



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

CEOI No: 02

**CALL FOR EXPRESSION OF INTEREST (CEOI)**

**Renewable Energy Investment Projects in Industry: Development of Biogas based power generation plants & Investment in Biogas Technology Improvements**

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**1. Project Background**

The United Nations Industrial Development Organization (UNIDO) is implementing a Global Environment Facility (GEF) funded project under the GEF-5 cycle entitled "Reduction of GHG emission through Promotion of Commercial Biogas Plants". The project is being implemented in collaboration with the Cambodian Ministry of Environment, Ministry of Agriculture, Forestry and Fisheries. The GEF-5 project aims at promoting investment in biogas based rural electricity enterprises at commercial pig farms for increasing rural electrification in Cambodia.

The objective of this project is to promote investments in biogas based rural electricity enterprises (REE) for increasing rural electrification in Cambodia. The proposed intervention will enable agro-pastoral, agro processing and food processing sectors to utilize biodegradable organic waste (such as animal manure and agro-processing processing waste water) produced in the sector to generate energy, while also offsetting greenhouse gases (GHG) emissions through the displacement of diesel fuel based energy systems. The project has the target to install 1 MW cumulative capacity throughout the project period.

In addition, the project expects to remove the existing barriers (awareness, technical capacity, and enabling environment for investments of biogas projects) that currently limit the deployment and utilization of abundant bio degradable organic waste or to generate energy, thereby increasing the share of national income and improving the livelihoods of the population at large.

**2. Aim of the Terms of Reference**

This Call for Expression of Interest (CEoI) is issued to receive expression of interest from interested potential renewable energy investment projects, using biogas technology, in small to medium scale industries within the agro-pastoral, agro processing and food processing sectors in Cambodia where the bidder will provide counterpart funding to realize the project.

For this purpose, UNIDO is seeking companies or consortiums of companies planning to invest in projects that involve biogas production and utilization. In the case of a consortium, the members of the consortium must jointly submit the required information and must also clearly identify one of the consortium members as the lead firm. The companies or consortiums would be expected to invest upfront and develop the biogas power plant or biogas improvement options with own funds.

**3. Grant support**

The grant funding will be for the purpose of veering incremental costs of the projects to be paid against agreed milestones on verification.

The total capital support by UNIDO for installation of the biogas systems would not exceed 500 USD/kW or max 100,000 USD per project (biogas system) of installed capacity upon verification by UNIDO. Installation of the systems will only be supported for proposals that have a positive feasibility study available and fulfil the eligibility criteria at the time of contract closure with UNIDO. The GEF grant will not fund any other activities leading to financial closure. Companies shall commit to provide investment and all other necessary support to realise the project (adequate proof of financing to be provided at the next stage).

Grant support will be up to 500 USD/kW and will depend on the scope of the project, e.g. Energy Generation System including digester, or without generator, or only biogas system improvements (e.g. Gas treatment, Gas meter, improved covered lagoon, Biogas flare).

Different scopes will be eligible for support under this call. Please refer to table below for sample project scopes:

	Scope 1: Biogas Energy Generation System including digester	Scope 2: Biogas Energy Generation System	Scope 3: Biogas System Improvement
a. Biogas generator set	X	X	
b. Gas treatment: Biogas dehumidification and desulphurisation unit	X	X	X
c. Gas meter (mandatory to ensure no venting of biogas)	X	X	X
d. Biogas flare	X	X	X
e. All tubing and cabling required for installation and interconnection of components	X	X	X
f. Transportation, installation, commissioning and training	X	X	X
g. Digester system(s) (e.g. improved covered lagoon, UASB <sup>1</sup> , CSTR) <sup>2</sup> ;	X		

Co-financing: It is a requirement by GEF that applicants demonstrate co-financing. The applicant should show in the proposal the amount of co-financing it will raise (both cash and in-kind) during the implementation of the project and indicate the source of the co-financing.

#### 4. Eligibility Criteria/ Conditions for accessing the grant support

This Call for Expression of Interest (CEoI) is issued to receive expression of interest from interested potential renewable energy investment projects, using biogas technology, in small to medium scale industries within the agro-pastoral, agro processing and food processing sectors in Cambodia where the bidder will provide counterpart funding to realize the project. All Expressions of Interest to be submitted must comply with the following overall **eligibility criteria**:

1. **Sector:** Agro-pastoral and agro-industrial sectors in Cambodia (including but not limited to pig farms, dairy farms, slaughterhouses, cassava starch companies, rubber factories, palm oil mills, food/fruit processing companies);
2. **Feedstock:** biodegradable organic waste e.g. animal waste or agro-processing waste and waste water. Bidders have to guarantee and show that feedstock comes from sustainable sources.
3. **Sustainability:**

<sup>1</sup> Upflow Anaerobic Sludge Blanket

<sup>2</sup> Continuously Stirred Tank Reactor

- Projects must be commercially viable and sustainable. The bidder has to prove that the proposed investment project is commercially viable in Cambodia. For instance, operating costs must be covered by revenues from the biogas plant.
  - The beneficiary should have the management and the technical capability to operate the biogas plant and should have a good economic basis to provide the required counterpart financing and/or repay loans and provide the required security for a loan.
  - The plant design, the quality of equipment, construction or installation and the operation (maintenance) of the system must ensure a plant life time of at least 10 years.
  - Projects need to ensure measures to avoid venting of biogas.
  - Socio-economic benefits: Clear and quantifiable social, economic and environmental benefits are achieved at the end of the project.
4. **Target audience:** This Call for Expression of Interest (CEoI) is open to private and public entities, NGOs, community organizations, etc.
  5. Applicants (animal farm or other agro-industries) shall operate in Cambodia and have appropriate business license in accordance to Cambodian laws.
  6. **GHG emission reductions:** Projects must have GHG emission reduction potential compared to the existing scenario.
  7. At least 50kW installed capacity.
  8. Digester systems installed under the project should be designed to avoid ground water contamination and gas emissions to the atmosphere.
  9. Project to be supported could comprise a bundle of smaller projects at different locations depending on the availability of biomass resources.
  10. Biogas Power plant provides heat and/or power that is produced and utilized for captive energy needs or for other customers, e.g. grid supply.
  11. If the electricity generated from the biogas project is to be connected to the national grid or private consumers, the project bidder will make an undertaking to secure all the requisite agreement (s), permit (s) and approval (s) including Power Purchase Agreement (EPA) within 6 months of being awarded the UNIDO contract.
  12. Investor will be required to pre-finance the biogas system.
  13. Company, institution, or organization acting as contracting partner must be legally registered in Cambodia.

## 5. Gender Mainstreaming

The Constitution of Cambodia recognizes women as a special group deserving protection. The Constitution espouses the rights of women as being equal in law to those of men and affirms that women are entitled to enjoy equal opportunities in the political, social and economic spheres. Despite the rights-based progressive Constitution that provides a framework for advancing the cause of equality, according to UN Women, Cambodian women still face challenges including the ability to participate effectively in decision making and leadership.

UNIDO requires that throughout the various stages of the project including conceptualization, planning, implementation, monitoring and lesson-sharing, gender matters are fully incorporated, to ensure that women have equal opportunities to participate in, contribute to, and benefit from project resources, activities and results.

## 6. Application Procedure

Interested parties, that satisfy the above requirements, should submit their proposals in line with attached **Annex 1 – UNIDO TEMPLATE FOR SUBMISSION OF EXPRESSION OF INTEREST FOR BIOGAS INVESTMENT PROJECT PROPOSAL(S)** by **25 May 2020**.

Documents should be provided in English to UNIDO (Khmer version can also be attached). Services proposed shall be reviewed and evaluated based on completeness and compliance of the proposal and responsiveness with the requirements of the ToR and all other annexes. Any offer that does not meet the requirements shall be rejected. Please also see UNIDO model contract and annexes on the UNIDO e-procurement portal for additional information.

Questions and your response should be sent by email to UNIDO: Patrick NUSSBAUMER (P.NUSSBAUMER@unido.org), with copy to Katharina Proestler (K.PROESTLER@unido.org), Serey Vathana Hou (S.HOU@unido.org), Rachana Kong (R.KONG@unido.org).

United Nations Industrial Development Organization (UNIDO)  
 UNIDO Country Office, Cambodia  
 Phnom Penh Center, Building “A”, Room 611, 6th Floor  
 Corner Preah Sihanouk Blvd (St. 274) & Preah Sothearos Blvd  
 Sangkat Tonle Bassac, Khan Chamkarmon, Phnom Penh

UNIDO Project No: 120118– Reduction of Greenhouse Gas Emission through Promotion of Commercial Biogas Plant in Cambodia

If support is required you may contact BTIC for the following services (charges may apply):

- Pre-feasibility assessment services
- Full technical and economic feasibility study
- Procurement management services
- Proposal development
- Installation, commissioning, and training
- Monitoring of equipment/system performance

Contact details are:

Mr. Lor Lytour  
 Royal University of Agriculture, Dangkor District, Phnom Penh, Cambodia, P.O. Box: 2696  
 Tel: (855) 23 219 829; (855)11973672; (855)17488801  
 Fax: (855) 23 219 753 690  
 Email: [btic@rua.edu.kh](mailto:btic@rua.edu.kh);  
 Web: [www.btic-rua.org](http://www.btic-rua.org)

Application process with tentative timeline is presented in the following table:

Steps	Remark	Timeline
<b>0. Call for Expression of Interest (CEI)</b>	Announcement about the grant financing through internet, e-mail, social media and printed media	6 weeks (25 May 2020)
<b>1. Submission of Expression of Interest by applicant</b>	Applicants review their eligibility against the criteria, prepare their application using form in Annex 1 with supporting documentation and express their interest to UNIDO	
<b>2. Eligibility and Technical Review by UNIDO</b>	Review and evaluation of applications by UNIDO biogas project	4 weeks (June 2020)
<b>3. Decision by the Biogas project and request for full proposal</b>	Informing successful applicants and requesting a full project proposal (subject to financial closure of retained projects)	

<b>4. Submission of full proposal by applicant</b>	Preparation of full project proposals by eligible applicants (feasibility study will be required as part of the full proposal)	4 weeks (July 2020)
<b>5. Technical Review by UNIDO</b>	Review and evaluation of full project proposals by UNIDO	4 weeks (August 2020)
<b>6. Decision by UNIDO</b>	Informing successful applicants and issuance of incentive contracts (subject to financial closure of retained projects)	
<b>7. Project implementation</b>	Purchase, installation and commissioning of the biogas plant equipment. Applicant is required to submit progress reports to the biogas project	max 9 months (May 2021)
<b>8. Incentive payments</b>	Incentive payments will be made throughout the implementation period, upon approval of progress reports. Final payment after successful plant operation.	(Sept 2020- May 2021)

**7. Disclaimer:**

*UNIDO reserves the right to disqualify interested companies/institutions. Only shortlisted firms will be invited for further consideration.*

*Calls for Expression of Interest (CEoI) do not constitute a solicitation. UNIDO reserves the right to change or cancel the requirement at any time during the Call for Expression of Interest (CEoI) and/or solicitation process.*

*Nothing in or relating to this Call for Expression of Interest (CEoI) shall be deemed a waiver, express or implied, of any of the privileges and immunities of UNIDO.*

Date:

\_\_\_\_\_

Date, Location, Name/ Signature UNIDO representative

**Annex 1:**

**Expression of Interest Form  
for biogas investment project proposal(s)**



**UNIDO RFx No: 7000003816**

This Form can be completed electronically by pressing the 'Tab' key or clicking with your mouse on the grey text boxes and check boxes, or in hardcopy. Please note that fields marked with and \* are mandatory.

**PART 1: OVERVIEW**

<b>1.1. Project Title*:</b>	<i>(full title and subtitle of project)</i>	
<b>1.2 Contact details of Applicant:</b>		
Name of Applicant*		
Type of Applicant*	<b>What is your organization's mission (Business nature)? Please provide a brief description or company profile of the lead company(ies)/institution(s), including organizational structure;</b> - Private, public or public-private company - Individual project bidder (registered as company) - Governmental institution (e.g. ministry, utility, electrification agency, municipality) NGO or cooperative	
Existing facilities	Please provide a brief description of existing facilities, if any	
Address*		
Contact person*		Position:
Telephone number*		Mobile no:
Email address*		Web site:
Fax		
Name of partner organization/s (if any)		Type of Partner Organisation
Address of partner organization		

**1.3 Experience / expertise of project team:**

*Highlight experience / expertise of relevance to the proposed project (detailed CV must be included as annexes)*

Project team	Name of Expert(s)	Role of Expert for the project	Relevant Experience and Education
<b>Lead applicant*</b>			
<b>Lead applicant</b>			
<b>Partner 1</b>			

**PART 2: PROJECT BASELINE INFORMATION\***

<b>2. 1 Baseline information</b>			
Biodegradable waste available produced	(please specify types)	tons/day m3/day	
	For pig farms:	Number of pigs* of fatteners of sow	All-in all-out system* (yes/ no)
What is currently done with biomass waste?*	(e.g. please indicate if biomass waste is currently sold, burnt, or disposed of)		

<b>2. 2 Summary of main company activities:</b>	
Briefly describe the main activities of your business:	
Agro-Pastoral or Agro-industrial Sector (e.g. pig farm, starch factory, ...)*:	
Annual electricity consumption (captive energy)*	(kWh)
Electricity tariff*	(USD/kWh) (KHR /kWh)
Feed-in licence as REE available*	(yes/ no) Not available: If available: (USD/kWh) (KHR /kWh)
Digester established*	(yes/ no) if yes, please attach photos and explain the used technology and material, e.g. Covered lagoon technology
Daily water consumption*	(liters)
Any other energy needs, e.g. heating or cooling energy*	(yes/ no) if yes, please elaborate
Any other energy consumers around the farm/ factory*	(yes/ no) if yes, please elaborate e.g. number of households, type and size of factory, school, hospital, etc.

<b>2.3 Any further comments</b>

**PART 3: PROJECT INFORMATION (only to fill if (pre-) feasibility study is available)**

<b>3.1 Technical Project Focus</b> (please attach detailed description or pre-feasibility study, if available)			
Briefly describe and explain the key features, main concept (project idea / business idea), rationale for the project and socio-economic and environmental impacts*:			
<b>(Pre-)feasibility study/ assessment available (please attach):</b>		(yes/ no) if yes, please attach; if no, please elaborate why it has not been conducted	
<b>Expected installed capacity:</b>	<b>Expected annual energy to be produced:</b>	<b>Expected (Energy) services to be provided:</b>	
kW (electric) kW (thermal)	kWh/year (electric) kWh/year (thermal)	kWh/year (electric) – captive use kWh/year (electric) – fed into the grid	
Total Greenhouse Gas emission reductions	t CO <sub>2eq</sub> /a		
<b>3.2 FINANCIAL INFORMATION</b>			
<b>Total Project Cost estimate (CAPEX) US\$<sup>3</sup></b>	<b>Total Equipment Cost US\$ (e.g. from quotation)</b>	<b>Applicant's own equity/ funding (US\$)</b>	<b>Co-funding of other partners (if applicable)</b>
US\$	US\$	US\$	US\$
Simple expected payback period:		years	

**Part 4: Attachments**

- A copy of the original registration document of the company, institution, or organization.
- If available: (Pre-)Feasibility study report of the proposed Biogas plant (technical and commercial proposal) and information on the selection mode of the biogas system supplier.

**PART 5: CERTIFICATION BY LEAD APPLICANT**

**Signature:**

**Name:**

**Position in organization:**

**Date and Location:**


**Organizational Stamp of Lead Applicant:**

<sup>3</sup> Capital expenditure for construction Including civil works