



A Stable Desuperheater Is Super Profitable!

Basin Electric Power Cooperative is a regional power generation and transmission company that services nine of the US's plain states. As a consumer-owned cooperative, Basin Electric provides critical utility services to small communities too numerous to count. Like others in the power sector, Basin Electric is constantly on the watch for innovative ways of making a profit. In one of their more recent moves, Basin Electric looked to Control Station's process optimization technologies and seized an opportunity to improve key production processes.

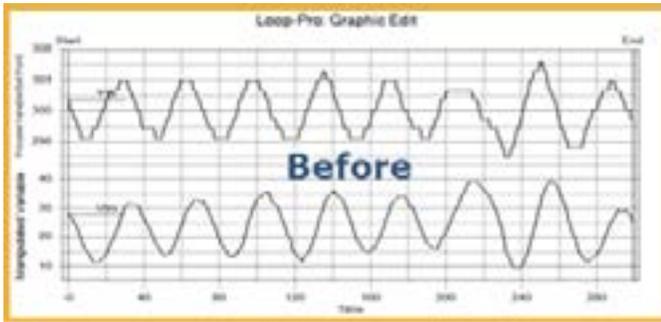
Tightening control around Set Point will improve the performance and profitability of most every production process. This is especially true of desuperheater processes that are used by power companies to reduce variability in the temperature of steam that is sent to a plant's turbines. Oscillations in the process can result in damage to the turbines, cause leaks, and affect heat rate. By tightening and stabilizing control over their desuperheater process, Basin Electric successfully improved its overall heat rate while both reducing maintenance costs and increasing plant safety. Each of these correlates directly with bottom-line profitability.



"We saw immediate improvement in control over the plant's desuperheater and other key processes. Loops that were never tuned before due to their complexity were enhanced dramatically—the oscillations basically stopped altogether once we tuned them with Control Station's LOOP-PRO™."

Gerry Henricksen, Basin Electric Power Cooperative

When a Picture Tells a Thousand Words



Desuperheaters – or attemporators – are designed to reduce the temperature of superheated steam. By controlling the temperature, the desuperheater protects units that have limited operating temperatures. When the desuperheater fails to temper steam correctly, even a single excursion can damage costly turbines and reduce the turbine's efficiency.



At Basin Electric, persistent oscillations of 10-12 degrees within the desuperheater were a major source of concern. Due to concern for the turbines, the plant was unable to operate closer to the process' upper constraint and to maintain an optimum heat rate.

Shown on the right are process strip charts associated with Basin Electric's desuperheater process. As is clear in the graphic at the top, 10-12 degree oscillations of the Process Variable are mirrored by valve swings (i.e. Manipulated Variable) of roughly 30%. The persistent nature of the oscillations made manual tuning extremely difficult, and the lack of a steady-state made tuning nearly impossible for other PID tuning technologies.

Basin Electric performed a bump test and used the dynamic process data to tune the control loop using Control Station's LOOP-PRO™. Even though the bump test was performed in the middle of a transition, LOOP-PRO™ generated an accurate model of the process and provided much improved tuning parameters. As is shown in the graphic at the bottom, oscillations of the Process Variable were reduced to an average of 2 degrees – an 80% reduction. The tightened control enabled Basin Electric to enhance the plant's heat rate while improving plant safety.

Finally – tune your facility's most complex PID control loops for optimal performance.

Learn why LOOP-PRO™ is the only product that accurately models oscillatory, noisy process data. Contact us today at +1 (860) 872-2920 or sales@controlstation.com.

