Alliance to Save Energy
WATERGY CASE STUDY
Pune, India

BACKGROUND

Indian municipalities continue to face the challenges of a growing population, urban expansion, increasing power tariffs and acute water shortages. At present only about two-thirds of the urban population has direct access to clean, affordable, reliable drinking water service. At the same time, municipal water utilities in India spend upwards of 60 percent of their budget on energy for water pumping. The Alliance to Save Energy has found that savings of at least 20% are typically available from no- and low-cost efficiency measures made in municipal water utilities, with much more possible with higher cost measures.

Key Results

- Energy Savings: 3.8 million kWh/year
- Cost Savings: US$336,000/year
- Water pumped: 10% more water delivered to the community with no additional new capacity
- CO_2 Emissions Avoided: 38,000 tonnes/year

Pune lies in western Maharashtra, the second largest city in the state after Mumbai with a population of over 3.5 million. The Alliance began its Watergy Program in India by partnering with Pune Municipal Corporation (PMC) in 1997. The Alliance conducted an energy audit on the Cantonment Water Works, and PMC implemented the suggested low-cost measures in 2000. The savings totaled 4,230,000 kWh with an average payback of 16 months. However, the project came to a standstill due to various reasons in 2000 and resumed after 2004 when PMC came under new administration and rekindled its partnership with the Alliance. This case study describes only the second phase of the Pune water efficiency effort, implemented in 2005 and 2006.

OBJECTIVES

The main objective of the Alliance partnership with PMC was to demonstrate that harnessing efficiencies at the nexus between municipal water and energy can greatly help municipalities in India and other developing countries address their urban water and energy challenges. The Alliance to Save Energy Watergy program helps cities take advantage of untapped energy and water efficiency opportunities in their water systems, yielding significant energy, water and monetary savings that provide consumers with quality service using a minimum of water and energy.

PROJECT

The Alliance partnered with the Urban Development Department of Government of Maharashtra and in January 2005, the Alliance conducted energy audits on PMC's bulk water supply systems. Coupled with the audit process, in order to build technical and managerial capacity at PMC, the Alliance also conducted hands-on training for 45 PMC engineers that involved ten days of classroom and field work. Also participating in the training were the state institutional partner, the Maharashtra Energy Development Agency (MEDA), All India Local Self-Government (AIILSG) and engineers from Nagpur Municipal Corporation, a city of two million people in the northeastern corner of the state. The draft audit report was discussed with PMC officials and once the municipal engineers agreed upon on the measures to be implemented, the report was finalized. The Energy Audit report suggested that PMC could accrue energy cost savings of Rs. 146 lakhs ($332,000) with an investment of Rs. 87 lakhs ($198,000). Nearly 70% of the suggested measures had payback periods of less than one year. Under the aegis of the Municipal Commissioner, PMC contributed a total of US$189,000 (Rs. 8.5 million) to implement a series of capital-intensive efficiency measures.

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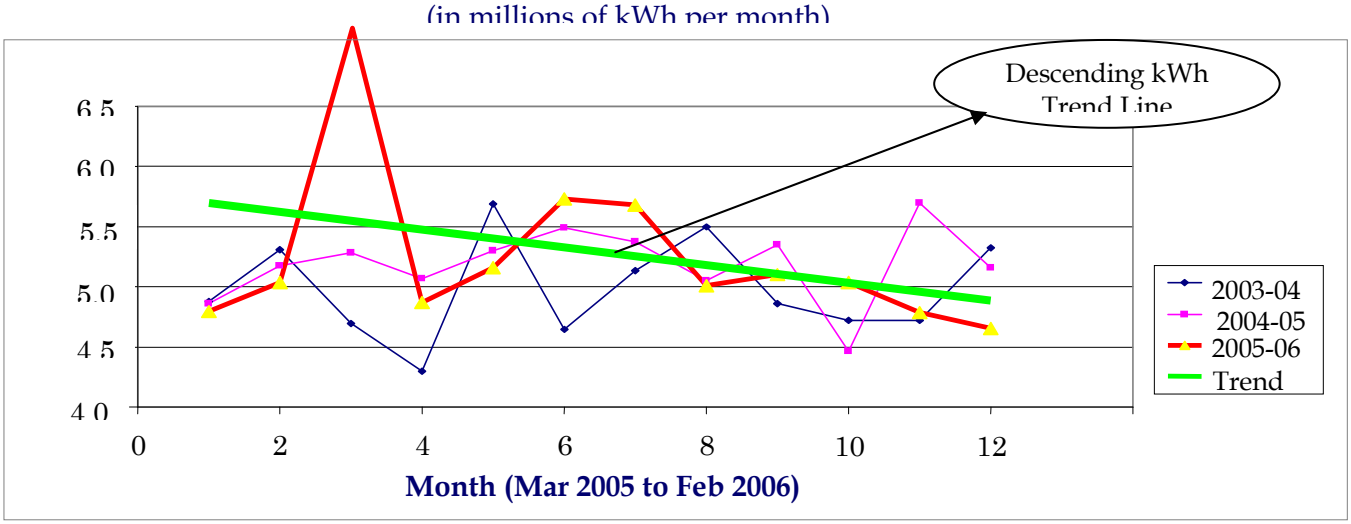
Results from Parvati Water Works – Pune Municipal Corp.
(in millions of kWh per month)



RESULTS

As a result of these measures, PMC is experiencing annual energy savings of 3.78 million kWh and annual cost savings of over $336,000 (148 lakhs Rupees). The savings achieved at PMC are higher than projected in the energy audit report since the PMC municipal engineers implemented additional low and no cost energy efficiency measures at the pumping stations including distribution pumping stations. This is a direct result of the training provided to the municipal engineers by the Alliance to Save Energy. The implementation of EE measures also resulted in 10% additional delivery of water to community without adding any new capacity. In addition to direct reductions in energy costs, the utility also saved money by qualifying for a rebate program offered by the Maharashtra State Electricity Board to facilities maintaining a good power factor and reducing usage during peak hours. The efficient operation of the largest pumping station, Parvati Water Works, reduced the energy intensity of water supply by 6%, from 375 kWh/million liters of water to 352, and increased its rebate by almost 8% since fiscal year 2003-04, from $110,000 (48.57 lakhs Rupees) to $196,000 (86.27 lakhs Rupees). The success of the PMC energy efficiency program has encouraged PMC to sustain its energy efficiency activities. The Municipality is currently discussing with consultants an extension of energy audits to other pumping stations in the network.

The PMC Watergy Program ignited the EE movement in Maharashtra as various other Urban Local Bodies—such as Thane, Nagpur and Municipal Corporation of Greater Mumbai—undertook similar efforts. The Alliance assisted the UDD, AIILSG and MEDA prepare the "Roadmap for Energy Efficiency in Urban Local Bodies in Maharashtra". The Chief Minister of Maharastra released the Roadmap in February 2005. The National Urban Renewal Mission (NURM) Cities in Maharashtra also added Watergy initiative as infrastructure development project in their City Development Plan for seeking funds for implementation of the project.

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This work was funded by the U.S. Agency for International Development

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