YPF

Argentina's Largest Oil and Gas Company Improves Reliability and Efficiency with Aspen Mtell®

aspentech | Case Study

"Aspen Mtell has helped us improve equipment reliability, allowing our engineers to solve issues proactively. The result has been higher productivity, lower operational costs and a greater ability to meet sustainability targets."

—Noel Forame, Downstream Technology Manager

Saved 10 Days of Production

within 18 months

CHALLENGE

YPF aims to quadruple the value of the company in the next four years, turning it into a crude oil and LNG exporter, and increasing production efficiency in its refineries. To achieve these objectives, YPF needs to improve the reliability of its equipment and substantially reduce operational costs.

SOLUTION

YPF implemented the Aspen Mtell prescriptive maintenance solution, to continuously monitor equipment health and performance, and provide actionable insights that will support the effective prioritization of maintenance activities.

VALUE CREATED

- Early detection of a failure prevented major damage to a vital compressor.
- Saved an estimated 10 days of lost profits resulting from increasing vibration that would lead to a failure, and prevented uncontrolled venting that could cause environmental pollution.
- Implementation led to a cultural shift, streamlining work and increasing proactive issue resolution.

Overview

YPF, Argentina's largest oil and gas company with a century-long legacy, embarked on a transformative journey in partnership with AspenTech. As the leading player in the local energy industry, YPF has ambitious goals, including quadrupling the company's value in the next four years, becoming a crude oil and LNG exporter and increasing production efficiency in its refineries. To help achieve these objectives, YPF needed to substantially reduce operating costs and ensure the reliability of its equipment.

YPF's oil and gas operations are complex, and its refineries rely on critical rotating equipment. Manually monitoring this equipment proved challenging. YPF sought an automated solution that would enable continuous monitoring and provide actionable insights to effectively prioritize maintenance activities.

After extensive market research and six months of exploratory work, YPF identified AspenTech as a top contender among vendors. A local refinery recommended Aspen Mtell, which ultimately became the solution of choice for YPF. The transparent, comprehensive capabilities of Aspen Mtell resonated with YPF, and they appreciated the AspenTech team's commitment to successful implementation.

In collaboration with AspenTech, YPF assembled a cross-functional team, including refinery personnel, rotating asset integrity engineers, process engineers and IT managers. The company's mission was clear: Find a predictive and prescriptive maintenance solution that can improve equipment reliability.

Early Detection and Proactive Maintenance Save Time and Costs

YPF initially implemented Aspen Mtell to monitor 11 critical pieces of equipment across three refineries, providing an effective alert from the very beginning on one of its assets. The implementation continued with 35 additional rotating assets from the three industrial complexes and logistic centers. In this phase, the project implementation team took on the challenge of incorporating the predictive power of Aspen Mtell into three process units, whose actors and problems are totally different from those of the rotating ones.

Using advanced machine learning capabilities, Aspen Mtell enabled YPF to track 3,000 sensor tags and gather insights into the health of the equipment. The results were astonishing.

In one case, Aspen Mtell was able to identify an abnormal condition in a vital compressor six months before conventional methods would have sounded the alarm. The primary air blower in the Fluidized Catalytic Cracking unit, known for having issues in the past, exhibited a change in vibration sensor behavior, with a gradual increase in vibration levels. Traditionally, such changes would be detected during manual inspections, resulting in a shutdown request until the issue was resolved. With Aspen Mtell, however, YPF gained concrete and timely evidence of the problem and was able to observe its progression. This proactive detection allowed YPF to avert a potential equipment failure, saving nearly five days of production and conserving valuable resources.

In another instance, YPF harnessed Aspen Mtell's predictive capabilities to alert the operators about increased temperature in bearings and lubrication oil in the Hydrocracking Unit of its Luján de Cuyo refinery.

After the rising temperatures were detected, the maintenance team tried to change the lubrication oil exchanger but discovered that the three-way valve was stuck. The repairs were done taking advantage of a maintenance window for the newly alerted equipment, leading to substantial cost savings, and avoiding nearly five days of lost production resulting from severe damage if the bearings had melted.

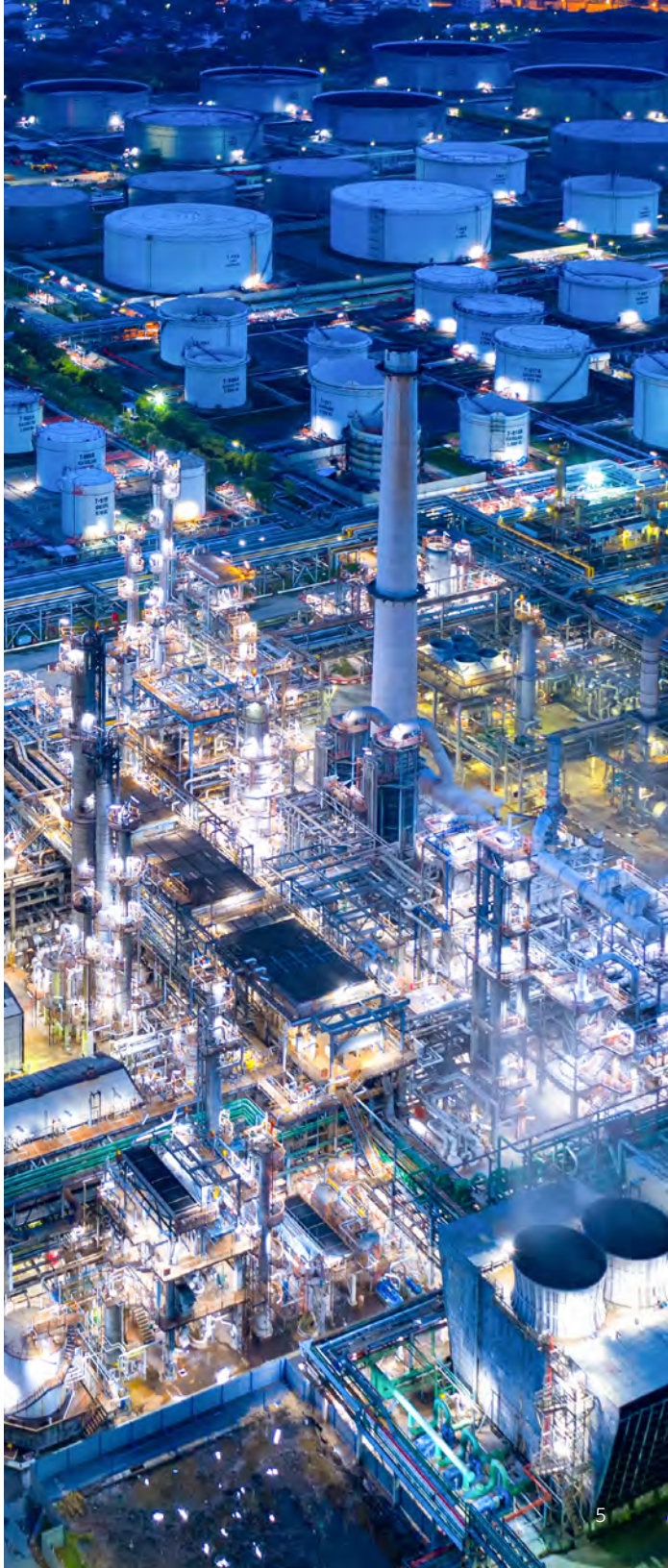
A Cultural Shift Leads to More Efficient Work Prioritization

YPF's implementation of Aspen Mtell introduced a cultural shift within the organization. "Super users", the first to work with Aspen Mtell, led adoption of the technology. They were followed by a growing number of users who are being trained to analyze, manage and resolve alerts effectively. Work prioritization was streamlined, and operations and process engineers became closely involved in resolving issues proactively.

Aspen Mtell currently oversees a total of 49 assets, including pumps, compressors, heat exchangers and reactors. YPF's commitment to operational improvement is ongoing, with a growing focus on safeguarding additional assets, optimizing energy efficiency and addressing issues related to fouling and corrosion. In a progressive step, YPF has introduced Agents to monitor emissions originating from one of its refineries, and plans to extend this monitoring to encompass all 26 known discharge sources, demonstrating its dedication to sustainability.

A Promising Future for the Oil and Gas Industry in Argentina

With the power of Aspen Mtell and the commitment of YPF's team, the future is indeed promising. YPF and AspenTech are transforming the oil and gas industry in Argentina, one innovative step at a time.



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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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