



Achieving Optimal Control of Combustion Processes

The highly complex and sensitive nature of combustion processes make it one of the most challenging systems to control in a coal fired power plant. Behaving almost as its own living entity with each process having its own individual characteristics and behavior, managing and controlling such systems is a difficult task. Griffin's Combustion Optimization System (COS) uses many advanced AI methods available within the Griffin AI Toolkit to develop highly specialized and accurate models of each unique system to reduce emissions, improve heat rate, and achieve other process objectives.

How We Make It Happen

There is no "one-size-fits-all" method to gaining real and repeatable improvements from combustion optimization systems. Griffin's COS application approach has been developed and refined over more than 50 years of experience providing combustion optimization solutions. Building upon the proven Griffin COS template of reliable and robust control, each COS application is tailor-made to address the unique characteristics of the subject system. Advanced AI modeling and optimization methods are used to represent process complexities and take advantage of each and every existing opportunity; from subtle damper adjustments, to shifting whole operating conditions within acceptable ranges, all prospective improvements are leveraged to provide maximum performance benefits.

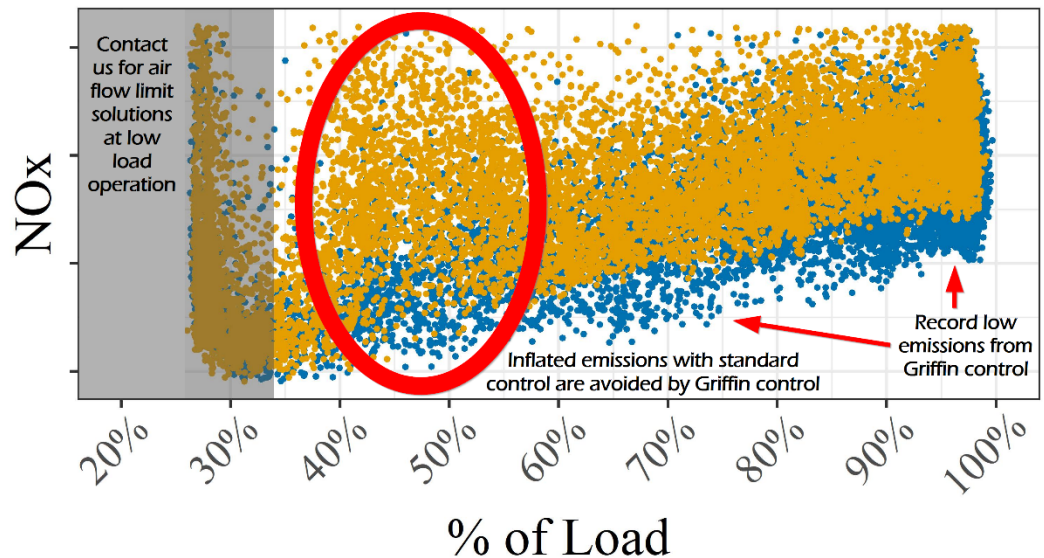
Existing site-knowledge from those who know your system best – your engineers and your operators, often spanning decades of operation – is then formalized and rapidly implemented within the Griffin no-code platform to further complement the advanced AI components in place within the COS. This process results in a highly customized and fully relevant optimization system capable of providing control benefits to the system in as little as 1 – 2 weeks. As the AI components continue to learn and adjust from observing real-time operation, observed benefits continue to improve automatically over time.



Expected Improvements

Griffin COS applications can be configured to realize one or many of a number of performance objectives. Common benefits include:

- Reduction of NOx emissions up to 40%
 - Often eliminates the need for SCR system installation
- Heat rate improvements of 0.5% - 1%
 - Environmental benefit from reduced CO2 emissions
- Avoidance of unplanned outages
 - Greater reliability, dispatched sooner, and lower O&M costs
- Enhanced alarm condition management and resolution
- Consistent unit control across all operating crews and system conditions



● Griffin On ● Griffin Off

One year of closed-loop operation on a 500 MW coal-fired unit comparing NOx emissions while Griffin COS is active and inactive. The Griffin COS realized an average NOx improvement of more than 20%.

A Griffin COS is a valuable addition to any combustion process with a proven record of improving multiple aspects of process performance. Regardless of system complexity or existing limitations, benefits can be obtained through this powerful application. Please contact us today to learn more about your options!



Customer Testimonials

"Using the Griffin system, Ameren has been able to meet our NOx targets without the installation of any SCR's on our 10 coal-fired boilers. By purchasing the Griffin corporate license, we have saved millions of dollars in optimizer license fees compared to previous optimizers that were purchased by Ameren."

- Tom Ziegler, Principal Engineer, Ameren Services

"With the Griffin Toolkit running on both Units 3 and 4, we are getting better performance on NOx and Opacity without the O2 controller even active within the optimizer. Just being able to stage the air correctly [by optimizing damper positions] has lowered both NOx and opacity despite higher than normal O2."

- Matt Barker, Controls Engineer, Talen Energy

Contact Us or one of our Value Added Resellers

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