



How GE became a green pioneer in China

From wind turbines to advanced power plants, China is a big consumer of General Electric products.

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Steve Fludder arrived in Beijing in 2003 as the newly appointed head of GE Energy China. From the start, he had a hunch China's appetite for green technology was about to take off. But outside of China, "the prevailing thought on whether China would go for green tech was 'You gotta be kidding me.'" Back then, he says, China's factories had a reputation for being fast, sloppy, and anything but energy-efficient.

Fludder's instinct was right, however. Later that year, China opened up bidding for its first commercial wind farm. The project was small, just 10 turbines, and there were no special tax credits or incentives. "If it weren't for World Bank financing, the project never would have happened," he says. Anemic as the returns looked, Fludder kept up the chase. General Electric (GE) won the bid and, using imported turbines, completed the 15 MW project in 2005.

Just four years later, China is the world's second-fastest-growing market for new turbines, right behind the U.S. And while the world's top windmill makers are clamoring for a share, GE's early entry helped put it on top. The company has put up some 400 turbines in five provinces - Jiangsu, Shanghai, Hebei, Xin Jiang, and Inner Mongolia, with some 200 more under contract.

Cultivating Local Suppliers

Starting early on, GE worked to split production between its in-house factory and local suppliers. From simple parts, such as steel towers, to complex components such as turbine blades and gear boxes, GE cultivated local suppliers wherever possible. And the company followed Beijing's cues on where to set up, settling in the industrial Northeast because the government wanted to seed green jobs and investment in this rust-belt region. "It was a risk. This cost us money to develop capacity," says Fludder, now vice-president of GE Ecomagination, the companywide initiative in sustainable technology. "But we wanted to prove we were committed. That meant sharing technology, too."

Wind power is just one clean-tech domain in which GE has shared technology with joint-venture partners in China. From efficient train engines to water filtration technology and advanced power plants, China has become a voracious consumer of GE's green products. Sales of products tagged with the Ecomagination label—typically given to the most efficient products in any of its given product lines—make up about 9% of total sales globally. Yet in China, Ecomagination sales accounted for 17% of GE's \$4.6 billion total last year.

Working with local partners, the company brought its most sophisticated gas-turbine generators to China for the Beijing Olympics in 2008. At the Beijing Taiyanggong power plant, waste heat

from the combustion process is recycled, resulting in around 80% efficiency, more than double the rate of most conventional power plants in the U.S. The bulk of GE's turbine sales in China are of the ultra-efficient model. "Given that China is short of energy," says Fludder, "it makes no sense to pick last-generation technology that wastes energy."

Training Green Managers

GE also is cultivating a fresh supply of green managers, at least some of whom will inevitably be hired by competitors. Working with the Institute for Sustainable Communities (ISC), a U.S. nonprofit, GE co-founded the Environment, Health, and Safety Academy at Lingnan College of management at Sun Yat-sen University in Guangdong last fall. The academy, the first of its kind in China, has adapted and translated environmental operations manuals donated by a growing list of Western companies. The 11-course program focuses on clean production technology, how to assess the cause of wasteful processes, and how to manage organizational change.

This fall a staff of eight experts will begin to train the first batch of Chinese eco-managers, explains George Hamilton, ISC's president. Managers with better skills "won't solve all of China's environmental problems," Hamilton says. "But the more that are out there able to do this, the faster things will improve."

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