

**Government of Nepal**  
**Ministry of Science, Technology and Environment**  
**Alternative Energy Promotion Centre**  
**National Rural and Renewable Energy Programme**  
**(NRREP)**

**Terms of Reference (ToR)**  
for  
**Pre-Qualification of Companies for Supply,  
Installation, Commissioning and After Sales  
Service of Large Biogas Plants**

*Khumaltar Height, Lalitpur*

May 2014

## SECTION I: INTRODUCTION

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### 1 BACKGROUND

#### OBJECTIVES

Alternative Energy Promotion Centre (AEPC) was established in November 3, 1996. Since its establishment, it has been actively involved in the promotion and dissemination of alternative energies and renewable energy technologies in Nepal. The overall objective of AEPC is to popularize and promote the use of renewable energy technologies for raising living standard of rural people. Supporting development of large biogas plants is one of the major programme areas of the AEPC. Biogas is the prominent sub-component within the NRREP frame work and the program targets to install 130,000 Domestic Biogas, 1,250 Community and Institutional Biogas. NRREP has also introduced Waste to Energy for thermal and electricity production.

Besides the traditional use of cooking, biogas can also be used for productive end uses such as using it for thermal processes in industries or converting biogas to electricity. Large gas volumes are required for this purpose. The large volume of biogas can be obtained by installing large biogas plants in places having large amount of biodegradable waste material. Productive use of biogas has been done successfully in neighbouring countries and abroad, hence it is a proven technology. Hence AEPC has felt the urge to promote large biogas plants in Nepal.

The pre-qualification process aims at maintaining the quality and standard of equipment, materials of the large biogas plants projects and service of large biogas construction companies to generate and supply reliable and quality electricity in rural areas. To achieve this, it is necessary that the large biogas plants systems are designed, supplied, installed, and maintained to the standard that provides the community with reliable electricity supply throughout the period of the plants' service life and further more to sustain grid connection if possible in future.

The objectives of this pre-qualification document are to:

- Provide guidelines for existing/new construction companies to pre-qualify within the AEPC system.
- Provide clear criteria for pre-qualification and its termination.

#### PRE-QUALIFICATION SYSTEM

The pre-qualification is a process of registering of installers in AEPC to be eligible in supply, installation and commissioning of large biogas systems implemented by local communities/entrepreneurs through the government subsidy programme.

This document summarizes the main criteria that will be used in the pre-qualification process. Companies seeking pre-qualification are required to fulfill a range of criteria related to their technical, managerial and financial capabilities, in a formal written submission to AEPC.

During assessment of the applications, AEPC may call for an interview with key personnel / representatives from the companies as a part of the pre-qualification process. AEPC may visit applicant companies for verification of the submitted information. AEPC will verify the information provided by the companies and will notify, in writing, about the outcome of evaluation. AEPC may put conditions on pre-qualified companies, for example geographic areas in which they are approved to operate or size and types of systems which they may be authorized to install or construct.

The pre-qualification is mandatory to all the existing PQ companies working in the domestic sector. If any of the existing construction companies cannot fulfill the set of criteria described in this document, they will be notified by AEPC about the specific shortcomings and will be required to make the necessary adjustment required to gain the pre-qualified status for large biogas plants. The timeframe allowed for companies to meet all requirements will be decided by AEPC and clearly communicated to the company.

## **2 SCOPE OF WORKS OF CONSTRUCTION COMPANIES**

AEPC is not responsible for awarding any contract to pre-qualified companies. The pre-qualified companies will sign separate contract agreement with large biogas plants owner for the work.

The scope of the work of the pre-qualified companies if granted projects by developers in the future will include, but not be limited to, the following:

- Site verification of projects before project construction.
- The construction drawings shall be provided by the consulting firm who does the detailed feasibility study (DFS) and recommends for the size of the project. If the construction company feels that the drawings/specifications has to be altered, it has to be done in collaboration with the consulting firm responsible for DFS and AEPC.
- The civil works construction (construction of digester, inlet, outlet and feedstock pre-treatment facilities) should be done in line with the best engineering practices and quality/ standards set by AEPC.
- In the case of electricity generation from biogas, the supply and installation of electrical and electronic equipment (e.g., generator, control panel, switch board, load controller / ballast, all earthing and lightning protection equipment) and other related accessories should be done by the company.
- Test run and commissioning of complete large biogas plants plant.
- Provide appropriate training to owner / operator on the operation and maintenance of the plant.
- Supply of operation and maintenance manuals.
- Guarantee for a minimum of three years for the complete plant from the date of approved commissioning.
- All the equipments, as specified in the contract between the supplier and the community, should be delivered to the project site within 2 months of issuing advance. In extenuating circumstances a request for extension for a maximum of 1 month can be submitted.

*Please be informed that pre-qualification will only ensure eligibility for providing services to the developers (community, private entrepreneur, institutions, cooperative, etc.) for installation/ construction of large biogas plants projects to be implemented under the Government programmes executed by AEPC. AEPC and its programmes are not responsible for contracting or awarding any jobs to the pre-qualified companies. The pre-qualified company will provide the services as requested by the large biogas plants developers after entering into a separate contract with them adhering to the guidelines/standards issued by AEPC.*

### **3 OBLIGATION OF PRE-QUALIFIED COMPANY**

The Company is obliged to install large biogas plants systems incorporating standard equipment and accessories. The Company needs to be well versed in construction, selecting appropriate equipment/components, and installing/constructing the large biogas system.

#### **3.1 GENERAL REQUIREMENTS**

- The system will be able to generate agreed biogas volumes and in case of electrification from biogas, the agreed power output and supply electricity continuously.
- The system and its major components will have a minimum life of 15 years under typical operating conditions.
- The installed system should have assured the quality standard as mentioned in Reference large biogas plants Standard or its subsequent revisions. The company will conduct the following test during the commissioning process:
  - (i) Digester structural test (Schmidt Hammer/ Core Drilling test)
  - (ii) Leakage test in digester,
  - (iii) Leakage test in the pipelines
  - (iv) Measuring instruments check test (pressure, pH, temperature etc)

#### **3.2 EQUIPMENT SUPPLIES**

- All materials and goods will be new. All the equipment supplied will follow the relevant Standards and Guidelines and should conform to the prevailing National Standards of the manufacturing country (NS, IS etc.).
- Only certified/guaranteed products will be used in the supply of the electrification equipment. Preference will be given to the equipment/parts with certified standard such as NS, IS and others.

#### **3.3 INSTALLATION/CONSTRUCTION**

- All the equipment will be installed in accordance with the Standards provided by AEPC.
- The Installation/Construction Company will be responsible for civil works or its supervision, though the respective biogas owner (entrepreneurs, institutions, communities) may supply local materials and labour.
- The Installation/Construction Company will agree to take entire work including civil construction contract as and when required (turn-key contract).
- Guidelines approved by AEPC, where applicable, will also be followed.

### **3.4 PERFORMANCE REVIEW**

The pre-qualification criteria and the companies' pre-qualification will be continuously reviewed during the course of time. Companies that perform poorly or do not comply with legislative and statutory requirements may be removed from the pre-qualification with prior notification in writing. The company will compensate any loss incurred to large biogas plants developers due to shortcomings of installation/construction.

If the company, after becoming pre-qualified, decides to close its operation, in such case, the company will be liable to settle all due services with any already contracted large biogas plants developer including the guarantee obligations and obtain clearance from AEPC.

The pre-qualification termination criteria are presented in Section 3 in detail.

### **3.5 WARRANTY REQUIREMENTS**

The Company will provide details on the minimum warranty period of the equipment it supplies and installs. The required minimum warranty against manufacturer's defects on all components and installation will be for at least four years for civil constructions, piping and instrumentation, and three years for electrification (optional) parts after official testing and commissioning of the project as per AEPC guidelines and the subsidy delivery mechanism.

## **4 QUALITY ASSURANCE**

### **4.1 STANDARDS AND REGULATORY REQUIREMENTS**

Compliance with relevant AEPC regulations and standards will be the minimum requirements.

### **4.2 SYSTEM OF INTERNAL QUALITY ASSURANCE**

The pre-qualified company will have its own internal quality assurance system before delivery of equipment/services. The pre-qualified company will issue a **"Quality Conformity Statement"** along with a commissioning report.

## **5 SAFETY**

The Company will be able to demonstrate that the systems' methodology under which the large biogas plants components are supplied and installed/constructed meet the best practices in relation to the safety requirements. In particular, the Company will be fully conversant with all AEPC safety requirements. The installation must ensure the highest level of safety as far as possible.

## **6 OPERATION AND MAINTENANCE**

### **6.1 MAINTENANCE**

The Installation/construction Company will be responsible for providing guarantee of the system operation during the warranty period of four years for civil construction and one year for other parts and visit at least one time during the guarantee period (if otherwise as agreed in the contract).

## **6.2 OPERATION AND MAINTENANCE MANUALS**

The Installation/Construction Company will supply an operational manual for the large biogas plant systems. The operation and maintenance manual shall be provided by AEPC, but the company is responsible for distribution and explaining the manual to the respective plant owners. Maintenance schedules will be presented in a way that clearly identifies which maintenance tasks are to be performed by the plant owner and which tasks are to be performed by the Company or its representative (e.g. major servicing) as well as the time intervals of such activities.

## **7 TRAINING**

Plant owner / operator will be trained in the operation of the large biogas plants system by the Company. This training will include practical use of the system; use of O&M manuals, and basic troubleshooting. Person(s) with suitable knowledge in design, operation and maintenance of the system will conduct the training.

## **8 ONGOING PERFORMANCE MONITORING AND REVIEWS**

### **8.1 MONITORING**

AEPC will monitor all pre-qualified Companies, with the aim of ensuring that the quality of services provided by the companies remains at the highest possible level. The basis for the monitoring will be the criteria discussed in this document, along with discussions with the developers / owners who have had systems installed by the Companies.

### **8.2 SYSTEM PERFORMANCE STATEMENT**

The Company will provide a System Performance Statement for each project installed, which include:

- Commissioning report,
- Quality conformity statement,
- Training Certification, and
- Signboard (3ft \* 2ft) to be placed on the digester wall indicating project name, construction completion date, volume of digester size, and support agencies.

## **9 OTHERS**

### **9.1 SUSPENSION OR TERMINATION OF PRE-QUALIFICATION**

AEPC resumes the right to immediately suspend or terminate the pre-qualification in case of (i) proven gross irregularities, (ii) proven inability to offer the required services, and (iii) any breach of the terms and conditions set by AEPC.

### **9.2 VALIDITY OF THE PRE-QUALIFICATION**

The pre-qualification will be valid for the period specified in the *pre-qualification certificate*.

Or

The pre-qualification of the pre-qualified company will be valid till next round of prequalification but annual renewable is necessary based on company legal document. New human resources could be proposed by large biogas construction companies for prequalification at AEPC. AEPC will evaluate and approve new human resource once a year.

## **10 PROBLEM SOLVING**

Any dispute and differences arising out of the pre-qualification will be resolved through joint discussion between the authorized representatives of the concerned parties. However, if the disputes are not resolved by joint discussions then the matter will be referred for adjudication to the arbitration of a person appointed by the parties in Nepal in accordance with the Nepali Laws. The decision of the arbitrator will be final and binding to all the parties as per the law of Nepal.

## SECTION 2: INFORMATION REQUIRED FOR PRE-QUALIFICATION

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### 1. INTRODUCTION

This section provides detailed information to be addressed in a submission for the pre-qualification of the installation/construction of large biogas plants projects. Unless otherwise specifically mentioned, all formats in the application form are to be filled out by the companies.

### 2. COMPANY - General information

All Companies requesting for pre-qualification will have to provide a summary of general information by completing the formats provided.

### 3. FINANCIAL INFORMATION

The Company will submit copies of the following documents:

- Audited balance sheets for the past three years (or for the available time period for companies younger than 3 years, where at least 6 months of company establishment is a minimum requirement)
- Company registration certificate
- VAT registration certificate
- Tax certificate of the previous fiscal year (if applicable)
- Evidence of current assets like bank statement, credit limit, receivable, prepared expenses or advanced paid, inventories in balance sheet etc.

Additionally, the Company may provide any relevant supporting information that might assist AEPC in the evaluation of the financial capacity to undertake the scope of work.

### 4. HUMAN RESOURCES

The staff profile is to be presented using the format provided.

The information shall consist of:

- Name
- Qualification
- Training
- Experience
- Skill Category (A, B, C or D)
- Remarks if any other relevant.

The list will be followed by signed (brief) CVs of the professionals, including signed statements expressing their association with the company, personal tax clearance certificate (TDS) for last one year and whether it is full time or part time.

## **5. COMPANY EXPERIENCE, EQUIPMENT, FINANCIAL CAPABILITY**

### **5.1 COMPANY EXPERIENCE**

The Company will indicate its level of experience in installation/construction of large biogas plants systems. A summary of relevant projects undertaken to date will be provided by filling the standard format provided in the application form. Additional information (e.g., project completion certificate) may be supplied to support the claims.

If the company is new and its members and staff have previous experience in biogas based technology, they may submit the experience of the activities they have performed in the past.

### **5.2 INFRASTRUCTURE AND ASSETS**

The Company will provide details of its infrastructures and assets by filling the format in the application form. As can be seen in the form, these include plinth area of the building, equipment and accessories in the Company's possession.

## **6. QUALITY ASSURANCE INFORMATION**

The Company may provide any quality assurance system that it adopts in its work activities. Any appropriate document for quality assurance (and copies of certificates thereof) should be attached.

## **7. OPERATION AND MAINTENANCE**

The Company shall submit a typical set of O&M documentation prepared for past projects that it has undertaken. Any effort taken to introduce such a manual will be viewed favorably.

## **ADDRESS FOR THE SUBMISSION OF THE PROPOSAL**

The pre-qualification application should be submitted to the following address:

Please write in bold letter "**Request for Pre-Qualification of Companies for Supply, Installation, Commissioning and After Sales Service of Large Biogas Plants**" in envelop and forward the application to:

**Biogas Sub-Component  
Alternative Energy Promotion Centre  
Khumaltar Height, Lalitpur, Nepal  
P.O. Box 26143, Kathmandu  
Phone: 977 1 55393390/ 55393391**

## **SECTION 3: PRE-QUALIFICATION PROCESS AND CRITERIA**

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There are 2 steps to follow for Pre Qualification which are:

- I. Fulfillment of basic eligibility criteria of company registration.
- II. Fulfillment of minimum requirement of resources.

### **I. Fulfillment of basic eligibility criteria of company registration.**

All the registered companies fulfilling the following requirements will be considered eligible for participating on the pre-qualification. Applications received from the companies not fulfilling the followings will not be considered for the pre-qualification.

- Registered company in accordance with the government requirements for national companies.
- At least 6 months of working experience
- In case of foreign company:
  - o At least a contact office established in Nepal as per rule and regulation of the Government of Nepal.
  - o Joint venture with Nepalese company.
- Company updated with renewal of certification and tax obligations with concerned government offices.

### **II. Minimum requirement of resources.**

The minimum requirement to apply for pre-qualification is based on the following four criteria. Companies having met the minimum threshold for these criteria are eligible to apply for PQ. However this alone does not ensure that they will be pre qualified.

- a. Qualified professional staff
- b. Basic level of minimum office space and instrument
- c. Demonstrated financial capability and
- d. Experience on working with the relevant infrastructure sector in the past (Not required for new companies)

**a. Qualified professional staff**

The table below shows the basic minimum human resources required to be pre-qualified

Category		Qualification	Experience
Up to 35 m <sup>3</sup>	Admin/Finance /Procurement Officer (Full time)	At least Bachelors: in any discipline	3 Years experience in managing office
	Technical expert-1 (Full time)	At least diploma: in Civil, Electrical, Environmental or Mechanical Engineering -----OR----- Having certification of training in biogas technology	Experience in 1 projects or 2 years experience as an installer -----OR----- At least 5 years of experience in the biogas sector
	Installer -1 (Full time)	Diploma: in Civil, Agricultural, Electrical or Mechanical Engineering/ -----OR----- Having certification of training in Biogas	Experience in 1 projects or 2 years experience as an installer -----OR----- At least 5 years experience as a biogas installer
36 to 75 m <sup>3</sup>	Admin/Finance /Procurement Officer(must be permanent staff)	At least Bachelors: in any discipline	5 Years experience in managing office
	Technical expert-1 (Full time)	At least Bachelors: in Civil, Agricultural ,Environmental, Electrical, Chemical or Mechanical Engineering  -----OR----- Having certification of training in Biogas	Diploma : Experience in 2 projects or 3 years experience as an installer Bachelors : Experience in 1 projects or 1 years experience as an installer -----OR----- At least 10 years of experience as technical expert
	Installer -2 (At least 1 Full time)	At least Diploma: in Civil, Agricultural, Electrical, Environmental or Mechanical Engineering  -----OR----- Having certification of training in Biogas	Diploma => Experience in 2 projects or 3 years experience as an installer Bachelors => Experience in 1 projects or 1 years experience as an installer -----OR----- At least 10 years of experience as technical expert
	Designer Engineer-1	At least Bachelors: in Civil, Agricultural, Environmental, Electrical, Chemical or Mechanical Engineering	Bachelors => At least 1 year experience as designer Masters => No experience required

	Electrification Expert ( <i>In the case of electrification from Biogas</i> )	At least Bachelors: in Electrical Engineering	Bachelors => At least 5 years experience on electrification projects Masters => At least 2 years experience on electrification projects
<b>More than 75m<sup>3</sup></b>	Admin/Finance /Procurement Officer(must be permanent staff)	At least Bachelors: in any discipline	Bachelors: 5 Years experience in managing office Masters: 2 years experience in managing office
	Technical expert-2 (At least 1 full time)	At least Bachelors: in Civil, Agricultural, Environmental, Electrical, Chemical or Mechanical Engineering  -----OR----- Having certification of training in Biogas	Diploma => Experience in 3 projects or 5 years experience as an installer Bachelors => Experience in 2 projects or 2 years experience as an installer -----OR----- At least 15 years of experience as technical expert
	Installer -2 (At least 1 Full time)	At least Diploma: in Civil, Agricultural, Environmental or Mechanical Engineering  -----OR----- Having certification of training in Biogas	Diploma => Experience in 3 projects or 5 years experience as an installer Bachelors => Experience in 2 projects or 2 years experience as an installer -----OR----- At least 15 years of experience as technical expert
	Designer Engineer-1 (Full time)	At least Bachelors: in Civil, Agricultural, Environmental, Electrical, Chemical or Mechanical Engineering	Bachelors => At least 2 years experience as designer Masters => At least 1 years experience as designer
	Electrification Expert ( <i>In the case of electrification from Biogas</i> )	At least Bachelors: in Electrical Engineering	Bachelors => At least 5 years experience on electrification projects Masters => At least 2 years experience on electrification projects

**Note:** Part time staff cannot be associated with more than 2 companies

**Method of verification**

1. Should include evidence such as attendance sheet/contract etc
2. Signed commitment letter of individual staffs specifying whether full time or part time.
3. Personnel tax clearance certificate

**b. Basic level of minimum office space and instrument**

This table shows the basis minimum office space and accessories required to apply for pre-qualification.

Upto 35 m <sup>3</sup>	36 to 75m <sup>3</sup>	More than 75 m <sup>3</sup>
Office space 100 sq. ft.	Office space 200 sq. ft.	Office space 300 sq. ft.
Full fledged office equipments	Full fledged office equipments	Full fledged office equipments
Phone/Fax/email	Phone/Fax/Email	Phone/Fax/Email
Computer 1	Computer 1	Computer 2
Printer 1	Printer 1	Printer 1
Measuring tape 50 meter 1	Measuring tape 50 meter 1	Measuring tape 50 meter 1
Mechanical Hand tools complete set	Mechanical Hand tools complete set 1	Mechanical Hand tools complete set
Digital Camera 1	Digital Camera 1	Digital Camera 1
Spirit Level 1	Earth Resistance Tester 1	Earth Resistance Tester
Safety Equipments (Safety belt, Helmet etc.)	Safety Equipments (Safety belt, Helmet etc.)	Safety Equipments (Safety belt, Helmet etc.)
pH meter	pH meter	pH meter
Thermocouple	Thermocouple with data logger	Thermocouple with data logger
Pressure meters upto 0.5 bar	Pressure meters upto 1 bar	Pressure meters upto 7 bar
	Schmidt Hammer	Schmidt Hammer
<b>For Electrification from Biogas</b>		
N/A	Ratchet Puller 1	High Voltage Detector
	Spirit Level 1	Ratchet Puller
	Safety Equipments (Safety belt, Helmet etc.)	Spirit Level
	GPS	Safety Equipments (Safety belt, Helmet etc.)
	Tacho meter	Tirfor
	<b>Can be hired as required</b>	Tacho meter
	Current meter	Chain hoist
	Ultra sonic meter	GPS
	TRMS Digital Multi meter 1 (with power measurement)	<b>Can be hired as required</b>
	Auto Level	Total Station
	Earth Res Tester	Current meter
	Insulation Tester	Insulation Tester

**Method of verification**

1. Balance Sheet containing list of office equipments and tools
2. Company self declaration for field verification

### c. Minimum requirement for financial resources

Minimum financial requirement is as follow

Category	Million NPR
Up to 35m3	1
From 36 to 75 m3	5
More than 75 m3	10

### Method of Verification

1. Bank credit limit
2. Current asset in balance sheet (cash in hand/bank, stock of material, receivables against VAT invoice issued)
3. Over draft

### Criteria for removal from pre-qualification

Removal of a company from pre-qualified status will be applicable in the following steps:

- Maintaining pre-qualified status means companies should maintain qualified staff. If any qualified staff terminates employment with the company, the company must immediately inform AEPC and provide proof of an immediate replacement and obtain approval for the replaced professional from AEPC to maintain its pre-qualified status.
- The pre-qualification of the company will be put on hold (suspension) on the following conditions:
  - o None compliance of the quality (against the quality guidelines issued by AEPC) and delivery requirements (against the agreed contract between the company and /mini-large biogas plants developer). In the case of none-compliance of the quality and delivery requirements as stated above for two consequent projects on hand, then the pre-qualification of the company is suspended till the problems are rectified/ settled. The company is not allowed to go into the contractual agreement for the additional projects unless the problems of the projects on hand are rectified/ settled.
- A company's pre-qualification will be terminated in three cases (i) Company is found to provide false information or withholding critical information (ii) Company is unable to maintain the professional staff as stated above or not able to make the staff available for the purpose once a contract is entered into, and (iii) company fails to maintain the quality and contractual obligations regarding rectification without assigning justified reasons within three years after its suspension.

*Note: The pre-qualification is a process of regulating the works of the companies in one hand and in other to implement the capacity building activities for the sector development. This will provide a clear picture about the level of human resources available in the sector, and subsequently time to time capacity-building activities shall be planned and implemented so as to maintain sufficient number and quality of human resources in the sector.*

### Validity of Pre Qualification

This pre-qualification will remain valid until the next round of pre-qualification, which will occur as determined by AEPC.



	I/We have studied the ToR carefully and hereby agree to the terms and conditions put forward on it. I/We hereby certify that the information filled up in this application form is correct and I/we understand that if found otherwise, may result in invalidation of the application.
	Name of the authorized person signing the form:
Company seal	Position held in the Company:
	Signature:
	Date:
	Detail of contact person for further communication:
	Name:
	Mobile Number:
	Position of the contact person in the Company:

**List of copies of documents**

- Audited balance sheets for the past three years (Or for the available time period for new companies)
- Company registration certificate
- VAT registration certificate
- Tax certificate of the previous fiscal year (if applicable)
- Any other .....(please specify)

### Details of Human Resource

Name	Qualification	Training	Experience	Skill Category (A, B, C, D)	Remarks if any

A=Admin/Finance Procurement Officer, B= Technical Expert, C=Installer, D=Design Engineer

Please attach additional sheets if required. Provide duly signed CVs.

### Financial capacity

Heading	Amount (In NPR)	Verification document to be attached
Cash in bank		Bank statement
Bank credit limit		Bank letter
Receivables		Contract
Others		

