

26th October 2022

Transgrid's Regulation Team
180 Thomas Street
Sydney NSW 2000

Lodge via email to: regulatory.consultation@transgrid.com.au

Re: TransGrid RIT-T PSCR for “Increasing capacity for generation in the Molong and Parkes area”

To whom it may concern,

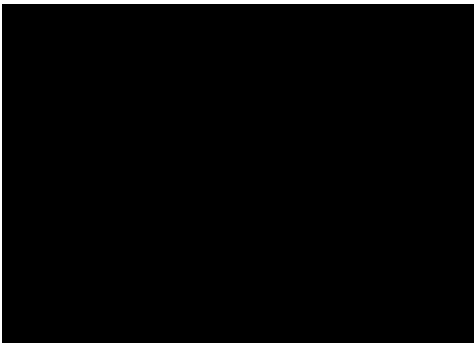
Please accept this letter as a submission for the “Increasing capacity for generation in the Molong and Parkes area” PADR.

Amp Power Australia (Amp) welcomes the opportunity to make this submission to Transgrid's RIT-T Project Specification Consultation Report for Transgrid to take into account for the Molong and Parkes area network upgrade.

In relation to the credible network options selection, we support Option 2 which is restringing Line 94T with a higher rated conductor on existing structures to increase the 94T line thermal rating by 38 MVA. Please find details of our analysis and reasoning for supporting Option 2 attached in the following pages of this cover letter.

Please contact me for any clarifications.

Kind Regards,



Amp is a global developer, owner and operator of flexible clean energy infrastructure with headquarters in Canada, and operations across Australia, Europe, North America, Japan and India with over 7+ GW of generation built and under ownership globally. In Australia’s Amp’s NSW operation assets include Hillston Solar Farm (85MWac) and Molong Solar Farm (30MWac).

Amp wishes to provide a letter of support for Option 2 presented in Transgrid’s Credible Network Options recommendations.

Transgrid’s PSCR and Amp’s support for Option 2

Amp supports the Transgrid’s RIT-T PSCR which proposed the credible options and non-network options to improve the system's net market benefits. Amp endorses Option 2 which increases the summer daytime thermal rating of Line 94T from 112 MVA to at least 150 MVA by restringing Line 94T with a higher capacity conductor.

Amp suggests Option 2 is preferable as it facilitates all NEM stakeholders to effectively achieve the National Electricity Objectives (NEO), which aim *“to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to:*

- price, quality, safety and reliability, and security of supply of electricity
- the reliability, safety, and security of the national electricity system”¹

Promoting Transgrid’s investment

Amp supports Option 2 of Transgrid’s recommendations as it provides Transgrid monetary benefits on a long-term basis. Option 1 is not preferred as an increase of the line rating by 13MVA outlined in Option 1 is insufficient for generation and load growths in the region, meaning additional augmentation would be required

A 120 MW increment in the summer peak demand was forecasted for the "Central West" 132 kV network area (including Orange/Panorama and Parkes areas) in the next 3 years². Notably, AEMO’s summer high snapshot has shown that the Orange/Panorama area was mainly supplied by the Molong substation via line 94T (92.5MW/208MW ~ 44% of the total load). With the addition of 40MW to the summer peak demand expected in the next 3 years (shown in Figure 1), the 13MVA increment in thermal rating line 94T is unlikely to be capable of delivering the power flow generated by existing generators, mostly located in the north and north-west of the region, meaning the congestion issue would not be resolved under Option 1. With a further 323 MW of generation committed², congestion will deteriorate with significant generation curtailment expected.

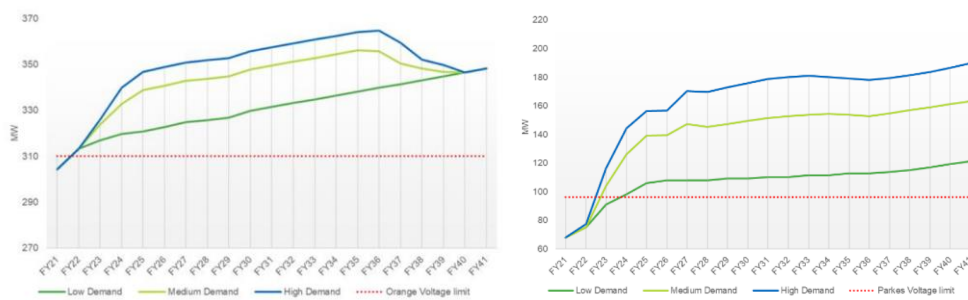


Figure 1. The summer peak demand in the Orange/Panorama (left) and Parkes (right) areas³

Promoting Generators’ investment

From the economic perspective, the RIT-T Project Specification Consultation Report published by Transgrid indicated over 7 months (November 2021 to May 2022) an estimated \$AUD 19,176,351 has been lost by generators over 1,135 hours of curtailment (approximately 45% of the generation duration). Although we understand the

¹ AEMC, National Electricity Law (NEL), Section 7

^{2,4} Increasing capacity for generation in the Molong and Parkes area | RIT-T Project Specification Consultation Report

³ Maintaining Reliable Supply to the Bathurst, Orange and Parkes areas | RIT-T – Project Assessment Draft Report

implementation of Option 2 might not completely remove the curtailment risk, a substantial generation capacity would be relieved from the congestion if Option 2 was selected.

Comparing the revenue losses with the investment cost of 7.5 (+/- 25%) million dollars for 38 MVA network rating upgrades⁴, Option 2 is a more cost-effective investment to improve system net market profits. From the technical perspective, the N>NIL_94T constraint equation shows a number of generators that have been impacted by the congestion at line 94T (see Figure 2).

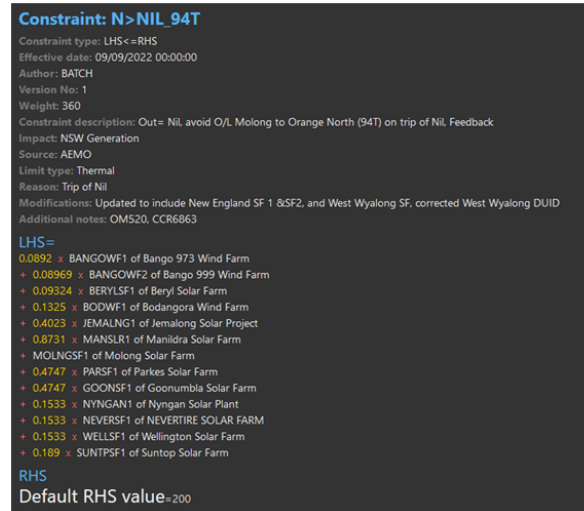


Figure 2. The N>NIL_94T constraint shows a number of generators that were impacted

Amp’s database revealed there were historic periods where hundreds of MW of renewable generation has been curtailed in the region. For instance, on the 19th of November, 3 solar farms (Molong, Suntop 1, and Manildra) were ramping down to 0 MW during mid-day with approximately 230MW curtailed capacity. Despite the negative energy pricing during this period, the setpoint (- LGC price) was not reached, at which the generators reach economic curtailment. The 230MW of curtailed energy was therefore solely due to the network constraint, resulting in a huge revenue loss for these three generators.



Figure 3. The generation profiles of Molong, Suntop 1, and Manildra solar farms from 09/09/2022 to 18/09/2022⁵

⁵ Data source: Dispatch capacity of units, AEMO

Amongst the generators impacted by the line 94T congestion, Molong was the most severely affected (1 on the left-hand side of the constraint equation). Historical data shows Molong has been curtailed to zero for long durations (approximately 6 hours/day on average) during high irradiance in recent months.



Figure 4. The generation profiles of Molong solar farm from 09/09/2022 to 18/09/2022⁶

Promoting efficient use of electricity: affordable and accessible energy supply

Reducing the level of generation curtailment would therefore benefit Transgrid’s energy consumers by providing lowest cost renewable generation. Reducing curtailment would maintain power system security during the generation shortfall periods, as coal-fired generators are scheduled to exit.

⁶ Data source: Dispatch capacity of units, AEMO