

# POWER OPTIMIZATION CENTER



**Luminant**

## ANOTHER SUCCESS STORY CIRCULATING WATER PUMP MISOPERATION

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24/7 Real-Time Operational Support With *Actionable Intelligence*

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# **SOLUTIONS & SAVINGS**

**“Detailed plant modeling and due diligence by the Power Optimization Center saved this generation facility over \$500,000 in total cost avoidance.”**

## OUR MISSION:

The Power Optimization Center is dedicated to providing unsurpassed, advanced monitoring and diagnostics services to generation and production facilities. Industry-seasoned engineers and experienced process control operators excel in identifying incipient and long-term equipment issues around the clock, providing actionable intelligence directly to those responsible for real-time operations. With no ties to parts or maintenance organizations, the success of the Power Optimization Center is driven by the competitive market advantage its clients achieve through realizing maximum asset performance.



# CIRCULATING WATER PUMP MISOPERATION

The Luminant Power Optimization Center identifies, forecasts and advises plant personnel of impending issues impacting production through the integration of remote monitoring, modeling and diagnostics.

In the current market environment of low natural gas and wholesale power prices, and tightening emissions standards, generators need to produce megawatts as profitably as possible. The Power Optimization Center can help reach that goal.

For example, Power Optimization Center personnel discovered significant heat rate and generation impact due to the misoperation of unit circulating water pumps. **Detailed plant modeling and due diligence by the Power Optimization Center saved this generation facility over \$500,000 in total cost avoidance.**

## The Problem

The Power Optimization Center performs thermal efficiency reviews based on a number of conditions. In this case, a three-unit power generation facility was experiencing cooler than normal weather. Power Optimization Center engineers initiated a thermal efficiency review and determined all three circulating pumps were needlessly running on each of the three units.

The third circulating water pump is typically secured as cooling water temperatures decrease during the onset of winter. The third operating pump caused an excessive decrease in condenser back-pressure, negatively impacting unit gross generation. None of the three units were turbine limited at the time, resulting in an adverse capacity limit.



In an ideal world, the condenser removes only that amount of heat needed to change low-energy steam to water, retaining as much heat as possible. A perfectly balanced Ideal Rankine Cycle would then require the boiler to only add latent heat of vaporization. When excess cooling is applied inside the condenser, the boiler must heat the water back to its boiling point before transforming that water into steam, requiring more fuel and auxiliary power to be consumed than what should be necessary.

## The Solution

The Power Optimization Center contacted plant operations personnel to apprise them of the heat rate impact and recommended securing a single circulating water pump on each unit. Shortly after securing the third circulating water pump, the Power Optimization Center observed optimized condenser backpressure, positive impact on gross generation, optimized total unit auxiliary load, and optimized heat rate for present unit full load condenser operating conditions.

Analysis revealed that securing the third circulating water pump resulted in 37 BTU/KWh heat rate improvement for each unit and an additional 3 MWe capacity improvement.

## The Savings

The Power Optimization Center determines cost avoidance by applying proprietary calculations. This generating facility saved \$125,626 in heat rate improvement and \$374,587 in generation capacity improvement totaling \$500,213 in total cost avoidance for the period between the date that plant personnel were advised to secure the third circulating water pump and the date that the third circulating water pump would normally be secured.



Utilizing over a dozen separate software systems that monitor and diagnose just about any issue that may affect plant operations, the Power Optimization Center has a proven history of helping manufacturing and generating facilities realize maximum asset performance.

With power markets nationwide under low price pressures, generators more than ever need a way to analyze unit performance in real time to enhance efficiency, prevent shutdowns, and save dollars. Whether your equipment resides in the utility industry, manufacturing or any other type of facility, the Power Optimization Center is ready to help your company achieve the highest levels of safety and reliability.

Call us today to see how we can bring value to your company and visit [www.pocdiagnostics.net](http://www.pocdiagnostics.net) to learn more.

# **POWER OPTIMIZATION CENTER**



**CONTACT US TODAY TO SEE HOW WE CAN HELP YOU**

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