

e- File. No. 343/60/2017-BIOGAS
Government of India
Ministry of New and Renewable Energy
(Biogas Technology Development Division)

Block No.14, CGO Complex ,
Lodhi Road, New Delhi-110003
Date: 24.11.2017

NOTICE FOR PROPOSALS (RfP) UNDER LIMITED TENDER FOR
“Conducting Evaluation Study of Biogas based Power Generation (Off-grid) Programme
(BPGP) implemented by the Ministry of New and Renewable Energy During the period
2012-13 to 2016-17”.

Proposals are invited from the eligible, interested and registered Consultancy Organizations under Limited Tender Enquiry , in Two Separate Sealed Envelops for carrying out the above mentioned evaluation study as per the details of the proposed study of the Biogas Power Generation (Off-grid) Programme placed at the MNRE Website <http://mnre.gov.in> , latest by **07th December, 2017** by the Office closing hours **05:30 P.M.** in two separate sealed envelope (TECHNICAL BID & FINANCIAL BID) super scribing on the cover “ **Proposal For Evaluation Study of Biogas Power Generation (Off-grid) Programme**”.

The Ministry of New and Renewable Energy reserves the right to reject this RfP without assigning any reason thereof.

-Sd-
Scientist-C, MNRE
(BIOGAS)

BROAD OBJECTIVES OF THE INDEPENDENT EVALUATION STUDY of Biogas Power (off-grid) Generation Programme, implemented during the 12th Five Year Plan period through MNRE designated SNAs/SNDs, KVIC and BDTCs

The overall objectives of the study would be to bring out impact assessment of biogas based power generation (off-grid) projects including thermal applications, installed under the MNRE scheme, Biogas Power (off-grid) Generation Programme, implemented during the 12th Five Year Plan period (2012-13 to 2016-17) through MNRE designated SNAs/SNDs, KVIC and BDTCs. The major objectives of the study would be as mentioned under:-

- (i) To verify and assess the performance of the projects as per the specified parameters of each projects commissioned under the scheme, Biogas Power (off-grid) Generation Programme, effectiveness of different types of biogas plants implemented in the country under this scheme during the previous five year period (2012-13 to 2016-17).
- (ii) To know the efficacy of the delivery system of the scheme implementation w.r.t. biogas projects in the States, selected for the purpose of the study.
- (iii) To verify the State-wise status of installed Biogas Power (off-grid) Generation Projects and work out the functionality status of each of the selected project by having plant Physical verification and performance data evaluated from the data gathered from the project sites.
- (iv) To assess the satisfaction levels of the beneficiaries/end-users/farmers of the projects about the biogas plants and scheme as a whole and suggest further measures for improvements for new implementation model of the scheme based on their perceptions/statements and also based on the analysis of direct observations, made during the course of this study.
- (v) To bring out the problems/difficulties faced by the beneficiaries, if any, in full utilization of biogas project facilities.
- (vi) The assessment will include detail analysis of the primary and secondary data and workout by assessing the present day and future needs for adopting the newer models of implementation for up-scaling the biogas projects as required for successful implementation including requirement of trained workers, supervisors, training, courses, awareness raising programmes.
- (vii) Critical review and evaluation of the implementation of the Biogas Power (off-grid) Programme in rural/semi-urban and urban areas of the country in terms of the feasibility and affordability and availability of the technology and its dissemination.
- (viii) To study and reveal the biogas power (off-grid) projects' post-commissioning needs such as maintenance and repair services together with making availability of spare parts and also the cost of monitoring, supervision and maintenance for an entrepreneur. The post installation operation and maintenance cost of these projects as to be borne by the beneficiaries may be brought out from the survey.
- (ix) To assess needs and extent of expenditure involved in commissioning of the projects and level of Central Financial Assistance (CFA) received in terms of cost vis-à-vis

CFA.

- (x) To assess the management of biogas plants' slurry organic manure at the plant sites and suggest most feasible and viable arrangements for market linkages for selling the organic Bio-manure and to meet the requirements of the farmers/beneficiaries in the vicinity of biogas plants/projects.
- (xi) To bring out the scope of making biogas plants an opportunity for Small and Medium Enterprise (SME) by establishing Biogas Energy Infrastructure, based on Agriculture residue/crop waste, cattle dung and other suitable organic wastes.
- (xii) To assess and suggest the need for increasing/decreasing amount of Central Financial Assistance (CFA) from the previous level of CFA of 12th Plan scheme and other components of the scheme provided by the Ministry of New and Renewable Energy for the installation of family size biogas plants in the capacity range from 30 m³ to 2500 m³.
- (xiii) To give suggestions on increasing effectiveness and efficiency of the delivery mechanism for a new programme/ future programme of Biogas Development to be implemented.
- (xiv) Possibilities of setting-up village-level-biogas-plants for distribution of piped biogas through pipelines to Households/ Villagers or community of individual households with the involvement of entrepreneurs on Built, Own, Operate, Maintain (BOOM) or Built, Own, Operate, Transfer (BOOT) any other feasible model and provide biogas services in a village/ to a community.
- (xv) The study would inter alia also bring out the quantum of reduction in Green House Gases (GHGs) emissions, particularly CO₂ and Methane after commissioning of Power Generation plants of same capacity operated on diesel Gensets and comparison of the mitigation in the emission of Green House Gases (GHGs) vis-à-vis the equivalent capacity.
- (xvi) Workout the quantum of production of organic enriched Bio-manure from each Biogas plant project and contribution in saving use of Chemical fertilizers and reduction in the import of fertilizers.
- (xvii) To assess social and environmental benefits of the programme /scheme for last 5 years in actual.
- (xviii) To bring out the future vision and integration of roles of various stakeholders for commercialization of the biogas and bio-manure services, including Central Government, State Governments, NABARD, IREDA, Banks, Regional Rural Development Banks, District Co-operative Banks and the potential beneficiaries of the scheme including farmers' group such as Farmers' Produce Group, Dairy co-operatives etc.
- (xix) To bring out through Study and queries in the questionnaire, the reasons for cancellation of projects after issue of MNRE Administrative Sanctions of the biogas power (off-grid) projects. Also suggest measures to reduce high numbers of project cancellation that took place during the period.
- (xx) To suggest the usage of various organic Biomass wastes to be used as feed stock for Biogas plants and the feasibility of various kinds of biomass/organic wastes including poultry waste/dairy waste etc. and help in enhancing the cleanliness in the ecosystem.

Subject: Independent Evaluation study of Biogas Power (off-grid) Generation Programme, implemented during the 12th Five Year Plan period through MNRE designated SNAs/SNDs, KVIC and BDTCs.

SCOPE OF STUDY and Qualification of Consultancy Organizations

The study will be having the coverage –

I. Objective: Broad objectives of the evaluation study are given in **Annexure –I** and ToR in **Annexure –III**. The Administrative Approval of the **Biogas Power (off-grid) Generation Programme, implemented during the 12th Five Year Plan period through MNRE designated SNAs/SNDs, KVIC and BDTCs** containing detailed guidelines of the scheme is available at MNRE website <http://mnre.gov.in> .

II. Sample Size :

- i. An appropriate sample size, not less than 25% of all the commissioned projects during the 12th Five Year Plan period covering seven major States during the 5 years' period (2012-13 to 2016-17) for conducting on-the-site physical verifications of installed biogas projects.
- ii. The projects shall be selected following random and scientific method of selection from the lists of commissioned projects in each State to be provided by the respective State Nodal Agencies/State Nodal Departments and KVIC and BDTC etc. as applicable, who implemented the scheme. A brief detail of the projects installed during the 12th Five Year Plan (F.Y.P.) is given as under:

S.No.	State SNAs/KVIC BDTC	12 th Plan Achievemnts Nos. Of plants (2012-13 to 2016-17)	Number of plants to be taken into sample selection (25% of the total commissioned projects) in each States
1.	Andhra Pradesh	25	6
2.	Karnataka	43	10
3.	Telangana	10	3
4.	Tamil Nadu	22	6
5.	Punjab	22	6
6.	Uttar Pradesh	25	7
7.	Maharashtra	28	7
	TOTAL	175	45

- iii. The firm lists of beneficiaries of biogas plants/projects and their complete addresses, for whom the plants have been installed would be given by the respective State Nodal Agencies /Departments and KVIC as reported to MNRE. They would provide all related information and logistic help to carry out the study.
- iv. The report will reflect the comparative performance of plants installed by SNAs/SNDs, Khadi and Village Industries Comission (KVIC),Mumbai and Biogas Development and Training Centres (BDTCs) in the above seven States.
- v. It will bring out in detail the usefulness of the scheme of Biogas Power (off-grid) Programme including impact assessment of the scheme as given in the objectives of the study and its future prospects.

- vi. Find out effectiveness of the delivery model/implementation model of the scheme and efficiency of the delivery mechanism and also to suggest best models of implementation such as BOOM, BOOT etc. by the entrepreneurs.
2. The study would also cover an assessment of the employment generated out of the physical achievements during the 12th plan period and would work out on an average potential of employment generation according to the various sizes of biogas plants covered in the scheme (30 m³ to 2500 m³).
3. The bid winning Organization after accepting the study work Agreement will submit draft report as early as possible after completion of the study including all field work. The final draft report after the incorporation of Ministry's comments and final reports after review of the final draft report by the Ministry would be submitted in 10 copies. The final report to be submitted both in physical and soft copies of the final Evaluation Report as accepted, having relevant photographs of biogas plants/ projects' sites including plant and machinery as well as biogas slurry management (taken during the field visits of the study). The report would be in the best presentable form acceptable to MNRE.
4. The final report of the study would be submitted to the MNRE in a confidential and best presentable form.
5. The schedule of release of funds for the purpose of this study shall be as follows:
 - (i) 40% of the sanctioned cost as advance after confirmation and acceptance of the terms and conditions and award of the work and signing of agreement. The release of the first advance is subjected to furnishing of Bank Guarantee of an amount of 40 % of the advance funds.
 - (ii) 30% of the sanctioned cost will be released after submission of the draft report, its submission/ presentations before the Experts' Committee and its acceptance by the MNRE.
 - (iii) Balance amount i.e. 30% will be released on submission of final report (10 copies & soft copy) and Utilization Certificate (UC) in GFR Form-12 A/B/C as applicable, along with Audited Statement of Expenditure (SoE).
6. Qualifying criteria for Consultancy Organizations to be eligible for submitting bids:

The registered Consultancy organizations/ institutions who have the relevant past experience of working in field performance studies/ evaluation of Biogas and Biomass Technology based off-grid/ decentralized Renewable Energy generation projects, installed in rural, semi urban/urban areas of the country on all India basis/ State level basis and are interested to take up the work of study, may send their offers in two separate sealed envelopes **one for Technical and another for Financial bidding**. Central Public Sector or State Public Sector organizations may also take part as consultancy organizations for the proposed study such as:

- (i) Government/ Autonomous Institutions (Central and State).
- (ii) Public Sector Undertakings (Central and State).
- (iii) Universities/ Technical Institutions.
- (iv) R&D Institution of repute and Relevant Area (Universities/ Industry)
- (v) Reputed Registered Private Consultancy organizations

The technical offer to be prepared in the format as given as under:-

Sl. No.	Title of study conducted	Organization for whom study conducted National Level/ State Level	Date & Period of study From -To	Total completion cost of Study work	Final report submitted, Date and accepted by the client Department (Yes/ No)

Offers from well-experienced organizations related to the study are to be given due weightage in addition to their financial offers.

7. Criteria & Marking for evaluation of Offers /Bids to qualify for the Award of Study:

- (i) 15 marks - Past experience of carrying out studies of Biogas plants under the Biogas Power (off-grid) Generation Programme.
- (ii) 15 marks - Conducting detail study of the Biogas plants installed under MNRE schemes, National Project for Biogas Development (NPBD)/ National Biogas and Manure Management Programme (NBMMP).
- (iii) 40 marks - methodology, work plan & understanding of objectives and TOR of the study and its presentation.
- (iv) 15 marks - suitability/expertise of key personnel for the assignment with the organization.
- (v) 15 marks – Past experience of carrying out independent evaluation studies of the Biomass based off-grid decentralized renewable power generation.

8. The evaluation of the proposals would be done based on the method of Combined Quality cum Cost Based Selection (QCBS) giving 70 % weightage to Technical proposal and 30 % weightage to Financial proposal.

Terms of Reference of the Evaluation Study of Biogas Power (off-grid) Generation Programme, implemented during the 12th Five Year Plan

- i.** The objectives of the study is to determine the extent to which the scheme / programme has been implemented during the 12th Five Year Plan period by random sample selections of about 45 projects out of total 175 projects completed coming to a sample size of not less than 25% of all the commissioned projects during the 12th Five Year Plan period covering six major States as per the detail given in Annexure –I. The scale of performance and acceptance of the Scheme in its existing / applicable norms of the Scheme.
- ii.** To bring out an assessment of the physical, economic and social impact of the Biogas Power (off-grid) Generation Programme, implemented during the 12th Five Year Plan period through MNRE designated SNAs/SNDs, KVIC and BDTCs.
- iii.** To bring out the efficiencies of the Scheme delivery including satisfaction level of the individual beneficiary.
- iv.** Critical analysis and evaluation of the Beneficiaries selection criterion, methods and process involved by the SNAs/SNDs, KVIC and BDTCs and to suggest better approach and selection of realistic & potential sites/ beneficiaries.
- v.** Assessment of the existing financial support and to suggest changes in the same upward or downward or including disbursement mechanism to the future potential beneficiaries of the Scheme / Programme by working out the real IRR both project IRRs and Equity based IRRs after excluding the taxes.
- vi.** Impact assessment of the BPGP Programme in terms of meeting captive energy / thermal energy requirement, sanitation and environmental up gradation, deforestation checks, energy scenario. Whether, there is socio-economic benefits to the local masses in terms of employment generation of biogas plant capacity, livelihood activity support generated. Qualitative and quantitative benefits will be brought out on the projects to be selected under the study.
- vii.** To verify by conducting physical verifications of biogas plants the post installation status and functionality rate and thereafter to suggest practical operational O&M requirements to be under taken under RESCOs.
- viii.** To assess availability of extension inputs required for future successful implementation including trained biogas plant operators / trained Biogas Turn Key workers for Biogas Power (off-grid) Programme.
- ix.** To access bottlenecks and constraints encountered in implementation of the Biogas Power (off-grid) Programme and suggest streamlining of the implementation model both at Central and State levels i.e. programme implementing State nodal Agencies.
- x.** Assess requirement of utilization of biogas for electricity generation, thermal / heating energy and refrigeration / cold storage applications etc including sell of biogas remain after daily use of biogas plants.
- xi.** To find out innovative business model and possibilities of making biogas plants an opportunity for small and medium enterprises (SMEs) by establishing biogas energy infrastructure based on all kind of feasible biodegradable biomass, viz. cattle dung, poultry waste, or other biodegradable organic wastes through PNG/CNG or bottled biogas and direct piped distribution. Suggestions and recommendation for RESCOs, BOOT, BOOM model for the scheme implementation.
- xii.** The selected consultancy organization will prepare a proper questionnaire for the study and seek approval of the Ministry for undertaking the study.
- xiii.** To assess the management of biogas plants' slurry organic manure at the plant sites and suggest most feasible and viable arrangements for market linkages for selling the organic Bio-manure and to meet the requirements of the farmers/beneficiaries in the vicinity of

biogas plants/projects.

- xiv.** Possibilities of setting-up village-level-biogas-plants for distribution of piped biogas through pipelines to Households/ Villagers or community of individual households with the involvement of entrepreneurs on Built, Own, Operate, Maintain (BOOM) or Built, Own, Operate, Transfer (BOOT) any other feasible model and provide biogas services in a village/ to a community.

Schedule of Completion of Evaluation Study of Biogas Power (off-grid) Generation Programme, implemented during the 12th Five Year Plan:

- i. Period of Work completion: 2 and half months** from the date of Sanction of Study and Submission of first draft report
- ii. Time Schedule:**
 - a) Planning and Primary data collection and preparation of questionnaire and its approval by MNRE: **15 days**
 - b) Visit to selected programme implementing agencies of Biogas Power Generation (Off-grid) Programme of 7 States and Selection of plants for verification as per the approved methodology and planning of field work by getting the list of addresses of biogas power projects: **10 days**
 - c) Visit to Plant sites for gathering of secondary data/ field observation/ data from the end users including their perception about the scheme: **1 month and 5 days**
 - d) Analysis of all data and evaluation for detailed reporting; preparation of draft report and submission to the Ministry: **10 days**
 - e) Preparation of Final Draft Report and Submission to the MNRE after incorporating the comments/observations of the Ministry: **5 days**
