

**PROPOSAL FOR PDF BLOCK C GRANT OF
\$750,000 to Global Environment Facility for
Preparation of the India: Solar Thermal Power Project**

Part I. Eligibility

| | |
|-----------------------|---|
| Project Title | Solar Thermal Power Project; total estimated project cost is \$230 million: estimated Global Environmental Facility (GEF) financing is about \$35 million, Government counterpart financing at \$20 million; private sector and KfW financing for the balance . |
| ID No. | IN-GE-43021 |
| Implementing Agency: | World Bank |
| Executing Agency: | IBRD |
| IA Focal Point: | M. Manzo, SA2EI |
| Principal Focal Area: | Climate Change |
| Country: | India |
| Country Endorsement: | Yes (attached letters) |
| National Focal Point: | Rajasthan Energy Development Agency (REDA) |

Amount of PDF Funding Requested: US\$750,000

Cofunding: Yes Source and Amount: MNES and GOR (combined), US\$1,096,000

Block A Grant Awarded: No

Block B Grant Awarded: No

Summary Project Objectives and Description:

Objectives: (a) to demonstrate the operational viability of solar thermal power generation in India; (b) support solar technology development in India; and (c) help reduce GHG emissions in the longer term. Operational viability will be demonstrated by having the solar thermal plant operate as an independent power producer (IPP) having commercial power sales and delivery arrangements with the grid. Technology development would be supported through technical assistance and training.

Project Description: The project involves: (a) Construction of an integrated solar combined cycle (ISCC) plant with a total output of about 140MW incorporating a solar thermal plant of 35 to 40MW; and a (b) Technical assistance package to support technology development and commercialization requirements.

Description of PDF Activities by component for (i) GEF-funded and (ii) co-funded:

(i) GEF-Funded activities:

1. Finalization of feasibility study, to be performed by Engineers India Ltd.
2. Environmental impact assessment, to be performed by NEERI.
3. Setting up an observatory at the plant site to measure solar insolation.
4. Preparation of water supply scheme for the project (local consultants).
5. Preparation of electricity evacuation project (local consultants).
6. Detailed review of solar field component (International consultants).
7. Engagement of techno-economic advisers to REDA/GOI up to contract award to IPP (International consultants). May include one visit to similar facilities abroad for detailed discussions on contractual and operational requirements of the project.
8. Computing facility (infrastructure and support).
9. Preparation of tender documents (local and international consultant)

(ii) Co-funded activities:

1. Preparation of initial project reports, carried out by local and international consultants
2. Land acquisition, including boundary wall, fencing, etc.
3. Site survey and preliminary development works.

Eligibility:

Country Eligibility: Convention: Climate Change. Date of Climate Change Ratification by India: November 1, 1993.

Program Eligibility: GEF Operational Strategy: The project falls under the Climate Change Operational Program # 3 of reducing the long-term cost of a promising low greenhouse gas-emitting energy technology.

National Level Support:

1. The Government of India through the Ministry of Non-Conventional Energy Sources (MNES) has taken the initiative to commission the preparation by joint local and foreign consultants of a detailed project report for a 35MW solar thermal project. MNES has agreed to having said project report reviewed and concurred with the adoption of modifications to the project design. GOI approached IBRD, GEF and KfW to secure financing for the project. The MNES intends to contribute the equivalent of US\$10 million towards the project cost.
2. The Government of Rajasthan through the Rajasthan Energy Development Agency (REDA) has taken the initiative to obtain the land where the plant will be constructed, and has also funded the preliminary development works. The Government of Rajasthan is prepared to contribute the equivalent of US\$10 million towards the project cost. The

project will be one of the initial projects to be set up in the solar enterprise zone proposed to be opened in Rajasthan.

3. The local government of Mathania village through its elected officials have expressed enthusiasm for the construction of the solar thermal power station in their locality.

Justification¹ for PDF grant:

The activities funded from block C grant will allow project preparation to be completed up to issuance of tender documents and evaluation of offers from independent power producers. These expenses are directly associated with having a solar component in the project. Additional funds that may be needed to bring the IPP transaction into financial closure would have to be raised by the Government.

Items to be Financed and Costs:

| <u>ITEM</u> | <u>PDF Grant</u> | <u>Govt</u> |
|---|--------------------|----------------------|
| 1. Additional feasibility study by EIL | US\$ 50,000 | |
| 2. Environmental impact assessment | US\$ 50,000 | |
| 3. Setting up observatory at plant site | US\$ 70,000 | |
| 4. Preparation of water supply scheme | US\$ 20,000 | |
| 5. Project preparation for electricity evacuation | US\$ 20,000 | |
| 6. Review of solar field component | US\$ 90,000 | |
| 7. Tech/econ/legal advise to REDA/GOI | US\$280,000 | |
| 8. Computing facility | US\$ 20,000 | |
| 9. Preparation of Tender documents | US\$150,000 | |
| 10. Initial project report | | US\$270,000 |
| 11. Land acquired, including boundary wall, fencing, etc. | | US\$560,000 |
| 12. Site survey and preliminary development works | | US\$ 16,666 |
| 13. Other expenses to finalize IPP contract | | US\$250,000 |
| TOTAL | US\$750,000 | US\$1,096,666 |

Outputs:

1. Complete feasibility study & detailed project implementation plan
2. Procurement plans and IPP tender documents
3. Evaluation of bids

Expected Date of Preparation Completion: August 15, 1996

IA Representative M. Manzo, Task Manager, SA2EI
 Government Contact: Mr. P. Dayal, Chief Executive & Director
Rajasthan Energy Development Agency

Jan 16, 96
 Date

¹ For Block C projects not approved by the Council, an explanation should be provided.