydro.com.au.

Yours sincerely



Kevin Ly
Head of Wholesale Regulation

² Letter from The Hon Josh Frydenberg MP to Dr Kerry Schott AO, Energy Security Board letter on National Energy Guarantee Modelling Scenario.