

EDF Energy Aims to Avoid Plant Trips Through an Innovative Approach to Asset Reliability

RESULTS

- Lower maintenance costs
- Greater operator efficiency
- Fast reaction to potential trips based on better diagnostic data
- Complete documentation for compliance with regulatory agencies
- Safer work practices

APPLICATION

New 1300MW combined cycle gas turbine power station at West Burton in the UK.

CUSTOMER

EDF Energy generates one-fifth of the power requirement in the UK and is the nation's largest producer of low-carbon electricity. The West Burton plant, which has two gas turbine units and one steam turbine unit, became fully operational early in 2013.

CHALLENGE

A full trip in a major combined cycle gas turbine power station can cost between £500,000 and £1 million in the first hour, and it is not uncommon for a plant to experience three or four unplanned trips annually, often unrelated to turbine performance. It may take hours to restart the plant, and a trip can take 70-80 operating hours off the life of a turbine. Finding a way to avoid unexpected plant shutdowns had high priority during planning for the new EDF Energy station near West Burton.

To meet the challenge of keeping a plant of this size and complexity running at peak efficiency with a small maintenance and control staff, the planners hoped to reduce unscheduled downtime and eliminate potentially catastrophic trips by improving maintenance of those assets that have the highest potential to cause downtime. They needed to accumulate and manage a huge amount of isolated, apparently unrelated information from a variety of assets and provide a single point of data entry into a Computerized Maintenance Management System (CMMS).



“We expect this integrated system to result in high availability with lower maintenance costs.”

Jason Bryant,
West Burton Station

SOLUTION

The solution was a complete asset management system that supports a preventive and predictive maintenance philosophy. Equipment is prioritized according to its importance in keeping the plant operational. Critical assets whose failure could result in a plant trip receive extra maintenance. Conversely, assets that cannot adversely impact operations receive only scheduled preventive maintenance.

The overall solution is integrated with the Ovation™ digital automation system and the SAP Enterprise Asset Management system. Plant instrument data is collected by AMS Suite predictive maintenance software with a connection to Beamex's CMX calibration software. Plant operational data is supplied from the PI Process Workbook and Operator Rounds.

Data from all these sources flows to AMS Suite interfaced with Meridium's APM framework. This application handles the high volumes of field-generated information and provides the point of entry into SAP, which drives the plant's predictive maintenance strategy. When abnormal situations are identified, "defect notifications" are immediately issued.

There is an AMS Suite system for each of the three turbine generator units and one for the balance of the plant that provides control and data acquisition for the boilers, cooling towers, ancillary systems, and water treatment facilities. Since each generating module is identical, the programming for one unit could be used for the other two, helping to speed up the overall commissioning process.

The combination of technologies plus their innovative integration drives predictive maintenance, promising exceptional plant performance, greater operator efficiency, better documentation, and lower overall costs.

"Everything is automated, so our technicians don't go out and look for trouble unless there's an indication."

Jason Bryant,
West Burton Station

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