Johnson Controls

OpenBlue
Enterprise Manager

Central Utility Plant Optimization

Using real-time autonomous control to make your plant more reliable and sustainable

Plan and predict future operations and risks

Optimize costs and reduce energy and carbon emissions

Improve productivity, increase resiliency and reduce equipment downtime

What if you could predict the future?

Even better, what if your central plant automatically made adjustments to prepare for that future? Central Utility Plant Optimization uses predictive algorithms and real-time data to optimize plant design as well as everyday operating decisions.

Whether you have a simple chilled water plant or a complex heating, cooling and power generation plant, these powerful digital tools can help to cut your energy use and greenhouse gas emissions.

Following an easy setup and quick onboarding process, you're ready to plan ahead, optimize costs and improve productivity at your plant with access to advanced analytic and diagnostic technology.

Central Utility Plant Optimization is powered by award-winning AI and backed by zero-trust cybersecurity, so you can embrace your future goals with ambition and confidence.

A breakthrough solution

Past approaches to central plant optimization used sequences based on rules of thumb and a limited number of inputs. Johnson Controls is redefining the industry by delivering true cost optimization. Central Utility Plant Optimization saves millions of dollars over the life of your central plant, enhances reliability and advances you toward your net zero goals.

This multi-patented software is based on our extensive central plant experience and more than a century of HVAC leadership. Its model predictive control approach can be applied to any type of automation system, any brand, any configuration. That means you can implement it at a lower initial cost and save more every year.

Manage any central utility plant anywhere, any size

With more than 130 years of experience in controlling temperatures and managing comfort and safety, we bring unmatched expertise and operational knowledge to your central plant.

No matter where you are, what type of facility you own or how large or small a central plant you manage, Central Utility Plant Optimization saves you money by reducing energy usage, utility costs and operating expenditures. Now you have the best technology to make the right decisions.

Save money

Save energy

Save water

Earn rebates

Validate savings

It's time to change the approach and truly optimize your costs

Our transformational technology drives the future of optimization

Flexible, scalable software

Central Utility Plant Optimization from Johnson Controls is unique, scalable software that uses real-time information to make adjustments that reduce energy use and operation cost, without sacrificing reliability. It provides new ways to design, build and operate central plants.

Every hour of every day, facility operators can choose from dozens of possible equipment combinations and set points to maximize energy efficiency. Ever-changing loads, weather and utility prices further complicate decision-making. Central Utility Plant Optimization brings you a better way.

Optimize holistically and in real time

Receive optimized dispatch decisions every 15 minutes to minimize utility costs and maximize potential utility program revenues, based on myriad inputs:

Equipment performance models

Every major piece of equipment, including chillers, boilers, pumps and cooling towers, has a model that predicts the equipment's energy performance and cost under all operating conditions. These models are adaptive; as equipment conditions change, the system tunes the models to optimize performance.

Weather forecasts

Seven-day forecasts for temperature, humidity and cloudiness are pulled from a web-based source for your specific location. The algorithms recognize that forecast accuracy improves as events draw closer in time. These inputs are used to predict loads, equipment performance and ambient conditions.

Load predictions

The software predicts hourly cooling, heating and power loads for the next seven days. These predictions are based on historical loads, weather, day of week, time of day, building schedules, and special events. The tool then adjusts operations and makes decisions based on those predictions to ensure the reliable delivery of utility services.

Utility pricing

Model everything from simple flat rates to time-of-use and demand-based rates to complex real-time pricing and incentive programs. Unlike traditional optimization methods, this cost-based approach empowers you to manage demand charges and other more complex tariffs – a major portion of your utility budget.

Calendars and maintenance schedules

The software incorporates building schedules to predict loads, accounting for weekends, holidays and special events. Equipment maintenance schedules are also used to optimize systems before, during and after equipment is taken out of service. If equipment goes out of service unexpectedly, the system re-optimizes based on the remaining available equipment.

Reduce your **energy spend** by up to **30%** and your **carbon emissions** by up to **40%** with OpenBlue Enterprise Manager.*

* These savings were achieved across specific projects we worked on with customers.

Here are some of the many features in your toolkit with Central Utility Plant Optimization

PLANNING AND PREDICTIONS

Optimize plant designs and manage budget risk

Advanced tools gather and assess key data to gain full understanding of your central plant operations. Then award-winning AI tools will predict future costs, energy use and carbon emissions, including running digital-twin-based 'what-if' scenarios. This allows you to make informed plans about future operations.

UTILITY COST OPTIMIZATION

Energy and carbon emission reduction

Auto-adaptive algorithms tune performance based on equipment performance curves and historical trends, while plant simulation models savings opportunities. This allows you to optimize costs, meet carbon- and energy-saving mandates and achieve sustainability outcomes at maximum ROI.

IMPROVED PRODUCTIVITY AND EQUIPMENT UPTIME

Improve resiliency and reliability

Better workflows enhance plant operations, boost productivity and help new or inexperienced operators learn to reliably control the plant. Time is also freed for more proactive maintenance. This helps avoid downtime discomfort and reduce the need for emergency repairs, improving resiliency at your plant.

Utility costs and carbon emissions savings

- Real-time autonomous control including equipment staging and setpoint control commands informed by machine learning of equipment performance over time
- Flexibility to choose optimization objectives by cost, carbon emissions or both
- Plant efficiency and utilization reports

Grid interaction and energy optimization

- Ingestion of day-ahead or real-time utility rates and AI-based prediction of future rates over seven days
- AI-based solar photovoltaic production prediction
- Economic dispatch of onsite power generation and energy storage assets
- Submit optimal bids to price-based demand response markets

Reliable plant operation

- Seven-day load prediction and forecasts of potential unmet load due to capacity constraints
- One hour look-ahead of anticipated control changes
- Capacity utilization dashboards
- Equipment availability reports and notifications
- Maintenance advisor fault detection

Digital twin-based what-if scenarios

- Model and compare utility cost for different plant configurations during plant design
- Forecast utility budgets and plan for maintenance activities
- Daily updates to digital twin data based on operational data and measurements
- Measurement and verification reports

Unlock the performance of your building with Johnson Controls OpenBlue Enterprise Manager.
Learn more about our **Energy Efficiency & Sustainability digital solutions at johnsoncontrols.com**

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