

Real Time Optimization for Asset Lifetime Extension



The Challenge

Metals refining is an energy intensive operation and shrinking profit margins. In order to optimize profits, equipment utilization and lifetimes must be maximized. However these goals can be contrary to one another, as operating aging assets close to their limits can result in costly equipment failure.

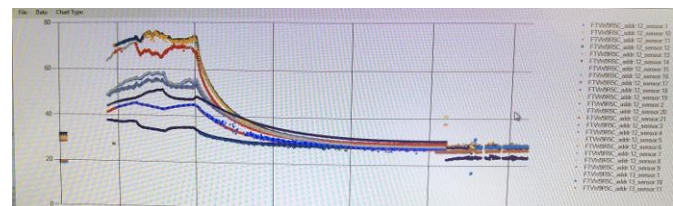
The Opportunity

In one such example, Companhia Brasileira de Alumínio was operating their rectifier stack in the ore processing heaters well below the rated 100kA because of uncertainty about operating temperatures between periodic IR thermography. They desired to improve their throughput and requested that four rectifier stacks be instrumented for continuous temperature monitoring.



System Details

Despite the high magnetic fields from the bus bars, the IS-485 systems operated flawlessly in an environment that was debilitating to PC's and other electronics.



Nine rectifiers in the stack were instrumented with passive, wireless sensors monitored by the nearby IS-485. The MODBUS data was wired to a more benign environment where IntelliSAW's μ SCADA™ software system performed data logging and trending plots.

The Result

Trending and alarming systems alerted the operators to dangerous operating conditions, under which the rectifiers could enter thermal breakdown. Prior to installing the IS-485 systems periodic thermography only gave the operators confidence to operate at 90kA or less. With the continuous monitoring, the system was operated at 95kA or higher, representing a 5% increase in operational throughput.