### **Terms of Reference**

Title:	Provision of services for analyzing the possibility of introducing various renewable energy technologies, including heat supply, cooling, and hot water supply (HW) in different geographic zones, considering the resource potential		
Place of work:	Home-based		
Period:	July - December 2021		
Contract type:	Contract for the provision of services in the UNDP format		
Project title:	UNDP/GEF Project "Derisking Renewable Energy Investment in Kazakhstan" (DREI Project)		

# **Description of the project**

The objective of the Project is to stimulate private sector investment in renewable energy sources in Kazakhstan to achieve the country's 2030 and 2050 renewable energy targets. The Project targets both large-scale and small-scale renewable energy sources.

The goal of the DREI Project is to achieve transformation of the energy market in Kazakhstan by significantly increasing the scale of the use of renewable energy sources in electricity production, thereby increasing the share of renewable energy in the country power generation mix from 1.1% in 2017 to 10% by 2030.

To achieve its objective, the DREI Project includes activities to support renewable energy projects that are expected to bring about collective GHG emission reductions of at least 460,000 tonnes of CO2. In addition, by the end of the Project, the Project would have supported the commissioning of 9.5 MW of direct, small-scale renewable energy system (RES) that will produce about 500 GWh of electrical energy.

The project is comprised of three components:

- Component 1 Large-Scale Renewable Energy: Policy and Financial Derisking Measures
- Component 2 Renewable Energy for Life: Policy Derisking
- Component 3 Renewable Energy for Life: Financial Derisking and Incentives

This consultancy assignment is part of the project interventions under Component 3/ Output 3.1/ Activity 3.1.2

# **Purpose**

Assessment of, and planning for, the feasibility and potential of the application of renewable energy technologies for electrical and thermal energy end-uses in the different geographic zones of the Republic of Kazakhstan considering the available indigenous renewable energy resources.

### **Content and scope of work**

Gathering and processing of new and updated data on the proven/estimated amounts of all available indigenous renewable energy resources in Kazakhstan. Mapping will be done of the

various indigenous RE resources in the country with annotations for each geographical region/zone of the country regarding at the very least the types, proven/estimated amounts of each RE resource.

- 1) Assessment of the theoretical and economically viable potentials of available renewable energy resources, including the required investments to develop or improve them for commercial use, and the economics of developing and utilizing such indigenous RE resources.
- 2) Assessment of the potential uses of the commercially viable RE resources, including for power (grid-, and non-grid connected systems) and non-power applications (e.g., residential hot water supply, commercial district heating and/or cooling, industrial process heating and/or cooling) in various geographic zones of the country, taking into account the zonal features of each resource, for example, geothermal sources (review of documents and data available online, desktop analysis). To identify the areas with the greatest economic potential of "thermal" RES in the residential sector, make online research to prepare mapping of tariffs for heating in the cities of Kazakhstan, and group them into the least promising (lowest tariffs), most promising (highest tariffs) and 1-2 intermediate groups. The list of cities and/or criteria for their selection and classifying are to be discussed with the DREI Project team. It is also required to identify areas where pipeline natural gas supplies are available for households.
- 3) Assessment of the various renewable energy technologies applications of the technically feasible and economically viable indigenous renewable energy sources for different energy end-uses such as in residential households, economic activities of public entities, communities of homeowners, and small and medium-sized businesses (SMEs), including but not limited to: the service sector (e.g. service stations/car dealerships/car washes, etc.), food trade, the hotel sector, catering sector, warehouse logistics, processing, including finished products (except for the agricultural sector), as well as in hot water supply, heating, and cooling. This also involves the identification of the most promising technologies for further assessment (See Task 5 below). For this task, a detailed assessment plan has to be prepared to specify, based on the results in Task 3, the suitable renewable energy technologies and the potential end uses where these can be cost-effectively applied, stating the types of their application. The detailed assessment plan must be agreed upon and approved by the DREI Project team.
- 4) Assessment of the required investment cost of the technically feasible RE technologies that can be applied for the different potential energy end-uses in the country; as well as all other enabling requirements (e.g., RE resource supply sustainability, RE resource development, RE supporting industry capacity, permitting process, financing availability, etc.).
- 5) Assessment of the economic feasibility or cost-effectiveness of the possible application of renewable energy technologies in the operations of SMEs and other users. An MS Excelbased economic feasibility analysis model is required to be developed for use in the assessment. Different economic feasibility indicators can be considered (e.g., dynamic payback period, net present value, internal rate of return), but it is necessary to also evaluate the LCOE<sup>1</sup> for each stand-alone capital investment project of installing a RE-

<sup>&</sup>lt;sup>1</sup> Levelized Cost of Energy

based energy system in a typical location. The evaluation has to be done for at least 6 typical RES used by different types of end-users. Where necessary different scenarios may be selected for typical consumers for heating, hot water, and cooling (the difference may be in scale and/or types of applications that can be considered for a particular RE technology, taking into account the geographical location and other alternative applicable RE technologies.

- 6) Analysis of the technical feasibility and economic viability or cost-effectiveness (LCOE comparison) of replacing traditional energy carriers (coal, diesel fuel, LPG, natural gas, grid electricity, or district heating) with various renewable energy resources, taking into account the resource potential comparison has to be done using models for alternative use of equipment/systems/devices based on conventional energy technologies as per the results in Task 6 above, in the identical format and for the same situations.
- 7) Preparation of proposed engineering and financial plans (based on the results in Tasks 6 & 7) for the implementation of the technically and economically feasible RE-based energy systems. The plans should be of such quality that these can be utilized by interested investors without (or at the most very minimal) adjustments/revisions.
- 8) Documentation of the gathered and processed new and updated RE resource data; RE resource mapping; and the findings, conclusions, and recommendations of the various assessments that are carried out. This includes the preparation of documents that will be used for securing support from the government and other donors) in the application of the technically and economically viable renewable energy technologies in Kazakhstan and based on the plans that will be prepared in Task 8, as well as to reduce the energy intensity of the final users.
- 9) Presentation of the results of the various tasks that were carried out under this consultancy assignment to the main stakeholders (2 presentations), such as the Ministry of Energy and the industrial and civil associations, e.g. business associations or homeowner associations. activists of homeowners' communities, including a relevant presentation and a question and answer session. The program of the presentation and groups of attendants must be agreed upon and approved by the DREI Project team.

When performing this consultancy assignment, it is necessary to take into account the results and recommendations of previous similar studies. Copies of such studies will be provided by the DREI Project Team). It is incumbent to the interested bidders not to duplicate the previously completed research work on this topic, rather make use of them and more importantly built on them.

# **Expected Results**

The deadlines for the submission of the specific deliverables of the consultancy assignment is as follows:

No.	Deliverable	Deadline	Checked and Approved
1.	Documentation on the	12 weeks from the date of	ICTA (preliminary review),
	completed work referred to in	commencement of works	DREI Project Manager
	Tasks 1 & 2. (report and		
	assessment plan)		

2.	Documentation on the	16 weeks from the date of	ICTA (preliminary review),
	completed work referred to in	commencement of works	DREI Project Manager
	Tasks 3, 4 & 5. (MS Excel		
	model sheet and report)		
3.	Documentation on the	20 weeks from the date of	ICTA (preliminary review),
	completed work referred to in	commencement of works	DREI Project Manager
	Tasks 6, 7. (final report and		
	presentation materials)		
4.	Documentation on the	21 weeks from the date of	ICTA (preliminary review),
	completed work referred to in	commencement of works	DREI Project Manager
	Tasks 8,9. (engineering and		
	financial plans and report)		
5.	Documentation on the	24 weeks from the date of	ICTA (preliminary review),
	completed work referred to in	commencement of works	DREI Project Manager
	Tasks 10. (presentation		
	materials and 2 rounds of		
	required consultations)		

### **Indispensable conditions**

When carrying out all types of work that may have to be done in the performance of this consultancy assignment, the contractor must ensure the safe and legal production of the required deliverables (e.g., reports and finished products, excluding the creation of counterfeit products).

It is necessary to ensure compliance with the copyright (and related rights) laws and regulations of the Republic of Kazakhstan.

All rights to products produced, including originals of documents and their copies, can be transferred to any third person by the decision of the client (DREI Project), and such transfer can be carried out directly to the third person and immediately upon completion and acceptance of all work, in accordance with this Terms of Reference.

# **Responsibility and accountability**

The contractor bears full responsibility for the accuracy and legality of the information provided and for the timely provision of reports.

- Coordinates planned actions to be carried out with the DREI Project Manager and the International Chief Technical Advisor (ICTA).
- Collaborates with the expert team of the DREI Project.
- Ensures unconditional fulfillment of the requirements specified in the contract and terms of reference.

# **Reports and materials:**

The reports must be written in Russian in electronic format using MS WORD (2003 and above) and according to the report outline specified by the UNDP; font: Times New Roman, 12.

A summary of each report shall be provided in English.

## **Duration of work:** 6 months

**<u>Place of work</u>**: Kazakhstan. The travel schedule is determined by the service provider. All travel expenses, equipment rental, communication services, and other expenses associated with this work should be included in the price offer.

### **Required skills, work experience (requirements to Bidder)**

The contractor must meet the following requirements:

- Have civil legal capacity to enter into contracts (provide certificate of registration/re-registration, founding documents);
- Be solvent, not subject to liquidation, its property must not be seized, its financial and economic activities must not be suspended in accordance with the law (certificates confirming the absence of debts in the banks and tax authorities, balance sheets for 2019-2020);
- At least 10 years of work experience in the development and preparation of business plans and economic feasibility analysis in various sectors of the economy;
- Work experience of at least 10 years in the development and feasibility analysis of technology application projects in various sectors of the economy;
- Availability and expert use of knowledge materials and technical and methodological tools including special software for technical design and engineering of renewable energy technologies applications;
- Work schedule (must include the composition of the team and the distribution of responsibilities, description of the approach, as well as the methods and procedures to be used in performing work);
- At least 5 reviews and recommendations from previous clients for similar services;

The staff complement should include the following specialists (with the provision of a detailed resume, diplomas, and other documents confirming experience and qualifications):

# 1) Project Manager:

- Higher education in the environment, energy, business, engineering, economics, and/or similar disciplines;
- At least 10 years of experience in the development and preparation of business plans and economic feasibility analysis in various sectors of the economy;
- At least 5 years of experience as a project manager including in managing similar assignments;
- Excellent presentation and reporting skills.
- Excellent knowledge of the Russian language

# 2) Expert 1 technician:

- Higher education in the environment, energy, engineering, disciplines;
- At least 7 years of work experience in conducting feasibility studies or developing business plans in various sectors of the economy, as well as organizing business processes, developing business strategies for various SME projects;
- Good business and/or economic modeling skills, based on the use of MS Excel spreadsheets, are desirable, and,

- At least 5 years of work experience in conducting and preparing feasibility studies or developing engineering and financial plans for projects on renewable energy and/or energy efficiency.
- Excellent knowledge of the Russian language

### 3) Expert 2 - economist

- Higher education in economy or business disciplines;
- At least 5 years of experience in conducting economic feasibility studies, developing business plans for various SME projects and financing schemes (loans, direct investments, corporate finance);
- At least 5 years of work experience in conducting feasibility analyses and developing engineering and financial plans for projects on renewable energy and energy efficiency;
- Good business and/or economic modeling skills, based on the use of MS Excel spreadsheets;
- Knowledge and skills in using tools and other technical guides for the development of construction and engineering installation designs and plans or, as an alternative, specific budgeting, and business planning in construction, and in the implementation of the approved plans.
- Excellent knowledge of the Russian language

#### **Quotation volume and payment schedule**

% of Contract Price	Required Output
20	Deliverable 1
20	Deliverable 2
20	Deliverable 3
20	Deliverable 4
20	Deliverable 5

### **Technical Assessment Criteria.**

The scoring method is the Highest Combined Score (based on the 70% technical offer and 30% price weight distribution) where the maximum technical obtainable score is 700 points, minimum passing score of technical proposal is 70% (490 points).

Information on Criteria for the Assessment of Proposal and list of required documentation is detailed in the Request for Proposal.

### **Terms of Reference approved:**

<u>Syrym Murgaliyev</u> Syrym Nurgaliyev Project Manager Date: <sup>30-Jun-2021</sup> Irina Goryunova

Irina Goryuhova OiC GEF Portfolio Manager Date: 05-Jul-2021