



Meridian Energy Ltd

Fujitsu delivers data power to Meridian



As a national supplier of sustainable energy, the efficient management of data on a large-scale is a critical requirement for Meridian Energy. Doing so effectively ensures continuity of supply for customers, and plays a key role in keeping costs under control.

Challenge

Meridian knew that the vast quantities of data it generates were an essential part of optimising its asset management. However, acquiring and deploying this data effectively was proving difficult.

Solution

Fujitsu Data & AI used its extensive industry experience to build a cloud-based platform that gave Meridian the environment it needed to access critical data-led insights and build valuable use cases.

Outcomes

- Measurable cost savings and reduction in downtime through early identification of plant issues
- Enabling and proving the value of advanced analytics
- Greater collaboration between internal departments

“If we find something wrong in time, we can fix it for maybe NZD1,000 instead of NZD300,000. For the business, that’s a massive victory.”

Yanosh Irani, Head of Data and Performance, Meridian Energy



~200

staff managing
high-value assets

Large-scale responsibility

Successfully supplying New Zealand with clean, sustainable energy is a large-scale undertaking. It also involves the effective management of a broad range of critical facilities. From the Waitaki hydropower station, which dates back over a century, to the under-construction Harapaki Wind Farm, Meridian Energy is responsible for the operation and maintenance of high-value assets, and ensuring continuity of electricity supply to households, businesses, and industries across the country.

“Our role in asset management is finding that balance between risk, cost, and performance,” explains Yanosh Irani, Head of Data and Performance at Meridian Energy. “It’s also about ensuring that assets continue to deliver value for the next 20, 30, or even 100 years.”

For Irani, an essential element of delivering asset value is efficiency, which he sees as a virtuous circle that goes beyond simply building shareholder value.

“The more efficiently we do this, the better job we can do and the more we’re able to do,” he adds. “If we can increase levels of performance and risk mitigation at a lower cost, that creates capacity for us to find more opportunities.”

Tapping an underused resource

Meridian’s estate is substantial: around 200 generation staff look after seven hydroelectric stations, five wind farms, 200 wind turbines, and 36 large hydropower units. Between them, they generate thousands of data points, which Meridian knows are the building blocks for new levels of efficiency. They are, however, difficult to access and highly underused as a result.

“The generation operation has more data than the rest of the business put together, probably multiple times more,” Irani notes. “Every one of our wind turbines, hydro units, dams, and other assets are streaming data to us – and have been doing so for over 20 years.”

There was a clear opportunity. Early test cases had seen Irani’s team use data to identify anomalies in equipment performance long before they were apparent to on-site engineers.

The maintenance work this triggered had both averted potentially critical breakdowns and saved significant costs. For Irani’s data analytics team, however, acquiring this data could be difficult, sometimes involving a data scientist going from server to server and manually saving files to a portable drive. “We were working on what we knew were high-value problems, but with no real tools to tackle them efficiently or effectively,” Irani adds. “This is rich time-series data that’s being used in an operational industrial environment, and we needed someone with experience of that environment to help build a solution.”

Fujitsu Data & AI was ideally placed to step in, having already undertaken a large-scale project to migrate Meridian technologies to a cloud-based data environment.

Scalable, flexible, and cost-effective

Fujitsu Data & AI consultants understood the types and volumes of data that Meridian was generating, as well as the industry in which it operates. This meant Fujitsu Data & AI was a natural choice to build the data-led solution Irani was looking for.

“We know what we know about our business and how we operate, but what opportunities are other people in our industry taking advantage of? That was something we wanted somebody to bring to the table,” Irani recalls. “The Fujitsu team definitely did that with their analysis and proposals.”

Industry:
Power and utilities

Location:
New Zealand

Website:
meridianenergy.co.nz

About the customer

As a supplier and retailer focusing entirely on wind and hydroelectric power, Meridian Energy is a highly important component of New Zealand's drive for sustainability. As the country's single largest supplier of power, and its largest generator of renewable energy with a capacity of over 3,000 MW, Meridian's goal is to make clean energy for a fairer healthier world.



100,000s

of dollars saved in
maintenance costs

The sheer size of Meridian's data environment meant a standard 'lift and shift' migration to a cloud database was impractical. Instead, Fujitsu developed a redesigned solution based on an Azure Modern Data Platform utilising Databricks, and other data lake technology capable of delivering the performance, scalability, flexibility, and cost-effectiveness that Meridian required.

The resulting enterprise-wide data platform would enable various types of machine generated data to be analysed and shared across the business. It would also enable the development and deployment of data science models without compromising existing developments and would provide exciting capabilities for Meridian's teams to experiment and innovate.

Early victories

It wasn't long before the new platform was delivering results. An early success identified a water leak in a bearing system at a Meridian hydropower site – an issue that was pinpointed so early that Irani and his team initially struggled to believe it was possible.

"The engineers got the alert and took a sample that came back half-filled with water, which obviously isn't supposed to happen," says Irani.

The analysis also indicated that Meridian would be able to continue to run the facility safely until the next planned shutdown. Preventing a breakdown while also avoiding an unplanned maintenance shutdown was an impressive double victory for Irani.

Using data to highlight critical anomalies is now a central plank of Meridian's asset-maintenance strategy, with applications ranging from preventing gas leaks to monitoring the integrity of underground mountain tunnels at the Manapōuri Power Station.

"Using advanced analytics for emerging problems also gives our engineers more confidence on margins of risk," Irani adds. "It can help us make informed decisions on whether it's necessary to spend hundreds of thousands of dollars, even millions, to resolve a problem."

A fit-for-purpose environment

Arguably the most important outcome is the potential the new modern data platform offers to Meridian. The business now has a data environment that is delivering benefits in terms of recruiting and retaining talent, encouraging innovation and development from staff and visiting engineering students, and facilitating collaboration between internal functions.

"Fujitsu always focused on the business problem we were trying to solve," says Irani. "This isn't just a data platform, it's a fit-for-purpose environment that we know can add value."

Irani is already looking at ways to extend the deployment further, including image recognition for wind turbine blades.

"Turbine blade breaks are very rare but they're a huge safety issue and also very expensive to resolve," he explains. "If we find something wrong in time, we could fix it for maybe NZD1,000 instead of NZD300,000. It's that level of value for us, and the savings dwarf any expenditure on the data infrastructure. For the business, that's a massive victory."

Customer:



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January 2024