

Daniel Westerman
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Australian Energy Market Operator
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Via email: ISP@aemo.com.au

Dear Mr Westerman

Re: Submission to the 2022 Draft Integrated Systems Plan

Thank you for the opportunity to participate in consultation on the 2022 Draft Integrated Systems Plan. This document constitutes ATCO Australia's (ATCO) free form submission.

ATCO welcomes the endorsement of the step change scenario as the most likely transition pathway for the National Electricity Market. It is clear that Australia's energy sector is decarbonising, driven by the rapid uptake of cleaner, cheaper and more economic household and grid-scale variable renewable resources. What is less clear is how we make sure we have the energy firming assets and transmission infrastructure ready on the ground when and where it is needed to deliver the reliability outcomes that consumers expect. ATCO congratulates AEMO on providing more clarity on what will be needed in the 2022 Draft ISP.

ATCO considers the efficacy of the modelled scenarios in the ISP could be improved – thereby enhancing their usefulness to industry - by revisiting the following two areas:

- 1. Revisit assumptions underpinning medium storage uptake** – we note medium term storage in NSW reaches ~2GW by 2030 but exits by mid 2040s. The efficacy of the scenarios could be improved by assuming later exits that better reflect the characteristics of the storage technologies likely to fill the expected 2GW.
- 2. Segment the hydrogen uptake forecasts in the hydrogen Superpower scenario into more distinct industry segments** – while hydrogen demand is difficult to forecast at this early stage of development, breaking-down uptake of hydrogen into export and domestic use, and preferable further by likely key end uses (haulage, blending, shipping and heavy transport, feed stock for heavy industry etc...) will assist in anticipating demand uptake and the scale of the export opportunity for Australia.

ATCO and the NEM transition

ATCO are invested in Australia's energy transition. Leveraging a 70+ year legacy of power generation and our 60-year footprint in Australia, ATCO is actively investigating investments across the entire energy value chain, including renewable generation, transmission, distribution and storage infrastructure in the national electricity market.

Currently, ATCO is developing the Central West Pumped Hydro (CWPH) project - a 325MW capacity, 2,600MWh pumped storage hydropower facility with 8 hours of storage – and understands the need

to invest in the right mix of assets to firm variable renewable energy uptake expected in the Step Change scenario over both short and long durations.

ATCO is also at the forefront of the hydrogen industry and has been producing clean hydrogen from the Clean Energy Innovation Hub since 2019. We are now moving to the next stage in our hydrogen journey with the commissioning of a refuelling facility, blending hydrogen into a subnetwork of the WA gas distribution network, and development of a 10MW hydrogen production facility, the Clean Energy Innovation Park, located in WA.

Revisit assumptions underpinning medium storage uptake

ATCO recommends extending the retirements of forecast NSW medium storage fleet beyond 2050 to better reflect the characteristics of the storage technologies likely to fill the expected 2080MW of maximum capacity. Including this – at least as a sensitivity or as proportions of the expected 2GW – is likely to better reflect the policy intent driving the initial uptake of medium storage, and is likely to optimise the quantity of capacity required across the broader storage fleet.

ATCO notes the step change scenario forecasts steady uptake of medium storage installed capacity over the course of this decade - from 680MWs in 2025-26 to 2080MWs in 2029-30. This uptake closely aligns with both the legislated 2GW target for 8-hour storage capacity under Electricity Infrastructure Investment 2020, as well as the Long Duration LTES Agreement tender schedule released by AEMO Services Limited as the Consumer Trustee in the 2021 Infrastructure Investment Objectives report.

In solving for a least-cost transition, the step change scenario predicts this medium storage capacity to exit almost completely by 2048-29. ATCO note this predicted retirement schedule aligns closely with the lifespan of chemical battery storage. It can be assumed the ISP predicts entry of only battery storage as part of the NSW Government's 2GW 8-hour storage target, and does not include other duration-capable technologies like pumped hydro, which have typical lifespans of 40-80 years.

ATCO acknowledge the intent of the long duration storage LTES agreements are to be technology neutral, but an opportunity exists to improve the usefulness of the ISP irrespective of the technology mix that eventually meets the 2GW target, particularly given the prominence of the NSW Pumped Hydro Roadmap. This can be achieved either by modelling a longer lifespan of medium storage in NSW as a sensitivity, at least for a proportion of the expected 2GW, or by consulting closely with the Consumer Trustee prior to the publication of the final ISP draft on the outcomes of mid-year LTES agreement tenders.

Approach to hydrogen in different industry segments

Hydrogen will be key to bolstering energy security across the economy as we decarbonise. A challenge to realising forecasts projected in the Hydrogen Superpower scenario is visibility and certainty regarding demand uptake, which is key to scaling hydrogen production and improving cost competitiveness. While many clean hydrogen production facilities are planned or in development, the domestic market is constrained by the lack of committed demand for hydrogen to provide investment signals for clean hydrogen production facilities. More nuanced discussion of these demand opportunities in the ISP may facilitate more concerted industry and government collaboration and commercialisation to use hydrogen in the energy mix.

ATCO note the step change scenario predicts some domestic hydrogen production to support the transport sector and as a blended pipeline gas, with some industrial applications after 2040. Meanwhile the Hydrogen Superpower scenario assumes hydrogen use in transport and domestic manufacturing, that household gas connections switch to a hydrogen-gas blend, and hydrogen as a form of stored renewable energy becomes a significant Australian export.

This analysis could be bolstered with segmented forecasts of the Hydrogen Superpower scenario that distinguish uptake initially between export and domestic use, and further between accepted likely end uses, such as haulage, transport, blending, shipping and heavy transport, alongside other expected uses such as feed stocks for heavy industry. Greater detail on the forecasts, will help to create investment certainty on potential pathways as we move down the cost curve and hydrogen substitution is expected.

About ATCO

Established in Canada in 1947 and now a \$22 billion global company, ATCO has a long history of partnering with communities and indigenous groups, energising industries, and delivering customer focussed infrastructure solutions.

With 60 years' experience in Australia - having entered the market in 1961 - ATCO understands the Australian environment and is a trusted, long-term partner of many large and respected Australian companies.

Leveraging a 70+ year legacy of power generation, transmission and distribution networks operation and maintenance in Canada, ATCO has been providing gas-fired power generation in Australia for more than 20 years and is actively investigating investments across the entire energy value chain, including renewable generation, transmission, distribution and storage infrastructure for the national electricity market. ATCO is eager to apply its international expertise and experience in electricity, natural gas, hydrogen, water, storage and structures to its continued operations across Australia.

Experienced in building, owning and operating pipeline infrastructure globally, ATCO has successfully managed the Western Australian natural gas distribution network since 2011, and will apply its global capability and know-how to expand into solutions across transmission, storage and processing. In mid-2020, ATCO was selected, as a partner to rebuild Puerto Rico's electricity system; with a plan to modernise and operate the system for the next 15 years.

ATCO has invested in alternative and renewable energy solutions for 30 years. ATCO will continue to respond to disruption in the energy sector through investing in a range of projects that utilise new technologies and business models to provide energy solutions for a low carbon future. Activities in this area include renewable generation, microgrids, storage and hydrogen.

ATCO is a global leader in providing modular solutions to the community; from regional mining developments through to urban infrastructure development and provides a diverse range of services and products throughout various markets in Australia.

If you have any questions or would like to discuss any of the comments made in this submission, please contact myself or Ollie Tridgell, Manager NEM Energy Policy on 0499 410 551.

Yours sincerely



Karen Nielsen
Managing Director Global Renewables