

## Answering China's Most Pressing Water Issues.

**Communities and industry alike face serious challenges to ensure uninterrupted quantity and quality of water, while reducing demand on fresh water supplies and meeting regulatory requirements. In China, Siemens Water Technologies is working to help government and industry meet these challenges in the most cost-effective and efficient way possible.**

Regional Employees	200
Regional Major Locations	3 (Beijing, Shanghai, Tianjin)
Regional Markets Covered	Municipal, metals, chemical, pharma, power, pulp/paper, and oil & gas
Number of Global Installations	More than 200,000
Technologies/Service Offerings	More than 900
Patents & Trademarks	2,100
Global Headquarters	Warrendale, PA, USA



### Answers for the Environment

In China, population growth and industrialization continue to drive water and wastewater treatment needs. As China's population rises to a projected peak of 1.5 billion by 2033, water resources will be severely tested. About 400 of China's 660 cities are facing water shortages. Water scarcity is aggravated by water pollution. Domestic wastewater discharges have surpassed industrial discharges since 2000 as the main pollution source. Nearly a quarter of China's population is lacking access to safe drinking water.<sup>1</sup>

Government agencies and industries are faced with the challenges of better managing water resources and complying with new regulations. Siemens Water Technologies offers sustainable solutions to meet these challenges while continuing to provide innovation and local expertise. Through the use of thermal reactivation, Siemens reduced the volume of spent carbon sent to landfill by over 36 million pounds in 2010.

## Capabilities

Siemens Water Technologies in China offers water treatment systems and services to municipal and industrial customers, primarily in the metals, power, microelectronics and pharmaceutical markets.

- Siemens Water Technologies offers regional service technicians and provides an ongoing technical training program, operation and maintenance and service contracts, regional regeneration capabilities, emergency high-purity-water capabilities, regional stocking warehouse for resin and membranes, service capabilities for competitors' equipment.
- The Siemens VertiCel™ process can be retrofitted into wastewater treatment plants in China that are facing new, more stringent biological nutrient removal (BNR) requirements and a growing need to conserve power. Power costs for the process are 20-30% lower than other BNR processes.
- The Vanox™ advanced oxidation process for point-of-use semiconductor applications will help customers improve life-cycle costs and ensure greater efficiency.
- Siemens Water Technologies was awarded the first-ever Innovative Technology Challenge from Singapore's Environment and Water Industry Development Council (EWI) for developing an advanced desalination technology that would cut energy consumption by at least 50%, compared to existing desalination technologies.
- Siemens Water Technologies in Singapore and PUB are cooperating on a full-scale Membrane Bioreactor (MBR) testing facility at PUB's Changi Water Reclamation Plant. The 1,0 Mio liters/day MBR system treats domestic wastewater and allows testing of new innovative design parameters for Siemens' MBR system. Expected results include improvements in overall lower energy use and system maintenance.
- Siemens Water Technologies is working on "green technologies" by demonstrating the feasibility of retrofitting large-scale treatment plants to approach virtually zero energy consumption, reduce CO2 footprint and reduce sludge generation.

## Efficient, Smart Solutions for Customers

### Municipalities

- **Tianjin, China.** Siemens is providing a BNR system for improving effluent quality at one of the largest municipal wastewater treatment plants in China. Siemens Water Technologies & Engineering (Tianjin) Co., Ltd. will provide a Biological Nutrient Removal (BNR) system for upgrading and retrofitting the facilities of Tianjin Xianyang Road Wastewater Treatment Plant (Xianyang Road WWTP) in Tianjin, China. The BNR system is designed to significantly improve the effluent discharge standard of Xianyang Road WWTP from the national standard of Class II to Class I.
- **Wuxi, China.** An MBR system from Siemens is helping to improve the quality of the water in Taihu Lake -- the third largest freshwater lake in China. Heavily polluted for

many years with municipal and industrial wastes, today the lake supplies drinking water for more than 30 million people. By 2010, about 90% of the wastewater in Wuxi will be treated, which will help improve the lake's water quality by one class.

- **Beijing, China.** Siemens' office in Beijing, China has supported important projects like the MBR water reuse system, incorporating 4,864 MEMCOR membranes, installed at the city's Beixiaohu wastewater treatment plant. Siemens in China also has a number of desalination projects that use membrane technology.

### Industry

- **Hydrocarbon Processing.** At Chinese Petroleum Corporation (CPC) in Taiwan, three Zimpro® Wet Air Oxidation systems from Siemens Water Technologies were designed to treat 25 gallons per minute of spent caustic liquor.
- **Oil and Gas.** The Dagang Oil Field in Tianjin, China is using a MEMCOR® submerged membrane system to treat a 50-50 combination of oil industrial waste and local municipal secondary effluent. The system was designed and installed following a successful nine-month pilot system operation in 2006.
- **Metals.** The Handan Steel plant in Hebei Province, China is using a MEMCOR submerged membrane and a reverse osmosis system for treating a 50-50 combination of industrial and local sewage secondary effluent. The system provides approximately 48 MLD of treated water for reuse.
- **General Industry.** The Kaohsiung Central Discharge Sewage Treatment Plant in Kaohsiung, Taiwan is using two sets of sludge thickener drives from Siemens for a plant expansion. The client chose Siemens for its reliable and durable products, and the fact that the cast iron sludge thickener housing is not susceptible to deformation from heat.

### Global Presence

Siemens Water Technologies has major business hubs in Australia, Brazil, China, Germany, Singapore, Saudi Arabia, and the United States. The company's global R&D headquarters is based in Singapore.

**Siemens AG.** Siemens is a global electronics and engineering company with about 400,000 employees worldwide. For over 160 years, the company has stood for technical achievements, innovation, quality, reliability and internationality.

<sup>1</sup> Statistics taken from *The World Bank report on "Addressing China's Water Scarcity"[2009]*

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