

Be Your Best

Status quo operation simply isn't an option today. Fierce competitive pressures mean that good is rarely good enough. You have to run smarter. You have to run leaner. You have to optimize what you do and how you do it.

Our mission is simple: to help customers maximize the economic performance of their operating assets. GE Energy's portfolio of optimization and control solutions brings numerous complementary product lines and services together, addressing many of today's most pressing optimization and performance concerns:

- **Asset lifecycle costs** through proactive condition monitoring
- **Operational flexibility, reliability, and efficiency** through upgraded controls for machine, process, or plant
- **Energy exploration** through advanced drilling technologies
- **facility and homeland security** through advanced radiation detection and cybersecurity technologies
- **Reliability and maintenance practices** through comprehensive consulting and outsourcing services
- **Fuel costs, fuel efficiency, and dispatch decisions** through intelligent software that maximizes revenue and minimizes costs

By bringing these solutions together, we've not only made it easier to combine our capabilities to meet your needs, we've made it easier for you to interact with us, putting a specialized team of optimization and control professionals at your disposal.



Value For Every Industry

Our optimization capabilities span numerous industries around the globe, delivering substantial savings and benefits annually. Here are just a few examples:

- A large oil & gas company operating platforms in the North Sea uses our System 1* software to perform remote condition assessment. Maintenance intervals have increased from 750 hours to over 4000 hours and incremental income of over 50MM USD has been realized.
- A pulp & paper mill in Finland uses our Bently Nevada* online condition monitoring equipment for assets throughout the plant. Over 200K USD in maintenance costs were saved in the first two months.
- A mid-west cogeneration facility uses our CLOC* closed-loop supervisory control solution to save over 720K USD per year while eliminating costly under-generation penalties.
- A California hydro operator upgraded their aging control system, enabling them to meet strict state requirements for ancillary power sales. They now enjoy more than 700K USD a year in incremental revenues.

In these and hundreds of other examples, GE Energy is delivering proven results. Results that are often worth millions in annual savings and that often pay for themselves in less than a year.



Solution Platforms

Unit- and plant-level regulatory and supervisory control

We provide a variety of complete control solutions for the energy industries, ranging from distributed control systems for power plants to complete unit and station controls for oil & gas pipelines. Several hardware and software platforms are available, allowing customers to choose what's right for their needs and installed base.

Asset-, process-, and plant-level optimization

We provide solutions that constantly assess relevant process, market, and asset conditions and automatically adjust – or advise you how to adjust – your operations for optimal financial performance. Solutions range from fuel management to thermodynamic performance, from unit dispatching to boiler optimization.

Critical asset condition monitoring, protection, and control

When critical assets don't run, the process doesn't run. Whether controlling prime movers and the machines they drive, or continuously monitoring their thermodynamic and mechanical health, we provide robust solutions that keep your machinery and processes running. With expertise in digital, hydraulic, and mechanical controls, we are at home in any setting – no matter what control technology your environment demands. We're proud to offer trusted platforms, preferred by customers globally.

Auxiliary asset condition monitoring, protection, and control

Typical industrial plants have hundreds or even thousands of assets that are essential to operations, yet have limited impact on the main process stream. The type of instrumentation that can be economically justified for such assets is different from critical assets. To address the unique needs of these assets, we provide highly cost-effective solutions specifically designed to deliver the right balance of functionality and affordability.

Sensors and measurement technologies

Everything starts with the right measurements. We provide a variety of sensor technologies, specifically designed to meet the rigors of industrial applications. From vibration sensing to radiation sensing, valve positioning to drill positioning, these sensors enable the sophisticated control, optimization, protection, and monitoring provided in our solution platforms.

Products And Services

Bently Nevada* Asset Condition Monitoring

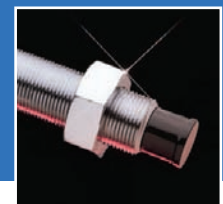
For more than four decades, the Bently Nevada name has been synonymous with the most advanced, highest- quality condition monitoring solutions for critical turbomachinery and other plant equipment assets.

- Vibration, position, speed, temperature, overspeed, and pressure sensing solutions
- Permanent and portable condition monitoring and machinery protection systems
- Unbiased machinery diagnostic services
- Rotor dynamic consulting

Control Solutions

Safe, reliable, and efficient control and protection of critical equipment and processes are essential for our customers. With close to 20,000 new and retrofit installations around the world, GE has over a century of experience providing controls. Today, we have control solutions for a wide range of processes as well as the equipment that makes these processes run. Our capabilities span multiple OEMs, ensuring that no matter what make or model of machinery you use, you can turn to us.

- Turbine control – gas, steam, and hydro
- Generator excitation
- Integrated turbine/compressor control for oil & gas facilities
- Plant-wide DCS control for power generation facilities
- Extensive mechanical, hydraulic, and pneumatic expertise
- Simplex, duplex, and full TMR configurations



Optimization and Control Services

Comprehensive service offerings allow us to provide complete solutions for customers – not just a box of parts. We offer everything from site diagnostics to complete turnkey condition monitoring, controls upgrades, and plant optimization. With deep, multi-industry knowledge, we offer not only the service expertise customers need, but innovative commercial arrangements that align our success with customers' success.

- End-to-end design, documentation, and project management for product installation
- System integration services
- Product repair and verification services
- Global training and support
- Reliability consulting and maintenance management
- Criticality assessments and mitigation consulting for plant asset risk management
- Remote and on-site condition monitoring and diagnostics
- Guaranteed thermodynamic performance improvement
- Machinery management services including vibration diagnostics, lubrication management, balancing, and alignment

Reuter Stokes* Measurement Solutions

Beginning with the very first Reuter Stokes gas-filled neutron detectors in 1956, we have established ourselves as the global leader in radiation detection technologies. Providing expertise in multiple gamma and neutron detection technologies, our diverse product line addresses a wide variety of applications.

- In-core fission detectors for BWR and PWR nuclear plants
- Directional drilling and formation evaluation sensors and systems for oil & gas exploration
- Flame Tracker* silicon carbide (SiC) flame sensors for gas turbines

- Scintillation and helium-3 detectors for scattering measurements, industrial gauging, time-of-flight spectroscopy, and safeguard monitoring

Optimization and Diagnostic Software

Nearly every solution we provide for our customers involves software. Whether acting as the user interface for a monitoring system or performing sophisticated calculations using neural networks and genetic algorithms, our software can be found at thousands of installations worldwide, improving our customers' businesses.

- System 1* software integrates online and offline condition monitoring of machinery and production equipment
- Knowledge3* (Kn³) software combines rules-based, predictive, and genetic algorithms for modeling, optimization, and supervisory control of virtually any industrial process
- Decision Support* advisory messaging software automatically analyzes condition data and provides recommended corrective actions
- EfficiencyMap* and Bently Performance* on-line thermodynamic performance and heat balance monitoring covers everything from individual equipment components to the entire plant
- GateCycle* heat balance modeling software provides powerful tools for optimal new plant design as well as modification and upgrade projects
- CLOC* supervisory control system provides closed-loop optimization of cogeneration and combined-cycle plants
- ToolboxST*, 3500 Config, and numerous other applications make it easy and intuitive to configure our control and monitoring hardware platforms



Global Presence

More than 100 offices with dedicated, knowledgeable sales and service personnel are located in the principal industrial centers of 40+ countries worldwide – offices with people that understand your industry, understand our optimization and control solutions, and speak your language. For the office nearest you, contact us at any of the locations listed here.

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Product Line Operation Centers

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