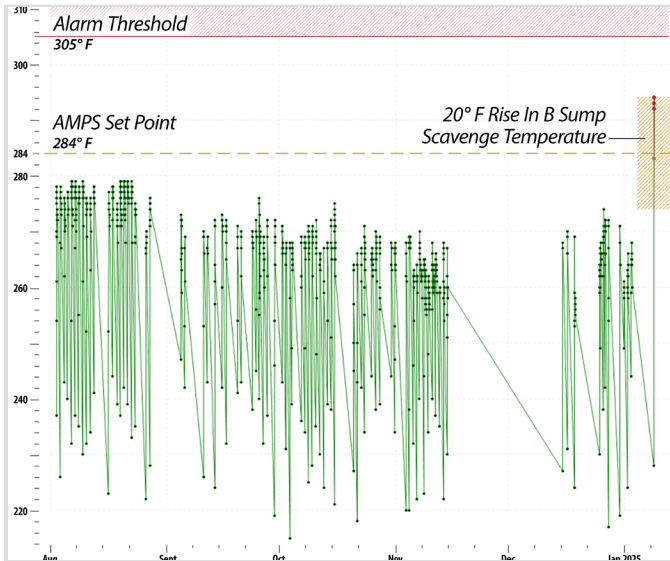




Combined with analysis that uncovered abnormal vibrations, the AMPS team predicted early failure of a scavenge pump that would lead to costly expenses and downtime. A sudden 20° F (11° C) increase in the sump scavenge temperature prompted a predictive model alert well below the alarm threshold at 305° F (152° C).

AMPS, FIELD, AND ENGINEERING SERVICES

LM6000

Sky Global Partners | Tres Power

Texas, U.S.



PREDICTIVE SERVICE DELIVERS EARLY WARNINGS AND GUIDANCE TO AVOID DAMAGES WORTH \$600K

Sky Global Partners operates Tres Power, a thermal dispatchable power plant with two LM6000 engines that can generate 100 MW in the electrical grid for Electric Reliability Council of Texas (ERCOT).

CHALLENGE

In January, ERCOT issued weather watch advisories signaling the upcoming higher demand and possible low reserves before two waves of cold temperatures from Winter Storm Cora and Winter Storm Enzo. Tres Power is critical to maintaining grid stability and meeting Texans' power needs in these conditions.

SOLUTION

PROENERGY Advanced Monitoring & Predictive Solutions (AMPS) triggered a condition-based alert when B sump scavenge temperatures rose above normal.

In addition, AMPS predictive models detected abnormal conditions before they triggered any human-machine interface (HMI) or control system alarms. During data playback analysis, the AMPS team identified the following: scavenge temperatures 20 degrees higher than normal, scavenge pressures 20 psi (137.8 kPa) higher than previous runs, and increased vibrations in both the high-pressure (HP) turbine rear frame (TRF) and compressor rear frame (CRF) during startup and shutdown.

Following analysis of AMPS data, a borescope inspection, and replacement of the lube & oil scavenge pump, PROENERGY Engineering uncovered several contributing factors: a faulty three-way temperature control valve, insufficient venting of the fin-fan cooler, and excessive oil accumulation in the bearing sump. Also, a low turbine lube oil (TLO) supply temperature was observed during startup.

Engineering determined insufficient oil scavenging as the root cause of vibrations; AMPS identified the faulty temperature control valve and improper heat exchanger venting as key contributors to elevated oil temperatures.

After taking corrective actions, operating temperatures decreased and abnormal vibrations ceased.

EFFICIENT

<1 WEEK

to detect, inspect, and correct issues

INSIGHTFUL

3 DEVIATIONS

flagged and observed during playback study

EFFECTIVE

ZERO ISSUES

since implementing expert actions

VALUE

Predictive technology helped Sky Global Partners identify an impending scavenge pump failure and mitigate it in less than a week. By comparison, a bearing failure would have cost \$600,000 and delayed operations for at least 3 to 4 months.

The pre-alert capabilities of AMPS enabled identifying three deviations—one in the TLO scavenge predictive model and two in the turbine mechanical predictive model—ahead of any alarms.

Since coming back online, Tres Power has delivered reliable power generation with TLO temperatures and vibrations in the normal range to support ERCOT demand.