

Maintaining Reliable Supply to the Bathurst, Orange and Parkes areas RIT-T – Project Assessment Draft Report

April 2022



**CENTRAL NSW
JOINT ORGANISATION**

Bathurst
Blayney
Cabonne
Cowra
Forbes
Lachlan
Oberon
Orange
Parkes
Weddin



Central NSW
Joint Organisation

PO Box 333

Forbes NSW 2871

Phone: 0428 690 935

Email: jenny.bennett@centraljo.nsw.gov.au

Website: www.centraljo.nsw.gov.au

Chair Cr Kevin Beatty, Mayor, Cabonne Council

7 April 2022

Reference: jb:kb 220407
Enquiries: Ms J Bennett: 0428 690 935

Transgrid
Project Assessment Draft Report - Central West NSW
180 Thomas Street
Sydney NSW 2000
Regulatory.Consultation@transgrid.com.au

To whom it may concern,

Re: PADR Maintaining Reliable Supply to Bathurst, Orange & Parkes areas.

Local Government Regional Joint Organisations (JOs) were proclaimed in May 2018 under the NSW Local Government Act 1993. The Central NSW Joint Organisation (CNSWJO) represents over 200,000 people covering an area of more than 50,000sq kms comprising the Local Government Areas of Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Oberon, Orange, Parkes, Weddin, and Central Tablelands Water.

Tasked with intergovernmental cooperation, leadership and prioritisation, JOs have consulted with their stakeholders to identify key strategic regional priorities. The CNSWJO Strategic Plan can be found here: <https://www.centraljo.nsw.gov.au/content/uploads/FINAL-Statement-of-Strategic-Regional-Priorities.pdf>

The Central NSW Joint Organisation thanks you for the opportunity to make comments on the TransGrid on its RIT-T process for maintaining Reliable Supply to Bathurst, Orange and Parkes areas, we understand that the TransGrid must;

- Consider network and non-network solutions
- Inform stakeholders
- Test the market for alternate efficient solutions
- Explain to stakeholders
- The basis on which the preferred option has been selected

A recent environmental scan of strategies has identified significant opportunity for development as a result of endowments in region such as;

- critical minerals,
- the Parkes Special Activation Precinct
- The Central West and Rana Renewable Energy Zone; and
- Inland Rail.

The Central NSW JO speaks for over 157,000 people covering an area of more than 47,000sq kms comprising of Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Oberon, Orange, Parkes, and Weddin.

64,000 jobs are anticipated in region just for the construction task over the next 5 years and this is on top of the population drift to regions as a result of Covid. In February of this year there were 71,000 jobs advertised in regional Australia where the most substantial growth is in communities proximal to capital cities. Central NSW is proximal to Canberra and Sydney.

Further, policy at the Federal level for national manufacturing independence will see more energy requirements for industry as well as population.

This region is particularly concerned that we have the energy security for our anticipated growth across the region where it would appear that the advice in the Project Specification Consultation Report (PSCR) has not been reflected in the Project Assessment Draft Report (PADR). In contrast – it is highly likely given the advice above, that the growth assumptions in the PADR for the eastern part of the region for both industry and population are underestimated.

New network lines suggested in the PSCR were all from Orange to Parkes (including a 330kV option), however in the PADR any new line proposed is from Wellington to Parkes – and a 330kV option is not included. Further, the 330kV Orange to Parkes option in the PSCR **included** a 330kV/132kV substation at Parkes which is a substantive portion of the cost ie the option of a 330kV line only (operating at 132kV) is not canvassed in the PADR.

Arguably, upgrades are being cut to cloth to fit a budget and now focussing on the Renewable Energy Zone rather than providing the energy security the region needs.

Please see the attached for more detail and references.

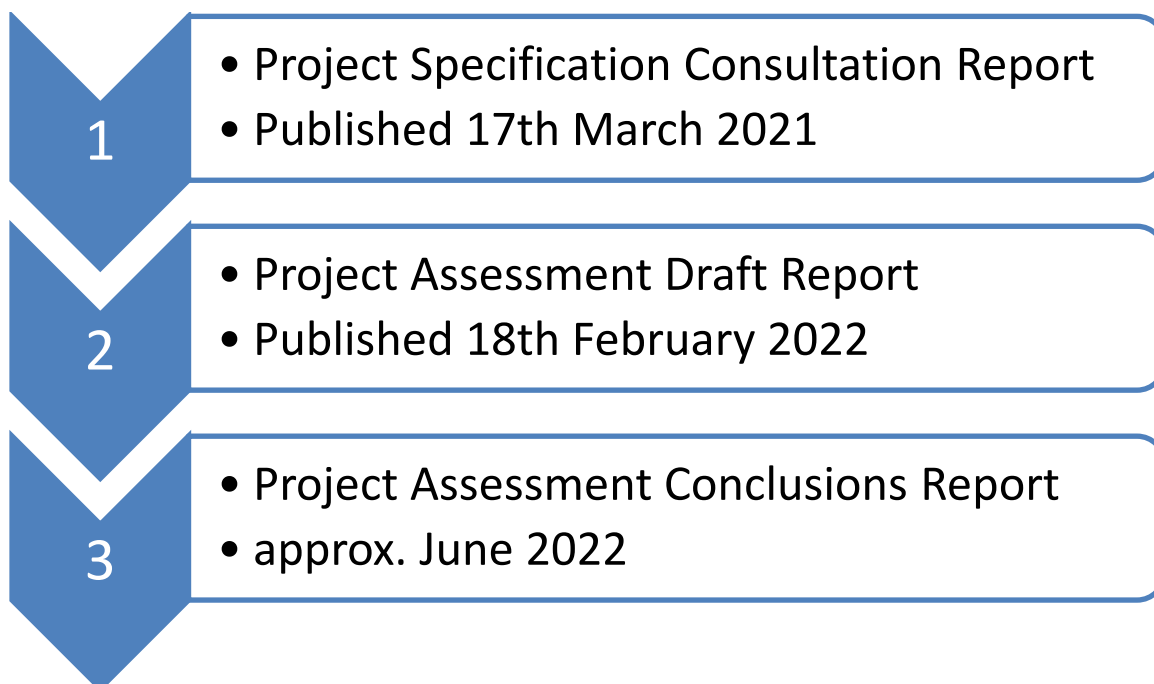
Should you wish to discuss any matters raised in this response please do not hesitate to contact me on [REDACTED] or email me on [REDACTED]

[REDACTED]
Jennifer Bennett
Executive Officer
Central NSW Joint Organisation (CNSWJO)

1.0 SUMMARY

TransGrid (the NSW Transmission Network Operator) is currently going through the Regulatory Impact Test – Transmission (RIT-T) as required by the Australian Energy Regulator (AER) for maintaining a reliable electricity supply to the Bathurst, Orange and Parkes areas.

Briefly, this RIT-T process timeline is as follows:



TransGrid must:

- Consider network and non-network solutions
- Inform stakeholders
- Test the market for alternate efficient solutions
- Explain to stakeholders
- The basis on which the preferred option has been selected

The project is **currently at Stage 2** – with submissions invited on the Project Assessment Draft Report (PADR) before 7th April 2022

2.0 ABBREVIATIONS

AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
BESS	Battery Energy Storage System
BEV	Battery Electric Vehicle
CNSWJO	Central NSW Joint Organisation
DAPR	Distribution Annual Planning Report (prepared by Essential Energy)
EOI	Expression of Interest
EV	Electric Vehicle (includes BEV's, PHEV's and FCEV's)
EVE	Expected Unserved Energy (used for valuing unreliability)
EY	Ernst and Young
FCEV	Fuel Cell Electric Vehicles
LDC	Load Duration Curve
PACR	Project Assessment Conclusions Report
PADR	Project Assessment Draft Report
PHEV	Plug-in Hybrid Electric Vehicle (has an internal combustion engine)
PSAP	Parkes Special Activation Precinct
PSCR	Project Specification Consultation Report
NEM	National Electricity Market
NER	National Electricity Rules
REZ	Renewable Energy Zone
RIT-T	Regulatory Impact Test – Transmission
SAP	Special Activation Precinct
SIP	System Integrated Plan (prepared by AEMO)
SVC	Static Var Compensator
TAPR	Transmission Annual Planning Report (prepared by TransGrid)

3.0 COMMENTS ON THE PSCR

The following comments relate to the March 2021 Project Specification Consultation Report (PSCR) – and changes made in the subsequent PADR now issued for submissions.

1. The PSCR referred to emerging Voltage and Thermal constraints in the Bathurst, Orange and Parkes areas – but following revised load estimates, the PADR now only refers to Voltage constraints.
2. Neither the PSCR or the subsequent PADR details if the constraint is voltage above 10% nominal (eg under high solar generation and low load conditions) or voltage below 10% nominal under foreseeable conditions (eg loss of a major line at times of high load and low regional generation). It is possible/likely that **BOTH** the above constraints exist, requiring ‘strengthening’ of the electricity supply network – particularly to Parkes.
3. The PSCR states the Parkes Special Activation Precinct may add between 60 to 94 MW of load (no specific figure is included in the PADR).
4. The PSCR mentions the new McPhillamys mine at Blayney and the Sunrise mine near Fifield – but no specific new mines are mentioned in the PADR.
5. New network lines suggested in the PSCR were all from Orange to Parkes (including a 330kV option), however in the PADR any new line proposed is from Wellington to Parkes – and a 330kV option is not included.
6. The 330kV Orange to Parkes option in the PSCR **INCLUDED** a 330kV/132kV substation at Parkes which is a substantive portion of the cost ie the option of a 330kV line only (operating at 132kV) is not canvassed.

4.0 KEY NOTES ON THE PADR

Page	Comment
4	The project is required due to “voltage constraints in the 132kV network” without stating if the problem is high volts or low volts (or both) under various contingencies.
5	Four (4) new options have been added for a total of seven (7) options, some of which have multiple sub-options (eg four sub-options under Option number 7.) The new transmission line options are now all from Wellington to Parkes rather than Orange to Parkes in the PSCR.
7 & 8	Multiple options include a BESS, and the four under Option 7 would be provided by third parties meaning local jobs in operations and maintenance (in addition to the NEM market benefits). Similarly, Options 7a and 7b include a Solar Farm at Parkes, providing local construction jobs and ongoing jobs in operations and maintenance.
9,10	All of the sub options in Option 7 bring similar financial benefits, with Option 7D marginally favoured (by TransGrid).
17	Confirms no thermal constraints in the forecast period of this RIT-T
18	Figure 2 confirms most of the forecast load growth is in the Parkes area
19	Orange Voltage limit is 310MW (straight line without explanation)
20	Parkes Voltage limit is around 100MW (straight line without explanation)
23	Confirms a 132kV line from Wellington to Parkes is ‘lower cost’ than Orange to Parkes. Confirms a 330kV Option is not progressed in the PADR.
57	Confirms Options 7A, 7B, 7C and 7D are not materially different – even though Option 7D is nominated as preferred (by TransGrid).
71,72	Confirms the “Progressive Change” scenario from AEMO has been used for modelling the World View. (eg gas prices etc)

5.0 WELLINGTON TO PARKES LINE OPTIONS

Multiple options (including the favoured option, and the lowest cost network option) involve a single circuit 132kV transmission line direct from Wellington to Parkes. However, there are multiple variations for such a line including the route, construction voltage and possibly whole (or part) dual circuit 132kV. Significant additional future capacity could be accommodated for marginal additional cost, along with 'linkage' to the Orana Renewable Energy Zone (REZ).

The Orana REZ involves extension of the 330kV network westward – not only to accommodate additional renewable generation – but to strengthen the electricity transmission network generally (voltage, reliability, load capacity, N-1 contingencies etc.). Extending the 330kV network to either Narromine or Parkes with a 330kV line (initial operating at 132kV) offers significant advantages much wider than the Bathurst/Orange/Parkes.

A 132kV line from Wellington to Parkes via Toongi and Narromine Switching Station would offer N-1 support for existing 132kV lines 94F, 94J and 943/2.

A selection of sub-options additional to the current Option 3 is presented in the Table below:

Option	Description	CAPEX M\$
3	Wellington to Parkes 132kV - single circuit, direct route	121
3a	Wellington to Parkes 132kV – single circuit via Toongi, Narromine Switching Station then South to Parkes	?
3b	Wellington to Parkes 132kV – dual circuit via Toongi to Narromine Switching Station, then single circuit South to Parkes	?
3c	Wellington to Parkes 330kV operating at 132kV – direct route	?
3d	Wellington to Narromine 330kV operating at 132kV, then 132kV South to Parkes.	?

6.0 COMMENTS ON THE AEMO MODELLING SCENARIOS (used by TransGrid)

The underlying modelling used by TransGrid is based on the “Progressive Change/Steady Change” scenarios in AEMO’s Integrated System Plan (ISP) and related documents/forecasts.

The continuing COVID pandemic (virus variants) – and the War in the Ukraine (February 24, 2022) – have already had immediate impacts on both Domestic and International markets (oil and gas in particular) – that may extend to the medium term (or longer). International Freight has also been disrupted – and costs have increased – increasing the costs of all imported goods. Shipping delays are also occurring – giving rise to long wait times for imported goods such as motor vehicles). Federal policy on both side of government and in the recent are progressing manufacturing independence.

Therefore, the “Progressive Change/Steady Change” assumptions are already being challenged – and some of the “Step Change” scenario elements may be more appropriate for this PADR.

In years past, AEMO has included a “Fortress World” scenario (based on World Conflict, increased defence budgets, immigration limits etc.) – and elements of a “Fortress World” may emerge from the Ukraine conflict as 10 million refugees seek safe havens.

With respect to this Bathurst/Orange/Parkes PADR, some specific “Step Change” impacts are as follows:

The Central NSW JO speaks for over 157,000 people covering an area of more than 47,000sq kms comprising of Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Oberon, Orange, Parkes, and Weddin.

1. Increased Regional population growth as individuals and businesses seek to leave the metropolitan areas for a rural/regional lifestyle, lower housing costs etc.
2. Residential Fuel Switching (from gas to electricity) as gas prices rise – due to Australia being linked to the World gas price through its LNG exports (unless Governments intervene with a gas reservation scheme). Replacement of gas HWS with Solar HWS may have minimal electricity demand impacts – but switching from gas to electric cooking and room heating may have significant demand impacts in Regional towns and cities.
3. Increased interest in Electric Vehicles purchase (due to high fuel prices) – refer following quote from “The Driven” – March 22nd 2022.
 “Hyundai says dealers are reporting a big increase in EV enquiries, up to 20 per cent in some areas. ‘At showroom level, there is plenty of interest and much more chat from people who were there to look at ICE vehicles,’ a spokesman said.”
 Another quote from Kane Thornton, CEO of the Clean Energy Council – 28th March 2022 follows :
 “The war in Ukraine and Russian sanctions have created a global energy crisis, with most countries responding by accelerating the shift to electrification, particularly in the transport sector.”
 Demand for Electric Vehicles is outstripping the available supply – particularly for the new Hyundai Ioniq 5 and Kia EV6, the first vehicles to include ‘vehicle-to-load’ capability.
4. Accelerated interest in Hydrogen and the associated hydrogen economy – due to rising oil and gas prices.

In conclusion, and as stated by Robyn Denholm, Chair of Tesla, in a Webinar in mid 2021, major World disruptions (such as a Pandemic or War) often accelerate technological change/disruptions as individuals and businesses seek to survive/prosper under the new paradigms.

7.0 COMMENTS ON THE PARKES SPECIAL ACTIVATION PRECINCT (PSAP)

The promotional material for the PSAP refers to “100MW of available capacity in the electricity supply network.

The PSCR states the PSAP may add between 60MW and 94MW of load. To develop the Parke SAP to its potential surety of electricity supply is required.

Both of the above statements relate to transformer and/or line capacity – and not any voltage limitation which is the purpose of the RIT-T currently underway.

Announced projects for the PSAP so far are as follows:

1. BRIGHTMARK Plastics Recycling – a M\$260 project with 100 jobs – construction to commence 2023 and Operational in 2025.
2. Pet Food manufacturer – a M\$23 project in Brogan Road.
3. Leading Edge Data Centre.

At the moment, potential developers are not given energy assurance, rather, it is a case of “first in best assured.”

There is also a proposal by NEOEN for a 120MW Wind farm near Alectown, that would connect to the existing 132kV Wellington – Manildra – Parkes transmission line.

The following is taken from their website;

The Central NSW JO speaks for over 157,000 people covering an area of more than 47,000sq kms comprising of Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Oberon, Orange, Parkes, and Weddin.

“The Alelectown Wind Farm will be located approximately 7.8 km east of Alelectown, 7.3 km south-east of Trewilga, 22 km north-east of Parkes and 15 km south east of Peak Hill, within the Parkes Local Government Area (LGA).”

8.0 CONCLUDING COMMENTS FROM CNSWJO ON THE PADR

No.	Comment	Benefits
1.	Of the seven (7) options and associated sub- options, CNSWJO favours Options 7A or 7B (rather than 7D as per the PADR). This is because 7A and 7B both include a Solar Farm (in addition to a BESS) thereby creating addition jobs in the Parkes area. The PADR states there is no material difference between all the sub options (7A, 7B, 7C & 7D) in terms of net market benefits	Solar farms provide construction jobs and ongoing maintenance and operations jobs. Solar farms provide local generation, reducing network losses.
2.	With regard to a new Transmission Line between Wellington and Parkes, CNSWJO favours building a line with future expansion in mind. This could involve double circuit 132kV construction (whole or part) and several route options. Alternatively, a 330kV line from Wellington to Parkes or Wellington to Narromine (that operates initially at 132kV) would complement the Orana REZ and strengthen the Central West electricity network by extending the 330kV network further west. (please see earlier table in Section 5 for Line and Route Options 3a, 3b, 3c and 3d).	A line built at 330kV (but initially operated at 132kV) provides future capacity and effectively extends the Orana REZ further westward. A new line via Narromine offers capacity, voltage and reliability benefits to the Central West network, as well as the Parkes region.
3.	CNSWJO believes that some of the modelling assumptions used by TransGrid (from the AEMO scenario for progressive change) need to be revisited in light of recent World events – and that “Step Change” may be more appropriate in regard to:	See below for detail:
3a.	Actual regional population growth must be used in modelling. ABS data from the Census will be well out of step with lived experience when it is provided in June of this year given structural changes associated with Covid. It is important that any modelling for this region reflects the following: <ul style="list-style-type: none"> 64,000 jobs¹ for just the construction task are anticipated in the Central West and Orana Region over the next 5 years; and The great regionalisation- over 71,000 jobs advertised in regional Australia where the vast majority of these are within 3 hours of a capital city. CNSWJO is proximal to Sydney and Canberra². 	Conservative population modelling reflecting the likely growth will ensure more likely scalable and futureproof infrastructure.
3b.	Residential fuel switching from gas to electricity (due to increasing gas prices) including Solar HWS.	Lower carbon footprint where renewable energy is used. All electric households have lower energy bills once appliance conversion is complete.
3c.	Transport Electrification (due to high oil prices)	Improved fuel security Less tankers on roads

¹ Western Research Institute “Region Shapers Report” 2021

² <http://www.regionalaustralia.org.au/home/forget-the-great-resignation-the-great-regionalisation-is-the-shakeup-australia-needs/>

The Central NSW JO speaks for over 157,000 people covering an area of more than 47,000sq kms comprising of Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Oberon, Orange, Parkes, and Weddin.

		<p>Lower carbon footprint</p> <p>Low operating cost of EVs</p> <p>Health benefits</p> <p>Smart charging opportunities eg 'solar soak'</p>
3d.	Accelerated interest in the Hydrogen economy (due to high oil and gas prices)	<p>Improved fuel security</p> <p>Less fuel tankers on roads</p> <p>Lower carbon footprint (for green hydrogen)</p> <p>Export opportunity</p>
3e.	Likely growth in manufacturing in region building on Federal government policy for manufacturing independence.	Ensuring scalable energy supply will enable sustainable development.