



Successful Completion Of Kidston Hydro Project Technical Feasibility Study

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MarketLine News and Comment

Genex Power Limited (Genex) has announced the completion of the Kidston Pumped Storage Hydro Project (PSHP or Project) Technical Feasibility Study (TFS).

The TFS process was managed by specialist power and water consulting firm, Entura, in conjunction with project partner, HydroChina.

The TFS concludes that all of the key risks identified at the pre-feasibility stage, and any additional risks identified during the TFS, will be appropriately mitigated or addressed through detailed design augmentation and optimization.

The Project is now fully designed, including the civil works program and detailed mechanical equipment specifications. Genex and Entura continue to engage with a number of highly experienced and well recognised EPC Contractors and Generator/Turbine Suppliers to develop the capital cost estimates. Formal competitive tender processes will be undertaken over the course of the next phase of the Project development to further refine Project capex.

The energy market has evolved significantly since the initial inception of the Project. Going forward, it is anticipated that the market will undergo an intense transition period as the generation mix across the National Energy Market (NEM) shifts from traditional fossil fuel generation towards a fast growing proportion of large scale renewable energy generation. There is a critical need for large scale energy storage, at an affordable cost, to balance the penetration of large scale renewable energy generation into the NEM.

During the course of the TFS, Genex has received significant interest in the Project from

a range of funding and financing entities. As a result of the high level of interest, once final costings are completed, Genex will immediately commence project financing activities in order to bring the Project online as soon as possible, with an anticipated target of Q4 2017 to complete the "financial close" process.

Design Optimisation and Project Sizing

Much of the TFS work was focussed on optimising the Project to achieve a design which is technically and commercially feasible. A preferred configuration has been determined with the following characteristics:

The lower storage reservoir for the Project will be the existing Eldridge Pit; The upper storage reservoir of the Project will be created by a "turkey nest" type dam constructed on top of an existing waste rock dump to the north of the Eldridge Pit; Utilisation of the Wises Pit as a balancing storage to hold excess water and for flood risk mitigation; The upper and lower storage reservoirs will be connected by an underground water conveyance shaft, short pressure tunnel and a tailrace tunnel; and The underground powerhouse will contain two sets of nominally 125MW installed capacity reversible turbines, generators, main transformers and auxiliaries.

Project Sizing

As part of the TFS, a number of project size options were developed ranging between 250MW to 450MW. Genex, in conjunction with its consultants, undertook detailed market studies to assess the pricing and revenue impacts of each of the options. It was determined that a 250MW (configured as 2 x 125MW reversible pump - generators) scheme

with 6 hours of continuous generation, totalling 1,500MWh of energy storage capacity, would be the optimal size given the Project's location and forecast characteristics of the NEM in Queensland and Australia.

A 250MW rapid response hydro scheme was deemed to be sufficiently flexible to take full advantage of market volatility opportunities. It should be noted that the overall design general arrangement of the scheme would remain unaltered regardless of the Project size, and as such the Project size remains flexible to changes as Genex proceeds towards financial close.

Construction Cost Estimation

Based on the chosen Project configuration of 250MW nameplate and 1,500MWh energy storage capacity, Genex will now finalise the construction cost estimation with a number of internationally recognised turbine and highly recognised and experienced underground and civil contractors.

Transmission Line

Studies commissioned by Genex indicate that the existing Powerlink transmission network in North Queensland has the capacity to integrate the Kidston Pumped Storage Hydro Project across all its operating modes. Investigations indicate that a suitable connection point for the new transmission line with Powerlink's main 275 kv network between Ross in Townsville and Chalumbin near Cairns will be in the vicinity of Mt Fox, which is located approximately 115km northwest of Townsville.

Initial investigations have also indicated that the new transmission line connecting Kidston to Powerlink's network may be able to track existing easements over much of the distance.

These early investigations concerning possible routes for the new transmission line also showed the proposed transmission line may not need to traverse any environmentally sensitive areas.

Project Funding and Revenue Contracting

The Company now has clear visibility on potential sources including commercial debt and government funding. Negotiation of Project financing terms will commence in earnest once the final capex estimate is determined. These discussions will continue into the first half of 2017.

Genex is also now engaging with a number of parties to identify opportunities for contracting revenues through power offtake agreements, forward power sales contracts, the sale of energy cap contracts and the potential for Frequency Control Ancillary Services (FCAS) revenues. Given the significant increase in penetration of renewable energy generation into the NEM expected over the next few years, there has been growing interest in large, rapid response dispatchable storage which the Project offers. It is the Company's intention to secure stable and long term revenue streams for the Project whilst at the same time retaining a portion of exposure to the spot market.

ARENA Funding

Genex continues its strong relationship with the Australian Renewable Energy Agency (ARENA), whose support has been critical throughout the Project TFS program. To date, Genex has drawn down a total of approximately \$2.37 million of its \$4.0 million ARENA funding facility. The Company will continue to work closely with ARENA until the Project reaches Financial Close.