



DATA TO THE PEOPLE: HOW AGL ENERGY USED THE PI SYSTEM TO EMPOWER EMPLOYEES

In 1837, Australian Gas Light Energy (AGL) was founded in Sydney, Australia. At the time, Sydney was a small colonial outpost with less than 35,000 people, and “grid management” consisted of operating a few gas lamps. Today, AGL manages one third of the energy of Australia’s eastern seaboard, where most of the nation’s population lives.

Acquisitions and renewable adoption have been accelerating growth. In 2012, when David Bartolo, Head of Asset Performance, joined AGL, they had grown from 300 MW in 2005 to 5500 MW and were looking to further expand to 9000 MW. However, growth came at a price. “We were completely data blind,” said Bartolo at PI World San Francisco in 2018. “I had built a central asset management team. They were really clever people with years and years of experience, and they couldn’t see a single piece of real-time data centrally... I had to ask one of the sites to print off a trend every ten seconds and send me the screenshots so I could understand what happened during an overflow incident. It doesn’t get worse than this,” he said.

DATA TO THE PEOPLE

AGL wanted everyone across the organization to have access to real-time data, so they could be empowered to make changes that would benefit the bottom line.

“What came along was a solution that really fit what we needed, and that was PI. It could connect to any one of our controllers. We could harvest every piece of real time data and make it available to every person at AGL,” said Bartolo.

After a single day of training, AGL unleashed its employees to use the PI System in a way that best fit their corner of the business.

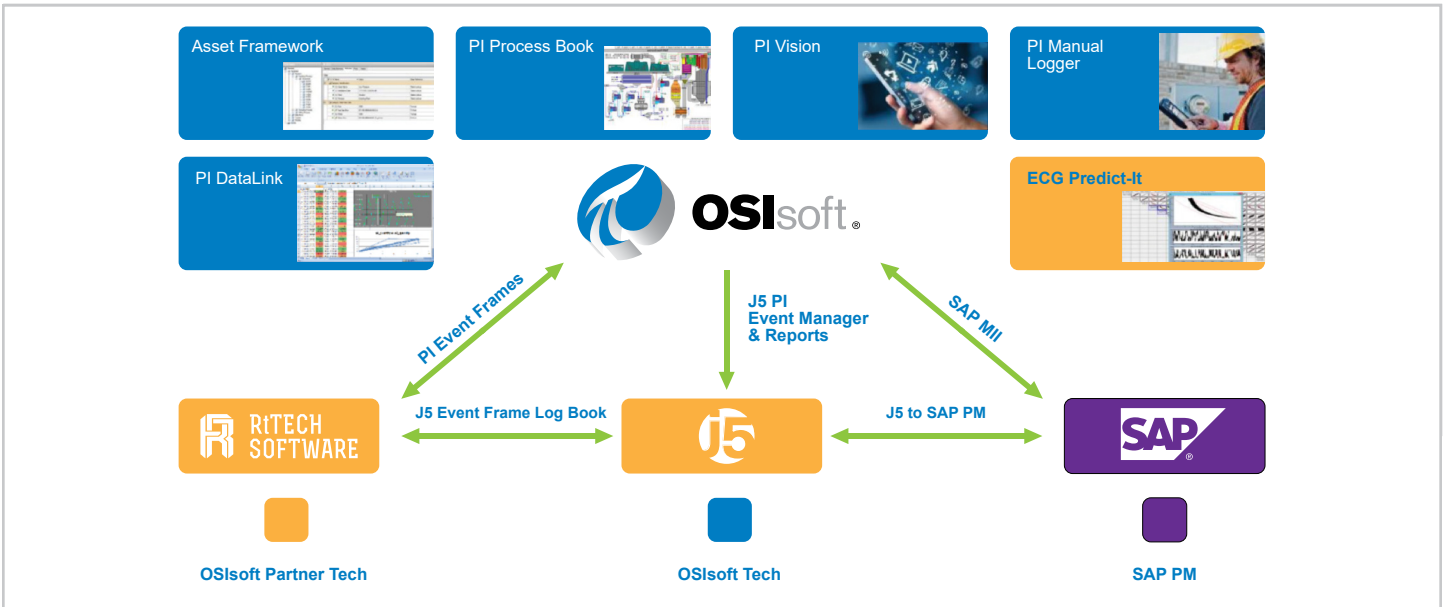
Soon, employees from across the company were finding new and innovative ways to use the PI System. After one day of training, an engineer built a display to see the aggregate view of how two solar farm sites were performing. Chemists set alarms that have added years to the lives of boiler cycle assets. Users built their own screens to monitor generator temperatures. A non-engineer built a screen to monitor trends in small hydro units located 700km away from where he lived. Immediately, he could see why his machines were tripping and remotely direct on-site subcontractors to the source of the problem. In just three months, AGL saw a lift of seven percent in the availability of those hydro units.

HIGHLIGHTS:

\$18.7 million AUD of avoided losses in 3 years

Avoided a catastrophic shutdown that would have cost **\$50-70** million AUD

\$18.5 million AUD of savings last year



Real-time Review: OSIsoft's PI System is the heart of AGL's operational technology platform.

FROM REAL-TIME TO PREDICTIVE

In April 2015, AGL launched an Operational Diagnostics Center to move beyond real-time awareness to predictive modeling. They implemented an OSIsoft Marketplace partner solution, ECG's Predict-It anomaly detection software for advanced pattern recognition. Employees built 2700 models that monitor 45,000 critical points of data every five minutes. The system correlates incoming data with historical data, and when correlations begin to vary, the team knows that something is amok. It was a substantial project, costing \$1.2 million AUD for initial setup and \$620,000 for annual operating costs.

The investment, however, quickly returned massive value.

In three years, AGL has saved \$18.7 million in reduced forced outages and optimized maintenance. Additionally, in 2017, they also caught and prevented a catastrophic failure in a 560 MW hydrogen cooled stator. PI System alarms started ringing and the team started to see anomalies in the hydrogen exit temperatures. After an initial inspection, no one could identify what was

wrong. After recalibrating the instrument, they put it back online, but the data showed a worsening problem. The team planned an outage to investigate. After a partial dismantle, they found that they were mere days from a number of coils catching fire. The resulting outage would have cost \$50-70 million AUD.

DATA ACROSS THE ENTERPRISE

Today, OSIsoft is the center of AGL's enterprise operational technology platform, and they are in the process of deploying two new initiatives. The first, a Thermodynamic Performance Optimisation System aims to reduce fuel consumption by 0.5% as well as CO2 emissions, a marginal improvement that translates to millions of dollars per year. The second, a Wind Yield Optimisation System, targets 1-2% increased yield in their wind portfolio.

For more information about AGL and the PI System, watch the full presentation [here](#).

PARTNER: SAP, RTTECH, J5, ECG

PI System™ Components:

- PI Server™
- Data Archive
- Asset Framework
- Event Frames
- Notifications
- Asset Analytics

PI Vision™

PI ProcessBook™

PI DataLink™

PI Manual Logger™

Enterprise Agreement



“The ROI is so ridiculously high we struggled with our finance people. They said no that this is error in our calculation.”

— David Bartolo, Head of Asset Performance at AGL Energy

Bartolo, David. “AGL’s Real-Time Energy Journey”
 < <https://osisoft.com/Presentations/AGL-Energy-s-Real-Time-Data-Journey-Continues/> >