Three Gorges Hydropower Plant maintains valuable assets with fewer employees by adopting best practices from IFS

Using fewer employees to operate and maintain their electricity generating equipment has become a reality for the Three Gorges Hydropower Plant. When they implemented IFS, internally called the e-Project Management Information System (ePMS), the world's largest hydropower plant was able to function at maximum efficiency with only a handful of employees.

World class operations need best practice

The Three Gorges Hydropower Plant (TGHP), currently under construction, is the world's largest hydropower plant. It includes two power houses, 26 power generators, the spillway for the Three Gorges Dam, and the control center. China Yangtze Power Co. Ltd. (CYPC), founded in 2002 and listed on the Shanghai Stock Exchange in 2003, is in charge of cost control and power generation of the Three Gorges hydraulic hinge, the operation, maintenance and repairing of the assets of the plants and the flood control devices.

TGHPs sister hydropower plant, GeZhouBa Hydropower Plant, has been operating for more than 20 years. With 21 generators operating and a total capacity of 2,710 MW, it takes 3000 employees to operate and maintain this plant. TGHP's objective is to maintain their valuable assets with less people. The goal is to run TGHP with fewer than 400 people–if they ran it like GeZhouBa, it would take at least 5000.

"We are aiming at being a first-class company and as a brand new organization, we wanted to adopt best practices right from the start," said Y.Q. Cheng, the senior engineer of China Yangtze Power Co., Ltd. and the former Deputy General Manager of Three Gorges Hydropower Plant. "External competition and pressure in the electricity market required us to look for a flexible solution that could streamline our internal processes and reduce operating costs."

In 2002, IFS was one of five ERP vendors evaluated in the search for software to help manage their assets the most efficiently. In April 2002, IFS was selected.

About about the Three Gorges Project and the Three Gorges Hydropower Plant

The Three Gorges Project is the largest water conservation project in the world. It is located on the Yangtze River in Hubei province, central China. The project is aimed at improving flood control, producing electricity, and improving navigability on the river. Upon completion, Three Gorges will be the largest hydropower plant in the world, with a total installed capacity of 18,200 MW and an annual output of nearly 84.7 billion kWh. By October 2004, ten of the 26 units have already been put into operation.

Mr. Cheng explained, “An advanced ERP platform was necessary for us to manage the vast amounts of equipment and tons of documentation with as few employees as possible. The rich functionality provided by IFS made them the only ERP vendor that could satisfy our rigorous requirements.” He continued, “The open framework, object-oriented technology, and efficient developing tools within IFS were the major reasons for selecting IFS.”

A complete solution for the entire operation

A power generation plant is a technically-intensive and equipment-intensive operation. Any fault or failure during power generation may endanger the people or the equipment. These types of concerns convinced TGHP that they needed to adopt advanced management philosophies and modern computer technology.

Using IFS they developed an e-Project Management Information System (ePMS). The “e” stands for electricity, electronic, and e-Commerce. The ePMS makes it possible for TGHP to run their entire operation the most efficient way possible.

Mr. Cheng explained, “We needed a complete solution to span our entire operation. IFS made it possible for our ePMS to give us control over every function in our business.” He continued, “That includes everything from equipment maintenance, inventory, quality, safety, and logistics control to finance, business performance and human resources.”

TGHP’s assets and other equipment reside at the core of the ePMS. In order to improve maintenance efficiency and reduce total maintenance costs, it was necessary to integrate inventory management, purchasing, human resources and finance, as well as cost analysis into one information system platform that shared one database.

Empowering 370 employees

Using IFS and IFS Foundation™, it took IFS and TGHP 18 months to design and build their solution. Currently more than 200 employees are using ePMS. When the plant is completed, it will manage a total installed capacity of 18,200 megawatts with only 370 employees–a far cry from the anticipated 5000.

As a result of implementing IFS, TGHP now operates with a minimal overhead. The consolidated data found within ePMS gives every employee a common view of business performance and the ability to act fast on any task, including equipment repair and maintenance.

“The system has become a powerful tool and platform for communication and collaboration for people across various levels and departments in the plant,” said Mr. Cheng. He further added, “We have educated a large group of generalists by implementing the system. We needed an electronic format to communicate with them on everything from maintenance orders to business performance. Our web-based system provides a common view of critical business information for every employee enabling them to act quickly.”

Benefits seen using IFS

- Operate with minimal overhead
- Efficient operation and maintenance of mission critical assets
- Web-based view of critical processes for fast action
- Optimized processes
- Powerful communication platform
- Greatly improved the quality of work and life
- Assistance for decision-making
- Optimized organization structure

Increased plant availability puts results right to the bottom line

“In 2004, at least six more units will be put into operation generating an extra 4.2 billion kWh of electricity,” said Mr. Cheng. “In the future, when all the turbines are up and running, the plant will produce 84.7 billion kWh of electricity with only 370 people.”

Find out more

Further information, e-mail info@ifs.com, contact your local IFS office or visit our web site, ifs.com

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