

# COST OF CYCLING AND DATA ANALYTICS

Real-time data analytics to monitor and predict equipment failure and cost of operation

## Company

Intermountain Power Plant (IPP)

## Region

Utah, USA

## Intertek Solutions

Cost of Cycling - Ensure clients determine and utilize the cost of cycling power plants to better manage their physical and financial assets.

Data Analytics - Utilizing data science tools to improve asset integrity.

**Real-time monitoring and failure prediction for asset management is fast gaining popularity in the power industry. Power plants are transitioning from initial small data gathering to larger projects that are creating measurable value for owner's and operator's of power plants.**

## The Challenge

Most power plants including IPP were originally designed for steady full load operation. With the increase of renewable generation, lower natural gas prices and other market drivers, IPP has been required to function at lower operating load and change its output more frequently and rapidly (also called "cycling" or "flexible" operation).

This change in operation results in increased wear and tear of equipment such as turbines, boilers, steam piping, and auxiliary components, which now undergo significant thermal and pressure cycles.

Equipment aging due to operation at high temperatures for several thousand hours and repeated expansion and contraction of complex components is realized as thermal and mechanical damage, which results in equipment failure, unplanned outages, and increased operations and maintenance (O&M) costs.

It was vital for IPP management to determine the cost of operating their power plant with

Intermountain Power Plant (IPP) is one of the largest coal-fired power plants in the United States. The plant has two units each with a generation capacity of 950 MW (total of 1,900 MW) and is located in Delta, Utah, USA. Commercial operation of unit 1 started in June 1986, and unit 2 in May 1987. Since then, the plant has provided reliable power to consumers in Utah and Southern California.



increased cycling and simultaneously monitor and minimize the impacts of this operating regime to manage costs and reliability.

## The Solution

Intertek's engineering consulting team has been performing cost of cycling studies since the 1980s. During the course of hundreds of engineering investigations and analyses, Intertek's technical experts have found that equipment wear and tear due to power plant start up / shut down and load cycling is a very significant contributor to the cost of producing power.

Intertek performed a detailed study over the course of several weeks to determine the impact of cycling operations on equipment life and the associated O&M cost.

Following the submission of the report, which included the cost of starting, stopping and load cycling the power plant, the Intertek team worked with the plant's engineering team to install the real-time damage and cost monitoring software Aware-RealTime at the site.

Aware-RealTime works transparently with existing process instrumentation monitoring software to analyze millions of data points in real time providing IPP operators and plant staff with feedback and insight on events that cause the increased wear and tear damage of their equipment. Using Intertek's proprietary analytics algorithms, damage information is quantified as a real cost for plant engineers, who utilize the outputs to improve operations, minimize equipment damage and submit financial information as input for budgets, trading and contractual obligations.

## FOR MORE INFORMATION

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