

COPPERSTRING 2.0: Submission to AEMO 2022 ISP

11 February 2022

CuString Pty Ltd (CuString), the proponents of the CopperString 2.0 transmission network being developed to extend the national transmission grid across North and North West Queensland and integrate the North West Minerals Province (NWMP) power system into the NEM, appreciates the opportunity to provide a response to the Draft 2022 Integrated System Plan (ISP).

We acknowledge the significant effort by the team at AEMO in creating the documents and engagement with the community in seeking inputs and feedback in an appropriate and effective way.

Overview

CuString believes that the selected Optimal Development Path (ODP) is a rational and appropriate basis on which to plan future development of the National Electricity Market (NEM) power system within notional footprint of the NEM, the boundaries of AEMO's mandate and conventional knowledge of future energy and economic scenarios.

The ISP and the ODP play a valuable role in helping participants in the Australian economy consider future investment and development characteristics in the energy sector, primarily in the NEM-States. Importantly, the ODP cannot bind future decisions as it does not consider all relevant economic, social and national interest factors at play in the NEM jurisdictions or more broadly.

CuString has identified three (3) areas of consideration that should act as caveats to the ODP, and be acknowledged by AEMO, governments and other stakeholders as a limitation to the ISP:

1. The ISP seeks to respond to future macro-economic scenarios rather than be seen as a tool to achieve particular economic outcomes, integrated with national and state economic and environmental objectives.
2. The geographic scope of the ISP and AEMO's mandate operates inside geographic boundaries that exclude important economic, social and energy-resource zones.
3. No organisation, including AEMO, has perfect knowledge and therefore pathways such as the ODP cannot be definitive and should not hinder energy infrastructure investment that relates to social, economic, geopolitical or entrepreneurial drivers that have not been considered despite being rational and desirable.

North and North West Queensland

The Draft ISP focuses on transmission projects which will reinforce or interconnect existing areas of the NEM. What are not considered are projects that meaningfully expand the NEM or other large-scale projects that don't fit into the typical development path for transmission investment.

These projects are often driven by long-term positive economic and social outcomes beyond the singular, electricity market benefit test, to reach least cost of electricity for the existing market.



These projects do not relate to customers and/or energy resources that are within the conventional boundaries of the NEM.

The stated ISP purpose is, "... to establish a whole-of-system plan for the efficient development of the power system that achieves power system needs for a planning horizon of at least 20 years for the long-term interests of the consumers of electricity."

There is a significant group of "consumers of electricity", that:

- currently exist or have strong potential to be developed and make a disproportionately large contribution to Australia's economy **and**
- are within a reasonable (albeit sometimes considerable) distances to be connected to the NEM, **but**
- are not currently connected to the NEM.

The clearest example of this circumstance is North West Queensland, encompassing the North West Minerals Province (NWMP) and an expansive existing power system. This power system supplies over 3 million megawatt hours of energy each year, including very large customers and approximately 20,000 citizens.

While it is appropriate the ODP does not consider this regional economy or these customers, nor the mineral and energy resources contained in the NWMP, the exclusion of this area from the ISP should be noted as an important caveat. It is a natural limitation of the ISP by design, it is not a failure of the ISP process or AEMO.

The corridor between Townsville and Mount Isa, celebrating 100 years of mining in 2023, has been and continues to be one of the most strategically important economic, social and geopolitical regions in Australia. Investigations undertaken by experts in mineral resources, mining development and commodity markets have identified approximately \$740 billion of known mineral resources, and "we have barely scratched the surface".

The vast majority of this mineral wealth is critical minerals that play an important role in ensuring secure and efficient supply into clean energy infrastructure essential for global decarbonisation and to meet the Australian Government's net zero ambitions.

Coincidentally this region also contains high-quality wind and solar resources and available land for very large-scale renewable energy projects and associated transmission corridor. Recent analysis conducted for Transgrid and released in their Energy Vision report ¹, identified that North and North West Queensland can house approximately 35,000 MW of renewable energy capacity at relatively lower generation costs than other regions.

¹ [transgrid energy vision.pdf](#)



These renewable energy resources are valuable to Australia's mineral production, the NEM and are capable of providing the lowest cost of hydrogen production in eastern Australia according to the Victorian Hydrogen Hub².

However, in 2021 two significant events occurred that resulted in loss of power in the North West Power System (NWPS) resulting in customers being without power for four hours on 10 November 2021 and five hours on 23 April 2021. In large inter-connected systems, such as the NEM, the impact from the loss of a single critical piece of infrastructure is reduced by the inherent redundancy from greater inter-connectedness and there may not currently be enough firm supply to meet demand in the NWPS potentially leaving a demand/supply gap.

The needs for the NEM connection in the NWMP are clear and the long term benefits for the resources, energy and manufacturing sectors will continue out to 2050 and beyond.

CopperString 2.0

AEMO is well-informed about the CopperString 2.0 project, a proposal to extend the national transmission grid across North and North West Queensland and provide access to the NEM for this important region in Australia. CopperString will integrate the last major energy centre and economic zone in eastern-Australia into the NEM.

The economic considerations of the CopperString transmission network are unique given the dominant use of electricity supply in the NWMP is value-adding mineral mining and processing for export. As a result, the economic contribution of each megawatt hour consumed in the NWMP is significantly higher than in most other regions of the NEM.

CopperString's resource analysis and ACIL modelling out to 2050 shows significant benefits to the state and national economies from building CopperString compared to a Business As Usual (BAU) scenario:

- Mining activity forecast to increase by \$132 billion
- Additional mining to sustain an estimated 3500 FTE jobs in the North West out to 2050
- Queensland Gross State Product (GSP) will increase by \$38.3 billion NPV (7% real discount rate) or \$130.7 billion in total (2020-2050).
- Queensland real income (economic welfare) will increase by \$15.6 billion NPV
- Australian real income (economic welfare) will increase by \$24.1 billion NPV.

Additional expected benefits:

- CopperString provides an opportunity to unlock renewable resources from the only region AEMO rated "Grade A" for both wind and solar - the North Queensland Clean Energy Hub. CopperString promotes development of renewable energy projects that are currently uneconomic and can initially harness ~1,500 megawatts (MW) of new renewable projects and new investment.

² <https://www.swinburne.edu.au/news/2022/01/green-hydrogen-is-coming---and-these-australian-regions-are-well/>



- Owners of over 3,000 megawatts (MW) of generation (operating or in development) have commenced the formal grid connection process to access CopperString enabling them to supply into the NEM.
- Create a transmission network and easement that can facilitate the transmission of large volumes of renewable energy to the NEM and Townsville to produce green hydrogen and promote more mining and manufacturing and exports across Northern Queensland.
- CopperString's Benefit Cost Ratio (BCR) is 2.08 with \$5.1 billion total benefits compares favourably to other projects such as Energy Connect (net benefits \$289 million, Cross River Rail 1.21, Inland Rail 1.1, Western Sydney Airport 1.9 and Gold Coast Light Rail Stage 3A 1.1).

CopperString will also bring important and positive social impacts, including the strengthening of high-capacity broadband access for the Townsville to Mount Isa corridor, one of the poorest broadband regions in eastern Australia according to Commonwealth analysis as part of assessing the digital divide in regions. The CopperString network will be capable of going beyond 30 Terabits per second, supporting over 500,000 businesses / residents simultaneously at speeds equivalent/better than NBN (spare capacity on a not-for-profit basis).

Importantly, analysis by the Queensland Government identified that CopperString is forecast to reduce electricity prices by at least 35% for industrial customers, primarily mineral miners and processors supply critical minerals to global markets. These customers will also enjoy the benefits of a well-regulated, competitive and flexible market in the NEM that materially lowers the barrier to production expansion and efficient decarbonisation of industrial operations.

CopperString 2.0 well positioned to contribute to economic sustainability in regional Queensland

CopperString 2.0 is a coordinated project and a controlled action requiring the preparation of an Environmental Impact Statement (EIS) and approvals by the Queensland and Australian Governments. The EIS is currently with the Coordinator General for approval.

CuString Pty Ltd executed an Implementation Agreement with the State of Queensland in October 2020 and is presently working under this framework to advance the project to final investment decision in 2022.

Project milestones include:

- CuString has an approved electricity transmission authority from the Queensland Energy Regulator
- Australian Industry Participation Plan approved by the Federal Department of Industry
- CopperString has received development funding support from the Australian Government under the Job Maker Initiative and the Queensland Government under the Covid Economic Recovery Strategy
- CopperString has executed seven of the eight Cultural Heritage Management Plans with Traditional Owners
- A significant amount of the project's corridor has been acquired.
- AEMO chairing monthly meetings with CuString, Powerlink and Energy Queensland discussing the planning, regulatory and technical requirements for CopperString's entry into the NEM.



Conclusion

It is clear CopperString addresses the problems Governments/industry are seeking to solve in the NWMP:

- ✓ Creates the right infrastructure to meet long-term needs of State and Federal Governments, industry and regional communities with access to affordable, secure, reliable, and sustainable electricity supply
- ✓ Connecting the NWMP to the NEM will help ensure that further blackouts in the NWMP are avoided and will remove the current monopoly on generation supply in the NWMP
- ✓ Will overcome the current constraints on economic development of the NWMP with greater certainty and within a shorter timeframe than any alternative options
- ✓ Will ensure with greater certainty, and within a shorter timeframe, Government meets its policy objectives in relation to the facilitation of large scale renewables projects as part of the transition to a 'net zero' environment – a key issue for State/National economies.

CopperString is backed by a world-leading consortium - CopperString is backed by CuString Pty Ltd (the proponents), DIF Capital Partners, Korea Zinc Limited, UGL/CPB Joint Venture and advisory firms including KPMG, Corrs, EY, ACIL Allen, Synergies, Aurecon, GSMT, GHD, Base, E3 and Everick.

CopperString has the capacity to become one of the nation's critical pieces of infrastructure facilitating the development of new projects and industries relying on competitive power and the State's economic development vision for Townsville to become one of the State's hydrogen industry hubs. The renewable potential facilitated by CopperString with complementary wind and solar resources amongst the highest quality in Australia is essential for a Net Zero world.

CuString commends AEMO's work on the Draft 2022 ISP, and endorses the ODP as an appropriate basis for planning and considering many of the important power system infrastructure decisions required in the future, albeit as an incomplete view of the energy infrastructure development that will best serve the Australian economic, regional communities, and achieve our social, environmental and strategic objectives.

We are grateful for the positive and detailed engagement of AEMO on the CopperString project to date, and welcome the opportunity to provide further information or feedback relevant to the 2022 ISP where useful.

Yours sincerely,

John O'Brien
Executive Chairman