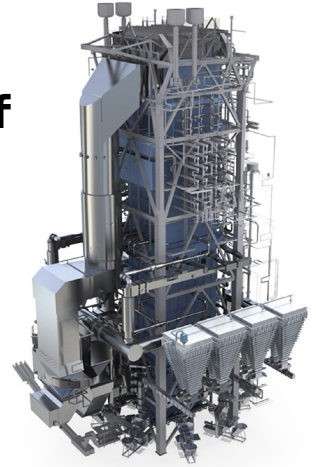


UptimeAI Expert Saves the Day: How an Enterprise Achieved Sustainability Goals by Early Detection of NOx Emission Issues in its Boiler

Operational Challenges

NOx emission left unchecked would result in regulatory penalties and harm the reputation as a sustainable company. Though many enterprises implement NOx reduction technologies, early detection, diagnosis, and mitigation of when emissions could increase beyond permissible level remains a challenge.



Solution with UptimeAI Expert:

- Unlike Distributed Control System (DCS), which uses a threshold-based alarm, UptimeAI's 'AI Expert' uses deep learning models and built-in failure modes to detect operational issues early before causing any losses. UptimeAI also seamlessly integrates with your current Operational Technology (OT) stack including maintenance systems such as SAP PM to assess the issues holistically and identify root cause.
- Many times, changes in operating parameters are not too significant to be picked by a DCS. It is also challenging to manually determine the correlations between many process parameters. In this case the furnace flue gas exit temperature increased beyond previously observed value, whereas the NOx has been increasing from an average of 50 to 173 mg/nm3. 'AI Expert' also analysed and correlated various other factors with its system approach like the furnace temperature, flue gas temperature after the preheater, outlet air temperature among the 53 tags.
- The overall efficiency of the boiler had been slipping due to irregular soot blowing, combustion in the super heater zone, turbulence in furnace, and incomplete combustion. Left unchecked, Sox and NOx emissions would have further increased while also consuming more fuel for the same load, all in all negatively impacting the environment and revenue.
- UptimeAI uniquely combines AI and subject matter knowledge to mimic experts by continuously learning without manual rules and explaining complex problems to help mitigate issues. While deep learning techniques learn good vs. bad behavior considering all the operating parameters, built-in fingerprints with failure modes, recommendations, and fault-tree analysis enable the solution to diagnose and explain the issues.

Summary

Estimated Savings

\$180,000 / year

Systems Models

1

Deployment Time

2 Hours

Number of Tags

53



About UptimeAI:

UptimeAI uniquely combines Artificial Intelligence with Subject Matter Knowledge from 200+ years of cumulative experience to explain interrelations across upstream/downstream equipment, adapt to changes, identify problems, and give prescriptive diagnosis like a human expert would.

UptimeAI Expert OEx Platform works as a trusted AI advisor for plant engineers looking to achieve operational excellence.