Schlumberger

Case study: Drilling

Location: Delaware Basin, US

Aligned with United Nations Sustainable Development Goals: 13—Climate action, 17—Partnerships for the goals.

Cactus Drilling Company Reduces Emissions, Fuel Consumption, and Equipment Wear

Intelligent power management software boosted engine efficiency at higher loads

Emissions Reduction:
Reduced engine fuel consumption and corresponding emissions by 12%

Cactus Drilling Company used intelligent power management software to manage start and stop cycles based on the load profiles to run engines more efficiently at higher loads, lowering engine run hours by 20% and reducing fuel consumption and associated emissions by up to 12%.

Lower emissions while minimizing wear and tear on rig engines

Cactus Drilling Company wanted to reduce unnecessary engine run times, thereby prolonging engine service life while reducing both fuel consumption and emissions.

Engine start and stop is typically managed manually by the rig crew, resulting in inconsistency and inefficiencies in engine and generator usage. It is also common practice to constantly run rig generators regardless of power demand required for active operations. Either way, engines operate at inefficient load conditions, which increases fuel usage and proportional releases of greenhouse gases. And unnecessary engine run time results in premature maintenance cycles and higher costs.

Integrate innovative algorithm into power management controls

Schlumberger recommended enhancing the existing engine and generator hardware and software modules with an intelligent power management algorithm. It uses a combination of user settings and load profiles from the rig control system.

Not only does the solution enable Cactus Drilling Company to manually start and stop the engines locally or remotely from the driller's cabin, but the system is also able to automatically manage generator usage based on active load conditions.

Schlumberger was chosen by the customer because the rig had the PRECISE* automated drilling system and the capability to integrate the intelligent power management solution with the existing power management system on the rig without affecting the antiblackout and power limit features.

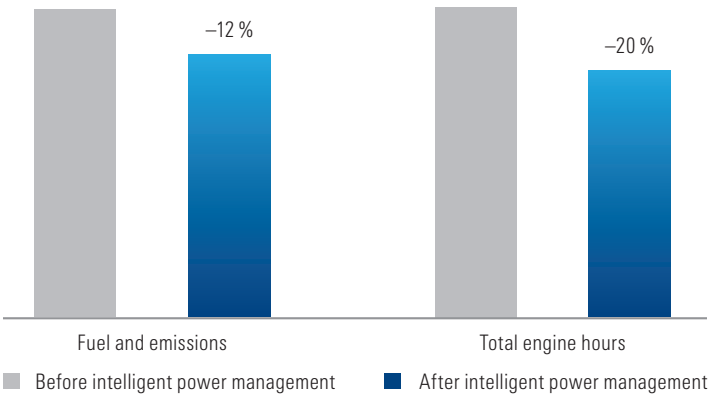
The solution used the smart algorithm to automatically start and stop the engines based on varying load demand of the rig, resulting in significant fuel and emissions reductions.

> **"Schlumberger's intelligent power management software allows us to capitalize on the many benefits of proper engine loading—extended engine service life, reduced maintenance costs, reduced fuel usage and costs, and reduced carbon emissions."**
>
> Josh Simons
> President/CEO
> Cactus Drilling Company, LLC

Reduced run hours, fuel consumption, and emissions

Intelligent power management was installed along with necessary interlocks and access controls to safely operate the system. Managing the start and stop cycles based on the load profiles and running the engines efficiently at higher loads lowered engine run hours by 20%, and reduced fuel consumption and associated emissions by up to 12%. Additionally, benefits included less engine wear and tear, which prolonged maintenance life.

Based on these results, Cactus Drilling Company implemented the solution on multiple rigs in its fleet.



Intelligent power management enabled Cactus Drilling Company to reduce fuel consumption, emissions, and engine run hours.

slb.com/intelligentpower