

# Environment Victoria submission to Draft 2022 Integrated System Plan (ISP)



The Australian Energy Market Operator

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**Environment Victoria is pleased to submit to AEMO the following comments on the draft 2022 ISP and thank AEMO for the opportunity to make this contribution.**

Environment Victoria (EV), formerly known as the Conservation Council of Victoria, is an independent charity that has campaigned on environment issues in Victoria for more than 50 years. Established in 1969 as a peak body for more than 70 environment groups, EV now has more than 200,000 individual supporters. Our work focuses on campaigning to solve the climate crisis and build a thriving, sustainable society that protects and values nature.

## SUMMARY STANCE

Environment Victoria (EV) welcomes the draft ISP's focus on meeting net zero emissions in the planning scenarios, and appreciates the attempt to create and use a methodology that meets decarbonisation goals while maintaining system security and reliability, factoring in social licence.

EV also lauds and supports AEMO's ongoing activities, such as engaging with the ESB, to ensure that market rules and regulations support swift decarbonisation, especially as regards technological innovation required while continuing to ensure the NEM maintains required security and reliability.

EV welcomes the recognition that greater benefits will come from swifter action and we believe this should be highlighted in the executive summary. It should include the massive benefit/payback of rapid decarbonisation and the system investments that will enable this, noting the high cost of delay in terms of both climate impacts and having to rely on expensive and as yet unproven technologies such as CCS.

The final ISP could also be strengthened by providing guidance on whether scenarios meet the Paris Agreement goal to keep global emissions under 2 degrees while aiming for 1.5 degrees.

Given the recent ASX announcement from AGL that they intend to continue running their last coal power station until 2045 – well outside the optimal 'Step Change' scenario – the ISP should also quantify the risks of coal power stations remaining in the power grid past the closure dates

expected by technology trends and market conditions. This should include risks to system security and prices from keeping old, inefficient and unreliable generators in the grid.

At the same time, more recognition of global trends and their influence on Australian trends that impact the NEM are important. While Australia generally remains more loosely linked to global markets and trends than other OECD nations, at least a qualitative discussion will highlight for decision makers across the NEM the impact and importance of accounting for the impact and influence of global trends.

This is particularly important for the role of gas in firming renewables as the historical trends suggest storage technologies will quickly become cost and performance competitive to provide this firming role, and should be considered ahead of gas-powered generation.

## MORE DETAILED FEEDBACK

### (a) The importance of rapid decarbonisation of the NEM

EV welcomes and appreciates the draft ISP's highlighting of the magnitude of the task to decarbonise the NEM, as well as the importance of doing so and the pace required. Australia has long lagged behind most other industrialised nations' progress towards curbing power sector pollution and securing a clean, decarbonised future. Given this necessary pace to catch up, and that power generation is still responsible for the largest fraction of Australia's climate pollution, reliable system planning guidance has never been more important.

#### ISP, NEM decarbonisation, and the Paris Agreement

One additional way the ISP could contribute both to the NEM's rapid development and to Australia's commitments under the Paris Agreement is to provide guidance on how various scenarios, sensitivities, and development opportunities do, or do not, contribute to meeting both the Paris Agreement's goal and Australia's national commitment under the Agreement. For example, the final ISP could include a simple graphic that makes clear how large a contribution specific pathways or actions make toward achieving a climate safe future and how much they do, or do not, contribute to Australia's legally binding pledges.

Providing this sort of information would be quite valuable for clarifying the importance and ramifications of the different scenarios and development options.

### (b) Place the net benefits consequences of the scenarios in the executive summary

Table 5, Market benefits of the Draft ODP, makes clear that the net market benefits of more assertive actions taken sooner are significant compared to delayed and weaker action. EV is glad

to see AEMO providing such a clear and succinct table highlighting this important point. However, its current location on p. 57 makes it hard to find and obfuscate its importance.

**A finding this important deserves to be highlighted in the executive summary.**

### (c) Clarify the executive summary language regarding the draft ODP

Similarly, EV welcomes AEMO's in-depth effort to develop candidate development paths and then optimise to the ODP via different methods of least-cost and least-worst-regrets and are glad to see the discussion of critical implications of the draft ODP in the executive summary. As it reads now, though, the major message is obscured between the lines. EV advises tightening this to highlight the overall message: delay on system investments and closure of coal stations means guaranteed increased costs later in one form or another, either through climate damages or through costly asset investments such as mid-merit gas with CCS plus its attendant higher FOM costs.

Sharpening the language will clarify for policymakers and other decision makers the cost of inaction or further delay.

### (d) The importance of global and domestic markets and trends

As written, the ISP draft does make clear to what extent, if any, the models account for the globalised nature of many owner-operators, investors, supply chains, and – perhaps most importantly – trends that impact the NEM. Recognising that by definition a model represents a simplification that cannot include every detail, there are several global markets and trends that should be considered at least qualitatively if not included in quantitative modelling. On the one hand, they likely are impacting costs and prices in Australia, and on the other, global multinational firms and foreign investors have both significant financial investments and decision-making power over NEM components. Given their global nature, they rely on understanding how global trends and markets impact their assets in Australia.

Give more attention to how VRE trends in Australia continue to outpace all expectations and forecasts

One important trend is the capital cost for new VRE. Global costs and prices for PV modules, inverters, wind turbines, and other components related to VRE installations continue to fall. That trend appears set to continue for some time because of technological innovation, market innovation, learning by doing, and economies of scale.<sup>1</sup> The global trend, and its acceleration, almost certainly played a large role in driving down LCOE for VREs in Australia to date, and is

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<sup>1</sup> See, e.g., IRENA's global trends data on total installed costs, capacity factors, and LCOE 2010-2020 at <https://irena.org/Statistics/View-Data-by-Topic/Costs/Global-Trends>, and "Renewable Power Generation Costs in 2020" << [https://irena.org/-/media/Files/IRENA/Agency/Publication/2021/Jun/IRENA\\_Power\\_Generation\\_Costs\\_2020.pdf](https://irena.org/-/media/Files/IRENA/Agency/Publication/2021/Jun/IRENA_Power_Generation_Costs_2020.pdf)>>.

likely to continue playing a role. This may especially remain true for both onshore and offshore wind as their rates of cost decline continue to accelerate while cost declines for PV and concentrated solar appear to be slowing.

The resulting impact can be seen in the global trend of new capacity installations. New installations of VREs have rapidly come to dominate fossil fuelled ones. In 2020, VREs accounted for 91% of all new capacity installed and appear to have increased again for 2021.<sup>2</sup> Recent reports from Bloomberg New Energy Finance and the International Renewable Energy Agency make clear that the trend of falling prices and accelerating investment in and build of new VRE capacity not only continues, it is moving faster than essentially all predictions and forecasts.<sup>3</sup>

Australian trends have followed global ones. The acknowledgement that prior ISP forecasts have fallen well short of the actual trend is important. It may be more important, though, to point out that the steep downward slopes of LCOE curves, especially for wind, suggest that the pace of new builds may continue to outpace predictions for several more years. The International Energy Agency currently expects the pace to accelerate until at least 2026,<sup>4</sup> though IEA has underestimated new renewable capacity installations for roughly 15 years running. The subsection titled “The race to reduce emissions adds to the complexity” on p. 22 addresses these issues to some degree. A more robust analysis and consideration would strengthen this section and the ISP overall.

Explain to what extent global markets and trends are utilised as an input in forecasts

In similar vein, global markets in fossil fuels can impact domestic markets and this context is important for NEM planning and the ISP. In financial year 2019-2020, Australia exported 4,393 PJ of natural gas while all domestic use totalled only 1,647 PJ, and exported 11,088 PJ of coal while domestic use amounted to only 1,707 PJ, or about 15% of exports.<sup>5</sup> While global markets may not control Australian markets, they do impact them. Even as global and domestic consumption of fossil fuels decline as the global energy system transitions, Australia’s energy balance likely will remain tilted toward exports, and thus domestic prices will continue to be influenced by global market prices. For instance, overall, the trend for domestic gas prices continues upward.

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<sup>2</sup> “New Capacity Highlights,” IRENA March 2021.

<sup>3</sup> See, “Energy Transition Investment Trends,” BloombergNEF Jan 2022, and “New Energy Outlook 2021,” BloombergNEF Jul 2021. BloombergNEF data is especially valuable as it is drawn from a nearly complete set of global deal contracts including amount invested and offtake agreement terms such as prices.

<sup>4</sup> “Renewables 2021: Analysis and Forecasts to 2026,” International Energy Agency, Dec 2021.

<sup>5</sup> All data from the Australian Government Department of Industry, Science, Energy and Resources. See <<<https://www.energy.gov.au/data/energy-trade>>> and <<<https://www.energy.gov.au/data/energy-consumption>>>.

This matters for the NEM given electric power production accounts for roughly 27% of domestic natural gas consumption. Thus a decline in gas use within the NEM may not have significant impact on domestic prices, especially if global prices – or least regional ones such as the Japan-Korea Marker – draw producers to liquify and export rather than transport in pipelines.

It is unclear if the modelling accounts for plausible influence of global markets on price. Given these could impact the change in net market benefits within CDPs, and the rate of transition from fossil to renewable based generation, some clarity would be very welcome.

### (e) Accounting for the trend in storage technology performance improvements and cost declines means less need to rely on gas for firming

Section 4.2 notes that “under current assumptions, gas remains the most cost-effective solution, complementing storages, to firm renewables.” While the ISP recognises that this conclusion is contingent upon current assumptions, and other technologies could play the same firming role, the final draft should acknowledge that competing technologies have a good chance of becoming cost and performance competitive as the generation base shifts from fossil to renewable powered.

Like with VRE generation technologies, storage technologies now appear to be on a steep slope trajectory of improved performance and price trends.<sup>6</sup> Historically, as recently as 2012, the industry in Australia saw no significant role for VREs on the grid. Given the trends and history, this section would improve if it gave more details of the current conclusion and provided more specific comments regarding the ongoing trend in storage technologies. For example, if the trends for storage evolve similarly to that of VRE technologies, that will lower needs for gas firming.

### (f) The risks of coal power stations staying in the NEM longer than anticipated vs risk of accelerated closure

While the risk of accelerated closure is important for system operability and strength, as the recent announcement from AGL makes clear, the ISP should acknowledge that operators and governments deciding not to bring forward closure dates also presents a risk.

Namely, the continued operation means ongoing climate and air quality pollution emissions that could increase climate damages in Australia, including to the electricity system, as demonstrated during last year’s flooding at the Yallourn mine and power station, and during previous summer

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<sup>6</sup> See, e.g., Mongird et al, “2020 Grid Energy Storage Technology Cost and Performance Assessment,” Dec 2020. IRENA, “Enabling Technologies: Innovation Landscape,” Sep 2019.

heatwaves that have affected output from older coal-fired generators and posed challenges for transmission and distribution systems. Extreme weather events continue to grow more frequent and severe in Australia. Ongoing climate changes are expected to worsen that trend.

### (g) The importance of AEMO's activities to ensure market rules and regulations

EV welcomes and appreciates AEMO's work with AEMC and ESB to ensure that the 'soft technology' of market rules and regulations continues to innovate to keep pace with the decarbonisation imperative and power technology innovation. The markets were created for the grid of the past. As such, they will continue to slow and frustrate progress toward a dynamic, more valuable, and carbon-free grid. Part of the challenge, then, is to ensure the market rules and regulations innovate to support a rapid transition. AEMO plays an important role in supporting market innovation and should continue its work.

**Thank you** for the opportunity to contribute to this inquiry and we are more than happy to share in more detail our joint experiences engaging with community and industry about the transition to renewable energy in Victoria.

Kind regards,

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