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Dear AEMO

2019 Planning and Forecasting Consultation Paper: WSP response

This brief response to AEMO's 2019 Planning and Forecasting Consultation Paper has been prepared by the Power & Energy Division of WSP Australia Pty Ltd.

We appreciate the complexity of the Integrated System Plan (ISP) development and modelling process that AEMO is conducting, and the computational effort involved, so many of our comments are posed as questions rather than as firm recommendations. Refer to Table 1 below.

Table 1 WSP comments on consultation questions

Question	Topic	Response
2	Scenarios	Is the fast-change scenario fast enough? It may be worth an extreme "fast-change" scenario to see what the outcome is, even if it is not a strong driver of subsequent recommendations. For example, noting that the scenarios diverge from a common starting point, if we take 2029/30 (a decade from now) as an example, the slow change scenario has 17% less underlying demand than the neutral scenario, whereas the fast change scenario only has 8% more underlying demand than the neutral scenario.
3	Sensitivities	Would an MLF-reform (or more generally loss factor reform) scenario have a material impact on findings? This may influence the scale (and associated cost) of economically optimised network augmentation required for proposed renewable energy zones. It may be worth testing internally, even if AEMO preference for any modified loss factor calculation approaches are not publicly disclosed, only the outcomes.
5	Inputs and assumptions - other	<u>Wind and solar build limits</u> While we understand the original driver for excluding either wind or solar from certain proposed renewable energy zones in the inaugural ISP, these exclusions appear somewhat misaligned with industry developments, and may eliminate economically optimum solutions. For example: Solar build limits are listed as zero for the region (and connection points) covered by the "Mid-North South Australia" REZ as defined by AEMO, whereas over 100MW solar is already committed in this region, with plans in the public domain for close to 1GW (refer even to AEMO's generation information page for example). The solar capacity factor in the region is approximately 29%-30% for single axis tracking plant.

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		<p>As another example – the “Western Victoria” REZ region and associated connection points as defined by AEMO is also listed as having a zero build limit for solar, whereas nearly 400MW of developments in this region are evident in the public domain.</p> <p>As a third example - the defined boundaries and scope of the “Ovens-Murray” REZ should be expanded to reflect the strong level of solar development in the Shepparton-Dederang corridor (AEMO documents indicated 2.7GW of solar enquiries in this corridor), with capacity factors of 28%+ likely for this region. And we note that AEMO already credits some new wind to this region (Cherry Tree Wind Farm), so wind build capacity should most certainly also not be set to zero.</p> <p>As a fourth example – the “Northern SA” REZ has a wind build limit of zero specified, despite several hundred megawatts of wind developments beyond Lincoln Gap Stage 1 (e.g. Lincoln Gap Stage 2, Port Augusta Renewable Energy Park).</p> <p>For ALL regions, even those with apparently poor solar or wind resources, it would seem prudent to not set zero build limits, but to set reasonable build limits and realistic capacity factors. The modelling process can then decide whether to include or reject generation with a poor input resource in these regions.</p> <p>Despite a poor renewable energy resource, there may be pros in favour of these regions that make that location economical, including low MLF risk, high grid capacity, and the profile of solar may complement wind or vice-versa and facilitate greater utilisation of finite network capacity with only limited constraints (the time series analysis that forms part of the proposed modelling approach would reveal such benefits).</p>
6d	Storage assumptions	<p><u>Pumped hydro storage limits and approach to allocation of total storage to durations</u></p> <p>While we understand the desire to reduce computation, the approach to pre-allocating pumped hydro storage capacity to different nominal storage-duration schemes (as described on page 35-36 of the Planning & Forecasting Consultation Paper) seems somewhat arbitrary, which may lead away from optimised solutions.</p> <p>For example, in approximate terms Table 10 (page 36) allocates less than 10% of the storage potential of Victoria to 6-hour schemes. But this scale of scheme could prove particularly valuable if the modelling shows high solar uptake (both utility and residential), consuming midday peak generation and delivering this at evening peak demand periods.</p> <p>We recommend allowing the allocation of storage capacity to different MW schemes to be a variable in the modelling. If this is not practical, then additional effort would be warranted in making the approach to pre-allocation of storage capacity as realistic as possible. For example only (we are not advocating that this is the answer) - it could be more reasonable to start with short storage duration schemes until they add no further value, then progressively move to longer storage duration schemes.</p> <p>The above needs to be supplemented with consideration of whether the pumped hydro build limits are too limiting overall - the divergence in assumptions between NSW (based on NSW Government Pumped Hydro Whitepaper) and other states may partly be due to Snowy 2.0 capacity, but it also suggests that the build limits for the other states may be limited by the methodology deployed. This is reinforced by observing that prospective South Australian pumped hydro project developments in the public domain amount to ~65% more storage capacity in South Australia than the proposed build limits allow.</p> <p>AEMO should consider whether a sensitivity case allowing high pumped hydro potential (e.g. double or triple the currently identified build limits) would be beneficial.</p>



We look forward to the remainder of AEMO's consultation process, and ultimately to the findings of the 2019 ISP.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Dan Manderson'.

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Technologies
WSP Australia Pty Ltd