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## Planning for our energy future

*By Melanie Koerner, General Manager System Planning, Reporting and REZ Authorisation*

Australia's energy needs are changing rapidly. Driven by the imperative to reduce emissions and technological innovation, we've commenced the transition to renewables.

In this decade, New South Wales (NSW) will completely transform the way in which it generates, stores, and transmits electricity.

Renewable energy is cleaner and cheaper than fossil-fuel generation, and NSW faces a singular opportunity to leverage its vast potential in solar, wind and other natural energy sources to become a world leader in renewables.

A rapid transition will be necessary to meet this opportunity.

The state's existing fleet of coal-fired generators was planned and built over the course of three decades, but now at least three out of four coal-fired power stations will be progressively replaced in half that time. A strategic and well-planned approach is required to ensure NSW's energy system remains secure and reliable.

The process begins by establishing a plan. These plans are important to help ensure we can respond to emerging changes in the market in the interests of NSW energy consumers

The [Infrastructure Investment Objectives \(IIO\) Report](#) is our plan for meeting NSW's future electricity needs. It sets out a Development Pathway for the next twenty years, and a Tender Plan for the next decade, which commenced with the first tender in Q4 2022. In preparing the report, AEMO Services leverages AEMO's deep expertise in energy market modelling and network planning for the NSW context.

The report identifies the timing and scale for renewable energy generation and storage investment building in flexibility to ensure the interests of consumers are prioritised. It considers both the energy system needs and the value to NSW electricity consumers, which is paramount to the critical decisions we make that will shape NSW's energy future.

We have recently completed the [draft of the 2023 IIO Report](#) for public consultation. The draft report builds on our two previous reports and provides an indication as to the likely infrastructure requirements required to 2030 and beyond to minimise costs for NSW electricity customers.

## Updates to the modelling since our last report

- After 2030, the pathway includes significantly more generation infrastructure to 2043.
- Long-duration storage being delivered later in the 2020s than under the Development Pathway in the 2022 IIO Report reflecting longer lead times for pumped hydro projects.
- Firming infrastructure is consistent with the Development Pathway in the 2022 IIO Report with standalone firming tender required in 2023 to ensure reliability following the announced exit or Eraring coal fired power station in summer 2025/26. No further firming is then required until 2040, when additional firming is forecast to be required to meet reliability needs .
- The draft 10-Year Plan in respect of generation and long-duration storage infrastructure has been updated to set out more regular-sized tenders.

In its [2022 Integrated System Plan \(ISP\)](#), AEMO identified that investment in essential transmission infrastructure (in addition to renewable energy generation and storage) remains the best strategy to deliver affordable and reliable energy, by connecting regions of high potential renewable energy to the load centres. Consistent with this recommendation, the Draft 2023 IIO report considers network infrastructure that may be required to facilitate or otherwise affects the draft Development Pathway. The co-optimisation of the delivery of NSW REZ network infrastructure with the build of generation, storage and firming infrastructure enables AEMO Services to determine a Development Pathway that improves cost outcomes for NSW customers.

In addition to using this co-optimisation to inform the preparation of the draft Development Pathway, AEMO Services provided advice to EnergyCo on the modelled optimal combination and sequence of network infrastructure projects under different conditions for EnergyCo's consideration in developing the upcoming [Network Infrastructure Strategy \(NIS\)](#).

## Providing feedback on the draft 2023 IIO Report

As we prepare to publish the final version of the 2023 IIO Report in December 2023, we welcome constructive and critical input from our stakeholders.

We are hosting public fora during May 2023 and intend to run deep dive sessions in June 2023 based on your feedback regarding topics of interest.

Feedback must be submitted in writing to [iio-report@aemoservices.com.au](mailto:iio-report@aemoservices.com.au) by 30 June 2023

To help guide the preparation of a submission, AEMO Services has compiled the following questions for your consideration:

- Do you consider the four scenarios (see section 5.3) are appropriate for the purposes of this report and provide sufficient insight to AEMO Services in preparing the draft Development Pathway?
- To what extent do you think the draft Development Pathway is likely to deliver value for NSW electricity customers, based on the information provided in this report?

- Do the annual build limits discussed in section 3.3 appropriately reflect supply chain constraints? Are there additional factors or approaches that AEMO Services could consider in seeking to reflect supply chain challenges?
- Beyond the build limits, how should AEMO Services account for risks to the timely delivery of generation, long-duration storage and firming infrastructure?
- Should AEMO Services be considering other factors in determining a Development Pathway?
- In designing the 10-Year Plan, are there other factors that should be considered to ensure AEMO Services can achieve the Development Pathway, and provide certainty to prospective bidders and promote competition?
- Are there improvements that could be made to the VRE lulls resilience assessment method in the 2022 IIO Report, noting the already proposed improvements for the 2023 method section 5.6.2? In particular, does this assessment method:
  - appropriately define VRE lulls?
  - appropriately utilise climate modelling?
  - appropriately assess the resilience of the NSW electricity system?

Submissions need not address every question posed and are not limited to them.

Submissions may be made public or shared with other stakeholders. If you wish for any elements of your submission to remain confidential, please identify them and explain why.

-ENDS-

## About the author

### Melanie Koerner, General Manager System Planning and REZ

Melanie Koerner is responsible for leading AEMO Services' System Planning and Renewable Energy Zone authorisation function.

In this role, Melanie leads the development of Infrastructure Investment Objectives Reports – our blueprint for meeting NSW's future electricity needs and the authorisation of new Renewable Energy Zone transmission infrastructure.

Melanie has joined AEMO Services with twenty years' experience as a consultant, leading transformation in Australia's energy sector, with a focus on policy design, regulatory reform and business case development within emerging and existing energy markets. She has previously worked in a consulting capacity across the sector including for regulated network businesses, energy retail companies, energy market bodies and government.

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