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# KIDSTON PUMPED STORAGE HYDRO PROJECT - LESSONS LEARNT REPORT

2019ARP031 - JUNE 2022

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# 1. EXECUTIVE SUMMARY

Genex Power Limited (**Genex, Company or Owner**) is the 100% owner of the Kidston Clean Energy Hub, located in North Queensland (the **Kidston Hub**). Stage 1 of the Kidston Hub was completed in the form of the 50MW Stage 1 Kidston Solar Project, which was energised in November 2017. Stage 2 of the Kidston Hub is the 250MW Pumped Storage Hydro Project (**K2-Hydro or Project**) which is currently under construction, having reached financial close in May 2021. A further Stage 3 of the Kidston Hub, being a wind project of approximately 200MW which Genex is developing in a 50:50 partnership with Electric Power Development Co. Ltd (trading as J-POWER), is currently in feasibility stages along with a potential co-located solar farm of up to 270MW.

This Report expands upon previous lessons learnt reports to provide an update on the progress and lessons learnt around securing power during construction, transmission line works and Engineering, Procurement and Construction (**EPC**) contracting process. Owners works progress update

## 1.1 Progress on securing power during construction

The Project has secured power from the Ergon network to supply the 22kV distribution line around the construction site. This is for an initial maximum capacity of 4MVA and was energised in February 2022. To mitigate future risks concerning loss of power, local diesel generator backup systems are in place for critical activities in case the Ergon power supply is disrupted. The temporary 22kV diesel generator system which provided primary construction power as an interim measure has now been removed. Genex is working with Ergon to further upgrade the existing Kidston substation to provide a higher total maximum capacity of 8MVA power to the Project site. This increase in power demand is required to facilitate the full-scale dewatering from Eldridge Pit to Wises Dam. Genex is working with Ergon to target completion of these works such that 8MVA is available in late September 2022.

The K2X Site Offices are now connected to the Ergon network (6.6kV). These are satellite offices located adjacent to the Kidston Ergon substation.

## 1.2 Lessons learnt

Securing power during construction has been an ongoing issue for the Project and one which has been managed effectively by Genex and the EPC Contractor. The key lesson learnt from the process would be to complete further due diligence works in response to connection queries prior to financial close. Should this have been completed prior to financial close, it would have resulted in reduced timeframes and cost for the electrical connection.

## 2. POWERLINK TRANSMISSION LINE WORKS PROGRESS UPDATE

### 2.1 Progress on Approvals

#### ENVIRONMENT PROTECTION AND BIOSECURITY CONSERVATION (EPBC) ACT 1999

- The Department of Agriculture, Water and Environment (**DAWE**) has advised that the Project will require an environmental offset to manage the residual impacts on Matters of National Environmental Significance (**MNES**).
- Given the scope and scale of the Project, it is important to gain a comprehensive understanding of a Project's offset requirements whilst understanding the prevailing renewable energy development market conditions, the type of infrastructure being developed and the associated land use.
- When new electrical transmission infrastructure is developed, it inadvertently generates interest in the surrounding areas for potential renewable energy developments. This can add a layer of complexity when negotiating with landholders to secure an offset. Often landholders cannot provide for an offset due to contractual arrangements or do not wish to further encumber their land due to its development potential.
- As the Project impacts rural primary production land, it can be difficult to negotiate and secure an offset that balances the needs of both the landholder and DAWE. Achieving this balance can be a comprehensive and time consuming process that can impact the delivery of the Project.
- Based on the DAWE Adequacy Review received on 25<sup>th</sup> May 2022, the offset management plan includes Koala, Sharman Rock Wallaby, Greater Glider and Squatter Pigeon. A deemed suitable property has been identified for the offset requirements, and final surveys are being conducted to confirm this.
- The timing of the remaining EPBC approval process is expected to be:
  - Public Comment period 30<sup>th</sup> May 2022 for 10 Business Days
  - Final Response to EPBC Submission by 24<sup>th</sup> June 2022
  - DAWE formal assessment period 27<sup>th</sup> June to 19<sup>th</sup> August 2022 (40BD)
  - EPBC Approval is expected on 19<sup>th</sup> August 2022.

#### MINISTERIAL INFRASTRUCTURE DESIGNATION

- Powerlink is seeking development approval for the transmission line infrastructure through a Ministerial Infrastructure Designation (**MID**) process pursuant to the *Planning Act 2016* (Qld).
- A Ministerial Infrastructure Designation Assessment Report (**MIDAR**) is required to be prepared and submitted to the Department of State Development, Infrastructure, Local Government and Planning (**DSDILGP**) that demonstrates how social, environmental and economic impacts have been considered as part of the Project.

- The MID process requires extensive community and stakeholder consultation to be undertaken. Landholders, stakeholders and the wider community were provided with the opportunity to lodge a submission in relation to the MIDAR.
- Grounds of submission are not restricted and Powerlink must respond to any submissions as part of the DSDLIGP approval process.
- As a result of submissions, DSDLIGP may require amendments to the MIDAR to demonstrate that submissions have been appropriately considered.
- MID Approvals package is expected to be finalised by 15<sup>th</sup> June 2022.

## 2.2 Progress on land Acquisition

- To acquire the easements, Powerlink is executing a concurrent acquisition strategy. The strategy focuses on negotiating commercial settlements with landholders to allow easements to be registered, whilst also commencing a compulsory acquisition process pursuant to the *Acquisition of Land Act 1967* (Qld) (ALA) and its rights under the *Electricity Act 1994* (Qld).
- Wherever possible Powerlink seeks to reach a voluntary negotiated settlement with each landholder. This flexible approach to progressing easement acquisition has proved successful as it allows for negotiated outcomes to be achieved whilst also ensuring timely delivery of the Project.
- Should a negotiated agreement not be possible, and a resumption process is required, the ALA provides for an objection process whereby landholders may object on any grounds to the proposed resumption, other than compensation.
- This process is undertaken by an independent Delegate with the landholder provided the opportunity to be heard in support of the grounds of objection.
- The information and recommendations provided as part of the objection process are further considered by the Minister for Resources and Governor in Council when deciding whether to compulsorily acquire the easement/s.

## 3. EPC CONTRACTOR PROGRESS UPDATE

### 3.1 Impact of COVID-19 on Supply

The impact of COVID-19 worldwide is continually being assessed in respect the manufacture and shipping of components.

Where possible, the Project has brought forward orders as much as reasonably practicable to ensure the product is available on site when required. This includes HDPE Liner for Wises Dam (from Taiwan) and the embedded components required for the generators (from India and China, where possible). The program contains significant float to absorb any delays that may arise from COVID-19 or otherwise relating to the shipping of components to site.

### 3.2 Update on Wises Dam

The status of Wises Dam is as follows:

- Trial works were completed. The trial works informed finalising of the dam design to begin construction. The final dam design has since been submitted to the Dam Regulator and approval to commence construction has been received.
- Works have commenced on site for clearing and grubbing of the Wises dam floor footprint, stripping and slope preparation of the existing waste rock slopes, the commencement of dam foundation treatment and placement of rockfill materials, and installation of the collection pipe within the dam.
- Works will now focus on the placement of rockfill material and the placement of the cement screed material that is located under the liner. The placement of the cement screed material utilises a bespoke placement and screed bar that attaches to a long reach excavator.
- HDPE liner and geofabric underlay have commenced arrival at site.

Excavation works for the cut off trench will occur in sections where the dam rockfill is complete.

Materials for the dam are being sourced from the Project site.

### 3.3 Main Access Tunnel Progress

Construction works at the main access tunnel (**MAT**) began in January. The MAT makes up a 1.5km long horseshoe profile having dimensions of approximately 6m wide and 6m high. The daily progress of the MAT is being tracked closely in an effort to achieve maximum progress per day. Since the construction of the MAT began in January 2022, several improvements have been made in the tunnelling operations to increase the advance rates, namely:

- Provision of additional critical tunnelling equipment in case of plant breakdown;
- Additional ancillary plant to assist operations (loader with IT attachment for access to crown);
- Change in muck cuddy arrangement from four way intersection to T intersection arrangement;
- Services changed from rigid steel pipe to flexible HDPE pipe to better facilitate the geometry; and
- Reduce perimeter hole spacings for blasting to reduce the amount of overbreak.