Open**Blue**
Central Utility Plant

See the future and adapt for peak performance

Johnson Controls

The power behind **your mission**

OpenBlue Central Utility Plant (CUP)

Whether you have a simple chilled water plant or a complex heating, cooling and power generation plant, **OpenBlue CUP** can reduce costs, increase reliability and enhance sustainability.

What if you could predict the future?

Even better, what if your central plant automatically made adjustments to prepare for that future? **OpenBlue Central Utility Plant** 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, OpenBlue CUP delivers powerful digital tools to cut energy use and greenhouse gas emissions, reduce costs and increase reliability.

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

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

Optimize holistically—every 15 minutes.

OpenBlue CUP software optimizes dispatch decisions every 15 minutes to minimize utility costs and maximize potential utility program revenues, based on myriad inputs:
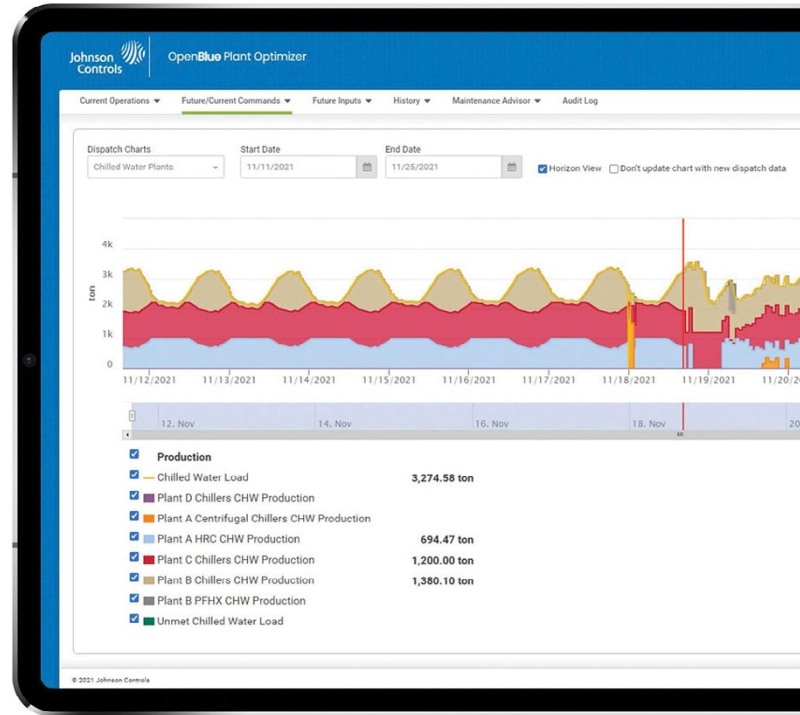
Equipment Performance Models
Every major piece of equipment, including chillers, boilers, pumps and cooling towers, has a model that predicts the equipment's energy performance and cost under all operating conditions. These models are adaptive; as equipment conditions change, the system tunes the models 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
OpenBlue CUP can 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.

Our transformational technology drives the future of optimization.

Flexible, scalable software.

OpenBlue Central Utility Plant (CUP) 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. OpenBlue CUP is the future.

Packages to fit your operations and budget.

OpenBlue CUP's tiered packages are built around three primary apps.

Plant Simulator optimizes design.
Initial plant design decisions have a far-reaching effect on plant operating costs. The cloud-based Plant Simulator creates a virtual representation of your central plant and simulates plant utility costs for each hour of the year. Run "what-if" scenarios, evaluate plant designs and upgrades, and compare predictions with actual performance.

- Identify optimal central plant configurations
- Right-size plant equipment to reduce upfront cost
- Inform design decisions to reduce lifecycle costs

Plant Optimizer minimizes costs.
About 80 percent of a central plant's lifecycle costs are tied up in operation and maintenance. Plant Optimizer helps plant engineers and operators minimize these costs, immediately, automatically and continuously.

- Achieve persistent 15-30% central plant energy and water cost savings
- Adapt to time-of-use utility pricing, peak demand charges, or demand response signals
- Shorten the learning curve for new staff
- Allow more time for proactive maintenance

Plant Monitor maximizes uptime and sustainability.
Plant Monitor gathers data to analyze, benchmark and display every aspect of the central plant's performance. Advanced fault detection and diagnostics help uncover abnormalities before they turn into problems. Standard and custom reports make it easy to share data.

- Support proactive response and predictive maintenance to boost reliability
- Streamline compliance and sustainability reporting
- Fight BAS alarm fatigue
- Enhance facilities team productivity

Let us help you choose the right service tier.

We can help your team determine the best combination of our primary and ancillary apps.

	CUP Essential	CUP Enhanced	CUP Expert	No Cloud
Applications				
Plant Monitor	●	●	●	
Reporting	●	●	●	
Plant Simulator Access	●	●	●	
Plant Simulator Access + Model Creation		●	●	
Service Manager (Work Orders)		●	●	
Plant Optimizer – Advisory		●		
Plant Optimizer – AUTO Energy Savings			●	●
Plant Optimizer – AUTO Predictive Cost Savings			Optional	Optional
Key Features				
Live plant graphics / plant-tailored widgets dashboard	●	●	●	
Plant portfolio performance KPI benchmarking	●	●	●	
Complete fault detection and diagnostics library + custom rules engine	●	●	●	
Advanced reporting templates powered by Power BI (e.g. OSE Report)	●	●	●	
Heat balance reporting	●	●	●	
Long-term storage of granular data, open APIs for data sharing	●	●	●	
Plant utility cost simulation and scenario planning engine	●	●	●	
Ability to create and track work orders based on faults		●	●	
Real-time equipment staging and set point recommendations		●	●	●
Machine learning equipment performance models		●	●	●
Real-time equipment staging and set point commands			●	●
Machine learning load and real-time pricing prediction			Optional	Optional
AI-based set point recommendations / commands powered by Google IAC		Optional	Optional	Optional
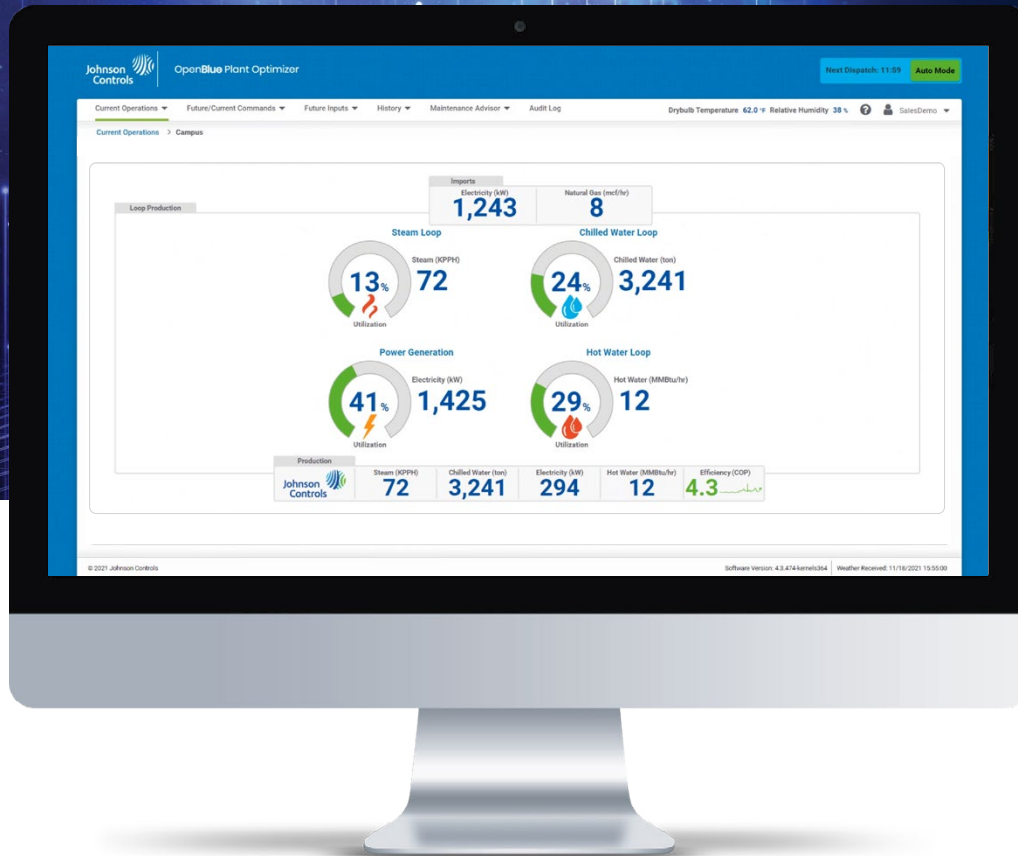
A breakthrough solution.

Past approaches to central plant optimization used sequence of operations based on rules of thumb and a limited number of inputs. Johnson Controls is redefining the industry by delivering true cost optimization. OpenBlue CUP 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 OpenBlue CUP at a lower initial cost and save more every year.

Choose the way you operate your central plant.

OpenBlue CUP offers two modes of operation. In advisory mode, the software can act as a "GPS" for your central plant, providing continuous operating recommendations to plant operators. In auto mode, the software serves as an "autopilot," sending dispatch commands directly to the plant automation system, while informing operators of each change well in advance.

OpenBlue CUP will manage any central utility plant anywhere, any size.

Johnson Controls is the world's leading supplier of HVAC equipment, building management, fire protection and security systems. 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, OpenBlue CUP saves you money by reducing energy usage, utility costs and operating expenditures. Now you have the best technology to make the right decisions.
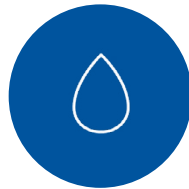
Save Money	Save Energy	Save Water	Earn Rebates	Validate Savings

Learn more about OpenBlue Central Utility Plant at
johnsoncontrols.com/openblue/openblue-central-utility-plant
or call 1-877-976-9593.

About OpenBlue

OpenBlue is a complete suite of connected solutions that serves industries from workplaces to schools, hospitals to campuses, and many more. This platform includes tailored, AI-infused service solutions such as remote diagnostics, predictive maintenance, compliance monitoring, advanced risk assessments, and more. A dynamic new space from Johnson Controls, OpenBlue is how buildings come alive.

About Johnson Controls

At Johnson Controls, we transform the environments where people live, work, learn and play. From optimizing building performance to improving safety and enhancing comfort, we drive the outcomes that matter most. We deliver our promise in industries such as healthcare, education, data centers, and manufacturing. With a global team of over 100,000 experts in more than 150 countries and over 130 years of innovation experience, we are the power behind our customers' mission. Our leading portfolio of building technology and solutions includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Ruskin®, Titus®, Frick®, PENN®, Sabroe®, Simplex® and Grinnell®.

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