



Mirant Achieves Nearly \$1 Million in Value in First Month Alone

Proficy SmartSignal Case Study

RESULTS

- Realized \$1 million in value within three weeks of deployment.
- Early notification of two major problems with air heaters allowed for planned maintenance and twice prevented a full unit outage of 191 MW.
- Identified early a problem with a boiler feed pump coupling, resulting in replacement.

Initially deploying across three units, Mirant saw immediate results and expanded usage to three additional plants.

Mirant's background

Mirant** is a competitive energy company that produces and sells electricity in the Northeast, Mid-Atlantic, and California regions of the United States. Mirant owns or leases approximately 10,280 megawatts of electric generating capacity. The company operates an asset-management and energy-marketing organization out of Atlanta.

Mirant's challenge

In 2006, Mirant decided to undertake a focused effort to improve plant reliability and reduce EFOR, so Mirant began talks with the Proficy* SmartSignal team. The Proficy SmartSignal solution works with plants in real time, 24/7, to help predict, diagnose, and prioritize developing problems. Mirant soon was convinced of the SmartSignal solution's capabilities, value proposition, and speed to value, and believed the solution could improve upon Mirant's traditional condition-monitoring techniques.



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Proficy SmartSignal installation

Mirant decided to proceed with an initial deployment of the SmartSignal solution across three units at the Dickerson plant prior to scaling across the remainder of its “tier-one” fleet. The deployment began in March of 2007 on a core set of critical and balance-of-plant equipment. Within one month, all three units were deployed completely, and Mirant already was seeing results.

“The Proficy SmartSignal solution has proven beneficial to us in several ways. One, the quick notification we receive on sensor changes has enabled us to plan downtime and prevent equipment failures. Second, the weekly reporting of items in small deviations has enabled us to submit plant work orders and plan corrective maintenance, once the root cause is identified. Third, when we run into a performance issue at the facility, we’ll call the Proficy SmartSignal team to explore the model and let us know of any abnormal trends. Because of this program, we have worked changes into our alarm-management philosophy, helping our operators focus more on unit operation.”

Mike Bennett
Operations Manager
Dickerson Generating Facility
Mirant

Proficy SmartSignal benefits

While still developing the models, the SmartSignal solution identified a major issue on an air heater; this issue had not yet been detected by the plant. The warning provided by the solution allowed the impending problem to be addressed during an upcoming planned outage. By mid May, the SmartSignal solution identified two additional issues — for a total of three “catches” within the first few weeks of deployment.

The Mirant Dickerson plant calculated that early detection of these three initial impending problems alone was worth approximately \$1 million in value. Details follow:

On March 24, 2007, almost immediately after installation, the SmartSignal solution identified a current swing in the Unit 3 air heater drive motor and, at the same time, high differential pressure across the air heater. Given the ambient temperature and load, these readings were unusual when compared with all associated sensors. These issues were watched and, when the plant came to a planned maintenance outage, the unit was taken down. The basket was inspected, and pluggage was confirmed. The baskets were washed and balanced. The solution’s follow-up readings showed the amps to be back within normal range, verifying that the maintenance was effective in mitigating the problem.

None of these actions had been planned for the outage, but the SmartSignal notification allowed for proper planning for a wash and balance. An unplanned outage would have resulted in a loss of 191 gross MW.

One month later, the SmartSignal solution identified a similar air heater problem on Unit 1. During a planned outage, the basket was inspected, and pluggage was confirmed. The APH subsequently was washed. Following the wash, the wheel was balanced to reduce rubs. Significant amount of weight was added to achieve the balance.

If the problem had not been identified by the SmartSignal solution before the outage, a full unit outage of 191 MW would have been necessary.

The third problem identified by the SmartSignal solution occurred on a boiler feed pump. Mirant was notified of a step change in both x and y vibrations on a coupling. The Mirant Predictive Maintenance group confirmed the readings and recommended work on the coupling. The turbine/pump was tagged and isolated, and the coupling was replaced.

Expanding the solution

Mirant has continued to obtain significant value from the SmartSignal solution. In June of 2007, Mirant expanded its deployment to three additional plants, including most of the base-loaded coal units in Mirant’s Mid-Atlantic fleet.

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