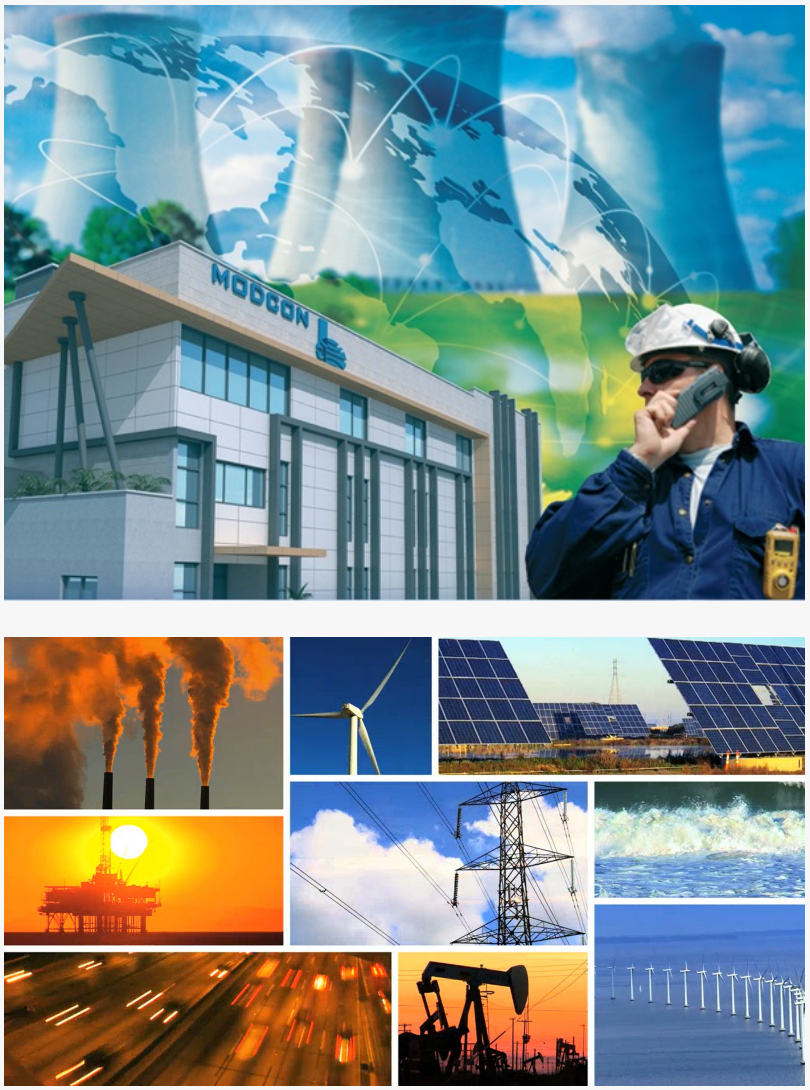
Modcon Unveils AI-Driven Energy Optimization to Cut Industrial Costs and Emissions

Modcon.AI Energy Conservation boosts efficiency, reducing energy waste across petrochemical, water and process industries.



LONDON, LONDON, UNITED KINGDOM, March 16, 2025 /EINPresswire.com/ -- Modcon Group, a leader in industrial process analysis and AI-driven optimization, announces the launch of Modcon.AI Energy Conservation, an advanced energy efficiency system that extends the capabilities of the Modcon.AI CDU Optimization Suite beyond refining applications. This breakthrough technology brings AI-driven control techniques to multiple industries, significantly improving energy efficiency and reducing operational costs.

Industries have long relied on Real-Time Optimization (RTO) and Advanced Process Control (APC) to enhance industrial efficiency. However, these first-principles-based models struggle to manage complex, variable processes, leading to inefficiencies in energy-intensive operations. As industrial environments become increasingly dynamic—impacted by fluctuating raw material properties, environmental variations and unmeasured process parameters—legacy systems fail to provide optimal control, resulting in excessive energy consumption and operational inefficiencies. Modcon.AI Energy Conservation tackles these challenges using an innovative hybrid approach, combining machine learning with traditional optimization techniques. Unlike

conventional methods that rely solely on predefined physical models, this data-driven system continuously learns from historical and real-time process data, adapting dynamically to changing conditions. This self-improving AI-driven approach enhances energy efficiency across various industrial sectors, including petrochemicals by optimizing key process parameters to reduce energy waste in refining operations, pulp and paper production by improving of their energy efficiency, filtration and pumping systems without compromising quality, and water treatment plants by enhancing chemical dosing and filtration processes to lower energy use while maintaining performance.

One of the most significant advantages of Modcon.AI Energy Conservation is its ability to detect and correct hidden inefficiencies that accumulate over time. Suboptimal equipment settings, process variations, and unaccounted factors often lead to increased energy consumption but remain undetected using conventional optimization tools. By leveraging machine learning algorithms, the system identifies and recommends real-time process adjustments that result in measurable energy savings.

The AI-powered system's adaptability makes it particularly effective in industries where external variables such as changing environmental conditions, raw material variations, and shifting production demands impact efficiency. Instead of relying on fixed control models, the system evolves continuously, providing real-time, data-driven decision-making to minimize energy waste while maintaining operational excellence.

As industries worldwide strive to enhance sustainability and reduce their carbon footprint, energy efficiency has become a top priority. Modcon.AI Energy Conservation helps organizations meet these objectives by significantly reducing energy consumption, leading to lower operational costs and reduced environmental impact. By integrating AI-driven optimization, companies can achieve a 5-15% reduction in energy consumption in energy-intensive processes, lower carbon emissions supporting sustainability goals and increased equipment lifespan through optimized operating conditions.

Modcon.AI Energy Conservation represents a major leap forward in industrial energy management. By merging AI-driven analytics with proven control methodologies, the system empowers industries to unlock energy savings, improve operational efficiency and stay competitive in an increasingly energy-conscious world.

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