

Reducing daily plant CO<sub>2</sub> emissions using site-wide utilities optimization and operator advisory tools

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The combination of equation-based modelling technologies and a next-generation digital applications framework provide an environment for deploying systems to advise operators on minimizing CO<sub>2</sub> emissions in real-time. This presentation shows how a model of a whole site utility system is created using SPSE's gPROMS Utilities tool, then deployed to operations using the gPROMS Digital Applications Platform. The resulting digital twin of the utility system links to plant data systems, updating itself through machine-learning capabilities, validating actual performance and continually calculating optimal operating conditions. The objective function can be to minimize CO<sub>2</sub> emissions or costs. CO<sub>2</sub>-reducing operating changes are highlighted in dashboards in real time, giving operators greater insight and confidence to run the process safely at the optimum point. Emissions reduction actions can be taken quickly with confidence, leading to improved environmental performance.