



Power plant performance optimization

Develop a performance optimization strategy that suits your individual requirements through our **Plant Performance Optimization Solutions**, built upon 50 years' experience of owning, operating and servicing power stations within changing energy markets.

Our solutions

Our performance optimization solutions continuously capture and evaluate live data on plant thermodynamic performance across the range of operating conditions.

Our experts then work with your teams to pinpoint the components where performance has deteriorated – impacting plant competitiveness and profitability.

We recommend and prioritize improvements which deliver the required gains in power output, efficiency, emissions and/or flexibility – and, importantly, gains in financial benefits, in particular savings in the costs of fuel and carbon.

Our performance optimization services comprise:

- **PROATES** software tool – used widely for more than 30 years to accurately model and predict power plant thermodynamic performance and flexibility.
- **PROATES** can be used to identify plant performance improvements, optimize new power plant designs and assist feasibility studies.
- Plant performance data evaluated continuously on-line – to monitor long-term trends and identify deviations and issues as early as possible.
- Technical consultancy support to recommend improvements that deliver the required benefits.

Benefits

Improve financial return:

- Increase your plant competitiveness by identifying improvements that will optimize fuel costs and carbon costs, and increase plant flexibility.
- Increase confidence in your plant's ability to compete and win profitable contracts.

Improve plant performance and operation:

- Optimize plant performance by delivering the required gains in power output, efficiency, emissions and flexibility as a result of our recommendations.
- Gain from improvements in part-load performance to enable continuous, flexible operation.
- Understand the impact of changes in operation on performance – e.g. new fuels or flexible operation.
- Understand the impact of environmental options – e.g. Selective Catalytic Reduction.

Optimize maintenance planning:

- Optimize the timing of improvements and outages through our cost-benefit systems
- Optimize maintenance strategies through greater insights into component performance deterioration and condition monitoring solutions maintenance.

References

Project	Scope of work	Location	Capacity
In partnership with OEM, work to enable CCGTs to achieve near simple cycle start capability	Combined cycle plant modeling to evaluate operational impacts of new technology and develop risk mitigation measures.	UK, Italy	9 x 350 MW
CCGT single shaft	Short review of Low Part Load operation associated with the Heat Recovery Steam Generator (HRSG).	Ireland	1 x 270 MW
CCGT single shaft continuous performance monitoring	Increasing pressure drop across inlet air filter detected. The monitor provides the impact on performance allowing the optimum time to replace the air filters could be determined.	UK	3 x 450 MW
Improve CHP flexibility within a CCGT plant	Identify and assess a range of operational and control measures to deliver higher heating loads with lower fuel usage.	Europe	1 x 420 MW
Conversion of coal fired plant to biomass	Whole plant modeling in support of combustion and emission investigation.	UK	2 x 500 MW
Development of a coupled CFD and whole plant PROATES model for a coal fired tangentially-fired boiler	In combination with a CFD tool simulate the effects of burner and SOFA settings, firing patterns and coal blending on boiler efficiency and pollutant formation.	Korea	2 x 800 MW
Coal plant optimization during the retro-fitting of SCR	Study to determine how best optimize the plant such that gas inlet temperature to the SCR can be maintained within the desired range across the load range.	UK	4 x 500 MW
Ad hoc studies on a brown coal plant	Review performance impacts from plant upgrades to feed heaters, fuel drying, reheater spray re-positioning, tube bank modifications and steam turbine upgrades.	Australia	2 x 350 MW 2 x 375 MW
Chicken litter fired power plant	Study to mitigate air heater cold end corrosion, including fitting a new steam coil and other plant modifications.	UK	1 x 44 MW