

REMITI
India.

P099005

ESW Concept Note

INVESTMENT CLIMATE ASSESSMENT FOR RENEWABLE ENERGY

1. Context

The proposed Investment Climate Assessment for Renewable Energy in India (ICA) aims at identifying barriers to scaling-up economically-viable renewable energy (RE) based power generation across states in India and proposing an action plan to mitigate these barriers.

As of March 2006, RE-based generation capacity in India exceeded 7200 MW, constituting about 6% of total installed power capacity in the country. The Government of India has set a goal of increasing the share of renewable energy sources to about 18,000 MW by 2012 (or 10% of the total generation capacity planned for 2012). The GoI expects to achieve this increase in capacity and generation through significantly higher levels of private sector investment in renewable energy projects and possibly by shifting tax (and other) incentives from asset creation to power generation. However, actions other than tax incentives will also be needed to attract the high level of private investment needed to achieve the desired targets. The output of the proposed study will, therefore, be a prioritized action plan to mitigate barriers to RE-based power generation, drawing on analysis of a few selected states. Some known barriers include:

- Inadequate and varying policy and regulatory conditions across states, including excessive reliance on cumbersome cost-plus based tariff setting. In India, state governments/electricity regulators are currently setting the approved purchase prices and in some cases are mandating renewable energy quotas. The buy-back or pass-through prices for renewable energy set by the regulators vary across each state, and often vary across different technologies based on each regulator's assessment of the efficient costs for these technologies. This often results in financial incentives being heavily dependent on the regulator's estimation (or judgment) of reasonable capital and operating costs of RE-based generation;
- Payment risks, usually because state distribution companies are financially weak or market conditions make it difficult for the RE-based power to be sold directly to end-users;
- Knowledge and know-how about cost-effective technologies to convert local renewable energy resources into electricity, both for local consumption and for sale to the grid;
- Access to financing on affordable terms, in part due to inadequate project appraisal skills in financing institutions.

A supportive investment climate for renewable energy projects requires a transparent, well designed regulatory and policy framework that helps to remove the barriers for implementation of renewable projects and enables efficient utilization of renewable resources by providing positive incentives for efficient renewable options. One of the concerns expressed by potential investors has been that the changing regulatory framework for renewable energy observed over the last several years has had an adverse impact on the investment climate for new projects. The impacts of this changing climate have been observed by the World Bank supervision team for the India Second Renewable Energy Project, as numerous sub-loans for small hydro projects were delayed/cancelled due to changing state regulatory policies concerning approved power purchase agreements and off-take arrangements for renewable energy.

While the Electricity Act 2003 provides a framework for the introduction of wholesale competition and open access, considerable work remains to define the design and implementation

of the market structure and rules. This has led to additional uncertainty for the renewable sector, since the details of new market structures and rules are not known, and are critically important for the viability of their renewable energy projects.

It is in this context that the proposed study on the Investment Climate for Renewable Energy in India is to be undertaken in few states to be identified in consultation with Ministry of New and Renewable sources. The study will be designed to be especially useful to regulators, policy makers, and other stakeholders. This study would look at the availability of renewable resources and technologies, the comparative full economic and financial costs of alternative generation options; and, options and recommendations on a policy framework for facilitating investments in renewable energy projects to achieve GOI target of 10% renewable power by 2012 as efficiently as possible.

2. Objectives

The objective of the assignment is to provide a sound basis to the Ministry of New and Renewable Energy (MNRE, formerly MNES), State governments, Regulators and other stakeholders to assess the current state-specific investment climate and to provide policy/regulatory framework recommendations (including buy-back rates and renewable energy quotas) while keeping the true economic costs and benefits of renewable options in perspective. The study may lead to development of common approaches across states (while also allowing for state-specific requirements) and reduce the risks and cost of doing business in this sector.

3. Scope and Methodology

The proposed ESW shall evaluate and compare the investment climate for renewable energy across selected states in India. It will evaluate the relative impact of current state-specific and national policy instruments and provide recommendations on the following areas: 1) improvement to the investment climate for renewable power generation; and 2) ensuring the most efficient mix of renewable power generation to meet government's policy objectives. The report shall identify options for policy makers and potential market interventions which may be required to improve the quality of the investment climate for renewable energy. Finally, the ESW shall identify areas of future demand for knowledge services to facilitate private sector investment in renewable energy.

The methodology for completion of this work to be followed by the consultants is as follows:

1. Consultation with Stakeholders,

- a) The consultant will review available reports and findings of earlier studies carried out in India
- b) Consultant will interact with the government department and regulators of identified states

2. Identification of Drivers / Barriers affecting Development of Renewable Energy including:

- a. Availability of Renewable Energy Resources and Development of Technology
- b. Financing Structure
- c. Policy and Regulatory Aspects
- d. Project Implementation Aspects
- e. Entrepreneurial Interest
- f. Survey of potential & existing investors for NRNE projects to identify firm-level bottlenecks in setting up, operating and growing these businesses

- g. Social and Environmental safeguard issues which effect the implementation of the project

3. *Economic Basis for Policy and Regulatory Framework for Renewable Energy.* The consultants would undertake a detailed economic and financial analysis of various renewable energy development options, and compare them with conventional energy options. The analysis would examine the various internal costs as well as externalities associated with each energy source.

The consultant as outcome of the economic analysis and based on available information of renewable potential in the country will develop supply curve that identifies the cumulative capacity viable at financial prices

4. *Development of Recommendations for Policy and Regulatory Framework* The consultants would:

- a. Discuss key aspects of electricity market design that affect the development of renewable energy, and also suggest an approach towards these aspects that should be borne in mind whenever a new market design is introduced.

b. *Based on the economic analysis above, suggest approaches for including these aspects in design of a tariff determination/discovery framework for renewable. In case of tariff discovery through competitive procurement, this may involve suggesting the approach for determining quotas for renewable and for estimating the likely tariffs that would emerge from the process. In case of interventions involving regulatory determination of tariffs, the approach for estimating the share of renewables likely to be achieved would be developed.*

- c. Suggest policy/regulatory/institutional measures for mitigating the identified barriers to renewable energy development in the identified states and central government

5. *Discussion and Dissemination Workshop.* A final workshop is planned to discuss and disseminate the findings of the Draft report.

4. Consultations with Clients/stakeholders

The study has been developed based on extensive consultation over the past several months with key counterpart agencies and stakeholders as part of the supervision efforts of the Second Renewable Energy Project. It would be conducted in close consultation with Ministry of New and Renewable Energy (MNRE), Ministry of Power (MoP), Central Electricity Regulatory Commission (CERC), State Electricity Regulatory Commissions (SERCs) of identified states, State power ministries in identified states, Forum of Regulators (FoR), India Renewable Energy Development Agency (IREDA), State Renewable energy development agencies, Distribution Utilities of identified states, Developers/ Investors, Financial Institutions and Consumer Groups.

5. Timetable/Milestones for delivery by Consultant

Inception Report	To describe the drivers / barriers identified based on discussions with stakeholders	1.5 months
Report on, Technology, Economic Pricing and Regulatory/ Policy Framework	To provide details on different technologies with indicative costs. To provide a detailed methodology (or suggest options in detail) for determination of economic pricing of Renewables with sample calculation using actual data from select states. To provide suggestions for regulatory and policy measures for promoting Renewables, including measures at state and central level The report shall also describe the measures to mitigate barriers to development of renewable energy	4 months
Workshop	To discuss and disseminate finding of the draft report	5.0 months
Comprehensive Final Report	To capture all the outputs of the assignment and incorporate the feedback / comments from the workshop.	6.0 months

The table below gives the proposed schedule for the study

<i>Project Preparation</i>	<i>Proposed schedule</i>
Concept Review	May 2007
Appointment of consultant	May 2007
Report	October 2007
Dissemination to all stakeholder	November, 2007

6. Resources

The Bank budget allocated for the current year is US\$ 40,000 and ESMAP funds are US\$ 125,000 additional requirement of Bank funds next year will be US\$ 40,000, thus the total budget including consultant and Staff will be US\$ 205,000.

Team Composition		
Name	Title	Unit
Paramjit Singh Dhingra	Power Engineer	SASSD
Eric Groom	Sr. Regulatory Specialist	IEF
Mikul Bhatia	Research Analyst	SASSD
Inderbir Singh Dhingra	Private Sector Development Specialist	SASFP