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Meeting Evolving Power Generation Regulations

Through Digital Factory-Enabled Advanced Ai Control, Real-Time System Dashboards & Integrated Systems

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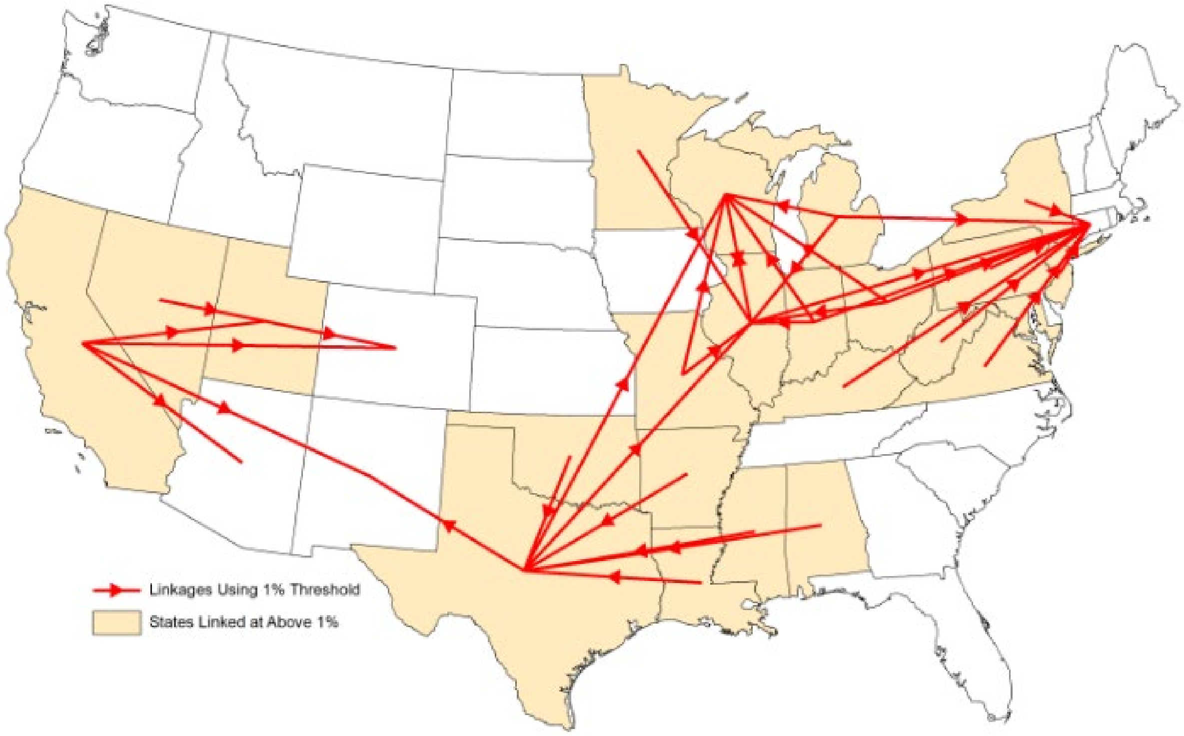
The power generation landscape has been continually evolving over the past decade. As society works to reduce its reliance on fossil fuels and take steps toward reducing greenhouse gas emissions, power generation has been a major focus of regulation. Traditional methods of generating reliable and dispatchable power are having to make dramatic adaptations. More recently, several increasingly stringent regulations have been enacted and proposed in the United States, which are again changing the dynamic.

Good Neighbor Plan

The first of these that was published in early June 2023 is referred to as the "Good Neighbor Plan" due to its basis in the Good Neighbor portion of the Clean Air Act (CAA). Through various modeling and data analysis, the U.S. Environmental Protection Agency (EPA) identified that ozone-emitting sources within 23 states are contributing more than 1% of the National Ambient Air Quality Standards (NAAQS) ozone threshold amount to states that are "downwind" of them (the primary combustion product contributing to ozone formation is nitrogen oxides, or NOx, which is the subject of regulation within the action). In order to be "good neighbors," these states must lower their NOx emission rates to make it possible for their downwind neighbors to realize satisfactory air quality (i.e., reduce ozone).

These 23 states will be required to participate in a revised version of the Cross-State Air Pollution Rule (CSAPR) NOx Ozone Season Group 3 Trading Program. The state map below available from the EPA shows the 23 identified states, and their findings for interstate transport of these emissions. One of these states (California) does not have any electric generating units (EGU's) which are affected by this action, so of the remaining 22 states, 12 currently participate in the Group 3 Trading Program (Illinois, Indiana, Kentucky, Louisiana, Maryland, Michigan, New Jersey, New York, Ohio, Pennsylvania, Virginia, and West Virginia), 7 currently participate in the CSAPR Group 2 Trading Program (Alabama, Arkansas, Mississippi, Missouri, Oklahoma, Texas, and Wisconsin) and 3 do not currently belong to any CSAPR program (Minnesota, Nevada, and Utah).

All of these states will transition to the revised Group 3 Trading Program and begin participating at the start of ozone season 2023 (May 1) except for the new states, Minnesota, Nevada, and Utah. These states will not be required to enter the program until after the effective date of the rule, if after May 1.



EPA identified ozone contributing states and analysis-determined inter-state transport relationships.
Available from ***www.epa.gov/csapr/good-neighbor-plan-2015-ozone-naaqs***

In short, the EPA is instituting a new ozone season (May 1st – September 30th) NOx emission limits that all emitting sources (EGU's and non-EGU's alike) must collectively abide by. EGU's are the major contributing industry affected by this ruling, and the allowed NOx emission limits have been determined through 2030, with the expectation that best-available post-combustion flue gas NOx treatment technologies will be installed during this period (e.g., Selective Non-Catalytic Reduction – SNCR, Selective Catalytic Reduction – SCR). This is reflected in the change in yearly NOx allotments per state between 2025, 2026, and 2027, as shown in the table below.

EPA Yearly NOx Allowance State Budgets, 2023 - 2029

State	2023 State Budget	2024 State Budget	2025 State Budget	2026 State Budget*	2027 State Budget*	2028 State Budget*	2029 State Budget*
Alabama	6,379	6,489	6,489	6,339	6,236	6,236	5,105
Arkansas	8,927	8,927	8,927	6,365	4,031	4,031	3,582
Illinois	7,474	7,325	7,325	5,889	5,363	4,555	4,050
Indiana	12,440	11,413	11,413	8,410	8,135	7,280	5,808
Kentucky	13,601	12,999	12,472	10,190	7,908	7,837	7,392
Louisiana	9,363	9,363	9,107	6,370	3,792	3,792	3,639
Maryland	1,206	1,206	1,206	842	842	842	842
Michigan	10,727	10,275	10,275	6,743	5,691	5,691	4,656
Minnesota	5,504	4,058	4,058	4,058	2,905	2,905	2,578
Mississippi	6,210	5,058	5,037	3,484	2,084	1,752	1,752
Missouri	12,598	11,116	11,116	9,248	7,329	7,329	7,329
Nevada	2,368	2,589	2,545	1,142	1,113	1,113	880
New Jersey	773	773	773	773	773	773	773
New York	3,912	3,912	3,912	3,650	3,388	3,388	3,388
Ohio	9,110	7,929	7,929	7,929	7,929	6,911	6,409
Oklahoma	10,271	9,384	9,376	6,631	3,917	3,917	3,917
Pennsylvania	8,138	8,138	8,138	7,512	7,158	7,158	4,828
Texas	40,134	40,134	38,542	31,123	23,009	21,623	20,635
Utah	15,755	15,917	15,917	6,258	2,593	2,593	2,593
Virginia	3,143	2,756	2,756	2,565	2,373	2,373	1,951
West Virginia	13,791	11,958	11,958	10,818	9,678	9,678	9,678
Wisconsin	6,295	6,295	5,988	4,990	3,416	3,416	3,416
Total	**208,119**	**198,014**	**195,259**	**151,329**	**119,663**	**115,193**	**105,201**

**Budget is subject to adjustment based on dynamic calculation methodology included in the Good Neighbor Plan action document.*

Emitting sources within the affected states will now be required to meet these new limitations, while also being able to meet the already challenging demands of their particular processes and generation requirements.

Tightening of Mercury and Air Toxics Standards (MATS) Rules

A rule proposed by the EPA in April of 2023 aims to update the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Coal- and Oil-Fired Electric Utility Steam Generating Units (typically referred to as "MATS".) These standards were last updated in 2012, and the EPA intends to provide a current update to reflect recent technology and performance developments.

Current MATS standards primarily cover EGU mercury and acid as hazardous air pollutants (HAPs) like hydrogen chloride and hydrogen fluoride, and other metals. The proposed updates primarily focus on reducing mercury limits and particulate matter (PM) in general (particulate matter is a sort of "catch-all" for the remaining metals as it's the best measure of solid emissions which encapsulates many HAPs and metals.)

Particulate matter measurements consist of using a special filter paper which is inserted into the exhaust gas flow for a defined amount of time, and measuring the mass of matter deposited on the filter paper. The EPA is proposing that the current limit be reduced to one-third its current value, from 0.030 lb/MMBtu to 0.010 lb/MMBtu particular matter mass measured.

The second proposed update is specific to coal lignite-fired power plant mercury emissions. Mercury emission rates are measured on a much smaller scale than most other emissions and are measured as, pounds of Hg per trillion BTU energy input. Should this proposed rule go into effect, the current mercury emission rate limit would decrease by over 80%, which would require significant upgrade investment by many plants, upgrading from electrostatic precipitators to fabric filter baghouse systems.

To increase enforcement of the reduced emission rate limits that would go into effect by this rule, the EPA would also mandate a continuous emission monitoring system be installed at all stations capable of continuous PM measurement. Such measurement systems often use a rotating drum with a tape of filter paper that continuous cycles between two sampling streams, replacing the filter paper as the system swaps sample streams.

Finally, the updated MATS rule would redefine 'startup' periods for power plants. As it currently stands, there are two definitions of a unit startup, one being the first firing of fuel in a boiler for the purpose of producing electricity or first firing of fuel in a boiler after a shutdown event for any purpose, and the second being the period in which operation of an EGU is initiated for any purpose. This redefinition would simply remove this second option, meaning there would only be one definition of a startup period.

In all, should this proposal go into effect, roughly 7 GW of lignite coal capacity will be affected, all needing to operate and optimize Activated Carbon Injection (ACI) systems to manage mercury emissions, and 5 GW of coal capacity will need to upgrade particulate matter control systems.

Proposed Carbon Pollution Standards

Carbon capture and storage (CCS) technologies have emerged as potential solutions to address the rising concerns of greenhouse gas emissions and climate change. In recent years, the United States has been actively exploring regulatory measures to curb carbon pollution, particularly from fossil fuel-fired power plants. On May 11, 2023, the EPA unveiled a set of proposed regulations aimed at cracking down on carbon emissions from power plants. These regulations would establish new carbon pollution standards for fossil fuel-fired power plants, requiring them to deploy carbon capture technologies or other advanced methods to significantly reduce plants emissions. The proposal emphasizes the importance of carbon capture in achieving the Biden administration's ambitious climate goals.

The proposed regulations align with the broader transition towards cleaner and more sustainable power generation in the USA. Fossil fuel-fired power plants, particularly coal-fired plants, have traditionally been major contributors to carbon dioxide emissions. By mandating the implementation of carbon capture technologies, the EPA aims to mitigate the environmental impact of these facilities and foster the deployment of cleaner energy sources.

The proposed regulations create a regulatory framework incentivizing technological innovation in the field of carbon capture. Power plant operators could be required to install and operate carbon capture systems capable of capturing a significant portion of their carbon emissions. It is stated that this will not only encourage the development of more efficient and cost-effective capture technologies but also drive the growth of related industries, such as carbon capture equipment manufacturing and engineering services. Furthermore, optimizing the newly added hardware can yield enhanced performance and cost-efficiency. By implementing tailored optimization techniques, power plant operators can maximize the operational effectiveness of their carbon capture systems, achieving higher carbon capture rates while minimizing associated costs. This approach ensures that operators can effectively meet their emission reduction targets while optimizing the utilization of their resources.

By mandating the use of carbon capture technologies, the EPA seeks to reduce power plants' environmental footprint by capturing and storing carbon dioxide emissions that would otherwise be released into the atmosphere. Carbon capture enables the removal of greenhouse gases from the exhaust stream, thus significantly mitigating the sector's impact on atmospheric CO2 levels. The stored carbon can be permanently sequestered or utilized for enhanced oil recovery or other industrial processes.

Proposed Carbon Pollution Standards, *cont.*

Implementing widespread carbon capture technologies in power plants poses both challenges and opportunities. The upfront costs of installing and operating carbon capture systems are substantial, requiring significant investments from power plant operators. However, advancements in technology and economies of scale are expected to lower costs over time, making carbon capture more economically viable. Due to the understood economic burden, different subcategories of power plants are created. The subcategories are based on unit characteristics – e.g., capacity, expected duration of site operation, and frequency of operation – with each having a set of proposed compliance standards.

Moreover, the adoption of carbon capture technologies is expected to lead to the creation of new job opportunities in the clean energy sector, fostering economic growth and the development of a skilled workforce. Additionally, carbon capture can help preserve the existing infrastructure of power plants, allowing them to continue operation while reducing emissions and complying with the proposed regulations.

System Transparency Improves Decision Making

In the evolving landscape of power generation regulations, system transparency plays a crucial role in improving decision-making processes. As power generation methods undergo dramatic adaptations to meet stringent regulations, it becomes increasingly important to have a comprehensive, real-time understanding of a system's performance, efficiency, and environmental impact.

By implementing digital factory tools, such as, advanced AI control and real-time system dashboards, system owners and operators gain immediate access to a wealth of data and insights. These tools provide a transparent view of the system's operational parameters, performance metrics, and compliance with regulatory requirements, and can similarly be outfitted with reliable future projections based on AI modeling and projected system performance. Armed with this information, decision-makers can make informed choices regarding system operation, maintenance, investment, and optimization.

System transparency allows for accurate monitoring of key variables such as emissions levels, energy efficiency, and equipment health. Real-time data visualization and analytics enable operators to identify potential issues promptly without waiting for various information to be gathered, assess their impact, and take necessary actions to ensure compliance and optimal performance. This level of transparency empowers decision-makers to proactively address challenges and make data-driven choices to meet evolving regulations effectively while remaining economically advantageous.

Regulations Are Pushing Existing Equipment Beyond Original Design Capabilities

The increasing stringency of power generation regulations often necessitates operating existing equipment beyond their original design capabilities. Traditionally, most fossil power generation systems were designed with specific performance parameters and emissions targets in mind and were originally expected to operate as baseload generators. However, as regulations have evolved, these generators have evolved dramatically, now performing serious system load following and ramping while achieving ultra-low load operation in order to maintain grid reliability and resiliency. This has been made possible by advancements in hardware retrofits, as well as by introducing advanced control approaches. AI and optimization have been utilized in many forms using real-time, dynamic optimization, adapting and correcting operating parameters in response to live unit conditions.

The ongoing evolution of regulations and operating requirements will require hardware improvements and further novel approaches and improved control capabilities, of which live optimization and future trajectory planning will be a necessity to achieve goals and control costs.

To comply with stringent regulations, power generation facilities need to optimize their existing equipment and processes. This optimization may involve making modifications, upgrades, or implementing advanced control strategies to achieve the desired performance and emission levels. The ability to push existing equipment beyond design capabilities relies on advanced AI control systems, which can adapt and optimize system operations in real-time.

Advanced Control Is Necessary to Run Equipment and Systems in This Manner

To effectively operate power generation equipment and systems beyond their originally stated design capabilities, advanced control technologies are essential. Advanced AI control systems leverage machine learning algorithms and real-time data analytics using unit-specific data and details to optimize system performance under varying conditions and regulatory requirements.

These systems learn the unique responses and behaviors of each individual unit from their operating data, “watching and learning” the unit just like an experienced system or board operator. Being able to process thousands of inputs nearly instantaneously, these systems can constantly take account of what’s happening around the process, and make the best system-wide decisions to improve target objectives.

These control systems continuously monitor and analyze multiple system parameters, such as fuel composition, emissions levels, and equipment health. By dynamically adjusting operational parameters, such as combustion settings, airflow, and fuel injection, the control systems can optimize energy efficiency, minimize emissions, and ensure compliance with evolving regulations while also meeting operating criteria such as temperature change rates and hardware limitations.

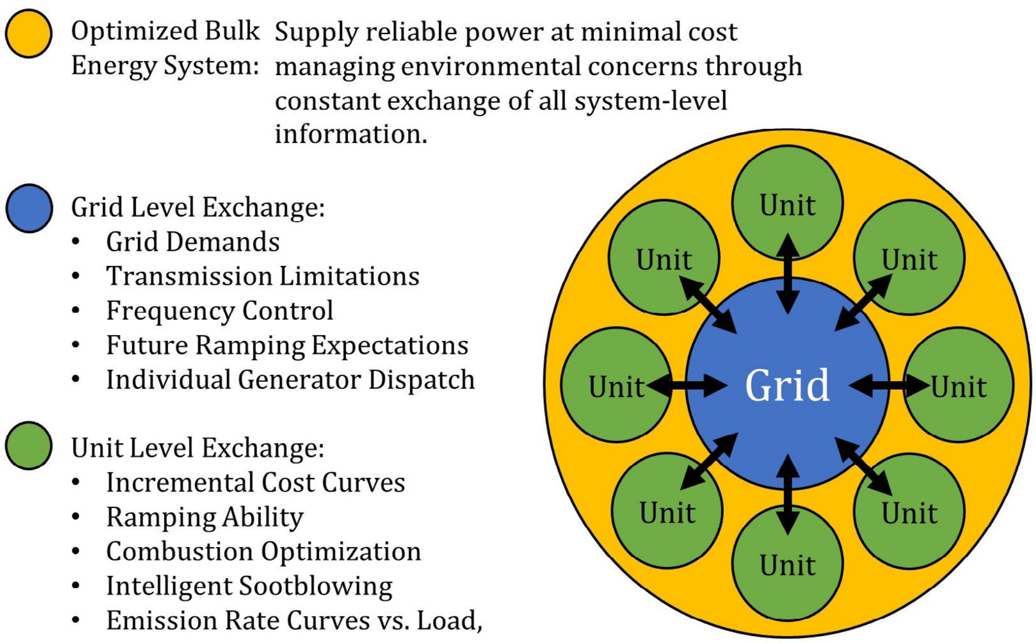
Furthermore, advanced control systems enable predictive maintenance by analyzing equipment health data and detecting potential issues before they escalate into costly failures. By proactively identifying maintenance needs, these control systems can optimize system availability and reduce downtime.

Beyond Transparency, Multiple System Aspects Must Communicate to Achieve Full Potential

While system transparency and advanced control are crucial, achieving the full potential of power generation systems requires effective communication and coordination among multiple system aspects, not just the generator itself. Beyond generators, grid operations include components like system operators balancing energy demand and supply, economic managers ensuring companies meet operating costs and provide affordable energy, and environmental controls ensuring all applicable regulations are met.

Integrated systems that enable the exchange of real-time data and insights among different levels of a system play a vital role in achieving optimal system performance. For example, projections of emission rates across a unit's load range should be used to influence economic cost curves of that unit where emissions equate to purchased allowances (which will be a factor of the "Good Neighbor Plan"), supporting the cost curves based on unit generation efficiency alone. This information should be factored into dispatch of various units, identifying "sweet spots" for units where they run efficiently and with reduced emissions, while meeting the demands of supply and demand across the grid, seen in figure below.

Beyond Transparency, Multiple System Aspects Must Communicate to Achieve Full Potential, *cont.*



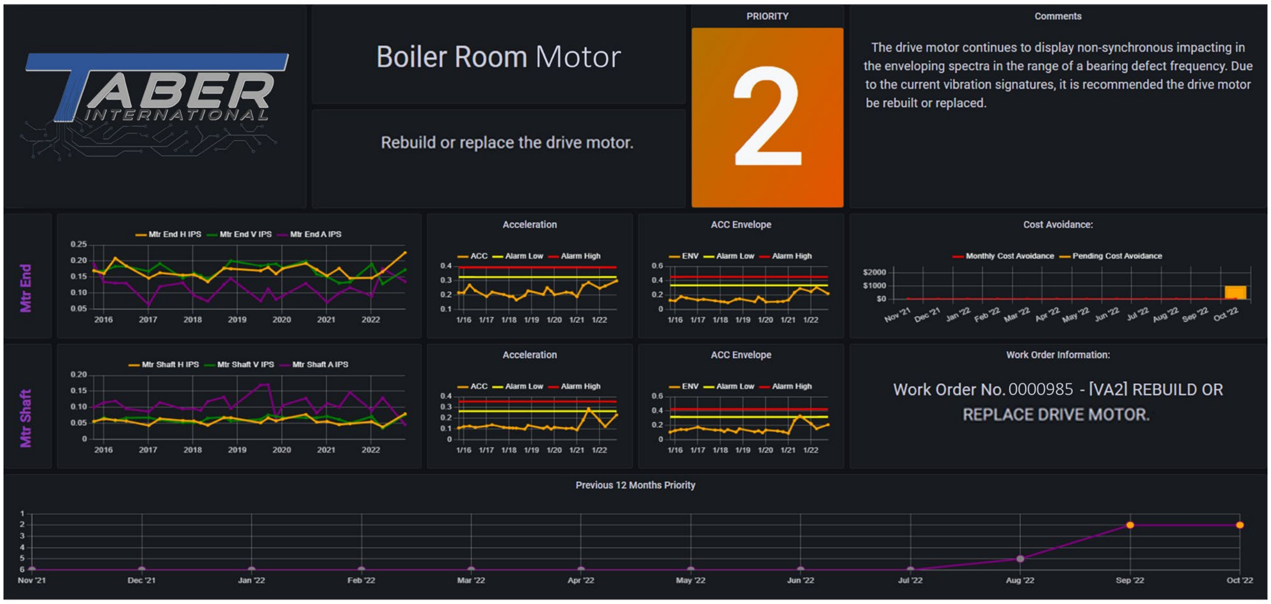
Sharing information through integrated systems can help optimize the performance and cost of the individual facility and the shared grid community as they interact.

This information can be further shared with engineering and maintenance managers in order to identify what conditions may be affecting a unit under particular circumstances, enabling proactive approaches to further bolster the capabilities of a unit, as opposed to the common "run-to-failure" method many sites find themselves utilizing.

By integrating different system aspects and enabling effective communication, power generation facilities can achieve holistic optimization and compliance with evolving regulations. Integrated systems also facilitate comprehensive monitoring, reporting, and future projections, allowing operators to demonstrate compliance and meet regulatory requirements effectively, and to take preemptive action as needed to avoid a situation propagating into a current issue.

Griffin AI Toolkit System Integration Abilities

Taber International, LLC, leveraging the Griffin AI Toolkit® provided by Griffin Open Systems, LLC, offers advanced AI-driven control systems and real-time system dashboards that enhance transparency within systems and improve decision-making processes. The Griffin open system platform, featuring two-way data communication and a no-code environment, enables the creation of diverse applications that can seamlessly integrate into a comprehensive system addressing multiple objectives. This integrated approach leads to the enhancement of power generation system performance, efficiency, and environmental impact, while also facilitating the incorporation of other relevant factors such as grid demands, environmental circumstances, and work order information. The developed dashboards have the capability to represent a wide range of information, including numeric data, text, comments, visualizations, graphics, trends, and pictures. Taber collaborates with clients to establish connections among disparate sources of information, providing a centralized location for easy access to all relevant and critical data. By directly connecting to these data sources, any updates or changes to the data are automatically reflected within the dashboard without requiring any additional effort from the client.



Example dashboard showing real-time equipment measurements, work order reports, and calculated costs

Griffin AI Toolkit System Integration Abilities, *cont.*

A centralized platform that enables the visualization of an end-to-end system and process can yield significant improvements in operations, maintenance, and overall efficiency. By enhancing transparency and facilitating a comprehensive understanding of flow and bottlenecks within the system, such a platform represents a crucial initial stride towards adopting a more holistic approach to address multiple system objectives. This approach becomes particularly vital in light of several new regulatory rules that necessitate a comprehensive and integrated perspective.

Example dashboard showing real-time vibration measurements and estimated failure probabilities

In the context of the Good Neighbor Plan, Taber demonstrates the ease of multiple source integration within the Griffin AI Toolkit® through their advanced dashboarding capabilities. By retrieving data from various sources, including operations, business management and intelligence, work order systems, dispatch and pricing, and EPA regulations and allowance market pricing, their integrated solution enables comprehensive decision-making that considers all relevant factors.

Representation of Good Neighbor Plan NOx Aggregator Dashboard from Taber

In a specific scenario where a power generation unit needs to determine its optimal dispatch based on the market price, NOx allowance pricing, and NOx emission rate behavior across its load range. Each of these factors plays a crucial role in making informed decisions and achieving the best outcomes.

Using Taber's dashboarding system, operators gain access to real-time market price data for power, which accurately reflects the current supply and demand dynamics in the electricity market. Simultaneously, the system seamlessly integrates EPA regulations and allowance market pricing data, providing valuable insights into the cost and availability of NOx allowances. This comprehensive integration enables operators to evaluate the potential for selling NOx allowances and consider the economic implications of implementing emissions reduction strategies. Moreover, when combined with an application that generates and evaluates cost and emission curves (specifically for NOx and Hg), the overall cost of electricity production can be reduced while effectively managing emission targets. This critical information assists in assessing the economic viability of dispatching the unit at different load levels, enabling informed decision-making in optimizing operations.

Built into the platform is the ability to project the impacts of certain operating modes and conditions. These projections are based on specific unit data and operating models, making them more representative and precise then general estimates based on unit historical averages.

Griffin AI Toolkit System Integration Abilities, *cont.*

Furthermore, the dashboarding system incorporates data on the NOx emission rate behavior of the unit across its load range. This data is collected from emissions monitoring systems and analyzed in real-time. Operators can visualize the emission rate trends and understand how they vary with different load levels.

By bringing together these diverse sources of information, the integrated dashboard enables operators to make comprehensive decisions regarding dispatch and operational settings. The system provides a holistic view that considers market conditions, emissions regulations, and the unit's emission characteristics.

For example, the system may reveal that at a certain load level, the market price of power is high, indicating a favorable economic opportunity. However, the corresponding NOx emission rate behavior of the unit at that load level may exceed regulatory limits, potentially resulting in compliance issues. With the integrated dashboard, operators can identify these discrepancies and make more informed decisions.

Through the ease of multiple source integration, Taber's dashboard and control system empower operators to consider various factors simultaneously. This comprehensive approach ensures that decisions align with both economic and regulatory considerations, ultimately leading to optimized dispatch and operational settings that maximize efficiency, minimize emissions, and comply with regulations.

Methods & Approach

The approach taken by Taber combines the expertise of engineers with the power of artificial intelligence (AI) in a no-code environment. Engineers can directly implement their knowledge into no-code logic and/or using Python script encapsulation for improved process control. The open system allows users to develop and modify systems according to their specific needs. These developments can range from simple conditional statements like "if this happens, then do that" to the complexity of cascading control levels, utilizing multiple-input modeling and prediction platforms, and determining optimal setpoints through advanced optimization algorithms. Through corporate partnerships, Taber and the Griffin AI Toolkit® platform can further leverage specialized components and toolbars, enhancing the toolkit's capabilities. This unique approach eliminates the need for a "black box" and eliminates special permissions structures, offering endless possibilities for system customization, optimization, and a more cost-effective approach to meeting dynamic regulatory environments. Many different applications can be created off the Griffin platform, allowing easier integration of strategies which lead to minimization of future hardware commitments to meet changing regulations. Some standard high payback applications are briefly described below:

Combustion Optimization System

The Combustion Optimization System (COS) is a comprehensive application that optimizes the combustion process within a boiler. It operates by controlling various parameters such as air distribution, excess oxygen levels, dampers, and burner settings to achieve desired objectives like reduced emissions, improved heat rate, and temperature control. The COS employs two control methodologies: expert logic and model-based real-time optimization. Expert logic incorporates operational best practices and unit-specific control strategies, ensuring consistent and efficient operation. Model-based real-time optimization utilizes intelligent modeling techniques to generate models using combustion performance metrics gathered over a long period of time, allowing for continuous optimization based on real-time data. These benefits are achieved through a combination of solution approaches, customized expert logic, self-learning capabilities, and the adaptability of the COS system.

Knowledge-based Sootblowing

The Knowledge-based Sootblowing (KSB) application optimizes the sootblowing process by leveraging accumulated knowledge and sensor data. It develops a rule-based strategy, incorporating expertise from operators and engineers, to effectively manage soot build-up throughout the furnace. Sensor data is analyzed to estimate the impact of sootblowing on heat transfer and efficiency, considering specific tube sections or generalized measurements. By comparing long-term data averages with recent short-term data, the system predicts trends and enables proactive adjustments and optimization. This knowledge-driven approach ensures consistent and uniform soot management, improving furnace operation by controlling steam temperatures, minimizing fouling and slagging, and reducing tube erosion.

Mercury (Hg) Control using ACI/PAC

The control of PAC (Powdered Activated Carbon) injection in the process often relies on rudimentary methods that do not fully exploit the process characteristics. Specifically, there is a keen interest in monitoring the 30-day average of Hg (mercury) and considering the variable impact of PAC amounts due to changes in load and system conditions. Taber's HgPACopt system employs a comprehensive approach that combines rule-based and model-based methods to assess the effectiveness of PAC and predict its impact on the long-term average Hg value. By incorporating this analysis, the system adjusts PAC injection rates, offering the potential to reduce PAC usage, lower operating costs, and achieve improved control over the 30-day Hg average.

Control Performance

Basing control decisions off the existing DCS curves ensures overall system safety, reliability and generalizability. By defining numerous limits, the control system ensures reliable operation under various load or circumstance conditions. Optimization takes place within the accepted range using bias values around the DCS curve, allowing for efficient and effective control actions. Neural network models play a vital role by mapping system parameters to expected outputs using historical operational data. These models are trained iteratively, improving their accuracy and performance over time as more data is gathered and the responses of system manipulations can be assessed and incorporated.

The integration of AI bridges the gap between operators and the control system, enabling agile, intuitive, and intelligent control. Real-time assistance is provided to operators, and control actions are adjusted based on AI results, considering external factors such as equipment health and performance. Similarly, engineers and operators can easily build in dynamic limitations to ensure the identified solutions are within acceptable limits of the system, as well as in the "comfort zone" of system users and board operators. Whenever a condition violates any of these limits, a new solution will be found and implemented to replace it and remain within range.

Integrated Potential

The Taber and Griffin AI Toolkit serves as a real-time assistant to both control operators and control systems, offering an integrated approach to complex automated systems. It leverages existing control systems as operational baselines and feeds operational data to the AI trainer for continuous learning and optimization. The toolkit utilizes global optimization techniques to find the best solutions for real-time conditions and adapts process control actions accordingly. It is capable of monitoring external factors, responding to live conditions, and adapting to the subtle nuances and disturbances of each specific process moment to moment. The platform is outfitted with multiple integration methods, including OPC, Modbus, websockets, MQTT, PI historian communication, and most other digital data transfer methods. This allows the developed system to incorporate and internalize important information, regardless of where it is stored. As long as there is a digital pathway, Taber's systems can interface with it.

With its process optimization and operator assistance toolkit, it unlocks the integrated potential of any automated complex system by combining the reliability of an open AI platform, no-code graphical programming interface, incorporation of existing operator and engineer's knowledge, and the genetic trainer feature for optimal model structure selection. This comprehensive approach enhances control performance and unlocks the full potential of automated complex systems.

Conclusion

In conclusion, the power generation industry, along with other new industrial segments, are experiencing significant changes due to evolving regulations aimed at reducing greenhouse gas emissions and improving environmental performance. The "Good Neighbor Plan," Tightening of Mercury and Air Toxics Standards (MATS) Rules, and Proposed Carbon Pollution Standards are among the recent regulatory developments that are reshaping the industry landscape, and there are undoubtedly more to come. Meeting these regulations requires companies to leverage all available technology, of which advanced AI control systems, real-time system dashboards, and integrated systems are a critical part.

These approaches enhance transparency, enable effective decision-making, and optimize overall system performance. By leveraging advanced technologies and integrating various system aspects, power generation facilities can achieve compliance with regulations while maximizing efficiency and reliability and minimizing environmental impact. Taber International and Griffin Open Systems offer a comprehensive solution suite that integrates data from multiple sources and provides real-time insights through advanced dashboarding capabilities. This integrated approach enables operators to make informed decisions that consider economic, regulatory, and operational factors, leading to optimized performance and enhanced sustainability in the power generation sector.

Ready to put our solution to work? Get in touch with us today.

For future white papers and notices when new videos for the digital factory become available, please register your name, company, and email on the contact us page of the Griffin Open Systems website. You may also request the free version of the Griffin Dashboard Toolkit.

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