



PERFORMANCE UPDATE

An update on the worldwide activities of the International Energy Services Company

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INTESCO's Mission is to contribute to a substantial reduction in global environmental pollution by increasing the end-use efficiency of electricity and other energy forms, thereby improving the standard of living and quality of life for people throughout the world while providing attractive returns to investors.

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India

Energy Efficiency Project Boosts Steel Productivity at Bangalore Plant

Investment payback of 2.3 years indicates efficiency may be cheaper than new power plants

A highly successful energy efficiency project has dramatically increased the productivity and energy efficiency of Bhoruka Steel's Karnataka "mini-mill." The project was the first of its kind in India to use finance provided by an energy service company (ESCO) to install energy-efficient equipment, with the return on investment coming from savings due to reduced energy costs.

The success of the project is likely to encourage the developers of a variety of similar energy efficiency retrofits.

Managed by the energy service firm INTESCO-Bhoruka, the project involved planning, financing, and installing a new highly-efficient 25 MVA transformer to replace two older smaller transformers. The new unit will reduce the amount of energy consumed per unit of steel produced by up to 8%.

The project was commissioned in October and already the plant is running eight "heats" per day, up from five per day previously. (A heat is the process of melting steel in an arc furnace in preparation for casting.)

The total cost of the project is about \$265,000 (Rs. 82.6 lacs) and the combination of improved energy efficiency and productivity is expected to save Bhoruka Steel about \$115,000 per year (Rs. 36 lacs) – a simple payback of 2.3 years. The project is structured so that the investors share the savings over the seven-year contract.

"The success of this project demonstrates that the Indian economy can benefit significantly by taking advantage of cost-effective energy efficiency resources," said Dilip R. Limaye, president and chairman of INTESCO. "In many cases the application of new energy-efficient technology can increase productivity and can be implemented more quickly and at a much lower price than building new generation facilities – and this type of project also has positive environmental benefits."

INTESCO-Bhoruka, India's first private ESCO, is a joint venture between the International Energy Services Company (INTESCO), located near Philadelphia, U.S.A., and the Bangalore-based Bhoruka Power Corporation. INTESCO is an affiliate of SRC International (SRCI).

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INTESCO GLOBAL
111 Presidential Blvd., Suite 127
Bala Cynwyd, PA 19004
USA
Tel: +1-610-667-2160
Fax: +1-610-667-5593
Dilip R. Limaye
President

INTESCO GLOBAL
59 Dunster Road
Boston, MA 02130
USA
Tel: +1-617-522-4815
Fax: +1-617-522-5035
Chester R. Lyons
V.P. and General Manager

INTESCO BHORUKA LIMITED
48, Lavelle Road
Bangalore - 560 001
INDIA
Tel: +91-80-221-9692/93/42
Fax: +91-80-221-0605
S. Subramanian
Chief Executive

INTESCO-CZ S.R.O.
Pocernická 96
108 03 Prague 10 - Malesice
CZECH REPUBLIC
Tel: +42-2-6702-1521/22
Fax: +42-2-6702-1520
Roman Cítek
Acting Director

INTESCO-PACIFIC PTY. LTD.
Level 20, 114 William St.
Melbourne, Victoria 3000
AUSTRALIA
Tel: +613-670-0720
Fax: +613-670-0718
Lance Hoch
Acting Director

One of the barriers to increased industrial energy efficiency in India has been the lack of low-cost capital for these projects. INTESCO-Bhoruka has obtained 80% of the finance through the Industrial Development Bank of India's (IDBI) INFUSE program, with the remainder coming from INTESCO equity.

Bhoruka Steel manufactures a wide range of high carbon and alloy steels from scrap using an arc furnace and continuous casting process at its Karnataka plant. The company's energy costs have been steadily increasing in recent years due to power shortages and low voltage levels causing inefficient operation of its melting and casting operations. Voltages can be up to 20% below required levels and at certain times power is simply not available to industry. Also, the plant is not permitted to operate between 6 p.m. and 9 p.m. because the power is needed to supply residential users. Although Bhoruka Steel has produced as much as 60,000 tons of steel in a year, annual production has recently fallen as low as 32,000 tons.

The low voltage has increased the cost of production because the arc furnace takes more time to complete a heat and poor voltage increases the energy consumption of each heat. Other problems were caused by the inherent inefficiency of the two smaller transformers and their associated circuitry. When the quality of power is good, such as at night, the plant can use as little as 550 to 650 kWh/ton, but, when the quality is poor, consumption can rise by 5 to 10%. A reduction in transformer losses will save another 12 kWh/ton.

Due in part to these problems, Indian steel manufacturers use up to 750 kWh of electricity per ton of steel produced compared to U.S. steel makers who use 450 to 550 kWh/ton. This relative inefficiency makes India and many other developing countries very attractive for investments in energy efficiency, and also increases the returns from investments in demand-side management (energy efficiency) compared to supply-side investments (new generation). Steel mills are a particularly attractive investment site, since energy costs can account for as much as 30% of total production costs.

In another industrial energy efficiency project, INTESCO-Bhoruka planned and managed a retrofit of the compressed air system at three mills owned by the Bombay Dyeing and Manufacturing Company, one of the biggest textile groups in India. The company produces cotton and synthetic fabrics for household use including bedsheets, towels, and clothing.

Compressed air powers much of the textile mill machinery such as high-speed looms. The \$270,000 (Rs. 85 lacs) project involved installing a control system for the four central compressors to balance the supply and demand of compressed air, as well as improving the efficiency of air-receiving vessels, pipelines, and nozzles.

For more information:

Mr. Chester R. Lyons
Vice President and General Manager
INTESCO
59 Dunster Road
Boston, MA 02130
telephone 617/522-4815
facsimile 617/522-5035

Mr. Prakash Magal
Manager, Marketing
INTESCO Bhoruka Limited
Number 114 (Old No. 26) Ground Floor
Oakland Apartments
Ulsoor Road Cross
Bangalore 560 042
INDIA
telephone +91-80-221-9692 or /93 or /42
facsimile +91-80-221-0605