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EGEE 497

Dispatch – Day 2

### Hydropower on the Waikato River

After finishing our tour at the Te Uku Windfarm we went to our next site which was the Arapuni Dam. When we got there, I talked about hydropower on the Waikato River and the Arapuni Dam specifically. The Waikato river is the largest river in New Zealand with a length of 264 miles through the north island. The first hydro-electric power station was the HoraHora power station which was built to supply electricity to the Martha gold mines. The river has a series of 8 dams and 9 hydro-electric stations. The power scheme begins at Lake Taupo, which has control gates to regulate the flow of water into the river. Once Released through the gates it takes over 18 hours for the water to flow to the last power station at Karapiro. Approximately 4,000 gigawatt hours of electricity is generated annually from hydro-electric power stations which is around 13% of New Zealand's total electrical generating capacity.

The Arapuni power station and dam was the first government-built power station and dam built on the Waikato river between 1924 and 1929. It is the largest power station on the Waikato and is owned and operated by Mercury Energy. The powerhouse at the dam is under protection of the historic places trust, becoming category I historic places in New Zealand. The dam is 64 meters high from its foundation to the roadway and the powerhouse is a reinforced concrete structure 136 m long, 22.8 m wide, and 22 m from tailrace water level to roof. Eight steel-lined penstocks, each 3.6 m diameter. The vertical Francis type turbine have a total capacity of 164 MW. From the main busbars at the outdoor station, power at 110 kilovolts is supplied to the North island system. The annual generation is about 805 GWh.

