



## Alstom India Limited



# Technology Transfer: Alstom Global Hydropower Technology Centre, Vadodara

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### CASE STUDY

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#### Summary

Policies implemented at national and state level together with the local authorities desire to attract inward investment helped to make this possible. Specifically, they stimulated market demand with incentives to invest while also liberalising the electricity market to encourage new entrants and boost competition. Vadodara itself offered excellent transport links (important to the logistics of moving heavy machinery) as well as a strong education system, supplying a robust and flexible labour market.

#### Objective of Intervention

By focusing on the specific issues of the Indian hydro market, the new Global Technology Centre at Vadodara will enable Alstom to develop highly innovative integrated products and technologies for new and rehabilitation projects. In January 2010, the Vadodara Centre produced a 78 ton Kaplan runner (similar to an aeroplane propeller), the largest ever produced by an Indian firm, destined for the Bujagali power project in Uganda. This is one of the most complex components for hydropower generation. At present, the Centre is executing contracts on 13 projects, both for a range of Indian customers and also for export. In addition to manufacturing a 78 ton Kaplan runner, the facility has also delivered India's largest Francis turbine runners (for the Subansiri Project in Assam and Arunachal Pradesh) and is also involved in the execution of the Tehri Pump Storage project, which adopts variable speed technology for the first time in India.

In May 2011, Alstom added our most advanced bearing production factory to the Vadodara complex. It will manufacture bearings for medium and large hydro projects both for the Indian market and for export. The factory has 200 employees and is itself a demonstration of sustainability through its use of measures such as heat-insulated panels, a fume extraction system, a rainwater recycling system, skylights and turbo ventilators and demand-controlled air conditioning. It also adopts lean manufacturing techniques to



deliver high efficiency, productivity and quality. In July 2011, Alstom launched a new induction programme for Young Engineering Graduates in India. For the 126 students selected for the first intake, it will offer a 75-day induction programme followed by nine months of on-the-job training. It aims to promote a new generation

### **Type of Intervention and Location**

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Technology Transfer: Alstom Global Hydropower Technology Centre, Vadodara Gujarat

### **Description of Intervention**

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India is the world's biggest market for Pelton turbines but hydro resources in the Himalayan region suffer from high silt content. The Vadodara Centre focuses on the particular needs of this market, with a Pelton turbine scale model test laboratory with one of the highest head testing capacities in the world and a silt-abrasion test rig to support research on abrasion protection. By focusing on the specific issues of the Indian hydro market, the new Global Technology Centre at Vadodara will enable Alstom to develop highly innovative integrated products and technologies for new and rehabilitation projects.

### **Intangible or Tangible Benefit**

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The Vadodara unit reputation has also increased by winning a Silver Certificate of Merit from Indian publication, the Economic Times at its India Manufacturing Excellence Award Summit 2011. The award recognised the facility demonstration of best practice in its quality control processes.

### **About Alstom India**

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A proponent of sustainable mobility, Alstom provides a complete range of systems, equipment and services in the railway sector. Alstom India is comprised of four businesses: Rolling stock & Components, Systems & Infrastructure, Transport Information Solutions and Train Life Services. With a full range of highly advanced products and solutions and a strong local footprint, it is well geared to participate in the upcoming rail transportation projects in India and South Asia, including high speed train projects.

Alstom is a leading supplier of train control systems for metros in India. In the past, under a transfer of technology agreement, Alstom provided rolling stock for India's fastest trains - Shatabdi and Rajdhani – which include the Alstom-designed LHB coaches. Since then, Alstom has partnered in the development of several metros and has established a strong presence in India.