

Case Study

Facilities | Offices

Back-up Generator IIoT Upgrade



Client Background

Pragma is an engineering company that delivers enterprise asset management solutions to asset-intensive industries. Pragma takes pride in the software tools, and management practices they have developed to help companies in the mining, manufacturing, local government, distributed facilities and original equipment manufacturing sectors perform at their peak while balancing asset performance, cost and risk.

Pragma's head office in Cape Town has a 75kW backup generator to ensure no loss of power in the event of a power failure. In March 2021, the generator failed to start up when Eskom had a load shedding event at 02:00 in the morning. This resulted in all servers crashing.

Key Challenges

- The generator did not start up automatically when load shedding occurred
- After the event, the contractor simulated a power outage, and the generator started up perfectly
- The generator is about 12 years old, and the control panel does not have a fault log to identify the reason for alarms
- The Original Equipment Manufacturer (OEM) does not support the control panel anymore
- IIoT monitoring was in place but did not have a signal to state that the generator was running when the main power was down



The upgrade to the standby generator gives me peace of mind that no nasty surprises awaits me when the generator suddenly fails without prior warning. With alerts coming directly to my phone, I no longer have to log in to my PC to see if everything is still OK. I live quite a distance from the office and the remote access is invaluable as it saves me time and I can manage contractors from the comfort of my home, when required to work on the generator or replenish fuel.

Roeshana Achmat, Facilities Manager

Pragma Intervention

- The generator was monitored continuously to ensure that the failure to start up did not occur until the root cause could be determined
- A detailed root cause analysis initiative was launched using the DMAIC methodology
- All possible causes were listed, and then causes without evidence were eliminated
- The root cause was determined to be a faulty pressure switch
- Although the root cause for the specific failure was addressed, a few more initiatives were identified:–Outdated controller with no alarm codes and fault log–IIoT solution not measuring all relevant information–Current contractor was not a generator expert
- An analysis was done to see if the upgrade to the generator was a good investment vs a replacement of the whole unit



Value Add

- A detailed improvement project was launched to determine the root cause of the incident
- The root cause seemed to be a faulty pressure switch
- A list of short term and longer-term actions were identified
- The IIoT solution was upgraded to give all relevant signals and accompanying alerts to the Facility Manager
- The control panel was upgraded to the latest technology to ensure improved online condition monitoring and IIoT capabilities
- A real-time IIoT dashboard was developed

Tools and Technology

- On Key EAMS
- On Key Actions
- On Key Insights (Qlik powered BI dashboards)