Indo-German Energy Programme – ACCESS

PN: 14.2114.8-001.00 **Date: 14.12.2015**

Terms of Reference (ToR) for engaging a consultant for Market based approach developed for revival of existing underutilised off grid projects with the participation of private players and local communities

1. Background

The Access to Energy Programme under the Indo-German Energy Programme (IGEN-Access) is a bilateral technical co-operation measure between the Federal Ministry for Economic Co-operation and Development (BMZ), Germany and the Ministry of New and Renewable Energy (MNRE), Government of India. IGEN-Access was commissioned by BMZ based on the lessons learnt over the past four years (2011 – 2015) under the Renewable Energy Component of the Indo-German Energy Programme (IGEN-RE). IGEN – Access aims to improve the sector environment for inclusive rural energy enterprises. The project aims to use a multi-level approach to address the sector environment for rural energy enterprises. At the micro level, under the "Innovation and Entrepreneurship" component, the focus will be on building on the earlier efforts under the IGEN-RE project towards piloting innovative business models and providing incubation support to rural energy enterprises. At the meso level, under the "Access to Finance" component, the focus is on working with financial institutions (public and private) to introduce innovative and socially equitable financing instruments and mechanisms at the enterprise and end-user level for rural energy supply. At the macro level, under the "Government Support Programmes" component, the focus will be on supporting policy based on the learnings from the other components and strengthening the institutional capacity for implementation.

2. Context

Economic growth and human development are key indicators of prevailing infrastructure development scenario. India is predominantly a rural country where approximately 70 percent of the total population lives in villages or rural areas. Therefore, in order to contribute to India's overall development, the rural sector must have access to infrastructure. Rural infrastructure in terms of electricity, roads, primary health centers, schools are in a dismal state and/or short of demand. Generally, these infrastructures are publically funded by the central and state governments on a cost sharing basis. Local level government institutions, such as Zila Parishads,

Municipalities, etc. struggle to invest funds on creating infrastructure and are heavily dependent on assistance from the center or state. Rural electrification is a way of creating physical infrastructure for electricity in rural areas. The Electricity Act of 2003 was enacted with the overall objective of developing the electricity industry and providing electricity to all areas. The act also opened the door to renewable energy based off-grid generation. The Distributed Decentralized Generation (DDG) scheme under the Rajiv Gandhi Grameen Vidyut Yojana (RGGVY) of Ministry of Power, Village Energy Security Project and Remote village Electrification (RVE) schemes of MNRE, different state governments, corporate sectors and funding agencies have utilized their resources in providing access to energy in rural areas. Some of these programme not only provided access to energy to rural households but also energy for productive activities. Most of these executed projects are operated and managed by Village Energy Committees (VECs)[1] or similar kind of committees. Despite the efforts of government and other agencies, it has been observed that the sustainability of the projects, especially the off-grid projects, is limited. It has been observed that community management system did not create adequate incentives for sustainable operation. Past experiences have shown that a large number of off-grid electrification projects (especially VESP) have had limited success because of the disproportionate focus on technical installation, without adequate attention to the long term sustainability of the projects (Kumar et al., 2007).

Based on the reports reviewed, the key reasons of limited functioning of plants could be attributed as following:

Institutional Issues • Limited functioning of VECs[2] in operation and management of plants • Inadequate training to the operators • Poor after sales services • Low amount of interest among SNAs with regards to ownership issues	**Technical Issues** • Poor designing of the system • Improper operations and Frequent breakdown
Financial Issues • Low revenue collection and nonpayment of dues	**Policy Framework** • Inappropriate financial incentives

[1] The VEC usually consists of nine to 13 members, with 50 percent representation from women members and elected village Panchayat members being ex-officio members of the VEC

3. Need to include private participation for revival of off-grid projects

Lately, private players are also trying to address the issue of rural electrification by bringing private investment. The private companies operate mainly in villages where there are supply-constraints from the grid or the gird has not reached yet. Despite uncertainties with respect to conducive policies for off-grid project, private companies have been able to improve service delivery models by following commercial approaches. As far as access to enterprise financing is concerned, private developers have tapped developmental bank loans or have mobilized finances from venture capital funds/CSR financing, prize money and private equity money. Moreover, private mini-grid developers have developed innovative ways of dealing with the operation and maintenance of projects by taking into consideration of confronted challenges.

Given that such infrastructure (off grid power plants) is under-utilized, efforts should be made to experiment with involving the private sector for the revival of these plants. Moreover, with public resources already under stress due to pressing commitments of the government on other priorities areas, there is a need to bring private players into the role of revival of existing off-grid power projects. Private players have been able to accelerate access to energy in rural areas while facing different challenges with respects to policy, market, technical and commercial issues. Given the complexity of the rural context, creating space for the private financing and the challenges of ensuring sustainability have led to mixed results so far. However, it is a worthy exercise to explore the option of involving private sector participation in revival of off-grid projects.

In this context, GIZ aims to develop a framework for private sector participation in to the revival of existing underutilized/nonfunctional off-grid projects. As a first step, GIZ intends to develop market based approach for the revival of off grid projects. In the second phase, based on the outcome of the study, GIZ intends to implement the developed market based approach with the participation of private players in 2 to 3 states and develop a framework which could be used by the states/center for the revival of nonfunctional/underutilized off grid projects.

4. Objective

Market based approach developed for revival of existing underutilised off grid projects with the participation of private players and local communities

5. Scope of Work

While the key activities envisaged are discussed below, the consultant is also encouraged to suggest additional activities or even propose alternate approaches, which may help achieve the same end objective.

- Undertake research of existing off grid projects based on secondary data research

- Development of a selection criteria for the sites in which the study will be undertaken. In order to develop the selection criteria, consultant should follow below listed points:
    - Consultant will identify off grid projects in consultation with local managing committees of power plants, district administrations, respective State Nodal Agencies (SNAs) and GIZ
    - Consultant should get approval from MNRE/MoP and respective state agencies for selection of sites
    - The sites should have potential to be revived on a market based approach and also including community involvement.
    - Maximum 5 states, with 2 sites from the each state, should be selected
    - Preferred states are Maharashtra, Uttar Pradesh, Chhattisgarh, Orissa and West Bengal. The state of Jharkhand and Assam could also be considered as a standby.

- Review of plants must be done mainly in the context of achieving economic viability and long term sustainability. The review activities and development of business plans/business models should include but not limited to
    - **Technica**l: For example: Plant load factor, plant downtime, past and current electricity consumption levels, typical day/week/month load profiles of the households, the likely surplus/deficit energy, etc. with reasons.
    - **Commercial**: For example: Existing tariff structure, mechanisms for increase in tariff, etc Collections over the past year, routine operations and maintenance expenses, Expenses incurred towards periodic and unscheduled maintenance, Potential income generating activities that can consume the surplus power, if any, during off peak hours, Grid connectivity options to feed into the grid, captive consumption options for agro-based industries/SMEs.
    - **Performance of managing committees**: For example: Existing structure, Rules governing the day to day functioning, selection/rotation of members, grievance redressal mechanism (for community members), etc. Assessment of the capacities/gaps of the Energy Committees members to discharge the duties assigned to them, Incentives/penalties associated with the performance of the UEC members.
    - **Feedback from other related stakeholder**: For example: Discussion with local community members on the various aspects of the plants, take the views of SNA's,

DISCOMS, plant manufacturers/suppliers, NGOs etc, Organize focus group discussions involving men and women at the each selected sites

- **Introducing role of private players/investors:** Identify suitable private players and investors who are willing to take up off grid projects. Discuss individually with about 10 private players/investors and understand the structure of the effort which would enthuse them to participate in the projects.

- Prepare realistic business plans and project report in order to secure funding for any repair work and operation of plants for the each identified sites and develop different incentive based models which could be offered to private players. The focus should be on identifying local commercial, agro industrial opportunities and define commercial aspects/business model modifications to maximize energy use for revenue generation.
- Explore means of providing financial support such as a blended financing facility/structure that includes government subsidy and a loan facility that provides the selected project developer with access to long term debt finance. The consultant is also expected to identify the risk perceptions of FIs and possible mitigants (e.g. use of part of the government subsidy in the form of a partial risk guarantee; or issuance of a comfort letter from State Nodal Agencies, etc.).
- Intensive consultation with highest officials of DISCOMS, SNAs, State Regulatory Commissions, MNRE, CERC, MoP for acceptance of developed approach and readiness for implementation with private players.

6. Timeline & Reporting

The work is expected to be completed within 10 months after award of the contract. During this period, the consultant is expected to report on a fortnightly basis regarding the progress on the assignment. The consultant will report to Mr. Onkar Nath, GIZ. GIZ may also require the consultant to prepare short reports/concept notes/discussion papers from time to time. The consultant is expected to travel extensively to the project sites and Delhi as and when required.

7. Deliverables

- Inception report which includes criteria for selection of sites, approval from respective agencies and communities to undertake review exercise
- Investor & stakeholder consultation meetings through organising workshops. Minimum 5 workshops at state level and 2 workshops at the central level.

- Development of a criteria for selection of sites to be revived based on the progress made under the study and or outcome of the report. The developed selection criteria will help government officials and other stakeholders in selection of sites in future.
- Develop realistic and bankable business plans, revenue models developed for all the 10 sites. An Excel based toolkit has to be developed to apply financial techniques such as NPV, IRR, Payback, Discounted Payback etc. that is used in deciding whether to accept projects or not,
- Commitment from Central agencies such as MNRE/MoP and at least 3 states (including approval from SNAs, DISCOMs, SERCs) to provide support and implement the developed market based approach for revival of off grid projects on public private partnership basis.

GIZ honors intellectual copyrights and strictly prohibits any copyright violations and plagiarism. The consultant should certify that the produced report does not contain any copyright violations. GIZ will hold the copyrights for all the documents/data collected in the process of assignment as well as the electronic media (photographs, videos etc.).The assignment should be considered complete only after mutual agreement over the quality of produced outputs. The output and deliverables should be in accordance with GIZ quality and design standards, discussed explicitly with the consultant during the course of assignment.

8. **Skills requirements:** The consulting firm (or consortium) needs to demonstrate its ability in the following through adequate references and documents**.**

   - **Organisation**

     i. Technical expertise - Rural electrification/off-grid projects, various renewable energy technologies

     ii. Business model Expertise - Experience with Distribution Franchisee/ESCO models, mini grid operations/contracts, etc

     iii. Experience of having established Public Private Partnership (PPP) models

     iv. Policy/Government Expert – experience in other initiatives such as JNNURM

     v. Excellent liaison with government organizations

- **Team**
    i. The team must have experts with qualifications and experience in Civil Engineering, Electrical Engineering and Mechanical Engineering
    ii. Financial and business development experts
    iii. Social and rural development experts

Note:

- In order to select a suitable consultant, GIZ may invite shortlisted consultants to present their methodology and approach to a committee which will help GIZ in making final selection.
- It may also be foreseen that GIZ may consider termination of the contract in case initial reports/information indicates that the off grid projects cannot be revived on a market based approach or need to adopt different approach or any other reasons.