YPF
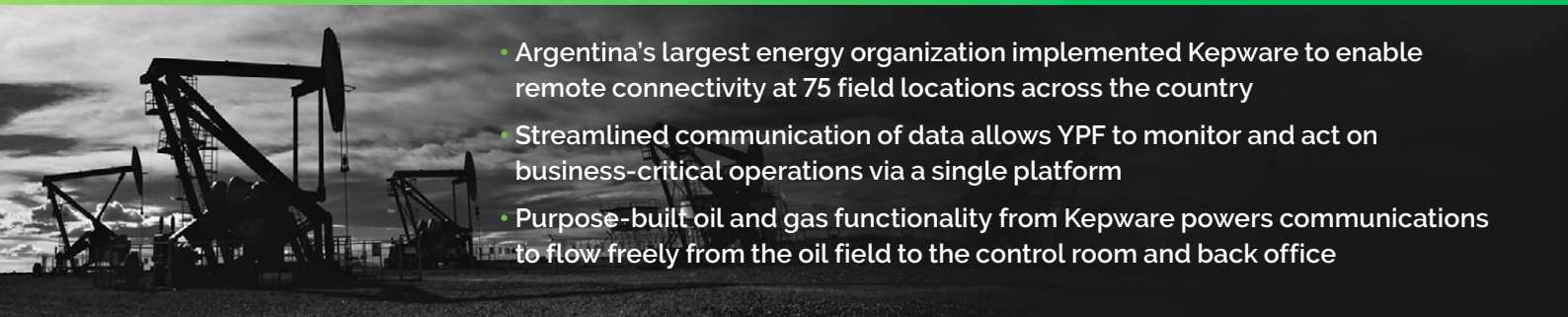## OPTIMIZES COMMUNICATIONS AND DATA CONNECTIVITY WITH KEPSERVEREX FROM PTC, IMPROVING OPERATIONS ACROSS THE VALUE CHAIN

- Argentina's largest energy organization implemented Kepware to enable remote connectivity at 75 field locations across the country
- Streamlined communication of data allows YPF to monitor and act on business-critical operations via a single platform
- Purpose-built oil and gas functionality from Kepware powers communications to flow freely from the oil field to the control room and back office

YPF Sociedad Anonima (YPF) is a vertically integrated Argentine energy company engaged in the exploration, production, transportation, and refining of oil, gas, and petroleum products. Founded in 1922, the company has more than 41 percent of the oil and gas industry market share in Argentina, including 17,000 oil wells across 220 oil fields that supply energy to all points of Argentina and beyond.

The Challenge

As a major provider of energy to the Argentina and South American markets, YPF has a plethora of operations that are spread throughout the country, often located in very remote areas. Previously, the company's data collection capabilities used different technologies only focusing on connectivity to field controllers, which mostly consisted of just PLCs (Programmable Logic Controllers). And understanding that the oil and gas industry has unique needs beyond the capabilities of out-of-the-box industrial drivers, YPF had to upgrade its current technologies.

In harsh environments of drilling operations, well production, and various separation and compressor plants in the field, communication and safety are paramount for field workers and the production and operations staff that oversees them. With baseline technologies in place, YPF employees struggled to disseminate messages from disparate systems, which held back operations from running smoothly. As a result, an increased amount of personnel had to travel to remote locations to monitor operations and equipment. When it was determined that equipment needed maintenance, additional travel was then required to the sites with the appropriate replacement parts and tools – provided the problem was initially diagnosed properly – creating another potential for costly unplanned downtime.

The Approach

Having some knowledge of the KEPServerEX offering and knowing that the platform offers benefits purpose-built for the oil and gas industry, YPF saw the opportunity to bring additional insight and machine intelligence into their operations. One of the first things about KEPServerEX that immediately stood out for the YPF upstream organization was the platform's support of dynacard data collection from rod pump controllers and Electronic Flow Measurement (EFM) data from flow computers at well sites and pipeline junctions. This allowed YPF production engineers to capture operational and business-critical information and insights from the field, to help them improve their operations, and ultimately, achieve maximum production from their wells.

Additionally, KEPServerEX's new API configuration capabilities provide remote access to all KEPServers in the field with the ability to make configuration changes programmatically from third party applications. This was a key feature for remotely managing the 75-plus servers in the field. Another key feature of the technology that supported YPF's need to communicate to thousands of field devices was the Scheduler Plug-in. This tool provides the ability to schedule the collection of various data points per device with the frequency determined by the significance and priority of each data point at the server level, allowing the YPF technicians to maximize data collection over their limited bandwidth wireless networks.

Thanks to the Scheduler and KEPServerEX's communications diagnostics, YPF now has a much clearer view into its network traffic and permits them to use KEPServerEX as a network traffic "cop" – pushing the scheduling of data into a single application as opposed to being driven by multiple separate software client applications. Another advanced function of KEPServerEX that proved to be very helpful with M2M (Machine to Machine) communications is the Tag Linking feature of the Advanced Tag Plug-in. This feature allowed for tags in PLCs like Rockwell's ControlLogix to update information in the DCS (Distributed Control System) of the plants, like Emerson's DeltaV as well as updating PLCs in the field from SQL databases.

Lastly, due to the large amounts of energy it takes for upstream operations to run, many sites have their own electrical substation, which also needs to be monitored separately from oil and gas production. While these operations are separate from the rest of the well site processes, monitoring the substation is a crucial part of the overall workflow. Monitoring also provides an opportunity to reduce power consumption when coordinated with well site operations. By implementing KEPServerEX's substation protocol drivers like DNP3, IEC 60870, and IEC 61850 for the electrical components at each site, YPF employees who monitor the electrical operations can now easily and safely receive actionable data and make crucial changes without having to travel to each site, thus reducing costs while increasing safety.

The Result

Since implementing Kepware across its upstream operations, YPF has been able to install close to 300 licenses at 75 sites in the last three years. YPF particularly values Kepware's ability to make ongoing technical updates to the product suite, ensuring cutting edge success as new technologies unfold. Thanks to KEPServerEX, YPF now can collect data in a much more reliable manner, which has led to more operational insights and improved workflows. Additionally, it has helped each field location move data directly from Kepware into their historian technology platform, providing timely and accurate reporting.

> **Kepware has become an essential part of YPF's upstream operations. Before Kepware, we didn't always know what was in our communications queue – now we have the tools to organize and create better processes. With KEPServerEX in place, we are able to drive toward an 'Intelligent Upstream,' and automating oil wells across our network. Without Kepware, this transition would be much more cumbersome, time-consuming, and not as reliable."**

> — Máximo Alberto Frías, SCADA Specialist, Upstream Technology Operations, YP

Noticing the streamlined data collection and communications networking abilities achieved by the upstream business, other business units inside of YPF are building in Kepware as an essential part of their operations. For instance, YPF's midstream gas transportation division is also taking advantage of Kepware's EFM measurement collection capabilities, capturing data used for monetary custody transfer payments and enabling easy and safe remote monitoring and control of gas pipelines from their control room.