



CUSTOMER CASE STUDY

Optimizing Power Plant Performance with Real-Time AI Diagnostics

How TexGen recovered 10 MW of capacity using BKO AI monitoring and predictive dashboards

Solution: BKO AI Monitoring and Diagnostics Platform **Industry:** Power Generation

Use Case Focus: Asset Performance Management

GOALS

- Integrate operational data across multiple disconnected power generation systems and plant equipment.
- Establish a predictive maintenance framework using real-time asset health data for optimal scheduling.
- Upskill plant personnel to effectively interpret performance dashboards and drive daily decisions.
- Provide plant leadership with clear historical visibility and predictive analytics to forecast long-term trends.

SOLUTIONS

- Installed online monitoring dashboards to enable parameter control and real-time operational visibility.
- Implemented live health score dashboards assessing the performance of gas turbines, steam turbines, and condensers.
- Delivered technical training programs to equip onsite personnel with analytical and dashboard interpretation skills.
- Conducted a comprehensive three-year historical data analysis to identify root causes of equipment inefficiency.

CHALLENGES

- Data silos across various equipment and systems restricted the efficient flow of critical operational information.
- Maintenance schedules lacked the empirical data required to determine optimal servicing times and post-maintenance
- Plant operators lacked the necessary training and experience to leverage visualization dashboards.
- Limited historical monitoring data prevented leadership from accurately tracking yearly performance trends.

RESULTS

- Recovered 10000 kW of capacity at base load across two critical power generation units.
- Transitioned plant operations to proactive maintenance scheduling backed by real-time asset performance metrics.
- Empowered utility leadership to make long-term planning decisions based on verified, up-to-date data.
- Secured continuous grid reliability for Texas through regular monthly performance and optimization reporting.

EXECUTIVE SUMMARY

Texas-based power generator TexGen struggled with data silos, outdated maintenance schedules, and a lack of real-time monitoring across its critical generation assets. BKO AI implemented a holistic optimization solution featuring online monitoring, live asset health dashboards for turbines and condensers, and targeted staff training. This digital transformation empowered personnel and enabled predictive maintenance by analyzing three years of historical operational data. As a direct result, TexGen successfully recovered 10 MW of capacity at base load across two units and established continuous, data-driven operational efficiency.

Overcoming Operational Silos and Skill Gaps

TexGen faced significant hurdles in maintaining peak efficiency across its power generation facilities. Critical performance data remained locked within isolated proprietary systems, creating severe information silos that hindered real-time decision-making. Furthermore, without unified visualization tools or structured training, plant operators lacked the means to identify and address emerging equipment issues. This operational opacity left plant leadership without the reliable long-term historical trends needed to accurately plan outages, forecast maintenance requirements, or optimize system-wide energy output.

Implementing Holistic AI-Driven Monitoring

To address these challenges, BKO AI deployed a comprehensive digital platform that unified disparate data streams. The solution introduced online parameter control dashboards alongside specialized health scoring modules for steam turbines, gas turbines, and condensers. BKO AI also prioritized hands-on personnel training, transforming onsite teams into data-empowered operators capable of interpreting live performance metrics. By analyzing three years of historical generation data, the system successfully pinpointed specific thermodynamic anomalies and mechanical degradation across multiple active units.

Driving Sustained Efficiency and Grid Resilience

The integration of BKO AI's monitoring solution delivered immediate, tangible improvements to TexGen's operations. The deep analytical dive into historical data allowed engineers to resolve underlying performance bottlenecks, instantly reclaiming 10 MW of generation capacity at base load across two critical units. Today, leadership utilizes continuous monthly performance reports to drive predictive maintenance scheduling rather than reacting to equipment failures. This data-driven approach ensures sustained efficiency, minimizes costly unplanned downtime, and strengthens the overall reliability of the Texas electrical grid.