

TERMS OF REFERENCE

SODEL PROJECT COMPONENT II: ENABLING ENVIRONMENT FOR THE USE OF ALTERNATIVE FUELS IN THE ENERGY AND TRANSPORT SECTORS

Project Name: Sustainable Oil and Gas Development in Lebanon “SODEL”

Reference Number: 00083213

Consultancy: Provision of consultancy services for the preparation of a CBA for the use of natural gas and low carbon fuels in the energy sector in Lebanon

1 DEFINITIONS

CBA	Cost Benefit Analysis
Consultant	The Consulting firm that will be awarded this contract
Consultancy Services	Provision of consultancy services for the preparation of a CBA for the use of natural gas and low carbon fuels in the energy sector in Lebanon
EDL	Electricité Du Liban
GoL	Government of Lebanon
LCEC	Lebanese Centre for Energy Conservation
LPA	Lebanese Petroleum Administration
MoE	Ministry of Environment
MoEW	Ministry of Energy and Water
Project Manager	SODEL Project Manager
Project Committee	Committee formed by MoEW, LPA & UNDP that will review and validate the Consultant’s deliverables
SEA	Strategic Environmental Assessment
SODEL Project	Sustainable Oil and Gas Development in Lebanon is a UNDP Project executed by the LPA and the MoEW
TNC Project	Third National Communication to the UNFCCC is a UNDP Project being executed by the MoE
ToRs	Terms of Reference
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

2 BACKGROUND INFORMATION

During the last decade, the Ministry of Energy and Water (MoEW) has recognized the offshore hydrocarbon potential in Lebanon and has commissioned several studies to further analyze this potential.

On the technical side, and in preparation for launching the first offshore licensing round, the MoEW and the Lebanese Petroleum Administration (LPA) assigned geophysical service companies to perform seismic surveys that covered the entire Lebanese offshore. The results of these surveys showed that there are prominent oil and gas reserves, with **gas** being dominant.

On the environmental side, the Government of Lebanon (GoL) represented by the MoEW commissioned, in collaboration with the Ministry of Environment (MoE), the preparation of a Strategic Environmental Assessment (SEA) of the offshore petroleum sector. This assessment identified several environmental recommendations that created the *first component* of the project entitled "**Sustainable Oil and Gas Development in Lebanon**" (SODEL).

In its *second component*, SODEL will look at the uses of the potential natural gas and low carbon fuels resources in different sectors in Lebanon, namely the transport and energy sectors, in order to develop an upstream gas policy paper that would maximize economic benefits to Lebanon while safeguarding the environment. SODEL will not study the potential use of natural gas and low carbon fuels for the power generation sector in the country, rather for their use within the targeted sectors as explained in section 3 below.

Ultimately, this would ensure that decisions taken in the upstream gas exploration and production sectors as well as in the downstream use of natural gas and other hydrocarbon fuels, if found, take environmental, economic and social considerations into account in order to protect both the environment and the local communities.

SODEL is being implemented by the United Nations Development Programme UNDP (Energy and Environment Portfolio) in partnership with LPA and the MoEW.

This document constitutes the Terms of Reference for the provision of consultancy services for the preparation of a Cost Benefit Analysis (CBA) for the use of natural gas and low carbon fuels in the energy sector in Lebanon.

3 CONSULTANCY OBJECTIVES

In preparation for the expected offshore oil and gas activities, the LPA is developing a National Hydrocarbon Strategy.

Several scenarios for restructuring the energy sector in Lebanon are being evaluated while preparing this strategy, however they all consider that natural gas will be the main source of energy used in the country's power plants within the next 5 to 10 years as a replacement of heavy fuel and diesel oils.

The use of natural gas, whether indigenous or imported, can provide long-term solutions to the current power shortages, pollution problems, and energy diversity/security (in case of indigenous gas). In addition to the power sector, the industrial, residential, institutional and commercial sectors will also benefit from the gas supply for different purposes such as heating, cooking, etc...

In this context, the SODEL project will support the LPA in undertaking some of the required technical and environmental studies that would help in setting policy recommendations for the uses of the potential natural gas resources and low carbon fuels as alternative fuels, in Lebanon for the short, medium and long terms.

Recently, several projects in Lebanon are studying the impacts of the fuel types currently used on the environment and the climate, particularly the National Communication Projects under the United Nations Framework Convention on Climate Change (UNFCCC) being executed by the Ministry of Environment (MoE) and implemented by UNDP. The SODEL project and the UNDP Climate Change Projects are collaborating on common areas of interest in this sector.

The role of this Consultancy is to provide clear guidance on the use of natural gas (assuming that an abundant supply of gas is available for use) and low carbon fuels (a maximum of 5 low carbon fuels) **in the energy sector in Lebanon**, with a specific evaluation of the environmental, social, and economic benefits of the use of these fuels. The evaluation shall cover **the following target energy sectors categorized into: category 1 “industrial”, and category 2 “commercial, residential, institutional” sectors**. Outputs shall be integrated into relevant sections of the National Hydrocarbon Strategy.

4 SCOPE OF WORK

The consultancy service will span over a period of **10 months** and will include the following tasks:

- **Task 1:** Overview of the current use of hydrocarbons in the energy sector in Lebanon,
- **Task 2:** Assess the existing infrastructure in Lebanon and provide recommendations to implement a new fuel mix in the target sectors,
- **Task 3:** Conduct Cost Benefit Analysis (CBA) on the possible use of natural gas and low carbon fuels in the target sectors,
- **Task 4:** Provide recommendations to update or develop new legislation to implement the new fuel mix in the target sectors,
- **Task 5:** Provide policy recommendations,
- **Task 6:** Conduct consultation workshop to verify the attained results,
- **Task 7:** Design a pilot study on the use of natural gas and low carbon fuels in an identified zone in Lebanon.

5 ACTIVITIES

5.1 GENERAL ISSUES

The Consultant is expected to hold meetings with the stakeholders involved directly or indirectly with the energy use/consumption within the targeted sectors in Lebanon, particularly the MoEW/LCEC, LPA, MoE, CDR. Etc..

The main challenges that will encounter the Consultant will be data gaps/discrepancies as well as and setting assumptions and extrapolations. All assumptions used have to be approved by the Project Committee.

5.2 WORK PLAN

In the proposal, the Consultant is requested to provide a project work plan covering all the activities described below (a GANTT chart showing a detailed list of tasks, duration and schedule per task and allocated resources per task shall be included). It shall also include the Consultant's resources as well as other dependencies that affect the project duration. In that respect, the plan shall clearly specify the input (human resources, material etc.) that the Consultant will have to ensure at each phase of the assignment.

Upon contract award, the Consultant shall provide UNDP with a revised project work plan, if necessary. Once agreed upon, the new plan shall be adopted and shall form the basis for project supervision and monitoring.

5.3 REPORTS VALIDATION MODALITIES

Provisional approval of submitted deliverables shall take place at each of the defined milestones shown in the delivery schedule (to be agreed with the Consultant at the start of the project). It is expected that the Project Committee comments shall not exceed Ten (10) Working days from the receipt of the deliverable of a specific milestone.

On submittal of the deliverable, the Project Committee shall respond and its decision may either be:

- a) Approval, or
- b) Approval with reservations upon which the Consultant shall reply **within ten working days** under penalty of rejection
- c) Rejection with clear justifications.

5.4 ACTIVITY REQUIREMENTS

The following sections detail the expected outputs from the Consultant for each required activity. They are intended as general guidelines only.

The assignment requires deskwork, research, meetings, as well as coordination between the different related entities.

Under the direct supervision of the SODEL Project Manager, the Consultant's responsibilities are, but not limited to, the following:

- **Task 1: Overview of the current use of hydrocarbons in the energy sector in Lebanon:**
 - The Consultant shall focus on primary and secondary energy use in the targeted sectors.
 - Private electricity generation shall also be studied, assuming that it will no longer be needed once power will be fully supplied by EDL.
 - The Project Committee shall assist, when possible, the consultant with gathering data about energy consumption and use in the targeted sectors.
 - The Consultant shall meet with related Governmental bodies and other institutions/organizations (NGOs, research centers, academia, etc.) to discuss the existing energy consumption trends, predicted forecasts, including the current and foreseen challenges. The Project Committee shall approve the list of stakeholders to be consulted.
 - The Consultant shall provide a snapshot of the proposed energy mix in Lebanon including Renewable Energy that is applicable to the scope of this study.
 - The TNC Project, which is also a UNDP Project being implemented in the Ministry of Environment, is currently conducting two surveys on the hydrocarbon /consumption and energy production in the **target sectors all over Lebanon**. The consultant will make use of the **results of these surveys** and analyze them for the purpose of this consultancy.

- **Task 2: Assess the existing infrastructure in Lebanon and provide recommendations to implement a new fuel mix in the target sectors:**
 - The Consultant shall review and analyze the existing fuel distribution infrastructure in Lebanon related to providing fuel to the targeted sectors,
 - Recommendations for a new infrastructure plan (taking into account existing and relevant proposed Government plans) for the targeted sectors should be developed and divided according to the different geographical zones in Lebanon: mountain, coast, and inland.
 - The consultant shall describe possible roles of the private sector in implementing and funding the new infrastructure.

- **Task 3: Conduct Cost Benefit Analysis (CBA) on the possible use of natural gas and low carbon fuels in the target sectors:**
 - The Consultant shall, based on all the above findings, use the appropriate tools, to prepare a CBA for the use of natural gas and low carbon fuels in the target sectors, and divide the results by categories so that category 1 includes the “industrial” sector, and category 2 includes the “commercial, residential, and institutional” sectors (excluding renewable energy).
 - The list of maximum /5/ low carbon fuels to be studied by the Consultant, is to be agreed upon with the Project Committee.
 - Results of comparing the costs, outcomes/benefits, strengths and weaknesses of the considered options shall be provided for **the short, medium and long terms**.
 - Scenarios of the effects of oil price fluctuations should be addressed within the CBA (low, medium, and high prices). The effect of oil prices on natural gas prices, if at all, should be determined taking into account policy, supply and demand, technology, weather, and market structure...).
 - The Consultant shall, and based on the attained results, describe the envisaged challenges related to the use of natural gas and low carbon fuels in the target sectors, and recommend means to overcome them.
 - The priority infrastructure options identified in Task 2 here above, shall be considered within the CBA study.
 - A full report of the CBA studies shall be developed comprising the following:
 - The full conducted studies,
 - An executive summary of the results/findings, in English and Arabic,
 - A findings/results matrix presented in a clear and concise manner.

- **Task 4: Provide recommendations to update or develop new legislation to implement the new fuel mix in the target sectors:**
 - As part of the SODEL project, a legal consultant shall be recruited in a separate but parallel Consultancy Service in order to perform a substantial legislative framework study related to the existing legislation governing the energy sector in Lebanon. The Legal Consultant shall analyze the legislative framework and accordingly suggest the development of a new or an updated one.
 - The Consultant shall provide the above mentioned Legal Consultant all technical information and analysis needed, based on the outputs of this Consultancy Service, to assist in analyzing the legislative framework and accordingly in the development of possible new or updated legislation in the energy sector.

- **Task 5: Provide policy recommendations:**
 - Based on the findings and the analysis of Tasks 1 to 4 above (legal, technical, fiscal, environmental, social...), the Consultant shall prepare policy recommendations and a draft policy paper that would guide decision makers on the optimal use of natural gas and low carbon fuels in the targeted sectors.

- **Task 6: Conduct consultation workshop to verify the attained results:**
 - The Consultant shall, once all the above studies and analysis have been conducted, hold one consultation workshop in order to discuss the findings with the relevant stakeholders and validate the recommendations,
 - Inputs from the workshop shall be used to further develop and update the findings and recommendations. A revised version of the results shall be submitted accordingly.

- **Task 7: Design a pilot study on the use of natural gas and low carbon fuels in an identified zone in Lebanon:**
 - The Consultant shall, and based on the identified results and recommendations, prepare a proposal with detailed terms of reference (ToRs) for conducting a pilot study for the use of natural gas and low carbon fuels in an identified zone in Lebanon (industrial, commercial, residential...), the zone will be determined by the Project Committee. The purpose of this study will be to assess applicability of the suggested policy recommendations.
 - The Consultant shall develop a detailed proposal and action plan for the implementation of the pilot study.
 - The Consultant shall also estimate the costs and needs required for implementing the Pilot study.
 - The consultant shall describe possible roles of the private sector in implementing and funding the pilot study.

6 DELIVERABLES:

6.1 DELIVERABLES

All deliverables should be handed out in five hard copies as well as one soft copy (word and PDF format). Copies of high resolution maps and graphics (if any) should also be handed out to the SODEL project management team.

The deliverables are to be submitted and reviewed according to section 5.3. All deliverables are to be submitted in the English language. An Executive summary of the findings of Task 3 only shall be submitted in Arabic language as well.

During the fulfilment of the assignment, the Consultant will ensure regular communication with the project team, and will ensure a timely delivery of the expected outputs and will regularly inform the project team of the progress as well as any obstacles that might occur.

The required deliverables under the terms of reference are:

Deliverable	Date
Minutes of Kick off meeting	Week 1
Work Plan	Week 2
Minutes of Stakeholders Meetings	Months 2
Literature Review and Challenges Report	Month 3
Infrastructure Analysis Report	Month 5
CBA Report	Month 7
Minutes of Consultation Workshop and final CBA reports	Month 8
Pilot Study ToRs	Month 9
Final Results and draft Policy Paper with a summary Power Point Presentation	Month 10

6.2 PROGRESS REPORTING

The Consultant shall prepare bi-weekly progress reports explaining the progress of each task, the development of project schedule, any difficulty or delay, etc.

6.3 DELIVERY SCHEDULE

The Consultant is expected to complete and submit the deliverables specified in the above section based on the following time schedule. Expected overall duration for project completion is **10 months** from date of contract signature.

If delays occur without mutual and prior agreement for extension, UNDP reserves its right to charge the awarded party a penalty equivalent to 2% of the total assigned budget for every week delayed.

Each deliverable shall include all the required supporting documentation.