

Powering Skills Organisation Submission

AEMO - Draft 2026 ISP
Consultation
February 2026

Powering Skills Organisation (PSO) welcomes the opportunity to provide feedback to the Australian Energy Market Operator (AEMO) in relation to the consultation on the Draft 2026 Integrated System Plan (ISP), that was released on 10 December 2025.

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About PSO

PSO is one of ten national Jobs and Skills Councils (JSCs) established in 2023 by the Australian Government. Each JSC strengthens the voice of the industries and training sector they represent to deliver better outcomes for learners and employers. PSO works specifically to address the workforce and skills challenges of the energy, gas and renewables sector and oversees four nationally accredited training packages, UEE (Electrotechnology), UET (Transmission, Distribution and Rail Sector), UEP (Energy Supply Industry – Generation Sector) and UEG (Gas Industry), which underpin the core skills across the sector.

PSO collaborates with governments, industry, unions, and training providers to build the skilled workforce needed to deliver the clean energy transition, meet Australia's net-zero targets, and support energy-related roles across the economy.

Our work is structured around four core functions: Workforce Planning, which identifies and responds to current and future workforce needs; Training Product Development, which creates flexible, high-quality training products; Implementation, Promotion and Monitoring, which ensures products are fit for purpose and support meaningful career outcomes; and Industry Stewardship, which provides strategic advice on skills priorities and Vocational, Education and Training (VET) system effectiveness.

2025 Workforce Plan & Policy Report

PSO recently launched its 2025 Workforce Plan for the energy sector, informed by extensive consultation with industry, training providers, unions and government agencies.¹ The Workforce Plan identifies the sector's most pressing workforce challenges and provides a roadmap for building a resilient, skilled and diverse energy workforce capable of meeting the demands of electrification and the clean energy transition.

The Workforce Plan highlights two overarching findings. First, the number of qualified energy tradespeople will need to grow substantially to meet projected demand. Second, the existing workforce will need to be rapidly upskilled to adapt to new technologies and systems emerging through the clean energy transition.

In response to these national challenges, PSO has released a companion Policy Report that translates key insights of the Workforce Plan into a set of actionable policy recommendations developed on behalf of the sector.² The Policy Report presents six recommendations for federal, state and territory policymakers for targeted reforms that could alleviate system-level barriers and support the scale-up of the energy workforce.

Response to the Draft 2026 ISP

PSO is broadly supportive of the optimal development path (ODP) identified in the Draft 2026 ISP. From PSO's perspective as the JSC for the energy sector, this submission provides some general feedback in response to selected consultation questions (Questions 3 and 6), focusing on workforce and skills considerations relevant to testing the robustness, resilience and deliverability of the ODP.

¹ PSO (2025). 'High Load, Short Supply: Bridging the Gap to 2030', <https://poweringskills.com.au/workforce-plan-2025/>

² Powering Skills Organisation (2025), 'Electrifying the Future: Policy recommendations to grow Australia's skilled energy workforce', https://poweringskills.com.au/wp-content/uploads/2025/10/PSO_2025_WFP-Policy-Report_WEB_v2-1.pdf

Question 3

3. For the Draft 2026 ISP, the tested sensitivities were on constrained delivery of the ODP, variations on the gas development projection, and the pace of coal closures. The effect of demand-side factors was also tested by assessing the impact of reduced energy efficiency measures, and no further CER coordination.

What other sensitivities should be considered to further test the robustness of the candidate development paths, and why? What other sensitivities are relevant to testing robustness of investment decisions, why?

PSO is broadly supportive of the ODP identified in the Draft 2026 Integrated System Plan (ISP). PSO also notes AEMO's observation that slower progress in delivering the ODP would reduce the net market benefits delivered to consumers, highlighting the importance of testing delivery-related uncertainties alongside least-cost outcomes.

PSO acknowledges that the Draft 2026 ISP has already explored workforce-related risks through the Constrained Delivery sensitivity analysis, which tests the impact of limitations arising from supply chains, workforce availability and other factors affecting the cost and timing of delivery of energy infrastructure. As described in Appendices A2 and A6, this sensitivity limits the rate of build and assumes an average increase in project costs to assess the resilience of candidate development paths under slower delivery conditions.

PSO also notes AEMO's clarification that the Constrained Delivery sensitivity limits the rate of build but does not model the underlying causes of delay. This creates scope to further test the robustness of the ODP by examining whether specific, evidence-based delivery constraints, particularly those relating to workforce and skills, have materially different implications for timing, sequencing and system outcomes than a uniform build-rate constraint.

A significant share of the workforce required to deliver the ODP consists of licensed electrical trades and specialist technical roles, with electricians accounting for around one-in-five renewable energy workers, the largest of any occupational group.³ For these occupations, labour supply is primarily determined by vocational education and training pathways, including apprenticeships, and is subject to long lead times. Unlike other elements of the construction supply chain, these pathways have limited short-term substitutability, and workforce shortfalls in the late 2020s cannot be readily recovered in the early 2030s.

PSO's 2025 Workforce Plan cites projections that an additional 42,000 energy trades workers will be needed by 2030 to avoid worker shortages in the economy. This workforce demand is expected to continue growing over the following decades. The key driver of the workforce challenge is the sheer scale of demand, a finding that is reinforced by the 2026 Draft ISP. This growth in demand reflects the total additional workforce required to support both renewable and non-renewable sectors, particularly under a high growth scenario when Australia becomes a major clean energy exporter.

The energy trades have some of the lowest immigration rates, and safety-critical licensing requirements mean entry is a carefully managed and longer-term pathway. Rates of immigration into these roles is therefore unlikely to materially change within the critical delivery period for ISP projects. As a result, the workforce gap will largely need to be addressed through the onshore apprenticeship system, an essential but time-intensive pathway (around four years), that ensures workers are fully qualified and are able to work safely.

³ Briggs, C., Rutovitz, J., Dominish, E., Nagrath, K. 2020. Renewable Energy Jobs in Australia – Stage 1. Prepared for the Clean Energy Council by the Institute for Sustainable Futures, University of Technology Sydney
<https://www.uts.edu.au/globalassets/sites/default/files/2020-06/renewable-jobs-australia-isf-f.pdf>

Australia is not currently on track to meet the 2030 target of 42,000 additional energy trades workers. While there has been significant growth in apprentice numbers, meeting that goal requires increasing the number of apprentices in training by 40 per cent, or approximately 22,000 more energy apprentices.⁴

PSO's workforce planning indicates that workforce constraints are unlikely to affect all technologies or regions evenly. As reflected in PSO's Workforce Plan, larger and more complex projects increasingly rely on specialist roles, including high-voltage transmission, commissioning and system integration, where training and workforce supply are not keeping pace with demand. Where multiple generation, storage and transmission projects draw on the same specialist workforce, particularly within close geographic proximity, constraints may therefore create non-linear delays or sequencing challenges that are not well represented by symmetric build-rate limits.

In practice, these constraints are more likely to manifest as bottlenecks at specific stages of project delivery rather than as uniform delays across asset types. Shortages in specialist roles can delay commissioning, integration or energisation even where physical construction is largely complete, with flow-on effects for the timing and sequencing of related generation, storage and transmission investments.

In addition, the Draft 2026 ISP reflects increasing reliance on new technologies and operating modes, including large-scale batteries, synchronous condensers, grid-forming inverters and expanded high-voltage transmission, further increasing the importance of workforce capability development. PSO's Workforce Plan identifies a significant upskilling challenge across the existing workforce. Many electricians, technicians and engineers have been trained primarily for traditional generation, distribution and industrial systems, while the technologies reflected in the Draft 2026 ISP, including grid-forming inverters, utility-scale batteries, synchronous condensers, advanced protection systems and increasingly digitalised networks, require different and more specialised capabilities.

PSO's 2025 Workforce Plan notes that these changes are outpacing the training system, placing greater emphasis on post-trade upskilling pathways alongside growth in workforce numbers. If workforce capability development does not keep pace with the delivery assumptions underpinning the ODP, there is a risk that infrastructure is delivered but cannot be fully commissioned and maintained within assumed timeframes.

PSO therefore suggests that future ISP sensitivity analysis could be strengthened by explicitly testing workforce and skills constraints as causal drivers affecting delivery outcomes, in addition to the existing constrained delivery assumptions. Such sensitivities could explore whether workforce-related constraints introduce different risk profiles for the ODP, including delays associated with shortages in licensed or specialist occupations and the effects of concurrent delivery of major projects competing for the same workforce.

In developing any such sensitivities, PSO considers there may be value in AEMO working with JSCs and other experts to ensure implicit capability assumptions are correct, and that the workforce is appropriately skilled, and at scale, in order to deliver short and medium term projects. As the JSC for the energy sector, PSO could support this process by providing workforce intelligence, demand projections and insights from industry and VET system stakeholders.

PSO does not suggest that consideration of workforce-specific sensitivities would alter the Draft 2026 ISP's conclusion that renewable energy, firmed by storage and backed by gas, and enabled by transmission and distribution investment, represents the least-cost pathway for the National Electricity Market's transition. Rather, these sensitivities would provide a more granular test of delivery risk within the existing framework.

More explicit testing of workforce and skills constraints would enhance confidence in the robustness of the ODP by providing additional insight into the timing, sequencing and resilience of infrastructure delivery. This would support AEMO's objective of assessing whether candidate development paths continue to deliver net

⁴ PSO (2025). 'High Load, Short Supply: Bridging the Gap to 2030', <https://poweringskills.com.au/workforce-plan-2025/>

market benefits to consumers across a wider range of delivery uncertainties, particularly over the critical investment period of the next decade.

Question 6

6. The Addendum to the 2025 Inputs Assumptions and Scenarios Report (IASR) provides further explanation in response to the AER's Transparency Review. This includes further explanation of forecast components including policies affecting consumer demand, data centres, hydrogen production, biomethane and community batteries.

Do stakeholders have feedback on the Addendum to the 2025 IASR?

From a workforce perspective, PSO suggests there may be scope to further strengthen robustness testing for hydrogen-related infrastructure by more explicitly considering labour availability as a driver of cost uncertainty, alongside materials, equipment and pipeline dimensions.

As described in Section 8 of the Addendum, hydrogen pipeline costs are modelled primarily as a function of pipeline length and diameter, with unit costs derived from the 2025 Gas Infrastructure Costs Report. While this approach is appropriate for establishing baseline capital costs, it does not test whether workforce availability or competition for skilled labour could materially affect costs for hydrogen pipelines under concurrent delivery conditions, particularly given the reliance on construction, fabrication, welding and specialist pipeline skills that are already under pressure in the gas and energy sectors.

While the Addendum and supporting inputs specify assumed hydrogen consumption locations and associated pipeline cost parameters for modelling purposes, they do not distinguish how those connections are physically realised. In practice, hydrogen transport may involve a mix of approaches, with some locations able to rely on existing gas infrastructure through blending or repurposing, and others requiring new or modified pipeline infrastructure. These different pathways have distinct workforce implications, particularly for construction, retrofitting and specialist pipeline skills, and may influence labour demand and cost pressures in location-specific ways.

PSO's 2025 Workforce Plan identifies that the emerging domestic hydrogen sector will require a large construction and fabrication workforce to establish new facilities and electrolysers, followed by ongoing demand for workers to operate and maintain sites, as well as to build pipelines and refuelling stations, drawing on the same workforce pools as the gas sector.⁵

The Workforce Plan estimates that the hydrogen industry will require additional contextualised training to bridge skills gaps during the transition to hydrogen work. In this context, skilled labour availability may influence not only delivery timing but also labour costs, productivity and risk premiums for hydrogen pipeline projects.

PSO therefore suggests that future iterations of the ISP could consider whether hydrogen pipeline cost assumptions would benefit from sensitivity testing that more explicitly reflects potential labour-driven cost pressures, particularly where hydrogen infrastructure is delivered alongside major transmission, generation and storage investments. This would provide additional insight into the robustness of investment decisions under different labour market conditions, without altering the Draft 2026 ISP's overall conclusions regarding least-cost development paths.

⁵ PSO (2025). 'High Load, Short Supply: Bridging the Gap to 2030', <https://poweringskills.com.au/workforce-plan-2025/>