

# Draft 2026 ISP Submission from Malcolm Park

12 February 2026

Dear Daniel,

My name is Malcolm Park, and I have been part of the Power Supply Industry for a very long time – see attached. I am writing to you regarding my concerns with your Draft 2026 Integrated System Plan.

Since the announcement of the proposed Snowy 2 Pump/Storage development in 2017, I have been very concerned with the large number of “mistakes” made by Organisations involved in planning the needed Power System connections – Snowy Hydro, AEMO, Transgrid, EnergyCo and even some of the TNSP’s.

I apologise that this report is so long, but I consider I need to say all that is needed to be said to minimise the lack of reliability of supply in NSW and to minimise the risk of Blackouts in NSW. I would be prepared to discuss any aspect of it with you, if you wish.

The NSW System is the centre of the operation of the National Electricity Market. All other states are virtually connected to it. The **security of the NSW system is vital to the effective operation of the NEM**. Yet **AEMO’s Market Modelling pre the 2024 ISP** did not allow for some existing network constraints within their erroneous market modelling. \_

**All Market Modelling** must be fully checked by your **AEMO Operations Group, Michael Gatt and Darren Spoor**, to ensure the market modelling determinations are realistic and **aligned to the Operational Network** capability. **Clearly that has not been done.**

## Snowy Hydro Snowy 2 announcements

In 2017 the **plans for Snowy 2 was announced**, to be available within about **5 years and at a cost of about \$3B**. This was totally unrealistic. Far more investigation of the condition of the topography associated with the proposed tunnels and site-works was necessary before an announcement of this nature was made public. The final cost for the development of **Snowy 2 is likely to exceed \$12B and will take around 12 years** to be built.

Snowy Hydro also told Transgrid that sometime it planned to duplicate the Snowy 2 works between Tantangara Dam and Talbingo Dam as **Snowy 3**. Consequently, the unnecessary and expensive transmission works from Lobbs Hole to the agreed connection site at Margle **should be adequate for when and if Snowy 3** was built. I consider that a Snowy 3 in that location is totally out of the question. The size of Tantangara Dam and the operating range of Talbingo Dam is totally filled by the pump-storage capacity of Snowy 2. If ever there was to

be a Snowy 3 it should be on the Eastern side of the Great Dividing Range between the much larger Dams of Eucumbene and Jindabyne Dam.

### **Major AEMO System Planning Mistakes in NSW**

**AEMO has made some fundamental Market Modelling mistakes** for the NSW System. It treated the **Newcastle-Sydney-Wollongong Area as a Central NSW region** without considering the existing constraints inside that region. AEMO and AEMO Services assessment for the **Humelink Project** has exposed the NSW system to a significant period of lower system reliability. \_

Every 60-year-old 330kV single-circuit line built on a 60m wide easement is **capable of being rebuilt as a double-circuit 330kV line** on that same 60m wide easement provided that adequate planning covers the **sequencing of those works** to ensure system reliability is maintained. **AEMO's planning process does not provide for that adequate planning process.** The **Sydney Ring South 500kV line** is required to provide adequate security of supply during the line rebuild processes.

Transgrid has purchased some key sites, e.g. **South Creek in Western Sydney** and **Richmond Vale near Newcastle**, and allocated the reservation of some key easements over many years to ensure the continued development of the NSW Power System is achievable. However, the easement for the vital **"Sydney Ring South 500kV line"** has not been secured. AEMO's so called **"Sydney Ring South – power flow control option"** does not work electrically and must be abandoned.

### **Transgrid Planning of HumeLink**

Following the sale of control of the **"Poles-and Wires" in NSW**, the now private company Transgrid offered "Redundancy" to some of the senior planning team. From about 2017, when the Snowy 2 Project was announced, Transgrid appointed some very inexperienced planners to consider how Snowy 2 needed to be connected.

I consider that **Transgrid** made some **fundamental mistakes in planning Humelink**. Firstly, when Humelink was publicly announced in February 2020. Humelink was being planned to have two single-circuit 500kV lines each on 90m wide easements from the Snowy Area towards Sydney. In late 2021 the **Regulator required** Transgrid to use double-circuit lines for the Humelink project. Almost all sections of the **new 500kV double-circuit lines** in Humelink should have been built, where possible, adjacent to existing 330kV lines on widened easements rather than securing new easements and new access routes for new tower sites. Also, Humelink should have always been planned to have a 500kV switching station at the "Tee Point" – now located at Wondalga. It increases the capacity of Humelink and improves the security of supply in NSW. **I am pleased to see this development in the Draft ISP.**

The **500kV line route through the high-altitude Batlow area**, could have and should have, been avoided by the reconstruction of some sections of existing 330kV lines on slightly

widened easements. Additionally, I consider that many of the **key substation sites** now planned in Humelink were not correctly located – **Maragle should have been located some 5km** to the north of the present site at the confluence of the Murray to Lower Tumut line with the Upper Tumut to Lower Tumut line minimising the easement environmental effects associated with The Elliott Way. Also, the **Gugaa site should have been located south of Wagga** to minimise the rebuilding works of Wagga 330kV substation and to properly integrate the connection of **Humelink to EnergyConnect**.

### **Other Planning Concerns in NSW**

I also consider that **Transgrid** made several fundamental errors in the **planning of EnergyConnect**. Buronga should have had a very simple breaker-and-a-half 330kV switchyard with some transformation to 220kV as required. The **phase-shift requirements for connection with the South Australian** should have been established at 275kV near Portland, not at Buronga and the double-circuit line built to the Red Clift's area from Buronga should have been built at 330kV - not 220kV. Renewable Energy Wind and Solar developments in North and Western Victoria should then have been connected to the 330kV system. That 330kV system should then have been extended towards Melbourne by progressively rebuilding 330kV lines predominantly on the easements of existing 220kV circuits.

Other errors in the planning of the NSW system, I consider include connection of the Kurri Kurri gas-turbine power station at 132kV from Newcastle instead of to a short section of double-circuit 330kV line from the No 82 line. Also, I consider the proposal to develop of two 500kV lines to the Central West RE Zone by EnergyCo was excessive – one 500kV line plus some 330kV system developments from Wollar and Mt Piper towards Wellington would have been totally adequate for many years and would have assisted significantly in helping voltage control in the NSW system.

### **Energy Supply of Each State in the NEM**

Politically, it appears to me that each of the 5 States in the NEM is encouraging RE Projects - **Wind, Solar, Hydro and Battery installation**, to be developed within their State to ensure:

- The amount of energy generated by these projects grows to match,
- The amount of energy required to be supplied within their State.

Two States- **Tasmania and South Australia** are very close to achieving that aim. I consider that all other 3 States will continue to follow that aim. The importance of interconnection between States is vital to cover **"Solar and Wind Droughts"** within areas of the State.

For example, duplication of a double-circuit 330kV line between NSW and Queensland would virtually triplicate the capacity of QNI from about 1,000MW to about 3,000MW under normal operating conditions.

### What does AEMO need to provide in the 2026 ISP?

Acceleration of the commissioning of **South Creek 500/330kV substation and the Bannaby to South Creek 500kV line** is vital to minimising this period of lower system reliability and higher regional prices in NSW. Acceleration of these projects should be assisted by utilising the “EII Act” or even “Ministerial Direction”, rather than the more laborious processes under the NER. The route for this 500kV line particularly near the **Western Sydney Airport development area** will have some considerable constraints that need to be finalised as early as possible.

When Snowy2 generation becomes available, expected by 2028/2029, there will be more than **“7,000MW of dispatchable generation”** located in NSW south of Sydney. In addition to this dispatchable generation, **some 1,000’s of MW of wind and solar generation** could be available as well as **possible transfers from South Australia and/or Victoria**. The capacity of the network for this generation reaching Sydney is **limited to about 2,600MW – as it has always been for the last 50 + years**.

It is now virtually impossible to secure any routes for new major transmission lines in the Newcastle/Sydney/Wollongong (NSW) area. All additional capacity in that region must be provided by the rebuilding of existing lines – 330kV or 132kV. Particularly the reconstruction of single-circuit 330kV lines to double-circuit configuration on the same 60m wide easement. Transgrid now has comprehensive plans to cover this NSW region, but key outages needed for rebuilding some 330kV single-circuit lines **cannot commence prior to the commissioning of “Sydney Ring South”**.

I consider Transgrid now has a team of very experienced planners who have developed a detailed sequence of rebuilding 330kV lines and inner-metropolitan cables in the Newcastle/Sydney/Wollongong region. Also plans for the new Bulk Supply Points and 330kV switching stations required to adequately connect the new circuits are now in place. However, some of these critical works cannot commence until the **Southern Sydney 500kV Ring** is completed and in service.

### In conclusion

There is no doubt that all the coal fired power stations in NSW will be closed within about 10 years. No black coal generating unit in Australia has been serviceable for more than 50 years. Vales Point units turn 50 in 2027/8. Eraring in 2031/34 and Bayswater in 2034/35 and Mt Piper will have increasing coal supply issues by about that same time.

Recent load growth projections, particularly associated with “Data Centre” developments within the Sydney area, has now increased energy and demand forecasts by the DNSP’s.

The importance of connecting all available and developing Hydro, Wind and Solar generation to NSW and the Sydney area is urgent and paramount.

The connection of the full Snowy 2 output to be available to Sydney requires the accelerated commissioning of **South Creek 500/330kV** substation and advancing the commissioning of the **Bannaby to South creek 500kV double-circuit line**. (as I have mentioned above)

Major changes to the Governance of Power System Planning in NSW at this vital time of transition to predominantly **RE Supply and storage** must not ignore the sound past of the **Transgrid experience planners**.

I am prepared to discuss this response to the **Draft ISP** if you wish.

I would be pleased to bring you my copy of Bob Booth's book "**Waring Tribes**" to our meeting.

Kind Regards,

Mal Park



## SUBMISSION ATTACHMENTS

### My Background

I joined the ECNSW as an **Apprentice in 1959** and later became an **Electrical Fitter, a Testing Technician, a Technical Officer** and then an **Engineer** in various roles. I retired formally from Transgrid in 2007 as the **Executive Manager Strategic Network Development** - 48 years + after joining the ECNSW. Since that time, I have acted in consultation roles with the **NSW Treasury for 10 years**, the AEMC and others for 3 years and then **Transgrid from 2021 to 2025**.

My first role in Power System planning commenced in 1966. As a technician managing the ECNSW's **Analog Network Analyser** pre digital computing systems being developed to do Load Flow, Fault Level or Transient Stability studies. Eventually, in the early 1970's, digital computing programs became more capable and took over these important Planning tasks. I stayed in Planning and Operational roles in the ECNSW until the early 1980's.

In 1984 I was Seconded to the SMHEA to the role of **Regional Engineer Murray**. This was a position on the Executive of the SMHEA and managed all aspects of the Murry Region – 1,500MW of hydro generation, major dams, tunnels, pipelines, switchgear and transmission lines in the region as well as access tracks and Khancoban township services.

In 1988 I was recalled to the ECNSW as **Regional Transmission Engineer Yass** and then in 1990 I was appointed to the role of **Manager Wallerawang** – 1,000MW coal fired power station for almost 7 years. Then to the role of **Executive Manager Development / Delta Electricity** and eventually to **Executive Manager Strategic Network Development** for

Transgrid up to 2007. Through this period, I was also the NSW representative on the IRPC (Inter-Regional Power Committee).

My 10 years consulting with NSW Treasury from 2007 included:

- Assisting Treasury to write the Owen Report – **Inquiry Into Electricity Supply in NSW,**
- Sale of the **Electricity Retailers in NSW,**
- Sale of the **NSW Power Stations,** and
- Sale of control of about 50% of the **NSW Poles and Wires** in NSW – I was the only technical person on that **Steering Committee** headed by The Secretary of the NSW Treasury.

#### **Key Facts regarding Power System Planning in NSW**

- The reliability of supply in NSW has been the **“envy” of most power systems in all other states in Australia** and by most power systems around the world. In the late 1990’s, I was traveling in Italy when the whole of Italy was “Blacked out” for almost a full day – a very difficult circumstance that must be avoided at all costs.
- The last major **State-wide interruption in NSW was 62 years ago in 1964** when a fault at 330kV on Line 11 from Dapto to Sydney South, was not cleared due to a wiring error in its protection system. The fault occurred close to midnight and the majority of load in NSW had been restored by 7.00am. Many people, as they awoke, did not realise that this major outage had occurred.
- ECNSW (Transgrid) Planners have been responsible for planning the NSW power system since the early 1950’s when the ECNSW was established. Initially the development of a 132kV system was constructed, to connect all existing and developing power stations to major metropolitan and regional loads, to **“Stop the Blackouts in NSW”** that had been occurring during the late 1940’s and 1950’s.
- In the **mid-to-late 1950’s, these planners selected 330kV** (not 275kV or 400kV) as the system voltage for connection of the SMHEA (planned Snowy generation) to the **ACT, Sydney and Melbourne**. In the 1960’s/1970’s the design and construction of that 330kV network was completed from Snowy to Sydney and it still exists almost unchanged today.
- The capacity of the 330kV system was designed to match the **“ownership and capability allocation”** of the planned SMHEA of 3,660MW of generation capacity **“13% to the ACT, and the remaining 87% split 2:1 NSW:Victoria”**. This resulted in a 330kV network capacity of **2,600MW northward** towards the ACT and NSW and a 330kV network capacity of **1,060MW** being planned to Melbourne.
- Progressively the 330kV Network was extended to establish **three major substations to supply Sydney** and the 132kV distribution network and eventually to connect the **new Vales Point power station and Newcastle** using single-circuit 330kV lines on **60m**

**wide easements.** By the mid 1960's it was then planned to connect the **new Munmorah power station to the 330kV network** by the construction of the first double-circuit 330kV line to Sydney on a **60m wide easement.**

- In the early 1970's the next double-circuit 330kV line was built **from Liddell to Sydney** to secure the connection of the new Liddell 2,000MW power station. By the mid 1970's additional double-circuit 330kV lines were built from **Wallerawang to Sydney** and from **Vales Point to Newcastle** to connect the expanded Wallerawang and the extended Vales Point power stations to the 330kV system.
- There are now **about 50, 330kV substations in NSW** developed for generation connection and for Bulk Supply Point connections to DNSPs. This continues to become a key role for the 330kV system to minimise the number of costly 500kV substations. The NSW 330kV system has been **very reliable and relatively a strong and adaptable system for the last 60 years.**
- The 330kV system has been **“overlayed” appropriately by 500kV lines** that strengthen segments of the 330kV system when appropriate. The strategic planning and foresight of the initial ECNSW/Transgrid Planners has ensured that the NSW power system remains resilient, adaptable, and capable of meeting the growing energy demands of NSW.
- **Development of the 500kV System in NSW**
- **During the late 1970's** a major long-term plan was undertaken to assess if NSW could continue with 330kV development for at least the next 30 years or would a higher voltage (500kV or 750kV) be more appropriate. The selection of 500kV was the outcome of this study because it limited the need to only two new routes into the Sydney Basin – 330kV and 750kV required more routes into Sydney. **The NSW “500kV Ring” was planned to be progressively built.**
- The **first 500kV double-circuit line on a 70m wide easement** was then planned and built from **Eraring to Kemps Creek in the early 1980's** to match the commissioning of Eraring power station. By the mid 1980's, the next part of the planned **“NSW 500kV Ring”** was then built from Bayswater to Mt Piper for the commissioning of Bayswater power station and by 1992 the Mt Piper to Marulan section of the **“500kV Ring”** was built for the commissioning of Mt Piper power station. Both these 500kV lines initially operated at 330kV for 20 years and 15 years respectively to minimise and delay additional costs.

### **System Planning Development in Victoria**

The planning “errors” in Victoria go back many more years than in NSW.

After the connection at 330kV to provide their allocation of the SMHEA capacity to Melbourne had been built, the **State Electricity Commission of Victoria (SECV) in the 1970's** decided to upgrade their system from 220kV to **500kV not 330kV, as NSW had done.**

Victoria had lower system load than NSW and shorter distances from Power Stations to major loads than in NSW.

In the **early 2000's**, the IRPC of which I was the NSW representative, showed that at **no time had any 500kV circuit in Victoria ever operated above about 1,000MW** – certainly within the capability of a 330kV circuit.

**Victoria has a 330kV system operating at 500kV.**

In his book “**Waring Tribes**”, **Bob Booth** – once the head of System Planning in Victoria totally agreed that **Victoria should never had adopted a 500kV** system voltage. Up to today (2026) I am sure that still no 500kV circuit has even been loaded above the capacity of a 330kV circuit.

Adopting the change to low-capacity-factor, RE Generation at many sites across Victoria will continue to reduce the loading in 500kV circuits. Even with the knowledge of this matter, I **cannot believe that AEMO continued to plan to extend the Victorian 500kV system and propose VNI West.**

**VNI West is an 800km long 500kV double-circuit line from Melbourne** travelling out towards and through western Victoria and then **to near Wagga in NSW**. It then needs to be **series-compensated so that it does take some loading** and adequately share with the existing 330kV link. Nowhere in the world have I ever seen a major 500kV line built and then need to be compensated to share loading adequately.

All System expansion to the north of Melbourne and from North/Western Victoria, I consider should have been developed via double-circuit 330kV lines on, or adjacent to public owned lands near the Hume Highway/Railway line from Albury, or by rebuilding some existing 220kV lines predominately on existing easements. I consider that System Operators and System Planners for at least the next 50 years, or more, will continue to curse this very expensive VNI West Project. **Big Mistake!**