



WATT'S THE SOLUTION?

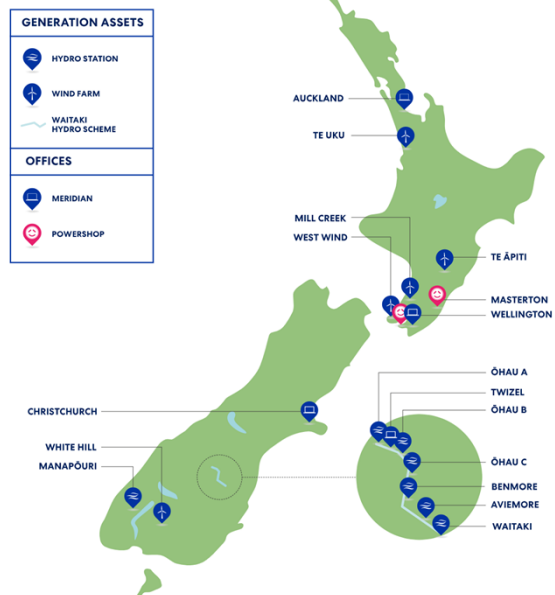
Investment within a Changing Energy Landscape

Ella Gilroy

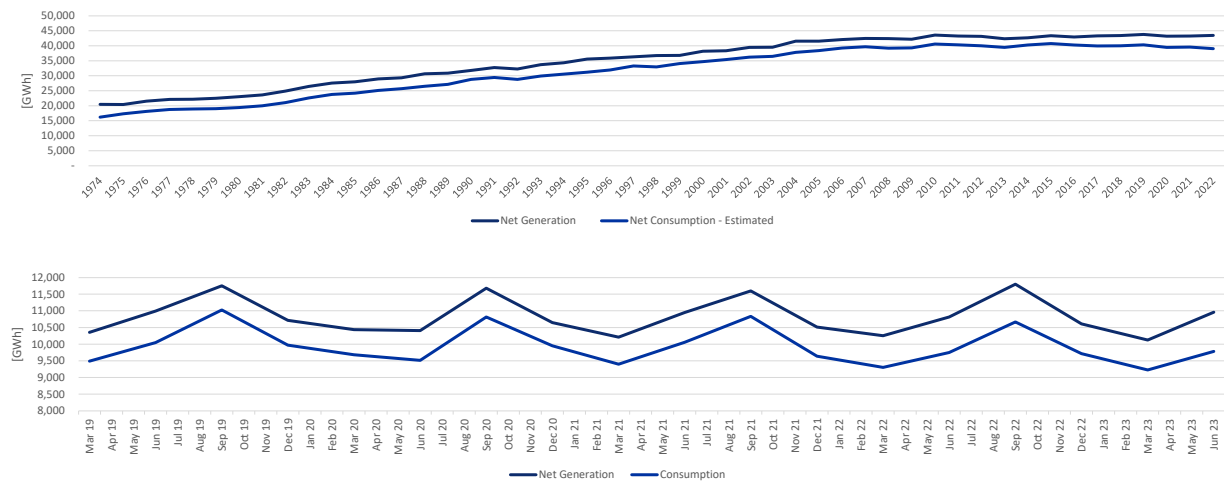
Hydro Stations

Seven stations

- Six in Waitaki region
- Manapouri located in Fiordland region



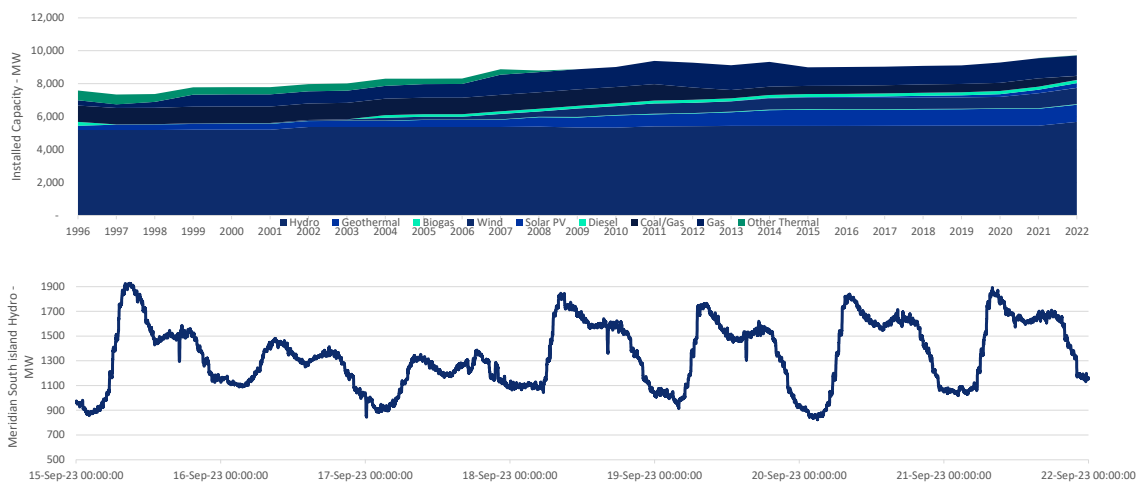
New Zealand Demand - Actual



Source: www.MBIE.govt.nz



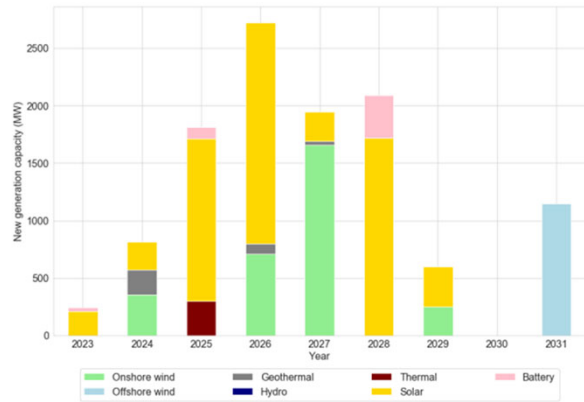
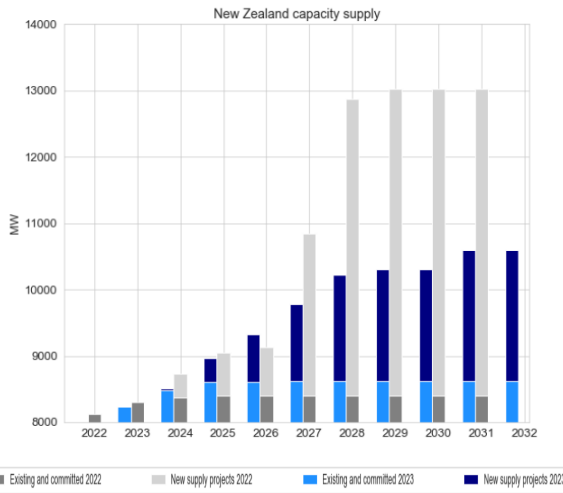
Current Dispatch – New Zealand Market



Source: www.MBIE.govt.nz

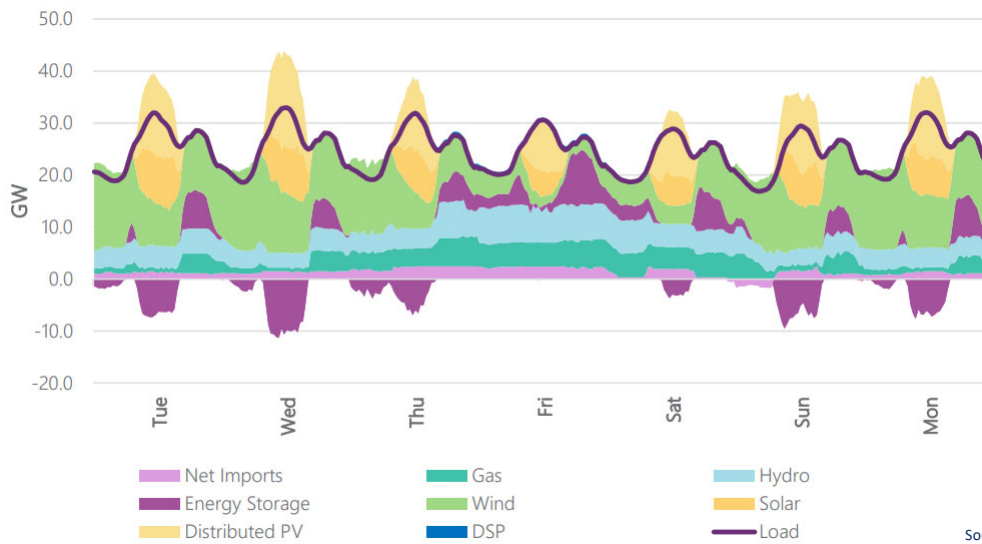


Estimated Supply of New Generation



Source: Transpower Security of Supply Annual Assessment

Forecasted Dispatch



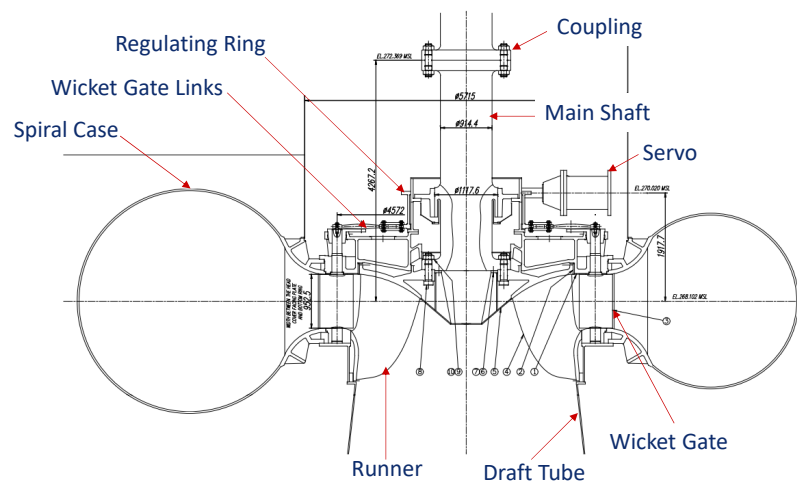
Source: NEM ISP Report

Investment Options

- Alter existing plant operation ranges
- Alter existing plant outage schedule
- Refurbish existing plant
- Replace existing plant
- Alternative generation investment



Work Completed - Latent Capacity



Uprate of:

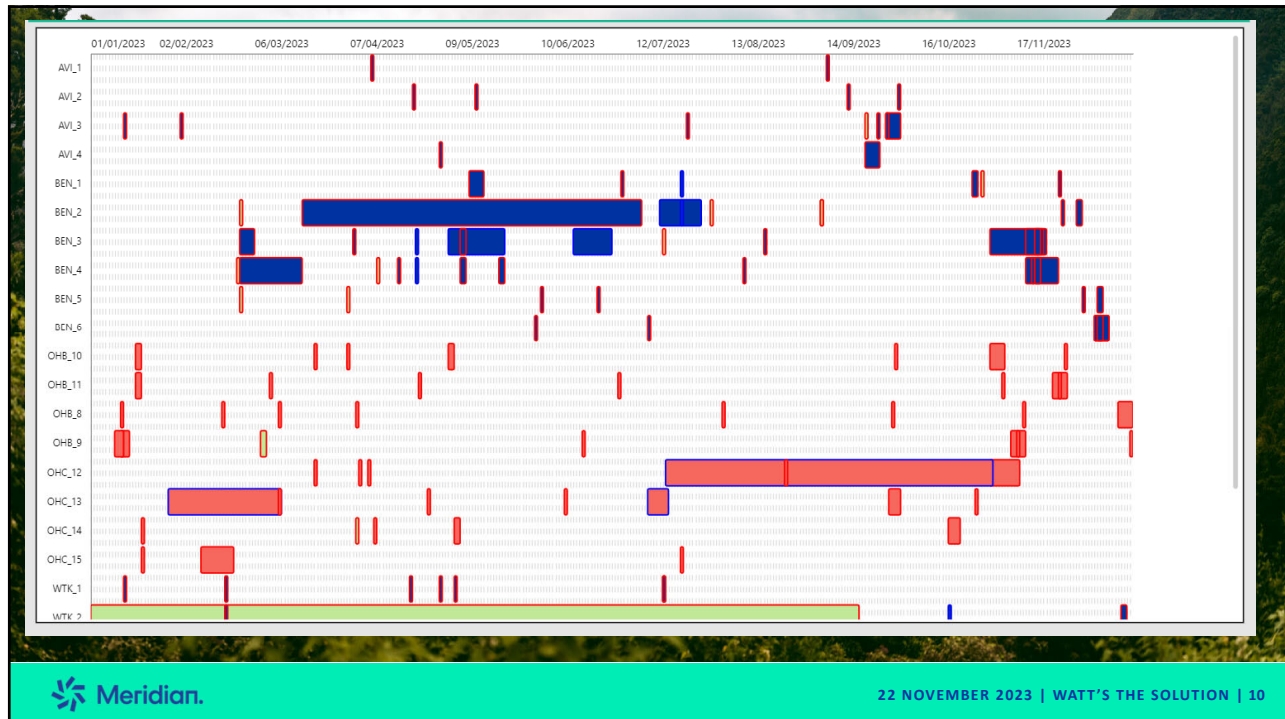
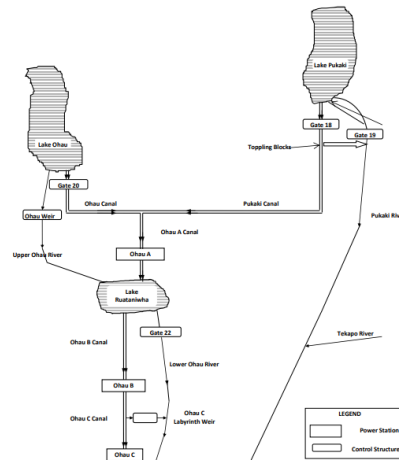
- MAN units – 125MW to 128.5MW
- BEN units – 90MW to 95MW

Mechanical Study:

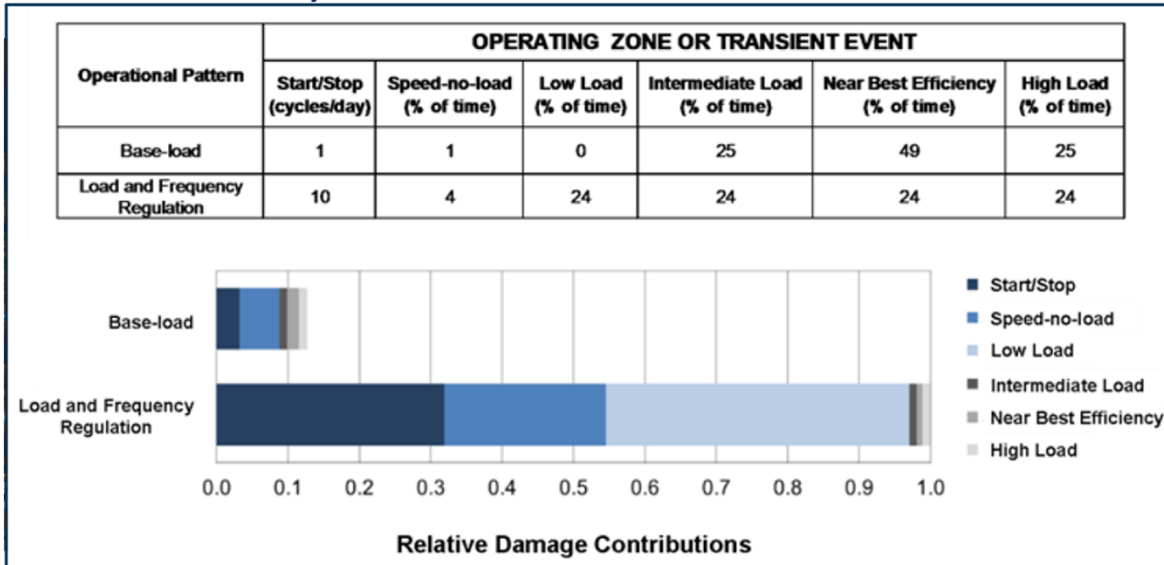
- Cavitation
- Pressure fluctuation
- Hydraulic axial thrust
- Static stress & fatigue
- Load rejection
- Runner cracking
- Wicket gate torque

Meridian Constraints

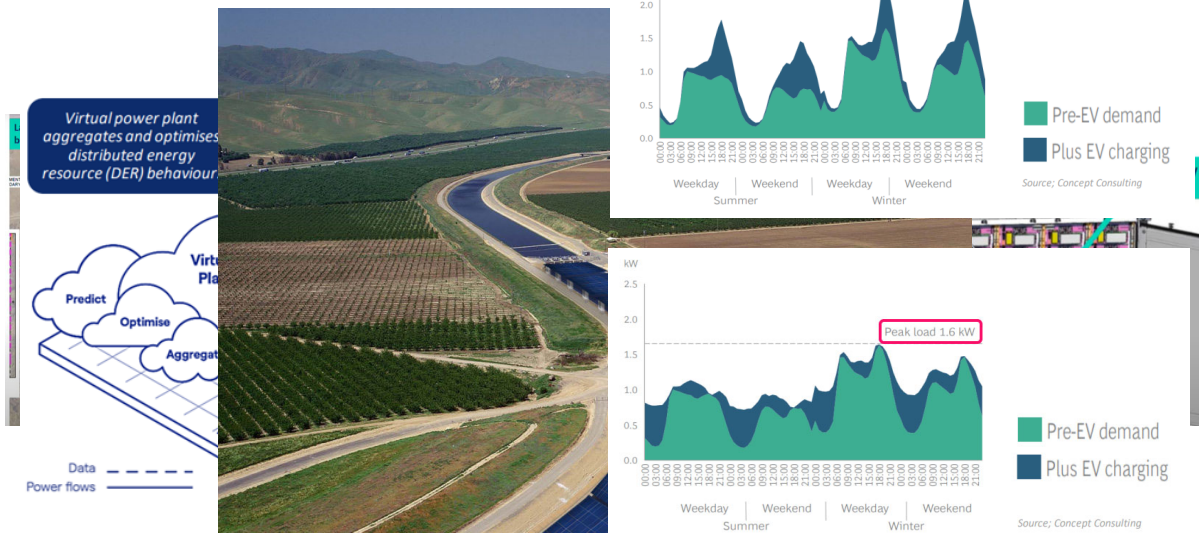
- Limited storage in canals
- Downstream effects - hydro chain
- Assets reaching end of life



Refurbishment vs. Replacement



Other Ideas – Capacity Increase





Questions?