



**Prescriptive Maintenance Solution Delivers
Earlier, More Accurate Warning of Asset Failure
for Integrated O&G Company**

Up to 23 DAYS

lead time on
asset failure

Minimum of 2%

increase in availability by
mitigating and avoiding
unplanned downtime

At Least 10X ROI

for sitewide rollout

CHALLENGE

- Failure of critical asset in major gas fields
- Deferred production and related fines due to unplanned downtime
- Costly annual sitewide maintenance spend averaging 3% of total revenue

SOLUTION

AspenTech's prescriptive maintenance solution, Aspen Mtell[®], was applied to increase availability and reliability of assets.

VALUE CREATED

- Provided early and accurate warning for critical asset failures up to 23 days in advance
- Increased critical asset reliability and enhanced plant availability, ensuring uninterrupted operations
- Improved process safety, which led to decreased environmental and associated financial impact
- Decreased annual sitewide maintenance spend by rapidly scaling the solution across similar assets using Aspen Mtell's transfer learning capability



The customer is a state-owned integrated oil and gas company with operations in exploration, production, midstream, refining and petrochemicals. Their existing partnership with AspenTech and desire to embark on a digital transformation journey led to this collaboration. Two of the company's most productive oil and gas central processing fields were experiencing unplanned downtime of their critical asset: turboexpanders, gas compressors and gas turbines. This asset was essential to safe operations and to meeting delivery commitments.

Failure of Critical Asset in Major Oil and Gas Fields

The oil and gas fields are an integral part of the company's digital transformation program. The potential impact of experiencing unplanned downtime on the sites' turboexpanders or gas turbines is \$1.2M USD per day due to the deferred production—in addition to costly repairs and maintenance. An unexpected surge event in the gas compressors, for instance, can lead to flaring. Early detection of events is significant, as it gives valuable time back to production and allows operations to mitigate or solve the problem.

“We are advancing on the path of profitable and sustainable growth and adapting to a challenging situation.”

-Customer CEO



With AspenTech as its partner, the company had a number of key objectives it wanted to achieve in the study:

- Maintain safe operations and reduce environmental impact
- Demonstrate positive impact to revenue by recovering production
- Reduce unplanned downtime and unnecessary preventive maintenance
- Gain insights into key contributing variables and mechanisms for historical events on given failure modes for assets in scope
- Demonstrate early lead time of an event (“Event Lead Time”) of at least 7 days
- Increase production and reduce fines for missed commitments
- Reduce annual sitewide maintenance spend (currently 3% of the total revenue)
- Increase availability of gas turbines and other critical assets (>98%)

Providing Early and Accurate Failure Warnings

The asset selected for the study was critical to operations, where an unplanned event would lead to safety and environmental issues along with loss of production and fines for missed commitments. Aspen Mtell was applied to turboexpanders, gas compressors and gas turbines to provide early failure warnings in accordance with the company’s reliability goals.

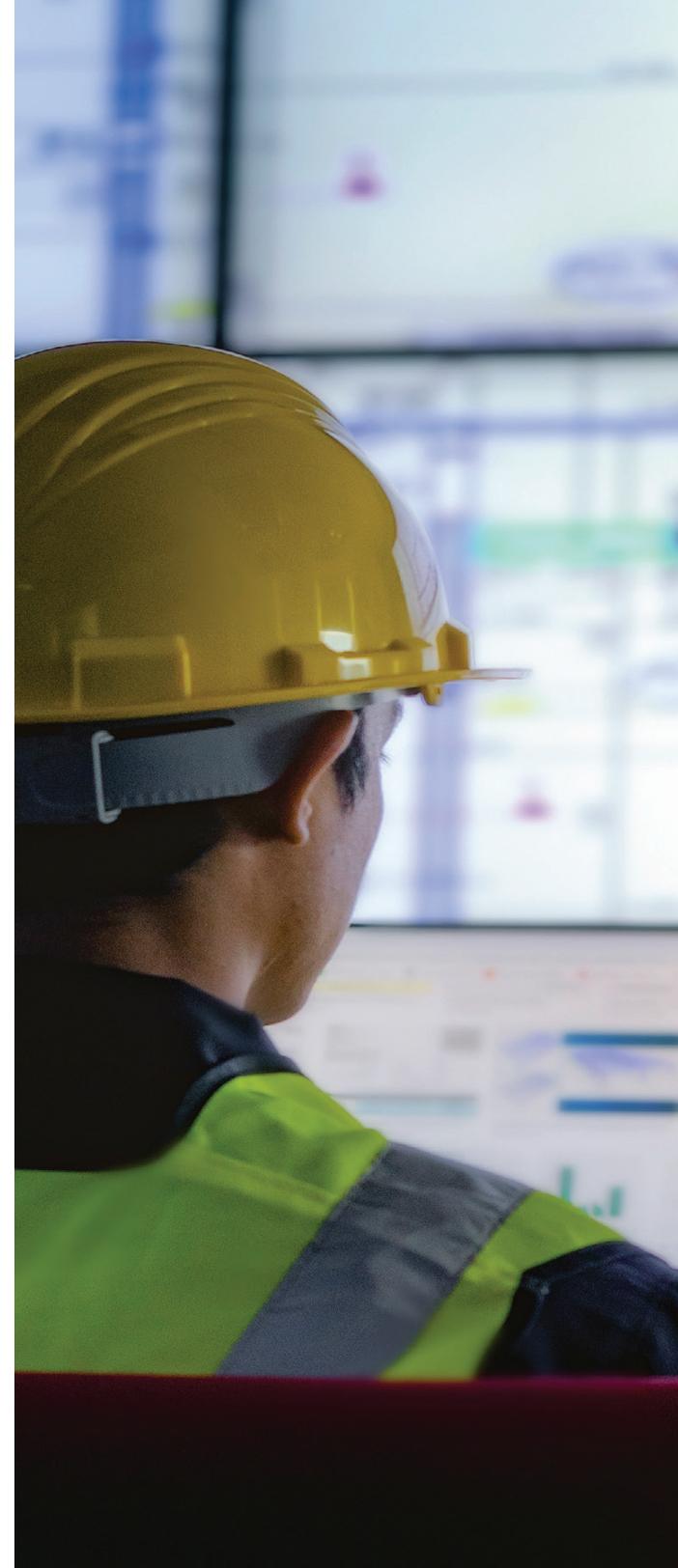
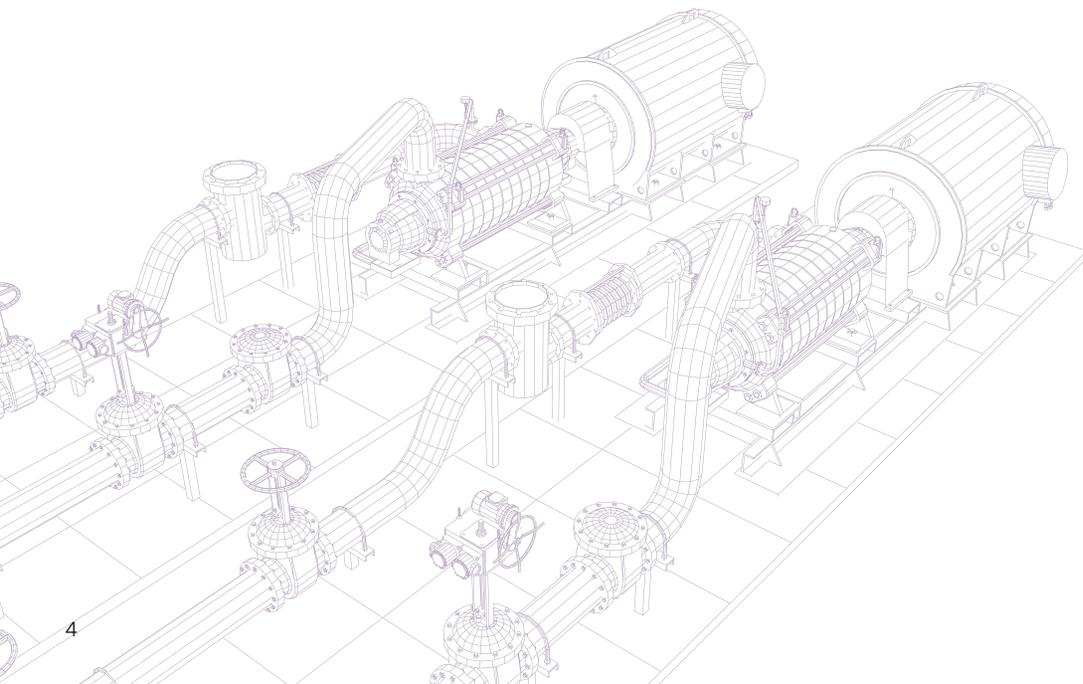
Aspen Mtell was able to accurately identify conditions leading to known and unknown events, and demonstrate early event lead times, exceeding the desired lead time of 7 days. More specifically, for turboexpanders, lead time was as much as 8 days; gas compressors up to 20 days in advance; and gas turbine up to 23 days in advance.

The company identified millions of dollars in value-capture opportunities by reducing deferred production and minimizing fines. Aspen Mtell's transfer learning capability meant that agents trained on one of the turboexpanders could be applied to others, thereby enhancing scalability. For a sitewide rollout at both locations, AspenTech estimates a 10X or higher return on investment.

Increased Production and Reduced Maintenance Spend

Prior to working with AspenTech, this company had relied on scheduled, preventive maintenance. A prescriptive maintenance solution like Aspen Mtell enables them to decide and plan maintenance, reduce maintenance costs and make contingency plans around planning and scheduling. When Aspen Mtell is rolled out sitewide, the company can focus on highest-value-add activities (versus concern over asset failure) and realize increased production in the years ahead.

Visit our website for more on [Aspen Mtell](#) and our other [Asset Performance Management](#) solutions.





About Aspen Technology

Aspen Technology, Inc. (NASDAQ: AZPN) is a global software leader helping industries at the forefront of the world's dual challenge meet the increasing demand for resources from a rapidly growing population in a profitable and sustainable manner. AspenTech solutions address complex environments where it is critical to optimize the asset design, operation and maintenance life-cycle. Through our unique combination of deep domain expertise and innovation, customers in asset-intensive industries can run their assets safer, greener, longer and faster to improve their operational excellence.

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