

From reactive to proactive: Plug Power's new service model

Plug Power is transitioning from reactive to proactive service. They are building their new service structure around their ELX portal, based on IXON. Here they collect crucial operational data which they use not only to improve response times but also to lay the foundation for future (after-sales) service models such as predictive maintenance.

Plug Power is an American company that produces Electrolyzers, based on PEM-technology (proton exchange membrane), that split water to make hydrogen and oxygen. It's also the largest consumer of liquid hydrogen in the United States. Plug Power is building an end-to-end green hydrogen ecosystem, from production, storage and delivery to utilization, to help its customers achieve their sustainability goals and decarbonize the economy.

The success story in this case focuses on the latest Electrolyzer systems being built and delivered by Plug Power.

Challenge

Plug Power is committed to maximizing the availability of their systems. They want to do this by moving from a reactive to proactive service model resulting in shorter response times and minimal downtime. "We want to directly engage with customers in case of unplanned downtime and perform maintenance and replacement of equipment in a more predictive fashion. That way you can really add value to your customer," says Laurens Terraneo, Product Specialist ELX at Plug Power.

To achieve this, Plug collects operational and performance data to gain insight into KPIs such as response times, number of incidents resolved, maintenance hours and costs of unscheduled maintenance. They also want insight into customer system performance such as uptime, system efficiency, production efficiency and hydrogen purity, information that is also valuable to customers.

With this data, Plug Power aims to develop a service model that unburdens customers by proactively engaging them with valuable insights and recommendations, backed by a 24/7 tech support service that remotely monitors systems and provides a continuous feedback loop for product improvement.

Solution

Plug Power integrates IXON routers into Electrolyzers delivered to their customers around the globe. The IXON portal is used, under the name ELX, for data logging and visualization.

Laurens emphasizes, "With IXON we kill two birds with one stone! Without any coding experience, we can visualize data. In addition, it offers a lot of added value because it's so easy to integrate with other tools, so we have the flexibility to set it up how we see fit."

Service architecture built around IXON

The ELX portal plays a critical role in Plug Power's 24/7 tech support strategy. It allows them to guarantee a 96% uptime of their systems, and enables rapid troubleshooting and knowledge sharing through the Service Logbook and a ticketing system.

"With the ELX portal, we configure alarms that automatically generate tickets when systems are down. This allows us to analyze the causes and it contributes to the knowledge base we want to build," says Duncan Jansen, Product Manager Data at Plug Power.

Knowledge base for faster response time and predictive maintenance

This service knowledge base centralizes critical information and reduces Plug Power's response time. It provides quick access to historical data and solutions, allowing employees to respond more quickly to new incidents. By centralizing this expertise, product experts are relieved; they can focus on urgent tasks, making the organization more flexible and scalable. In addition, the knowledge base serves as the basis for algorithms for future predictive maintenance.

Laurens: "We have a small team focused on the front end development in the portal. He writes software for custom components and features with support from IXON's Customer Success Manager, as he knows all the ins and outs of how that's set up technically. That works out really well and is significantly accelerating our development."

Result

Plug has already made some major improvements using their ELX portal:

- **Faster commissioning**
Thanks to IXON, system installation and commissioning time has been greatly reduced by several months. This results in faster project delivery and significantly reduces labor costs and time.
- **Improved diagnostics**
IXON's advanced diagnostic capabilities can quickly identify upsets or performance deviations. This has led to a tenfold increase in troubleshooting times, and increased operational efficiency and customer satisfaction.

- **Preventive problem solving**

"By performing root cause analysis, we can identify and address safety-critical situations, such as hazardous gas compositions, early on. Without IXON's data acquisition and visualization capabilities, there is no way we would have resolved certain issues," says Laurens. "This not only improves the safety of the systems, but also leads to serious improvements in product design."

Use case

Before IXON, Plug Power had no direct access to system data. This meant they needed way more resources than with the ability to perform proactive monitoring and diagnostics via IXON. Here you see the difference it makes for them on a specific case with a customer:

Without IXON	With IXON
5 days before the root cause was diagnosed	~ 2-3 hours to diagnose the incident with logging & trending data
6 engineers involved in diagnostics of incident	~ 1-2 engineers dedicated to solving incidents
~ 0.45 FTE commissioning & service engineer capacity	~ 0.05 FTE in support service capacity
~ €2.500 internal cost for diagnosing the incident	~ €300 internal cost for diagnosing and solving the incident

The development of the ELX portal through IXON will enable Plug to achieve substantial improvements in after-sales service for customers and ultimately grow further from a reactive to proactive and eventually predictive service model.