

GE Power & Water
Water & Process Technologies



Water Treatment Solutions for the **Power Industry**



imagination at work



For more than a century, GE has provided sustainable solutions to help customers around the globe address some of the world's most pressing challenges. And today, our commitment to doing so is even stronger. Given the deep synergies of power and water demands and resources, GE's offerings help propel efficient power plant development. As a forward-thinking and thoughtful leader in developing solutions that address the needs of the power industry, our water, water reuse, wastewater treatment and process solutions allow our customers to operate more efficiently and profitably while minimizing their environmental footprint. Our goal is the same as yours—to help our industries and communities prosper.

Addressing Today's Challenges

It is estimated that the global demand for electricity will double in the next 20 years. Since large amounts of water are required to produce electricity, demand for water will triple in the same time frame. As our world's water resources are limited, this can pose significant limitations on potential industry growth and profitability. Simultaneously, facilities face stringent regulations related to water and solid waste discharge; CO₂ reductions; selenium, mercury and heavy metal removal; and air quality. Quickly developing regions—China, India, the Middle East—strive to build power generation plants fast enough to keep up with growing demands, while other nations are concerned with minimizing their operations and management costs. To conserve financial resources while meeting emissions compliance regulations, existing fuel resources must be maximized and alternative solutions must be fully explored. Paying attention solely to the fundamentals of heat rate, reliability and availability is no longer enough: process improvements are necessary to compete successfully in a growing marketplace.



Driving Financial and Environmental Performance

We understand the challenges and recognize the opportunities of today's power industry. As a strategic business partner, GE Water is closely connected with GE Energy to provide a complete set of integrated chemical and equipment solutions to help cohesively manage power and water needs. These synergies can assist in optimizing the siting and construction of power plants—helping to minimize overall capital costs—and generate greater efficiencies in power plants through revolutionary pretreatment, cooling and fuel treatment programs.

Power Industry Solutions from GE

With ever increasing regulatory, environmental and financial pressures to survive and thrive in today's power industry, GE provides innovations in chemical and equipment technology to enhance efficiencies while safeguarding natural resources and saving money.

- Our **Outsourced Water Services** business allows customers to receive sophisticated facilities and equipment that produce water with demanding quality requirements without incurring the cost of purchasing and operating water treatment plants.
- The **mobile water fleet**—the largest in the world—helps customers during emergencies by 24 hour dispatch of the water treatment equipment and professionals necessary to safeguard equipment and stay on line.
- **FuelSolv™ Solutions for alternative fuels** allow coal plants to burn lower-grade coal and gas turbines to switch to Heavy Fuel or Crude Oil.
- **DusTreat™ Dust control programs** including underground, service and haul road treatments to help reduce water usage and operating costs. A range of chemical treatment solutions, including DusTreat™ and ScaleTrol to control dust emissions, to help reduce water usage, control emissions and reduce costs.
- A simple and cost effective biological solution for removing selenium, nitrate and metals from wastewater, **ABMet** produces treated effluent that meets or exceeds the world's most stringent regulatory standards for selenium removal.
- **ZeeWeed membrane bioreactor (MBR) systems** combine proven ultrafiltration (UF) technology with biological treatment for wastewater treatment and water reuse, resulting in consistent, high quality effluent suitable for any discharge or reuse application.
- **Zero Liquid Discharge systems** offer extensive experience in evaporation and crystallization to eliminate wastewater discharge and enable the recovery of valuable byproducts.
- **Chemical and Monitoring solutions**—GenGard for cooling; OptiSpurse, CorTrol, and Steamate for Cycled Chemistry; and TrueSense monitoring—optimize plant productivity and water systems while safeguarding assets and ensuring environmental protection.
- Range of biological filtration and MetClear™ coagulation technologies enable **heavy metal removal** to improve wastewater quality.

Power Industry Case Studies

Case Study

GE Helps Electric Company in India Reduce Water Use, Protect the Environment and Save Money

Driven by a desire to protect India's scarce water supply and the environment, ST CMS Electric Company evaluated the millions of gallons of cooling water blowdown it was conventionally discharging each year. The 250 Megawatt lignite-fired plant uses significant amounts of water for cooling purposes, and GE partnered with ST CMS to explore if the company could reuse ash pond water for cooling. As a result, ST CMS began recycling water to the cooling towers, leading to savings in water and in the electricity needed to run the plant. After less than a year of recycling water, ST CMS saved 482,166,460 gallons of water, with daily water savings of 5,000 m³. Total financial savings exceeded US\$26,000 annually and the plant now uses six bore well pumps—instead of eight—with a savings of US\$90,000 annually. In addition to these water resource and monetary savings, ST CMS has set an example for other companies in India to follow, in an effort to help address the country's water scarcity challenges.



Case Study

GE Technology and Expertise Helps Cogentrix Energy Save More Than Three Million Gallons of Water Annually

Cogentrix's 120 MW power plant in Battleboro, N.C., partnered with GE to conserve an estimated three million gallons of water annually, or the equivalent of approximately 22 percent of its water usage – greatly reducing its dependence on municipal freshwater sources. GE's patented technology, including GenGard chemistry, enables the plant to use recycled cooling tower water for lime slakers and pug mills, eliminate blowdown discharged into the Tar River, decrease operational costs and increase the efficiency of the cooling tower system by chemically reducing scaling and fouling. These impactful and positive results are a significant relief to Battleboro, as the region recovers from a two-year drought that affected large areas of North Carolina. It was the state's worst drought since record keeping began and prompted municipalities throughout the region to implement water-saving measures.



A Trusted Business Partner

A name synonymous with quality around the world, GE is a trusted global partner for power companies around the world. With a broad range of products and services for each step of the power generation process, GE's integrated solutions and unique expertise help manage and overcome important challenges in an ever evolving industry, while ensuring the responsible and sustainable resource savings our customers across the globe have come to expect. Through innovation, breakthrough technology and dedicated teams of global experts, we help you successfully compete—and win—in today's power industry.

We can help power industry customers to:

- Meet the challenges of a growing energy demand while reducing operations and maintenance costs and minimizing environmental footprint
- Employ water re-use, and recycling technologies to decrease consumption of raw water and mitigate the operating and financial impact of water shortages
- Meet increasingly stringent environmental permits by heavy metals removal, solid waste reduction and water discharge reduction
- Design in water conservation for new plants or complete low cost retrofits to drive consumptive use reduction for existing facilities





Learn how GE is helping customers solve their greatest challenges by visiting www.ge.com/water.

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