



**Q: How Does NeuCo use Model Predictive Control technology?**

**A:** For years NeuCo has been developing hybrid optimization solutions, i.e. those using multiple technologies to best address the optimization challenge at hand. As a result of its acquisition of Pegasus Technologies, NeuCo gained considerable model predictive control (MPC) expertise.

One way we have put that expertise to work is through the development of the industry's first combustion optimization system that uses both MPC and neural network technologies for combined steam temperatures and NOx control. NeuCo first implemented this system for CPS Energy, the nation's largest municipally owned utility that provides electric service to 640,000 customers in and around San Antonio, Texas.

CPS Energy strives to generate a low cost, reliable supply of electricity while minimizing the impact on the environment. The company's JT Deely 2, an Alstom-CE tangentially fired sub-critical, 440 MW unit that burns PRB fuel, recently adopted NeuCo's combined NOx/steam temperature control solution. The goal of the project was to improve unit efficiency by better controlling steam temperature while minimizing emissions of NOx.

The project used a combination of neural networks and model predictive control technologies to control the fuel and air staging within the furnace. Neural network technology was used to control the stratification within the furnace while model predictive control was used to control gross boiler conditions throughout the furnace by manipulating the separated over-fired air dampers, oxygen bias, and burner tilt positions.

Currently, hybrid MPC/neural systems are installed across multiple customer sites including Arizona Public Service, Luminant Power, Texas Municipal Power Agency, and NRG Texas.