

ECO-III Project Status and Accomplishments at a Glance

July 28, 2008

1. Energy Conservation Action Plan (ECAP) for Gujarat and Punjab

- Developed ECAP for the year 2007-08 and the **draft 5-year ECAP for 2007-12 for Gujarat and Punjab.**
- Helping Gujarat Energy Development Agency (GEDA) and Punjab **develop an implementation roadmap for next five years.**
- Punjab Energy Development Agency (PEDA) has received first installment of **Rs.3.4 million from Bureau of Energy Efficiency (BEE)** against Rs.4.9 million sanctioned for the year 2007-08.
- GEDA has received first installment of Rs.3.5 million from BEE against Rs.5.0 million sanctioned for the year 2007-08.
- Helped Government of Gujarat set up Energy Conservation Advisory Committee with the Chief Secretary as its Chairperson;
- Providing think tank support to the PEDA for energy conservation (EC) activities in areas/programs such as municipal street lighting, public buildings, SMEs, annual EC awards, etc.

2. Implementation of Energy Conservation Building Code (ECBC)

- **Developing technical documents to support BEE in the implementation of ECBC at the national level:** Objective is to develop high-quality technical documents in public domain for large-scale capacity building of practicing architects, building professionals/consultants, State-designated agencies and concerned departments and institutions, etc.
 - ECBC Tip Sheet on **Building Envelope, Lighting, HVAC, and Energy Simulation.** Developed **ECBC Tip Sheet on Energy Simulation.** More than 8,000 copies of Tip Sheets have been printed for distribution to the concerned stakeholders.
 - **Glazing Design and Selection, Lighting Design, and Cool Roof Application Guide** has been developed.
 - **ECBC User Guide** is under development.
- **Awareness and Training Workshops on ECBC**
 - **“The Making of a Sustainable Building”** by Riverbank Studios is an effort (ECO-III Project, BEE, US Department of Energy, and Alliance to Save Energy [ASE]) to create awareness among professionals, students, and general public through a documentary film highlighting the benefits of an energy-efficient building.
 - Organized **four ECBC Awareness workshops** (New Delhi, Chandigarh, Vadodara and Pune with BEE, PEDA, GEDA and Maharashtra Energy Development Agency (MEDA) respectively). The materials prepared for the workshops are being used to create national ECBC awareness by BEE and other organizations.
 - A set of **five-lecture ECBC professional training materials is being developed** for energy efficiency professionals from the ECBC Tip Sheets.
 - Number of concerned professionals/officials trained on ECBC: 1,000 (approx.)
- **Capacity Building on Energy Modeling & Simulation**

- **Organized series of energy modeling workshops** to directly address a capacity crunch in the area of energy modeling.
 - **ECO-III Project together with Asia Pacific Partnership (APP) is organizing four Energy Modeling Awareness and four Energy Modeling Training workshops in India.**
 - The project will also establish (International Building Performance Simulation Association) **IBPSA India chapter** to raise the awareness and expertise of building simulation professionals.
 - Performing a **comprehensive parametric analysis** of the IT Park building Gandhinagar Special Economic Zone (SEZ) being constructed by DLF India and **putting the entire methodology and analysis in the public domain** as part of ECO-III's philosophy to raise the bar on simulation-based analysis in India. This will help beginners get started quickly and help modelers avoid committing common mistakes through incorrect use of default parameters in typical Indian construction practice.
 - Working with BEE, Indian Society of Heating Refrigerating and Air-Conditioning Engineers (ISHRAE), Center for Environmental Planning and Technology (CEPT), and US Department of Energy to **update and improve the quality of the weather files for 107 Indian cities** to be used in energy modeling program (EnergyPlus and DOE2).
 - **Demonstration Project on development of ECBC Compliant Building**
 - ECO-III has signed an MOU with India's largest commercial real estate developer, DLF Limited, to collaborate on developing an ECBC compliant building with Real-Life Monitoring of Cost and Energy Savings.
 - Highlighted Equipment Power Density (7 W/ft² vs. an international average of 2 W/ft²) issue and its impact on infrastructure and addressing it on a national level.
- 3. Improving Energy Efficiency in Existing Buildings and Municipalities**
- A Best Practices **Energy Assessment Guide for Commercial Buildings** has been prepared and is being used to perform energy audits in 400 public sector buildings under a new BEE initiative.
 - **Energy Efficiency in Data Centres**
 - Assisting APP-supported Lawrence Berkeley National Laboratory (LBNL) activity for promoting energy efficiency in Data Centres in India with objectives of (a) Market transformation and capacity building for energy efficiency in Indian IT/Information Technology Enabled Services (ITES) data centers, and (b) Transfer international best practices and benchmarks in the design, construction, operation and maintenance of data centers.
 - Organized a workshop on "Ensuring Global Competitiveness of Indian IT Sector by Improving Energy Efficiency of Indian Data Centers." The workshop, the first of its kind in India, was very well received by both the industry and the government. ECO-III project played a key role in getting the National Association of Software and Services Companies (NASSCOM) engaged in this initiative, and actively associated with IBM, HP, Intel, NetApp, Wipro, and Schneider Electric for the presentations on their programs in the workshop.
 - Providing **technical assistance to Gujarat Urban Development Company (GUDC)** for improving energy efficiency in street lighting and water pumping facilities in Urban Local Bodies (ULBs) of Gujarat in the largest municipal project conceived in India.
 - Assisting GUDC in drafting (a) Expression of Interest from the energy consulting companies (ESCOs) in implementing performance contracting and (b) Request for Proposal and Evaluation Criteria for selection of energy auditors. **This project has become the basis of a national energy efficiency program in municipalities** that has been launched by the BEE.
 - **Six Action-Oriented Energy Audits in Government Hospitals in Gujarat are currently under way (Baroda, Surat, and Jamnagar audits completed).** The project is being

implemented in collaboration with GEDA and Department of Health and Family Planning. A model for implementing the capital intensive measures recommended in audits is being worked out.

- Based on the data collected by PEDDA for 52 Government buildings, a proposal to take up a model **Punjab Public Buildings Energy Efficiency Program** has been prepared. The proposal envisages model performance contract for five large Government offices being presently managed by Public Works Department, Government of Punjab.
- **Energy Efficiency benchmarking framework is being developed in partnership with BEE** by analyzing energy consumption and other related data based on the inputs from Central Public Works Department (CPWD), PEDDA, DLF, Indian Green Business Center (IGBC), ITC, Government of Gujarat and Punjab, etc. The goal is to create specific energy consumption levels for different types of commercial buildings in India.
- ECO-III project helped organize the **first Efficiency Valuation Organization (EVO)-conducted Measurement and Verification (M&V) Awareness Seminar** in New Delhi on April 24, 2008. The event was organized by Conzerv Systems and attended by more than 50 professionals (including energy consultants and energy auditors, financial institutions, and several Clean Development Mechanism [CDM] project implementers). A strategy report for linking **M&V training with ongoing national initiatives in ESCO development, Demand Side Management (DSM), and CDM programs** has been prepared for providing future guidance on EVO and BEE.

4. Improving Energy Efficiency in Small and Medium Enterprises (SMEs)

- Developed **SME cluster analysis** for: Textile units (Ludhiana and Ahmedabad); Cross-cutting technologies (Ahmedabad); Steel Re-rolling Mills (Mandi Govindgarh).
- **Letter of commitment to support studies and implement the measures** was obtained from the pre-selected nine units in Gujarat and Punjab. In addition, MOUs have been signed with three units (Sameer Synthetics, Srikrishna Processors, and Paradip Overseas, Ahmedabad) for pre-investigative and investment grade audits.
- **Pre-investigative studies in four clusters, pre-feasibility studies of nine units, and investment grade proposals in three units** are nearing completion.
- Pre-feasibility studies for propagating cross-cutting technologies (Vatva, Ahmedabad) have been completed and deliberated through a series of interactive meets involving relevant stakeholders. A business model is being evolved by involving industry associations (Vatva) and equipment suppliers (of lighting, soft starters, capacitors, variable speed drives, etc.) and GEDA. Efforts are on to collaborate with World Bank on this initiative.
- Three Investment Grade Audits (Sameer Textiles at Ahmedabad and two textile units in Ludhiana) are being discussed as **potential projects with Punjab National Bank, State Bank of India and the Small Industries Development Bank of India (SIDBI)** respectively. The project will provide facilitation support leading to financial closure and implementation of the investment grade proposals.
- The project organized a Workshop on **Accelerating the Financing of Energy efficiency Measures in SMEs** on June 11, 2008 in New Delhi, at which more than 50 stakeholders participated. It also discussed key policy and barriers – particularly relating to financing – impeding investment in energy efficiency projects for overcoming the same.

5. Establishment of an Energy Efficiency Think Tank to facilitate improved policy making and active involvement of other stakeholders

- Drafted a report on **Promoting Delivery of Energy Efficiency Services in India**.
- Interactive discussions are being held with partner agencies (DSCLES, ASE and Conzerv) to discuss the feasibility of establishing an Indian Energy Efficiency Alliance. Being modeled on

Alliance to Save Energy and American Council for an Energy-Efficient Economy; ASE assisting in formulating the charter of the organization.

6. Utility-Driven DSM Program

- ECO-III Project is **working with Lawrence Berkeley National Laboratory to develop Regulatory Commission funded DSM program to be implemented by Discoms in Maharashtra and Delhi**. ECO-III project plans to **provide M&V and program evaluation capacity building efforts** to maintain the integrity of the pilot programs.
- The project has engaged **Indian Institute of Ahmedabad to Develop a Roadmap for Utility Driven Energy Conservation and DSM Programmes in Gujarat**. The focus of this exercise is to focus on two quick win DSM measure for Gujarat (CFL or Window/Split AC program and a Lighting program in public sector buildings).

7. Establishment of Regional Energy Efficiency Centers (REECs)

- Identified six thematic areas (**Domestic Appliances, Electric Motors, Lighting, Building Envelope & Energy Modeling, SMEs, and Rural Energy Management**) for creating institutions that can serve as Centers of Excellence on specific themes.
- Prepared the **Concept Paper on REEC for seeking proposals from selected institutions and organizations** to host REECs.
- Six proposals were received and evaluated by an Evaluation Committee consisting of 10 leading energy efficiency professionals by using a quantitative evaluation framework. The Committee made its recommendations to USAID and **short-listed four institutions (CEPT, WBREDA, SEE-Tech and NFTDC)** for possible funding under the Project.

8. Education Curriculum

- To build the capacity of architectural institutions, **E Source Technology Atlas Series (Lighting, Cooling, Heating, Appliances and Drive Power procured from E-Source, Inc. USA) and Window Systems for High Performance Buildings** were distributed to **twenty design/engineering institutes** (J. J. College of Architecture, CEPT, Ahmedabad, Indian Institute of Technology, Roorkee and Kharagpur, etc.) and **twelve not-for-profit organizations** (The Energy Research Institute, CII Green Business Center, etc.).
- To build the capacity of architectural students, as a long-term strategy, ECO-III is developing **two courses in the field of Building Science and Energy Modeling**.
- ECO-III has **negotiated 75% discount with DesignBuilder software of UK for Site Licenses to the architectural/engineering colleges** associated with the project and the software is being installed at educational institutes.
- Preparing a **Business Case study for MBA students on green and sustainable buildings in partnership with IIM Ahmedabad**.

9. Outreach and Awareness Activities

- Working with **US Department of Energy, US Environmental Protection Agency, Lawrence Berkeley National Laboratory, World Bank, GTZ** to leverage ongoing ECO-III activities in the broadest possible manner through **APP, Energy-Efficient Procurement, DSM Program, Data Center Activity, SME sector activity and Climate Change program conceptualization**.
- A very **informative and comprehensive Study Tour program for Indian policymakers** designed to give the most comprehensive exposure to **building energy efficiency, Federal and state energy efficiency programs, and cutting edge R&D efforts in the US**.
- The project web site (www.eco3.org) contains the **most exhaustive technical resources in the building energy efficiency and other resources in the public domain**.
- Providing **expert comments and feedback on the Energy-Efficient Purchasing Manual** being developed by **BEE in collaboration with Environmental Protection Agency and LBNL**.