



## PROJECT STATUS REPORT FORM

<b>Project Number:</b> RDG-08-32	<b>Task Force:</b> REDGTF
<b>Title of Project:</b> Grid Connected Renewable Energy and Distributed Generation Partnerships	
<b>Lead Partner Country:</b> USA	
<b>Participating Partner Countries and Organizations:</b> India	
<b>Project Location</b> (Country, State/Province, City): India, Bangalore (expansion in sites of Karnataka, Kerala, Andhra Pradesh, and Maharashtra)	
<b>Project Manager Information</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>Name:</b> John Hammond  <b>Organization:</b> United States Energy Association  <b>Address:</b> 893, 3<sup>rd</sup> Cross, MC Layout,  Vijayanagar, Bangalore, 560040 </div> <div style="width: 45%;"> <b>Phone:</b>  <b>Fax:</b>  <b>Email:</b> jhammond@usea.org </div> </div>	
<b>Project Start Date:</b> September 2007	<b>Date of Project Status Update:</b> October 2009
<b>Actions Since Last Update:</b> <u><b>Workshops</b></u> <b>Chandigarh</b> <p>USEA held the second workshop in Chandigarh, India August 4-5, 2008. Target participants were the regulatory commission, local utilities, and renewable energy board: all of these entities participated. USEA had great turnout at the Chandigarh workshop with representation from the Punjab Energy Development Agency, Ministry of New and Renewable Energy, Punjab State Electricity Board, Punjab Electricity Regulatory Commission, Sacramento Municipal Utility District, PTC India Ltd, Turbomach India, GE Wind, USAID, Orb Energy, Thermax Limited, Suzlon Gujarat Wind Park Ltd., Agni Partners, AzurePower, Inc., blueTrii, Bureau of Energy Efficiency of the Government of India, Chandigarh Distillers &amp; Bottlers Limited, Cheema Spintex Limited, Foods Fats &amp; Fertilisers Ltd., Future Enviro Energy and Computing Solutions, Green Planet Energy, Greenfield Energen Ltd., Hindustan Infrastructure Inc., Indian Renewable Energy Development Agency Limited, Insolar, JCT Limited, Malwa Power Limited, Morinda Co-op Sugar Mills, Moser Baer Photo Voltaic Ltd., Nawanshahr Co-op Sugar Mills Ltd., P&amp;R Infraprojects Limited, Punjab State Council for Science &amp; Technology, Punjab State Federation of Cooperative Sugar Mills Limited, Polyplex Corporation Ltd., Ravi Energie, Reliance Industries Limited, Shreyans Industries Limited, Synergy Telecommunications, Univeral Bio-Mass Energy Pvt. Ltd., Velankani Information Systems Pvt. Ltd., and Winsome Yarns Limited. As a result of the Punjab workshop:</p>	



- The Punjab State Electricity Board requested the Punjab Energy Development Agency speak to the Punjab government to encourage the sale of power from IPPs,
- The Punjab Energy Development Agency requested the Punjab State Electricity Board and the Punjab State Electricity Regulatory Commission streamline their procedures to make it easier for renewable energy and cogeneration to connect to the grid, especially small generators,
- The Punjab Energy Development Agency will propose a state policy to provide Renewable Energy Credits (REC),
- The Punjab Energy Development Agency will work with the state government on ways to improve access to biomass fuels and will suggest new policies urging farmers not burn paddy straw prior to collection by biomass generators,
- The Punjab Energy Development Agency requested Orb Energy – an Indian solar project developer – to expand its portfolio by developing solar projects in Punjab,
- The Punjab Energy Development Agency requested additional information from Turbomach India – a project developer and manufacturer of medium size gas turbines - on their equipment and its potential applications in Punjab, and
- The Punjab State Electricity Board requested a demonstration project in biomass, possibly using Agripower technology.

### **Ahmedabad**

The third workshop was held in Ahmedabad, India from August 7-8, 2008. Participants included Gujarat Energy Development Agency, Gujarat Electricity Regulatory Commission, Sacramento Municipal Utility District, USAID, Orb Energy, Euro Solar Power, GSPC-Gar GSEG, Indian Wind Power Association, Slyan, GUVNL, Suzlon, Government of Gujarat, Enercon India, Sunrise Technology, Kintech Synergy Ltd, GETCO, DGVCL Surat, SLDC, Accion Wind Energy, PGVCL (GEB), Elecon, and Ravi Energie. As a result of the Gujarat workshop:

- The Gujarat Energy Transmission Company accepted the Indian Wind Power Association's invitation to come to Tamil Nadu and meet with the utility and developers to learn how they overcame the intermittency and other grid reliability issues related to connecting wind generation to the grid;
- The Gujarat Urja Vikas Nigam Ltd. requested a pilot project on solar, both photovoltaic and solar thermal; and
- A more open forum between regulators, developers and utilities was created



### **U.S. Executive Exchange**

The United States Energy Association (USEA) conducted an executive exchange to the United States funded by the United States Department of State as part of the Asia Pacific Partnership Clean Development and Climate (APP) in California and Washington, DC from October 13-14, 2008.

USEA invited the World Institute for Sustainable Development and the regulator, utility and energy development agencies from each state to send one delegate on the U.S. exchange. The following executives participated in the U.S. exchange:

#### **West Bengal**

- S.P. Gon Chaudhuri, Director, West Bengal Green Energy Development Corporation
- Member Prittoosh Ray, West Bengal Electricity Regulatory Commission
- Mriganka Majumdar, West Bengal State Electricity Distribution Company Limited

#### **Punjab**

- Balour Singh, Director, Punjab Energy Development Agency
- Prem Sagar, Chief Engineer, Punjab State Electricity Board
- Suresh Singla, Director (Tariffs), Punjab Electricity Regulatory Commission

#### **Gujarat**

- Mrs. Venu Birappa Pujar, Deputy Engineer, Gujarat Transmission Company Limited
- S.B. Patil, Senior Executive, Gujarat Energy Development Agency
- Lalnunmawia Chuaungo, Managing Director, Gujarat Urja Vikas Nigam Ltd.

#### **World Institute of Sustainable Energy**

- Surendra Pimparkhedkar, Senior Research Associate

Participants in the exchange met with leaders in integrating renewable energy and cogeneration in the United States to discuss how utilities successfully integrated various technologies and alternative energy sources into their systems and policies that encourage alternative energy. In addition, the participants visited numerous renewable and cogeneration facilities including:

- Solano Wind Project (SMUD)
- Kiefer Landfill (SMUD)
- PV1, PV2 (SMUD photovoltaic installations)
- Cal Denier Dairy Manure Digester Project (SMUD)
- Solar Powered Hydrogen Fuel Station (SMUD)
- Demonstration Site of Concentrating Solar Power (eSolar)
- I/95 Energy/Resource Recovery Facility (Covanta waste to energy plant)
- Central Heating & Refrigeration Plant (U.S. GSA)



### **Handbook Completed**

The *Handbook on Best Practices for the Successful Deployment of Renewable Energy, Distributed Generation, Cogeneration and Combined Heat and Power in India* was prepared under the U.S. Department of State's Asia-Pacific Partnership on Clean Development and Climate (APP). Produced by the U.S. Energy Association (USEA), it has applicability to other nations besides India. This detailed Handbook identifies policy, regulatory, technical and financial barriers to deploying grid connected renewable energy and distributed generation, along with specific and proven "best practices" to overcome these barriers.

This Handbook was developed as a tool to assist in the removal of barriers to the deployment of clean energy technologies. The Handbook is intended for policy makers, utility executives, regulators, and project developers. It is a compilation of open-source documents that are cited and listed at the end of each topic as well as in the bibliography.

The Handbook can be viewed and downloaded online at [http://www.usea.org/Programs/APP/Best\\_Practices\\_Handbook\\_India\\_HYPERLINKS.pdf](http://www.usea.org/Programs/APP/Best_Practices_Handbook_India_HYPERLINKS.pdf)

The Handbook is divided into eight main sections:

- Introduction and Summary
- Assessment of Current Policies in India
- Barriers to the Successful Deployment of Renewable Energy and Cogeneration in India
- Policy and Regulatory Best Practices
- Financial Issues and Best Practices
- Technical Issues and Best Practices
- Approvals and Application Processing Issues and Best Practices
- Contractual Issues and Best Practices

The Handbook compiles information from multiple sources on the major barriers to the deployment of renewable energy, distributed generation, cogeneration and combined heat and power projects into one document. It is not intended to be a comprehensive report on each barrier, but rather an overview with different stakeholder perspectives to facilitate discussion and understanding. Key issues are described, followed by a summary of the perspectives of electric utilities, regulators, and developers. Then, examples of "best practices" actually in use are described. Finally, web links for additional information are listed.



The term “best practice” as used throughout the Handbook refers to practices used by utilities and approved by regulators that have been effective in the deployment of renewable energy, distributed generation, cogeneration and combined heat and power. Effective policies and practices have a positive impact on a range of factors such as increased installed capacity, reductions in cost and price, technological advances, and public acceptance. The Handbook does not advocate one “best practice” over another nor does it necessarily contain all practices and policies that have been effective.

**Deliverables Since Last Update:**

**Date Completed:**

**Milestones Reached:**

**Next Steps:**

**Proposed Project End Date:**

**Project Already Complete:** X Yes No ☐

**Other Information:**

The project was successfully completed on February 27, 2009.