Industrial Power Solutions

Affordable IIoT opens door for condition-based asset management approaches.

Managers of industrial power plants – plants that generate power for use by an industrial or commercial entity – face the same disruptors familiar to public utilities. These disruptors include fast-evolving technologies, fluctuating fuel costs, and a shrinking pool of veterans to manage these systems and processes. Fortunately, improved access to Industrial Internet of Things (IIoT) technologies creates opportunities for industrial plant managers to integrate Operational Technology (OT) and Information Technology (IT), to increase service reliability, boost efficiency, and reduce costs.

Unique challenges abound.

- **CHANGING FUEL MIX**: Market forces have led to price softening for both natural gas and gas turbine equipment. Still, many sites need to extract value from diesel and coal-fired generation systems in which they have invested.

- **SHIFTING DEMOGRAPHICS**: Managers face the dilemma of whether to eke out as much productivity as they can with existing engineers and incumbent assets or invest in new talent and state-of-the-art systems.

- **FLUCTUATING AVAILABILITY OF PARTS**: As equipment ages, the availability of spare parts can dwindle, adding cost and risk to the maintenance of older generation plants.

- **HIGH COST OF DOWNTIME**: Schedule-based maintenance practices do little to prevent damage due to equipment defects or human error. Plant outages are costly and must be managed with extreme judiciousness.

- **CYBERCRIMINAL ATTACKS**: Integrating OT and IT brings its own risks, such as vulnerability to powerful malware – like Stuxnet, Triton, and Industroyer – that target industrial infrastructures.
Industrial manufacturing is predicted to increase from $472B in 2014 to $890B by 2020 in global IoT spending.

Statista, Size of the Internet of Things market worldwide in 2014 and 2020, by industry (in billion U.S. dollars).

Data-Driven Maintenance Solutions for Industrial Power Plants

- **IMPROVE SERVICE QUALITY:** Transform maintenance from reactive to proactive, and spend more time on innovation or programmatic work, and less time on crisis management responses.

- **STREAMLINE OPERATIONS:** Leverage data analytics to display systemwide health, as well as to enable point-and-click, drill-down analyses of performance at more granular levels.

- **ENABLE CONDITION-BASED MANAGEMENT:** Supplement schedule-based maintenance routines by engineering near real-time visibility of asset performance and health.

- **REDUCE COST:** Reduce equipment failures and costly service outages through Advanced Pattern Recognition (APR) and other analytics that offer early warning of asset failures and other problems.

- **MAINTAIN OPERATIONAL SECURITY:** Apply secure cloud technologies to control read-write access based on user roles or group memberships. Maximize accountability through detailed activities logging and user notes fields.

Often referred to as captive power plants, industrial generators deliver mission-critical energy for production processes at sites where utility services are unavailable or infeasible.

While many industrial power plants run on diesel or natural gas in order to leverage high fuel efficiency in compact form factors, there remains a sizeable installed base in coal-fired generators. Maximizing the ROI for these assets has grown increasingly challenging.

Growing access to IIoT technologies offers industrial power plant managers an unprecedented opportunity to streamline asset health monitoring, diagnostics, and issue remediation, as a means to achieve greater reliability and more efficient operations.

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