



Request for Proposal (RFP) for Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon

Prepared by the Lebanese Center for Energy Conservation (LCEC)

October 2019
Beirut, Lebanon

The Lebanese Center for Energy Conservation (LCEC) reserves the right to request additional information to be added to the RFP.

Should any company interested in submitting a proposal fail to provide its contact details to the LCEC, the LCEC shall not be responsible if such company fails to receive any updates to this document or clarifications relating thereto.

The enclosed technical specifications book is prepared by the Lebanese Center for Energy Conservation (LCEC).

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Table of Contents

A. Abbreviations	5
B. Important Notes	6
C. Background	8
D. Scope	12
E. Instructions to Bidders	14
F. General Organization of the Submittal	17
G. Evaluation Process and Scoring Method	19
H. Qualification Criteria- Stage 1	21
I. Technical Scoring- Stage 2	25
J. General Terms and Conditions	31
K. Miscellaneous Terms and Conditions	35
L. General Conditions of Contract	40
M. Forms	46
N. Appendices	68
Appendix 1. Climatic Zoning 2005	69
Appendix 2. Technical Specifications Book for the Request for Proposal (RFP) for Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon.....	70

A. Abbreviations

CD	Compact Disk
CSP	Concentrated Solar Power
EDL	Electricité du Liban
ESIA	Environmental and Social Impact Assessment
GWh	Gigawatt Hours
IBC	International Building Code
IEC	International Electro-technical Commission
IFC	International Finance Corporation
ILO	International Labour Organization
JV	Joint Venture
kV	Kilo Volt
kWh	Kilowatt Hour
kW	Kilowatt
kWp	Kilowatt Peak
LCEC	Lebanese Center for Energy Conservation
MEW	Ministry of Energy and Water
MoU	Memorandum of Understanding
MW	Megawatt
NEEAP	National Energy Efficiency Action Plan
NREAP	National Renewable Energy Action Plan
OECD	Organization for Economic Co-operation and Development
PDF	Portable Document Format
PV	Photovoltaic
RVO	Netherlands Enterprise Agency
RFP	Request for Proposal
UNDP	United Nations Development Programme
URL	Uniform Resource Locator

B. Important Notes

1. The objective of this Request for Proposal (RFP) is for the Lebanese Center for Energy Conservation (LCEC) to procure consultancy services for the development of a concentrated solar power plant in Hermel, Lebanon, utilizing a contract agreement. The intent is to award the contract to one qualified bidder for completing the consultancy services.
2. A single consultancy services company or a consortium of companies can apply to this bid and will be referred to from this point onward as the consultant.
3. The consultant will assess the feasibility of installing and operating a concentrated solar power (CSP) plant in the Hermel region in Lebanon. This contract covers the preparatory studies for the CSP plant in Hermel, Lebanon consisting of: feasibility study including demand/supply gap analysis, technical, financial, and economic aspects, capacity development assessment and an Environmental and Social Impact Assessment (ESIA) as well as potential funding options and tender documents for detailed design and implementation of the project.
4. Proposal is due on 26 November 2019 at 3:00 p.m. All proposals received after the mentioned date and time will be rejected.
5. LCEC may, at its discretion, extend the deadline for the submission of proposals, in which case all rights and obligations of LCEC and the applicants subject to the previous deadline shall thereafter be subject to the deadline as extended.
6. Proposals must be delivered to the LCEC offices at the following address: Ministry of Energy and Water (MEW), Corniche du Fleuve, 1st Floor, Room 303.
7. Proposals shall be in two (2) envelopes: Envelope (1) contains the Administrative, Capabilities and Technical Proposal and Envelope (2) contains the Financial Offer. The proposal shall be valid for 210 days from the proposal due date.

8. All information included in all the pages of this document and its annexes is an integral part of this Request for Proposal (RFP).
9. Interested bidders are required to read carefully all the information in all the sections: abbreviations; important notes; background of the project; scope of the project; instructions to bidders; general organization of the submittal; evaluation process and scoring method; qualification criteria- stage 1; technical scoring- stage 2; general terms and conditions; miscellaneous term and conditions; general conditions of contract; forms section; and the annexes.
10. The technical specifications book is enclosed in Annex as a functional document to guide bidders to design and propose fully operational systems.
11. For all questions, comments, suggestions, and clarifications regarding this proposal, communicate with LCEC **ONLY by email** to: energy@lcec.org.lb.

C. Background

12. In 2018, Lebanon had an actual installed capacity of around 65.5% of the power demand in the country noting that the yearly increase in electricity demand is around 3%¹. This makes the energy sector one of the most challenging to the Government of Lebanon, making energy efficiency solutions essential to overcome the energy sector's problems.
13. The Government of Lebanon is keen to overcome the problems of the electricity sector in order to meet the expected economic growth that would provide considerable social and economic benefits, and reach the target of 12% from renewable energy by 2020. This target is only achievable through the utilization of renewable energy power plants and specifically solar technologies in a country that has an estimation of 300 sunny days per year.
14. In June 2010, the Policy Paper for the Electricity Sector that was presented by the Ministry of Energy and Water (MEW) to the Council of Ministers set a target of increasing installed production capacity through an arrangement of actions including thermal as well as renewable energy power plants.
15. In November 2011, the Council of Ministers approved the National Energy Efficiency Action Plan (NEEAP) 2011-2015, prepared by the Lebanese Center for Energy Conservation (LCEC) and presented by the MEW. Initiative 7 of the NEEAP 2011-2015 is about "Electricity Generation from Solar Energy", with the objective to "start the development and promote the generation of electricity from solar PV and CSP stations".
16. In January 2017, The MEW launched the National Renewable Energy Action Plan (NREAP) 2016-2020. The NREAP 2016-2020 includes a specific chapter for concentrated solar power generation with a realistic target of 50 MW and an optimistic target of 100 MW, both with 7.5 hours of storage.

¹ Updated policy paper for the electricity sector, Ministry of Energy and Water, March 2019

17. An in-kind contribution of 580 kEuros will be used by the Netherlands Enterprise Agency (RVO) to develop a full CSP feasibility study in Hermel region. The grant arrangement signed on July 2, 2019 has marked the start of the cooperation between the Netherlands Enterprise Agency (RVO) and the Lebanese Center for Energy Conservation (LCEC).
18. This project is called “Consultancy Services for the Development of a Concentrated Solar Power Plant in Hermel Lebanon”. It targets the feasibility study of a CSP plant in Hermel, Lebanon.
19. The project will be under the supervision and management of the LCEC, and in close coordination with Lebanon’s national electric utility Electricité du Liban (EDL).
20. The studies will be undertaken in two phases. Phase I consists of the development of the Feasibility Study and an Environmental and Social Impact Assessment (ESIA) scoping. Based upon the outcomes of this feasibility study a go/no go decision will be taken by the Netherlands Enterprise Agency (RVO).
21. In case of a favorable outcome, the same contracted consulting company will subsequently continue in Phase II with the final ESIA as well as preparation of tender documentation. In case of an unfavorable decision (i.e. a no go) the project will be stopped at once. In that case the contract of the selected consulting company would end as well.
22. The expected duration of the project is 14 months starting the date of the contract signature with the consultant.
23. The financing for the project is completely available to the LCEC through funding by the Dutch Ministry of Foreign Affairs under the grant facility Develop2Build (D2B).
24. The disbursement schedule which shows the financial impact of such an event in terms of payments to the consultant is detailed in the annex. The disbursement is set in euros.
25. The consultant submits the invoices to the LCEC, including the documentation described in the conditions of the disbursement schedule.

26. The LCEC will send the invoice(s) and the required documents to RVO.
27. Payment by RVO will be made directly to the Consultant on behalf of LCEC to the extent and on the conditions described in the disbursement schedule.
28. Before contract award, LCEC submits the final contract with its payment schedule for a Statement of No Objection by RVO. Subsequently, RVO may unilaterally revise the disbursement schedule of this project in accordance with the payment schedule.
29. RVO is unilaterally and unconditionally qualified to adjust the disbursement schedule.
30. RVO can issue a Statement of no objection and release the final disbursement after a Statement of acceptance is received from LCEC on the D2B-project deliverables.
31. RVO may reduce the Grant amounts according to the outcome of the procurement process and the implementation of the contracts.
32. Final payments are determined by RVO upon actual expenditure of eligible project costs.
33. Funds which RVO has placed at the project's disposal and which are left unspent after completion of the D2B-project will be returned to RVO immediately and unconditionally.
34. The consultant will supply during and after implementation of the D2B-project accurate, detailed and complete information to the LCEC regarding the project.
35. At no cost to the LCEC and RVO, the consultant will acknowledge RVO's funding in publications, advertising, speeches, lectures, interviews, press releases and other similar activities, ensuring the appropriateness and accuracy of any messages.
36. RVO and LCEC may, or may instruct others to, inspect or audit the activities carried out in respect of the project including the consultant's financial reports and financial accounts and/or the periodic reports described in the provisions above.

37. The consultant will render every assistance to the official(s) appointed by the RVO and LCEC to carry out such inspection and will allow them access to any documents related to this project. The costs of any such inspection or audit will be borne by RVO.

D.Scope

38. The consultant shall study as per the requirements of the attached technical specifications book, the feasibility of at least 50 MW CSP plant in Hermel, Lebanon, to complement the current electricity generation from EDL.
39. The assignment shall comprise the elaboration of the studies and documents mentioned here below:
-) Current status of the national electricity grid and current and planned investments in (renewable) energy generation and electricity distribution and transmission;
 -) Assessment of the most cost-effective CSP option for Lebanon;
 -) Analysis of the most suitable location for CSP plant installation in the Hermel region;
 -) Environmental and Social Impact Assessment (ESIA);
 -) Financial analysis of a selected CSP type in the Hermel region;
 -) Social/economic cost-benefit analysis of a selected CSP type in the Hermel region;
 -) Identification of potential donors and other private investment options;
 -) Description of other potential renewable energy sources;
 -) Tender documents for detailed design of the system and construction and implementation of the project.
40. The key research questions for the feasibility study are:
-) Is a CSP plant required to partly reduce the electricity demand and supply gap and to reach the target of 12 % renewable energy of the Lebanese energy mix in 2020 and 30% of the total electricity consumed in 2030:
 - a- How large is the recent gap between electricity demand and supply in Lebanon;
 - b- What are the most recent and planned developments in electricity generation, transmission and distribution;
 - c- How large are the current technical and non-technical transmission and distribution losses;
 - d- What are recent developments in renewable energy generation and to what extent does CSP contribute to the share of renewable energy generation in Lebanon.
 -) What is the most suitable location for a CSP plant in the Hermel region;
 -) What is the most cost-effective CSP plant option with a capacity of at least 50 MW and 7.5 hours of storage for Lebanon;

-)] Is the development of the most cost-effective plant option technically, financially, environmentally and socially feasible in Lebanon and are sufficient funding options available for the required investments;
-)] Which other renewable energy generation options with comparable storage facilities are possible in case CSP is not feasible;
-)] If the project is feasible, what is the most appropriate design and connection option to the national grid and how should this be maintained

41. In addition to the feasibility study that considers the technical, financial and socio-economic aspects of the project, an environmental and social impact assessment (ESIA) is needed to identify and manage the environmental and social project risks. This ESIA is required to meet the IFC / World Bank performance standards and the regulations of the Ministry of Environment and the Ministry of Energy and Water in Lebanon.

42. It should be noted that the development of a CSP plant goes beyond the system alone. The final design should also include necessary infrastructural measures to connect the CSP to the national grid. However, potential investments to the national grid itself are excluded.

43. The design of the CSP shall consider a horizon of 25 years from the date of commissioning of the system, although the CSP plant is expected to have a longer economic life-time.

44. The study should present several alternative options of renewable energy sources (for at least 50 MW) that can deliver electricity to the national grid (other than CSP). These alternatives do not require financial, economic and environmental and social analyses. However, cost estimates (CAPEX as well as OPEX) for alternative solutions with storage capacity should be presented and compared with CSP.

45. Only after the decision whether the development of CSP is feasible, the preparation of Tender Documentation is needed for detailed design of the selected CSP option as well as construction & implementation of the project.

46. The consultant shall be responsible for all aspects of the feasibility study including but not limited to the aforementioned studies and documents.

E. Instructions to Bidders

47. The deadline for submission of proposals is set in Paragraph B “Important Notes”. All proposals received after the mentioned date and time will be rejected.
48. Proposals must be delivered to the LCEC offices at the following address: Ministry of Energy and Water (MEW), Corniche du Fleuve, 1st Floor, Room 303, Beirut- Lebanon. Proposals may be hand delivered or sent by courier to the mentioned address.
49. The bidder will submit its proposal in two parts. The first part will contain the entire proposal except the financial proposal. The second part will contain only the financial proposal.
50. The bidder shall prepare **one (1)** copy of the proposal. This copy shall be typed or written in indelible ink and shall be signed by the bidder or a person or persons duly authorized to bind the bidder to the contract. The latter authorization shall be indicated by written power-of-attorney accompanying the proposal.
51. A proposal shall contain no interlineations, erasures, or overwriting except, as necessary to correct errors made by the bidder, in which case such corrections shall be initiated by the person or persons signing the proposal.
52. The bidder shall submit a CD containing a digital copy of the entire proposal (except the financial offer) as one **searchable** document in PDF format. The CD must be clearly marked to indicate the name of the bidder and the statement “Proposal for Consultancy Services for the Development of a Concentrated Solar Power Plant in Hermel Lebanon”.
53. The bidder shall seal the proposal in one outer envelope including 2 inner envelopes and the CD as detailed below.
54. The back of the outer envelope shall be clearly marked with “Proposal for Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon” as well as the name of the bidder. The outer envelope shall be addressed to: “Lebanese Center for Energy Conservation (LCEC), Ministry of Energy and Water (MEW), Corniche du Fleuve, 1st Floor, Room 303, Beirut- Lebanon, phone: 00961 1 569101”.

55. The two (2) inner envelopes must be sealed.
56. One (1) of the inner envelopes shall contain all the information specified in the RFP except the financial offer. This envelope must be marked on its back with “Operational and Technical Proposal”. The operational and technical part of the proposal should not contain any pricing information whatsoever on the services offered.
57. The other inner envelope shall contain the financial offer for the project. This envelope must be marked on its back with “Financial Offer”.
58. If any of the envelopes are not sealed and marked as required, LCEC will assume no responsibility for the misplacement of the proposal or its premature opening.
59. The envelopes must contain the original signature in indelible ink and will be signed by a person duly authorized to sign on behalf of the bidder.
60. Failure of the bidder to abide by the requirements of this section might lead to the rejection of the proposal.
61. The operational and technical proposal must **clearly** include five (5) sub-sections: the official and administrative signed papers, the management and resource plan, the team composition and tasks assignment, the proposed methodology section, and a detailed list of milestones including project activities.
62. The official and administrative signed papers sub-section should include all the official papers of the bidder, especially those papers needed for the qualification stage described later on. This sub-section should also include all the needed forms mentioned in Section M. Forms.
63. The management and resource plan section should provide corporate orientation to include the year and state/country of incorporation and a brief description of the bidder’s present activities. It should focus on services related to the proposal.

64. The management and resource plan section should also describe the organizational unit(s) that will become responsible for the contract in this **specific project**, and the general management approach towards **this project**. The bidder should comment on its experience in similar projects and identify the person(s) representing the bidder in any future dealing with the LCEC.
65. The management and resource plan section should fully explain the bidder's resources in terms of personnel and facilities necessary for the performance of this requirement. It should describe the bidder's current capabilities/facilities and any plans for their expansion.
66. The proposed methodology section should demonstrate the bidder's responsiveness to the specifications by identifying the specific milestones proposed, addressing the requirements, as specified, point by point; and demonstrating how the proposed methodology meets or exceeds the specifications.
67. It is mandatory that the proposal numbering system corresponds with the numbering system used in the body of this RFP. All references to descriptive material and brochures should be included in the appropriate response paragraph, though material/documents themselves may be provided as annexes to the proposal/response.
68. The team composition and task assignment section should include the CV's of the key personnel and their key qualifications, as well as the assignment(s) dedicated to each of the personnel.
69. The bid must include a clear detailed list of milestones including project activities and man-days needed for each activity. The list of milestones shall be included in the operational and technical proposal without any pricing.
70. The same detailed list of milestones including project activities shall be included in the financial offer envelope including the pricing.

F. General Organization of the Submittal

71. In the scoring stage of the proposals, 60 points will be given on the formatting, organization and visual clarity of the submittal.
72. The forms submitted by the bidder shall be in conformance with the provided sample forms (Form 1 to Form 13). Any alternate form/text in any of the forms would result in the rejection of the bid.
73. All forms must be signed and stamped.
74. The proposal must be prepared and organized as per the order of documents provided below.
75. Only necessary documents must be provided.
76. Irrelevant datasheets, products certificates and other documents will negatively affect the proposals.
77. The technical proposal must include five (5) sub-sections. Each sub-section must be referred to by a file separator.
78. The five (5) sub-sections are the following: the official and administrative signed papers, the management and resource plan, the proposed methodology section, the team composition and tasks assignment, and a detailed list of milestones including project activities.
79. **Section 1- The Official and Administrative Signed Papers: Forms 1, 2, 3, 4, 5 and 7** must be included in addition to the power of attorney if applicable, articles of incorporation or equivalent, documents of registration and other documents as stated in section H (Qualification Criteria- Stage 1) below.
80. **Section 2- The Management and Resource Plan: Forms 6 and 8** must be included in addition to the upcoming consultancy projects, company profile and bidder's resources,

organizational unit with organizational chart of the team involved in this specific project and other information and details as stated in section H (Qualification Criteria- Stage 1) below.

81. **Section 3- The Team Composition and Tasks Assignment: Forms 9, 10, 11 and 12** must be included in addition to other information and details as stated in section H (Qualification Criteria- Stage 1) below.
82. **Section 4- The Proposed Methodology Section:** This section must include all needed information as stated in section H (Qualification Criteria- Stage 1) below including the timeline of the project, the organizational chart for each company, the organizational chart for the joint venture (if applicable), the detailed description of the studies to be made, the detailed description of steps to be taken to complete the studies, and a description of the equivalent technologies with storage to be under investigation.
83. **Section 5- Detailed List of Milestones Including Project Activities:** This section should clearly include all the milestones in the project including each section and subsection of the study and proposed workshops without any pricing. Any price mentioned in this section may lead to the disqualification of the bidder. **Form 13** shall be used in the technical proposal under this section without pricing.
84. A letter of commitment stating that the bidder commits to this RFP, its addendums and clarifications, should be attached, signed, and stamped at the end of the proposal.

G.Evaluation Process and Scoring Method

85. A four-stage procedure is utilized in evaluating the proposals, with evaluation of the technical proposal being completed prior to any price proposal being opened and compared.
86. The proposal will undergo a four-stage evaluation:
- a- Stage 1: Administrative and Technical Qualification (Pass/Fail);
 - b- Stage 2: Capability and Technical Scoring;
 - c- Stage 3: Financial Offer Comparison;
 - d- Stage 4: Negotiation.
87. In case the winning bidder does not sign the contract within 30 days of the announcement of the award, then the LCEC reserves the right to disqualify the winning bidder and choose the next bidder. The disqualified bidder will forfeit the bid deposit.
88. Stage 1 evaluation will be based on the qualification criteria described in the following section here below. The evaluation committee will reject proposals that do not meet all the qualification criteria in stage 1.
89. All proposals that pass stage 1 evaluation will be scored in stage 2 based on the capability and technical scoring. At this stage, the financial proposal will not be opened. Companies that score 650 or higher out of a score of 1000 (technical score, S_t) will be chosen to move to stage 3.
90. In stage 3, the financial proposal of the bidders selected in stage 2 will be opened and subsequently compared.
91. If the financial offer submitted is higher than 580,000 euros, the bidder will be disqualified automatically.
92. The formula for determining the financial scores is the following:
- $$S_f = 1000 \times F_m/F,$$
- in which S_f is the financial score,

F_m is the lowest price
and F the price of the proposal under consideration.

93. The Total Score for each proposal will be calculated independently by formula:

$$TS = St \times 0.85 + Sf \times 0.15$$

TS - is the total score of the proposal under consideration;

St - is technical score of the proposal under consideration;

Sf - is financial score of the proposal under consideration.

94. The bidder with the highest Total Score (TS) will be selected to proceed to signing of the contract.

95. The evaluation committee to be assigned by the LCEC will use the mentioned scoring method. It reserves the right to change, modify or enhance the evaluation criteria and the scoring method. Full scores will be given only if all the requested information is provided.

96. The evaluation committee reserves the right to disqualify bidders that provide conflicting, contradictory, implausible (technical data or calculation) or in any other way misleading information.

97. The LCEC reserves the right to negotiate the proposed financial offer with the selected bidder before signing the contract if there are some ambiguities in the proposal which need to be clarified or in case if there are some changes in the scope of work.

H. Qualification Criteria- Stage 1

98. All bids must meet all the following qualification criteria (items 99 to 125 below). Compliance with all the qualification criteria is mandatory. If any one of all the requested mandatory qualification criteria (and sub-criteria) is not met by the bid, then the whole bid will be rejected (PASS/FAIL).
99. The proposal must **clearly** include five (5) sub-sections: the official and administrative signed papers, the management and resource plan, the team composition and tasks assignment, the proposed methodology section, and a detailed list of milestones including project activities.
100. All forms mentioned in Section M. Forms, should be clearly filled, signed, and stamped.
101. The forms submitted by the bidder shall be in conformance with the provided sample forms (Form 1 to Form 13). Any alternate form/text in any of the forms would result in the rejection of the bid.
102. The signed application form should be clearly filled, signed, and stamped.
103. The joint venture agreement (if needed) should be clearly filled, signed, and stamped.
104. The power of attorney (notarized) should be provided, signed, and stamped. The power of attorney should authorize the person signing the application form or each of the persons signing the joint venture agreement (when applicable) to act as a representative (or representatives) on behalf of the bidder (or joint venture members) to submit the proposal.
105. The bidder's commercial registration (or equal) should be provided, signed, and stamped.
106. The proposal bid must include a clear detailed list of milestones including project activities. The list of milestones including project activities shall be included in the technical proposal without any pricing.

107. General company eligibility: the bidding consortium (bidding company and its joint venture partners) shall fill all the requirements in the Applicant(s) Information Form, and submit all the required documentation related to eligibility.
108. The Applicant and its parties shall provide copies of financial statements for the last 3 years. The financial statements shall: (a) reflect the financial situation of the Applicant (or parent) or in case of JV the members, (b) be independently audited or certified in accordance with local legislation, (c) be complete, including all notes to the financial statements, (d) correspond to accounting periods already completed and audited.
109. Financial capability: the bidder (or, in case of a joint venture, at least one of the joint venture members) shall have revenue (turnover) of at least 300,000 Euros per year.
110. Past performance: the bidder (or, in case of a joint venture, at least one of the joint venture members) shall have at least 50 MWp of solar projects consultancy services that reached financial closure starting January 2012.
111. Team leader: the bidder shall assign a team leader with at least 15 years of experience in the energy sector, minimum 10 of them in CSP projects.
112. Team Members: the bidder shall have a professional and qualified team (see requirements in Technical Specifications Book), including a team leader and renewable energy engineer, an electrical engineer, an institutional expert, an environmental and social specialist, and a financial and economic expert.
113. The five key experts mentioned in the previous point shall be international experts or experts with international expertise.
114. The key experts cannot submit to the bid under multiple companies, and should be committed to the company that they are applying with the whole period of the contract.
115. Each expert shall fill the commitment letter in **Form 12** that shall be duly signed.
116. Proposals from bidders shall include official letters from the aforementioned experts stating that he/she is committed to the bidder throughout the process until the submission

of the final deliverable required (but not to exceed 3 years from the date of the submittal of the proposal). Bidders that do not meet this criterion will be disqualified.

117. A minimum of 650 man-days should be submitted for the key experts mentioned in the technical specifications book.
118. The bidder shall propose a number of local non-key experts (such as local renewable energy and/or solar engineer, local legal expert...). The roles that will be locally filled should be listed in the proposal, while the personnel can be assigned to the roles after the contract signature.
119. Depending on the technical viability, financial and economic feasibility, availability of funding, institutional analysis and the ESIA scoping, a go/no go decision will be taken by RVO in consultation with LCEC. This decision is based on the outcomes of the feasibility study of the identified options. This decision will also be based on the approval of the Ministry of Environment on the ESIA scoping and the outcomes of the stakeholder consultations. If the construction of a CSP plant is not feasible, a full-fledged ESIA and the development of tender documents will not be conducted. In case of an unfavorable decision (i.e. a no go) the project will be stopped at once. In that case the contract of the selected consulting company would end as well.
120. Project completion date: the completion date for the project must not exceed 9 months following contract signature for phase 1 and 5 months after the Go/No Go Moment.
121. Capacity of the project: the proposal shall include a feasibility study for a at least 50 MW CSP plant in Hermel, Lebanon with 7.5 hours of storage along with other technologies or sizes that could be implemented in the same region.
122. Location of the Plant: the bidding consortium shall study available places at Hermel, Lebanon.
123. The proposed methodology section should include the following minimum information:
 - a. Timeline/project schedule;
 - b. Organizational chart for each company;
 - c. Organizational chart for the joint venture (if applicable);

- d. Detailed description of the studies to be made;
- e. Detailed description of steps to be taken to complete the studies;
- f. Description of the equivalent technologies with storage to be under investigation.

124. All bidders should install a solar irradiation measurement station on the site where they propose to build the plant and use the extracted values along with the solar irradiance data presented in this document as the basis for their calculations, design and software simulations. A minimum of 2 solar irradiation measurement stations should be provided as mentioned in the technical specifications book.
125. The LCEC reserves the right to add, modify, or delete criteria to or from this qualification list for any reason at its own discretion.

I. Technical Scoring- Stage 2

126. Only proposals that will pass Stage 1 evaluation will be evaluated in the Technical Scoring- Stage 2.
127. The technical scoring is over 1000.
128. Following this evaluation, each company will have one technical score (St). Companies that score 650 or higher will be selected to move to stage 3.
129. If the number of proposals that possess a score of 650 or higher is less than 3, then the top three proposals will be selected to move to stage 3 regardless of the scores.
130. The technical score of 1000 will cover three (3) aspects:

Evaluation	Maximum Obtainable Points
a) Management and resource plan	300 points
b) Team composition and tasks assignment	500 points
c) Methodology	200 points
Total	1000 points

a) Management and Resource Plan				
Ref.	Item	Max. Score	Criteria	Score
1	Formatting, Organization, and Visual Clarity of the Submittal	60	Weak	0
			Fair	20
			Good	40
			Excellent	60
3	Average Total Revenues of the Last Three years *In case of a JV, the average revenues will be considered	60	300,000 to 650,000 Euros	20
			650,000 to 1,000,000 Euros	40
			More than 1,000,000 Euros	60

4	Current Activities in the Solar Market *Based on the Solar Energy Experience form. *In case of JV, the total experience of JV members will be considered *Current activities are undergoing activities that have not been finalized yet as of the deadline of submission of this bid *Based on previously completed ESIA's and consultancy projects	30	Bidders ranked among the least 30% of the total number of qualified bidders in size of current activities	0
			Bidders ranked between the top 30% and the least 30% of the total number of qualified bidders	15
			Bidders ranked among the top 30% of the total number of qualified bidders in size of current activities	30
5	Previous Experience in the Solar Market (Capacity of completed projects in previous consultancy and implementation contracts in MW) *Based on the Solar Energy Experience form. *In case of JV, the total experience of JV members will be considered *Previous activities are activities finalized before the deadline of submission of this bid *Based on previously completed ESIA's and consultancy projects in Lebanon	60	Less than 50 MWp	0
			50 to 100 MWp	30
			More than 100 MWp	60
6	Previous Experience in the Lebanese Solar Market (Capacity of completed projects in previous consultancy and implementation contracts in Lebanon in MW) *Based on the Solar Energy Experience form. *In case of JV, the total experience of JV members will be considered *Previous activities are activities finalized before the deadline of submission of this bid only in the Lebanese market	40	Bidders ranked among the least 30% of the total number of qualified bidders in size of previous activities in Lebanon	0

	*Based on previously completed ESIA's and consultancy projects in Lebanon			
			Bidders ranked between the top 30% and the least 30% of the total number of qualified bidders	20
			Bidders ranked among the top 30% of the total number of qualified bidders in size of previous activities in Lebanon	40
7	List of Detailed Milestones	50	Provided	0
			Not Provided	50
	Maximum Obtainable Score	300		

b) Team and Tasks				
Ref.	Item	Max. Score	Criteria	Score
1	Team Leader and Renewable Energy Engineer- Total Years of Experience * In case of multiple team leaders involved, the average years of experience will be considered	50	less than 15 years	0
			15-20 years	25
			More than 20 years	50
2	Team Leader and Renewable Energy Engineer- Years of Experience in the Solar CSP Industry * In case of multiple team leaders involved, the average years of experience will be considered	50	Less than 10 years	0
			10 to 15 years	25
			More than 15 years	50

3	Electrical Engineer- Years of Experience in the Design of High and Medium Voltage Installations * Experience in Lebanon and MENA region	50	less than 15 years	0
			15-20 years	25
			More than 20 years	50
4	Electrical Engineer- Years of Experience with Renewable Energy Installations * Experience in Lebanon and MENA region	50	less than 15 years	0
			15-20 years	25
			More than 20 years	50
5	Institutional Expert- Years of Experience in Institutional Assessments * Experience in Lebanon and MENA region	50	less than 15 years	0
			15-20 years	25
			More than 20 years	50
6	Environmental and Social Specialist- Years of Experience in Managing and Conducting ESIAs * Experience in Lebanon and MENA region * Experience according to international standards * Consultant should be qualified by CDR	50	less than 10 years	0
			10-20 years	25
			More than 20 years	50
7	Financial and Economic Expert- Years of Experience in Financial Modelling and Cost-Benefit Analysis	50	less than 10 years	0
			10-20 years	25
			More than 20 years	50
8	Technical and Managerial Staff Involved in the Project	50	Less than 5	0
			5 to 8	25
			More than 8	50
9	Overall Evaluation of the CV's of Team Members	50	Weak	10

			Fair	20
			Good	30
			Excellent	40
			Outstanding	50
10	Distribution of Tasks Assignment	50	Weak	0
			Fair	15
			Good	30
			Excellent	40
			Outstanding	50
	Maximum Obtainable Score	500	Totals	

c) Methodology				
Ref.	Item	Max. Score	Criteria	Score
1	Quality/Type of sub-studies proposed for each deliverable	50	Bidders ranked among the least 30% of the total number of qualified bidders: providing the lowest number of relevant studies	10
			Bidders ranked between the top 30% and the least 30% of the total number of qualified bidders	30
			Bidders ranked among the top 30% of the total number of qualified bidders: providing the highest number of relevant studies	50

2	Number of Proposed Storage Types Under Study	50	Bidders ranked among the least 30% of the total number of qualified bidders: providing the lowest number of proposed storage types under study	10
			Bidders ranked between the top 30% and the least 30% of the total number of qualified bidders	30
			Bidders ranked among the top 30% of the total number of qualified bidders: providing the highest number of proposed storage types under study	50
3	Committed Study Time for phase I	50	Less than 6 months	20
			Between 6 and 9 months	50
4	Committed Study Time for phase II	50	Less than 3 months	20
			Between 3 and 5 months	50
	Maximum Obtainable Score	200	Totals	

131. The LCEC reserves the right to add, modify, or delete criteria to or from this qualification list for any reason at its own discretion.

132. The LCEC also reserves the right to change the weight associated to the different criteria for any reason at its own discretion.

J. General Terms and Conditions

133. Successful bidder will sign the contract agreement with the LCEC.
134. Proposal must be submitted as per the contents of this RFP using the forms shown in the forms section.
135. The consultant (successful bidder) shall inform the LCEC as soon as a deviation takes place in the planning or described in the submitted tender documents and postpones any tender activities until the LCEC has decided whether a Statement of no objection is required for the change.
136. Cost of proposal: the bidder shall bear all costs associated with the preparation and submission of the proposal. The LCEC will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the RFP. All documents submitted in response to this RFP will become the property of LCEC.
137. The application, as well as all correspondence and documents relating to the RFP shall be written in the English language. Supporting documents and printed literature that are part of the application may be in another language, provided they are accompanied by an accurate official translation of the relevant passages into the English language, in which case, for purposes of interpretation of the application, the translation shall govern.
138. Confidentiality of Proposal: information relating to the evaluation of proposals shall not be disclosed to bidders or any other persons not officially concerned with such process until the notification of selection is made to all bidders.
139. Evaluators will read printed copy of proposal. All evaluators may not have access to the internet, therefore it is recommended to not include URLs, hyperlinks or other forms of internet-based content in the proposal.
140. Clarification of Proposal: to assist in the evaluation of proposal, LCEC may, at its discretion, ask any bidder for a clarification of its proposal which shall be submitted within a stated reasonable period of time. Any request for clarification and all clarifications shall be in writing. If a bidder does not provide clarifications of the

information requested by the date and time set in the request for clarification, its proposal may be rejected.

141. Proposal must offer services for the total requirements of the RFP. Proposals offering only part of the requirements will be rejected.
142. The bidder is expected to examine all corresponding instructions, forms, terms and specifications contained in the RFP. Failure to comply with these documents will be at the bidder's risk and may affect the evaluation of the proposal. Any proposal which is not responsive to the requirements of the RFP may be rejected.
143. Reservation of Rights: LCEC reserves the right to:
 - a) Modify or withdraw from the RFP, or modify the provisions contained in the RFP, for any reason;
 - b) Select zero, one, or multiple bid proposal(s) in response to this RFP in order to enter into negotiations or execute an agreement;
 - c) Award contract to bidder(s) based on some or all criteria in this RFP, or post-bid negotiations;
 - d) Waive any material or immaterial non-conformity in any bid received
 - e) Reject parts of bid or entire bid for any reason;
144. By submitting the proposal, bidder agrees that the terms in the proposal shall remain irrevocable for 210 days after the due date of the proposal.
145. The companies may ask for debriefing during 3 days after receiving of appropriate notification concerning the bid's result.
146. A prospective bidder requiring any clarification of the RFP may notify LCEC in writing at the mailing address indicated in the RFP. LCEC will respond in writing to any request for clarification of the RFP that it receives earlier than two weeks prior to the deadline for the submission of proposals. Written copies of LCEC response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective bidders that have received the RFP.

147. At any time prior to the deadline for submission of proposals, LCEC may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the RFP by amendment. All prospective bidders that have received the RFP will be notified in writing of all amendments to the RFP.
148. In order to afford prospective bidders reasonable time in which to take the amendments into account in preparing their offers, LCEC may, at its discretion, extend the deadline for the submission of proposals.
149. Performance bond: according to the Lebanese laws and regulations (performance bonds, taxes, duties, stamp fees). However, the bidder shall be forfeited the performance bond for non-compliance—inability to successfully commission and put into production the entire project in the proposed timeframe. Putting the solar station into production means successfully delivering continuous operation for a period of 30 days and successfully delivering minimum units of electricity (based on solar availability) for a period of 30 days.
150. The bidding consortium may be a firm that is a private entity or any combination of such entities in the form of a Joint Venture (JV) under an existing agreement supported by the JV form attached to this RFP. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the contract in accordance with the contract terms. The JV shall nominate a representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the bidding process and, in the event the JV is awarded the contract, during contract execution. There is no limit on the number of members in a JV.
151. The bidder shall indicate on an appropriate price schedule for the services it proposes to supply under the contract.
152. The price of the current contract is divided into three main payments. The three payments are labeled as: advance payment, progress payments, and final payment. The bidder's total remuneration shall include all staff costs, subcontractor's (if any) costs, printing, communications, travel, accommodation, and the like, and all other costs incurred by the bidder in carrying out the services.

153. A minimum of 20 travels to Lebanon for all 5 key experts mentioned in the technical specifications book is required and should be accounted for in the pricing.
154. LCEC shall effect payments to the winning bidder after acceptance by LCEC of the invoices submitted by the contractor, upon achievement of the corresponding milestones of the project. Payments will be effected in Euros.
155. The bidder may withdraw its proposal after the proposal's submission, provided that written notice of the withdrawal is received by LCEC prior to the deadline prescribed for submission of proposals. The bidder's withdrawal notice shall be prepared, sealed, marked, and sent by hand or fax but followed by a signed confirmation copy.
156. No proposal may be modified subsequent to the deadline for submission of proposals.
157. To assist in the examination, evaluation and comparison of proposals, the LCEC may at its discretion, ask the bidder for clarification of its proposal. The request for clarification and the response shall be in writing and consequently no change in price or substance of the proposal shall be sought, offered or permitted.

K. Miscellaneous Terms and Conditions

158. Corrupt and Fraudulent Practices: Anticorruption Policy requires bidders, suppliers, and contractors to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy the organization defines, for the purposes of this provision, the terms set forth below as follows:
- a) “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
 - b) “fraudulent practice” means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
 - c) “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - d) “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.
159. LCEC will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, agents, sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive practices, or any illegal practice in competing for the Contract in question.
160. The bidders as well as its personnel, agents, sub-consultants, sub-contractors, service providers, suppliers and/or their employees will observe the OECD Guidelines for Multinational Enterprises.
161. The consultant shall cooperate in audits and provide the following information:
-) Information about circumstances that cause or might cause delays in implementing the D2B-project and other circumstances that prevent or might prevent the consultant from fulfilling its duties under this contract;
 -) Information on the following situations or the threat of these: moratorium on the payment of debts, deficits, fraud, bribery;

) Information about changes in the implementation of the activities as described in contracts.

162. The consultant is responsible for maintaining sound management procedures and keeping proper accounts for the project.
163. The LCEC may assess at any time individual outputs of the contract, whether in respect of an inspection or audit or otherwise, in order to decide whether to continue, reduce, suspend, terminate and/or reclaim this contract.
164. The LCEC may assess, and/or seek expert opinions, to check the soundness or accuracy of any conclusion, calculation, estimation and/or statement made as part of individual outputs.
165. Derogations from the contract and the appendices will only become effective in so far as they have been expressly accepted between the signatories.
166. This contract and its annexes can only be amended with addenda, which become effective when printed on official writing paper and are duly signed by the representatives of the signatories.
167. Substantial changes in the implementation of the activities as described in the Technical Specifications Book can only be implemented after a statement of no objection from the LCEC.
168. Substantial changes in the implementation of the activities as described in the contracts, are only admissible with a statement of no objection from the LCEC.
169. The LCEC can: require an independent opinion on the changes; require suspension of the implementation until its statement of no objection; withhold payment of the next instalment until its statement of no objection.
170. The LCEC may ex parte/unilaterally reduce or terminate the contract, but only after consultation with the consultant:

- J) If the RVO is of the opinion that the specific way in which the D2B-project is implemented or a change of circumstances has led to a situation in which the financing of the D2B-project is incompatible with the Dutch government's foreign policy;
- J) In the event of unforeseen circumstances or events, including i) failure to arrange the necessary licenses, ii) a change of government policy, iii) an amendment to the applicable legislation, iv) non-compliance with the Policy Rules, or v) decreasing financial viability that cause the implementation of the D2B-project Plan and/or the D2B-project to be seriously hampered or delayed or to become unfeasible;
- J) If the consultant fails to fulfill its duties under this contract, or fails to do so on time, or uses the resources for a purpose other than that for which the Grant was made available, or if a third party has provided co-financing for the same activities without the RVO's prior knowledge and consent.

171. This grant will end for either of the following reasons:

-) All duties of the Signatories under this contract have been fulfilled to the satisfaction of the other Signatory;
-) The Grant has been prematurely terminated and/or reclaimed and accounts have been settled.

172. If any organization to be engaged in the Project is listed on the publicly available debarment list of the following international financial institutions: world Bank Group, African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development and the Inter-American Development Bank. This organization will be excluded from involvement, or further involvement, in the project.

173. The consultant will disclose whether anyone acting on its behalf or on behalf of the agents, consultants and/or contractors in connection with the project is currently under charge in a national court or, within a five-year period preceding the Application, has been convicted in a national court, or been subject to equivalent national administrative measures for violation of laws against bribery of public officials of any country.

174. The consultant will disclose, upon demand: i) the identity of persons acting on its behalf or on behalf of the agents, consultants and/or contractors in connection with the Project, and ii) the amount and purpose of commissions and fees paid, or agreed to be paid, to such persons.

175. The LCEC may decide to carry out enhanced due diligence if: i) any organization engaged in the Project appears on the publicly available debarment lists of one of the international financial institutions referred to in point 172 above; or ii) the LCEC becomes aware that anyone acting on behalf of the agents, consultants and/or contractors in connection with the Project is currently under charge in a national court, or, within a five-year period preceding the application, has been convicted in a national court or been subject to equivalent national administrative measures for violation of laws against bribery of public officials of any country; or iii) the LCEC becomes aware of child and/or forced labour in the Project; or iv) the LCEC has reason to believe that the Project may involve bribery.
176. The LCEC may verify whether appropriate internal corrective and preventive measures have been taken, maintained and documented in case of a conviction in a national court, or equivalent national administrative measures, for violation of laws against bribery of public officials of any country, of a person acting on behalf of the agents, consultants and/or contractors in connection with the project, within a five-year period.
177. The LCEC will disclose to the law enforcement authorities any credible evidence of bribery.
178. If there is credible evidence that bribery is involved in the award or execution of any contract for the Development Phase of the Project, the LCEC may suspend further disbursements of the contract during an enhanced due diligence process or withdraw the contract, deny further disbursements and/or reclaim the sums already paid. Furthermore, the LCEC may refuse approval of any further contract for the Implementation and the Operation and Maintenance phases of the project.
179. LCEC confirms that no contract will be awarded without a prior statement of no objection of the Netherlands Enterprise Agency.
180. LCEC will sanction a party or its successor, including declaring ineligible, either indefinitely or for a stated period of time, to participate in contracts if it at any time determines that the firm has, directly or through an agent, engaged in corrupt, fraudulent,

collusive, coercive practices, or any illegal practice in competing for, or in executing, a contract.

181. Conflict of Interest: LCEC considers a conflict of interest to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations, and that such conflict of interest may contribute to or constitute a prohibited practice under LCEC's Anticorruption Policy. In pursuance of LCEC's Anticorruption Policy's requirement, bidders, suppliers, and contractors under contracts must observe the highest standard of ethics. LCEC will take appropriate actions to manage such conflicts of interest which may include rejecting a proposal for award if it determines that a conflict of interest has flawed the integrity of any procurement process. At the time of bidding, bidders may be considered to be in a conflict of interest with one or more parties if they, including but not limited to:

- a) have controlling shareholders in common; or
- b) receive or have received any direct or indirect subsidy from any of them; or
- c) have the same legal representative for purposes of their Application; or
- d) have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or to influence the bid of another Applicant in the subsequent bidding process or influence the decisions of LCEC regarding this prequalification process; or
- e) participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of this prequalification. Where a firm, or a firm from the same economic or financial group, in addition to consulting, also has the capability to manufacture or supply goods or to construct works, that firm, or a firm from the same economic or financial group, may not normally be a supplier of goods or works, if it provided consulting services for the contract corresponding to this prequalification, unless it can be demonstrated that there is no significant degree of common ownership, influence or control.

L. General Conditions of Contract

182. **LEGAL STATUS:** The Contractor shall be considered as having the legal status of an independent contractor vis-à-vis LCEC. The Contractor's personnel and sub-contractors shall not be considered in any respect as being the employees or agents of LCEC.
183. **SOURCE OF INSTRUCTIONS:** The Contractor shall neither seek nor accept instructions from any authority external to LCEC in connection with the performance of its services under this Contract. The Contractor shall refrain from any action which may adversely affect LCEC and shall fulfill its commitments with the fullest regard to the interests of LCEC.
184. **CONTRACTOR'S RESPONSIBILITY FOR EMPLOYEES:** The Contractor shall be responsible for the professional and technical competence of its employees and will select, for work under this Contract, reliable individuals who will perform effectively in the implementation of this Contract, respect the local customs, and conform to a high standard of moral and ethical conduct.
185. **ASSIGNMENT:** The Contractor shall not assign, transfer, pledge or make other disposition of this Contract or any part thereof, or any of the Contractor's rights, claims or obligations under this Contract except with the prior written consent of LCEC.
186. **SUB-CONTRACTING:** In the event the Contractor requires the services of sub-contractors, the Contractor shall obtain the prior written approval and clearance of LCEC for all sub-contractors. The approval of LCEC of a sub-contractor shall not relieve the Contractor of any of its obligations under this Contract. The terms of any sub-contract shall be subject to and conform with the provisions of this Contract.
187. **OFFICIALS NOT TO BENEFIT:** The Contractor warrants that no official of LCEC has received or will be offered by the Contractor any direct or indirect benefit arising from this Contract or the award thereof. The Contractor agrees that breach of this provision is a breach of an essential term of this Contract.
188. **INDEMNIFICATION:** The Contractor shall indemnify, hold and save harmless, and defend, at its own expense, LCEC, its officials, agents, servants and employees from and

against all suits, claims, demands, and liability of any nature or kind, including their costs and expenses, arising out of acts or omissions of the Contractor, or the Contractor's employees, officers, agents or sub-contractors, in the performance of this Contract. This provision shall extend, inter alia, to claims and liability in the nature of workmen's compensation, products liability and liability arising out of the use of patented inventions or devices, copyrighted material or other intellectual property by the Contractor, its employees, officers, agents, servants or sub-contractors. The obligations under this Article do not lapse upon termination of this Contract.

189. INSURANCE AND LIABILITIES TO THIRD PARTIES:

- a) The Contractor shall provide and thereafter maintain insurance against all risks in respect of its property and any equipment used for the execution of this Contract.
- b) The Contractor shall provide and thereafter maintain all appropriate workmen's compensation insurance, or its equivalent, with respect to its employees or any third party member to cover claims for personal injury or death in connection with this Contract.
- c) The Contractor shall also provide and thereafter maintain liability insurance in an adequate amount to cover third party claims for death or bodily injury, or loss of or damage to property, arising from or in connection with the provision of services under this Contract or the operation of any vehicles, boats, airplanes or other equipment owned or leased by the Contractor or its agents, servants, employees or sub-contractors performing work or services in connection with this Contract.
- d) Except for the workmen's compensation insurance, the insurance policies under this Article shall:
 - i. Name LCEC as additional insured;
 - ii. Include a waiver of subrogation of the Contractor's rights to the insurance carrier against LCEC;
 - iii. Provide that LCEC shall receive thirty (30) days written notice from the insurers prior to any cancellation or change of coverage.
- e) The Contractor shall, upon request, provide LCEC with satisfactory evidence of the insurance required under this Article.

190. ENCUMBRANCES/LIENS: The Contractor shall not cause or permit any lien, attachment or other encumbrance by any person to be placed on file or to remain on file in any public office or on file with LCEC against any monies due or to become due for

any work done or materials furnished under this Contract, or by reason of any other claim or demand against the Contractor.

191. **TITLE TO EQUIPMENT:** Title to any equipment and supplies that may be furnished by LCEC shall rest with LCEC and any such equipment shall be returned to LCEC at the conclusion of this Contract or when no longer needed by the Contractor. Such equipment, when returned to LCEC, shall be in the same condition as when delivered to the Contractor, subject to normal wear and tear. The Contractor shall be liable to compensate LCEC for equipment determined to be damaged or degraded beyond normal wear and tear.
192. **COPYRIGHT, PATENTS AND OTHER PROPRIETARY RIGHTS:** LCEC shall be entitled to all intellectual property and other proprietary rights including but not limited to patents, copyrights, and trademarks, with regard to products, or documents and other materials which bear a direct relation to or are produced or prepared or collected in consequence of or in the course of the execution of this Contract as well as after execution. At the LCEC request, the Contractor shall take all necessary steps, execute all necessary documents and generally assist in securing such proprietary rights and transferring them to LCEC in compliance with the requirements of the applicable law.
193. **USE OF NAME, EMBLEM OR OFFICIAL SEAL:** The Contractor shall not advertise or otherwise make public the fact that it is a Contractor with LCEC, nor shall the Contractor, in any manner whatsoever use the name, emblem or official seal of LCEC, or any abbreviation of the name of LCEC in connection with its business or otherwise.
194. **CONFIDENTIAL NATURE OF DOCUMENTS AND INFORMATION:**
- a) All maps, drawings, photographs, mosaics, plans, reports, recommendations, estimates, documents and all other data compiled by or received by the Contractor under this Contract shall be the property of LCEC, shall be treated as confidential and shall be delivered only to LCEC authorized officials on completion of work under this Contract.
 - b) The Contractor may not communicate at any time to any other person, Government or authority external to LCEC, any information known to it by reason of its association with LCEC which has not been made public except with the

authorization of LCEC; nor shall the Contractor at any time use such information to private advantage. These obligations do not lapse upon termination of this Contract.

195. FORCE MAJEURE; OTHER CHANGES IN CONDITIONS:

- a) Force majeure, as used in this Article, means acts of God, war (whether declared or not), invasion, revolution, insurrection, or other acts of a similar nature or force which are beyond the control of the Parties.
- b) In the event of and as soon as possible after the occurrence of any cause constituting force majeure, the Contractor shall give notice and full particulars in writing to LCEC, of such occurrence or change if the Contractor is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under this Contract. The Contractor shall also notify LCEC of any other changes in conditions or the occurrence of any event which interferes or threatens to interfere with its performance of this Contract. The notice shall include steps proposed by the Contractor to be taken including any reasonable alternative means for performance that is not prevented by force majeure. On receipt of the notice required under this Article, LCEC shall take such action as, in its sole discretion, it considers to be appropriate or necessary in the circumstances, including the granting to the Contractor of a reasonable extension of time in which to perform its obligations under this Contract.
- c) If the Contractor is rendered permanently unable, wholly, or in part, by reason of force majeure to perform its obligations and meet its responsibilities under this Contract, LCEC shall have the right to suspend or terminate this Contract on the same terms and conditions as are provided for in Article 15, "Termination", except that the period of notice shall be seven (7) days instead of thirty (30) days.

196. TERMINATION

- a) LCEC reserves the right to terminate without cause this Contract at any time upon 15 days prior written notice to the Contractor, in which case LCEC shall reimburse the Contractor for all reasonable costs incurred by the Contractor prior to receipt of the notice of termination.
- b) In the event of any termination by LCEC under this Article, no payment shall be due from LCEC to the Contractor except for work and services satisfactorily performed in conformity with the express terms of this Contract. The Contractor shall take

immediate steps to terminate the work and services in a prompt and orderly manner and to minimize losses and further expenditures.

- c) Should the Contractor be adjudged bankrupt, or be liquidated or become insolvent, or should the Contractor make an assignment for the benefit of its creditors, or should a Receiver be appointed on account of the insolvency of the Contractor, LCEC may, without prejudice to any other right or remedy it may have, terminate this Contract forthwith. The Contractor shall immediately inform LCEC of the occurrence of any of the above events.

197. **SETTLEMENT OF DISPUTES:** The Parties shall use their best efforts to settle amicably any dispute, controversy or claim arising out of, or relating to this Contract or the breach, termination or invalidity thereof. In case amicable efforts fail, the settlement of disputes will take place in the courts of Beirut according to Lebanese laws and regulations.

198. **LABOUR ORGANIZATION:** During the execution of the contract, the bidders as well as its personnel, agents, sub-consultants, sub-contractors, service providers, suppliers and/or their employees will observe the IFC Performance Standards 2012 and the conventions of the International Labour Organization.

199. **CHILD LABOUR:** The Contractor represents and warrants that neither it, nor any of its suppliers is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, inter alia, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical mental, spiritual, moral or social development. Any breach of this representation and warranty shall entitle the LCEC to terminate this Contract immediately upon notice to the Contractor, at no cost to the LCEC.

200. **ASSOCIATION TO TERRORISM:** The consultant ensures that none of its funds are used, directly or indirectly, to provide support to individuals, groups or entities associated with terrorism. In accordance with this policy, the Recipient undertakes to ensure that none of the Netherlands' funds provided under this award are used to provide support to individuals, groups or entities associated with terrorism, either directly or indirectly.

201. **OBSERVANCE OF THE LAW:** The Contractor shall comply with all Lebanese laws, decrees, ordinances, rules, and regulations (including future amendments) bearing upon the performance of its obligations under the terms of this Contract.
202. **AUTHORITY TO MODIFY:** No modification or change in this Contract, no waiver of any of its provisions or any additional contractual relationship of any kind with the Contractor shall be valid and enforceable against LCEC.

M. Forms

1. Letter of Application
2. Joint Venture (JV) Agreement
3. Applicant(s) Information Form
4. Sub-Contractor(s) Information Form
5. Performance Security
6. Financial Situation and Performance
7. Letter of Commitment of Consortium
8. Concentrated Solar Power Experience
9. Team Composition and Tasks Assignments
10. CVs of Key Experts
11. CVs of Team Members
12. Letter of Commitment of Key Experts
13. Financial Form

Form 1 - Letter of Application

Letter of Application

Date: *[day, month, and year]*

To: Lebanese Center for Energy Conservation (LCEC)
Ministry of Energy and Water
Corniche du Fleuve, First Floor, Room 303
Beirut, Republic of Lebanon

From: *[Name of the Bidder and Full Address]*

Name of the Project: “Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon”

We, the undersigned, submit this proposal and declare that:

- (a) We have examined and have no reservations to the most recent version of the RFP document and all its addendums;
- (b) We hereby confirm that we will comply with the policy in regard to Corrupt and Fraudulent Practices, and we have no conflict of interest in accordance with the section mentioned on this issue in the RFP;
- (c) We hereby confirm that if our proposal is selected, we shall sign the agreement as per the proposal;
- (d) We plan to subcontract the following key activities and/or parts of the works:
[Insert any of the key activities, subcontractors, details of the sub-contractors, their qualification and experience]

- (e) We understand that you may, without incurring any liability to the applicants, a) cancel the RFP at any time and b) accept no proposal or invite no applicant to sign the installation agreement. We also understand and accept that we shall bear all costs associated with its preparation and submission and that LCEC will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the selection process;
- (f) All information, statements and description contained in the application are in all respect true, correct and complete to the best of our knowledge and belief;
- (g) We understand that LCEC and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this application. This letter of application will also serve as an authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by LCEC to verify statements and information provided in this application, or with regards to the resources, experiences, and competence of the bidder.

Signed *[insert signature(s) of an authorized representative(s) of the Applicant]*

Name *[insert full name of person signing the Application]*

In the capacity of *[insert capacity of person signing the Application]*

Duly authorized to sign the Application for and on behalf of:

Main Applicant's Name *[insert full name of Applicant or the name of the JV]*

Address *[insert street number/town or city/country address]*

Dated on *[day, month, and year]*

[For a joint venture, either all members shall sign or only the authorized representative, in which case the power of attorney to sign on behalf of all members shall be attached]

Form 2 - Joint Venture (JV) Agreement

[In case of a joint venture, a "Joint Venture Agreement" needs to be completed and signed by each partner of the bidder and attached to the Technical Proposal.]

JOINT VENTURE AGREEMENT

This agreement is made the ____ day of ____ 2019, by and between:

_____ (hereinafter called ____), a company organized under the laws of _____, with its principal office at _____, and its address at _____, hereinafter called _____ of the first part,

And

_____ (hereinafter called ____), a company organized under the laws of _____, with its principal office at _____, and its address at _____, hereinafter called _____ of the second part,
The first and the second party together are hereinafter referred to as "the Parties".

WHEREAS the Lebanese Center for Energy Conservation (LCEC), hereinafter called "the LCEC" has invited the Parties to submit a proposal for the execution of the CSP consultancy Project entitled "Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon" (hereinafter called "the Project")

WHEREAS the Parties wish to enter into a Joint Venture Agreement in order to be prequalified by the LCEC to tender for the Project and, if successful, to execute the Project under a Contract to be awarded by the LCEC, hereinafter called "the Contract";

THE PARTIES HERETO AGREE TO FORM A JOINT VENTURE UNDER THE FOLLOWING TERMS AND CONDITIONS:

1. ESTABLISHMENT OF THE JOINT VENTURE

The Parties hereby agree to constitute themselves as a Joint Venture under the name of _____ hereinafter called "the Joint Venture".

The Joint Venture shall have its offices at the following address:

The objective of the Joint Venture shall be to execute the Project in accordance with all terms and conditions of a Contract to be signed with the LCEC. The Joint Venture shall be comply with all laws and regulations relevant to the establishment and operation of joint ventures in Lebanon and shall be certified by the relevant public notary.

2. LIABILITY

- 2.1 Notwithstanding any other conditions contained in this joint venture agreement or in any other agreement between the Parties, each of the Parties hereby commits itself to the jointly and severally liable towards the LCEC as well as towards any and all co-contractors and/or subcontractors for the proper execution of all obligations of the Joint Venture in relation to the Contract to be signed with the LCEC for the execution of the Project.
- 2.2 The Parties shall keep each other, both during and after the term of this joint venture agreement, fully indemnified against all losses and damages resulting from gross negligence or breach of contract of one party or their personnel or agents in relation to this agreement as well as to all contracts to be executed by the Joint Venture.

3. REPRESENTATION

For the purpose of this joint venture agreement, the Joint Venture shall be represented by the first party hereto _____ who is hereby authorized by the second party to act on behalf of the Parties of this Joint Venture in all matters related to the submission of the Tender, the negotiation and signing of the Contract with the LCEC, the execution of the Project, including but not limited to the invoicing and receipt of payments, the execution of subcontractors, the incurring of liabilities and receipt of instructions on behalf of all partners of the Joint Venture in relation to the Contract with LCEC during the entire execution period of the said Contract.

[Note: the level of authority delegated to the leading party must be determined by the JV Partners. If restrictions apply, supplementary "powers of attorney" must be provided to the leading partner prior to signing of the Contract.]

The Parties shall keep the LCEC informed at all times of all details concerning the Joint Venture and its authorized representatives.

4. REVENUE DISTRIBUTION

The total payments to the joint venture shall be distributed between the Parties according to the following proportions:

First Party _____ %

Second Party _____ %

_____ %

The local taxes calculation shall be based on the above mentioned percentages.

5. EXCLUSIVITY

The Parties shall exclusively work together in connection with the Project. Each party hereto agrees that it has no interest whatsoever directly or indirectly, in any other proposal which may be submitted to the LCEC with respect to the execution of the Project.

6. OBLIGATION TO TENDER

The Parties shall fill in and submit to the LCEC their relevant prequalification file documents, and if jointly qualified, they shall tender for the Project as a Joint Venture. If the Contract for the Execution of the Project is awarded to the Joint Venture, they shall jointly execute the Project under their joint and several responsibilities in accordance with the applicable terms and conditions of contract.

7. DURATION

7.1 This joint venture agreement shall enter in to force and effect as of the date first written above.

7.2 This joint venture agreement shall expire if the Joint Venture's tender is rejected or in case the Contract is awarded to another bidder.

7.3 In case the Contract is awarded to the Joint Venture, this joint venture agreement shall remain in force until all obligations of the Parties under the Contract have been fulfilled and each of the Parties has honored its obligations towards the other.

8. RIGHTS OF LCEC

All rights stipulated in this joint venture agreement in favor of the LCEC SHALL BE HONORED BY THE Parties as if the LCEC were a direct beneficiary of this agreement. Consequently, the Parties hereto acknowledge the right of the LCEC to act directly on the basis of this agreement against all or any of the Parties hereof.

9. SETTLEMENT OF DISPUTES

The parties shall use their best efforts to settle amicably arising out of or in connection with this joint venture or the interpretation thereof.

[Note: choose one of the alternatives and delete the rest]

Alternative 1: Any dispute between the Parties as to the matters arising pursuant to this agreement which cannot be settled amicably within (30) days after receipt by one party of the other party's request for such amicable settlement may be submitted by either party to the competent Court in the Republic of Lebanon. Lebanese law shall apply to the interpretation of this agreement.

Alternative 2: Any dispute between the Parties as to the matters arising pursuant to this agreement which cannot be settled amicably within thirty (30) days after receipt by one party of the other party's request for such amicable settlement may be submitted by either party to arbitration for final settlement in accordance with the procedures applicable under the Laws of the Republic of Lebanon.

Alternative 3: Any dispute between the Parties as to the matters arising pursuant to this agreement which cannot be settled amicably within thirty (30) days after receipt by one party of the other party's request for such amicable settlement shall be finally settled by either party under the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with the said Rules.

Alternative 4 Any other alternative of JV Partners acceptable to CDR

The Parties hereto have caused this agreement to be executed in three copies, one for each party and one for the LCEC, by their duly authorized officers on the date first above written

FOR AND ON BEHALF OF

FOR AND ON BEHALF OF

FIRST PARTY

SECOND PARTY

NAME:

NAME:

TITLE:

TITLE:

SIGNATURE:

SIGNATURE:

STAMP:

STAMP:

Form 3 - Applicant(s) Information Form

Applicant Information Form

[Name of Applicant]

[All individual firms and each partner of a Joint Venture applying for the project are requested to complete the information in this form, separately]

Applicant's name:	<i>[insert full name]</i>
In case of Joint Venture (JV), name of each member:	<i>[insert full name of each member in JV]</i>
Applicant's actual or intended country of registration:	<i>[indicate country of Constitution]</i>
Applicant's actual or intended year of incorporation:	<i>[indicate year of Constitution]</i>
Applicant's legal address [in country of registration]:	<i>[insert street/ number/ town or city/ country]</i>
Applicant's authorized representative information	
Name:	<i>[insert full name]</i>
Address:	<i>[insert street/ number/town or city/country]</i>
Telephone/Fax numbers:	<i>[insert telephone/fax numbers, including country and city codes]</i>
E-mail address:	<i>[indicate e-mail address]</i>

Attached are copies of original documents of articles of incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above.

Form 4 - Sub-Contractor(s) Information Form

Sub-Contractor Information Form

[Name of Sub-contractor]

[The following form shall be completed to provide information relating to any specialized sub-contractor proposed to be used by the applicant]

Sub-contractor's name:	<i>[insert full name]</i>
Sub-contractor's actual country of registration:	<i>[indicate country of Constitution]</i>
Sub-contractor's actual or intended year of incorporation:	<i>[indicate year of Constitution]</i>
Sub-contractor's legal address [in country of registration]:	<i>[insert street/ number/ town or city/ country]</i>
Sub-contractor's authorized representative information	<i>[insert full name]</i>
Name:	<i>[insert street/ number/ town or city/ country]</i>
Address:	<i>[insert telephone/fax numbers, including country and city codes]</i>
Telephone/Fax numbers:	
E-mail address:	<i>[indicate e-mail address]</i>

Attached are copies of original documents of articles of incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above.

Form 5 – Performance Security

PERFORMANCE SECURITY – BANK GUARANTEE FOR GOOD PERFORMANCE OF WORK

Tenderers are to submit confirmation that a Performance Bank guarantee will be provided in the terms described in the RFP. The actual Bank Guarantee shall be executed at contract award.

Brief description of Contract: the Contract concerns the “Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon”

PERFORMANCE BANK GUARANTEE (UNCONDITIONAL)

To: The Lebanese Center for Energy Conservation (LCEC)
Ministry of Energy and Water Building, Corniche du Fleuve
1st Floor, Room 303
Beirut, Lebanon

Gentlemen,

WHEREAS,(name and address of Contractor), hereinafter called “the Contractor”) has undertaken in pursuance of Contract No.datedto execute (name of project) hereinafter called “the Contract”);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with an unconditional an irrevocable Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor up to a total of (in words) such sum being payable in the types and proportions of currencies in which the Contract Price is payable,

and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of (amount of Guarantee in the currency(ies) specified) (in words) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed hereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the date of issue of the Defects Liability Certificate by the Employer. In any case defect liability period shall not extend beyond four years from the date of taking over.

SIGNATURE AND SEAL OF THE GUARANTOR,

Name of the Bank,

Address

Date

Form 6 - Financial Situation and Performance

[The following table shall be filled by the bidder and by each member of a Joint Venture]

Applicant's Name	<i>[insert full name]</i>
Applicant's Party Name	<i>[insert full name]</i>

Financial Data

Type of Financial information in (Euros)	Historic information for previous 3 years, (amount in Euros)		
	<i>[Specify Year 1]</i>	<i>[Specify Year 2]</i>	<i>[Specify Year 3]</i>
Statement of Financial Position (Information from Balance Sheet)			
Total Assets (TA)			
Total Liabilities (TL)			
Total Equity/Net Worth (NW)			
Current Assets (CA)			
Current Liabilities (CL)			
Working Capital (WC)			
Information from Income Statement			
Total Revenue (TR)			
Revenue from solar energy			
Profits Before Taxes (PBT)			
Cash Flow Information			
Cash Flow from Operating Activities			

[The Applicant and its parties shall provide copies of financial statements for the last 3 years. The financial statements shall: (a) reflect the financial situation of the Applicant (or parent) or in case of JV the members, (b) be independently audited or certified in accordance with local legislation, (c) be complete, including all notes to the financial statements, (d) correspond to accounting periods already completed and audited]

Form 7 – Letter of Commitment of Consortium

To: Lebanese Center for Energy Conservation

Beirut

Corniche du Fleuve

We, the undersigned, submit this proposal and declare that:

We have examined, have no reservations and commit to the most recent version of the RFP for Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon composed of 46 pages' document and all its addendums;

Signed *[insert signature(s) of an authorized representative(s) of the Applicant]*

Name *[insert full name of person signing the Application]*

In the capacity of *[insert capacity of person signing the Application]*

Duly authorized to sign the Application for and on behalf of: Applicant's Name *[insert full name of Applicant or the name of the JV]*

Address *[insert street number/town or city/country address]*

Dated on *[insert day number]* day of *[insert month]*, *[insert year]*

[Either all members of the JV shall sign or only the authorized representative, in which case the power of attorney to sign on behalf of all members shall be attached]

Form 8 – Concentrated Solar Power Experience

Applicant's/Joint Venture Member's Name:	<i>[insert full name]</i>
Applicant JV Party Name:	<i>[insert full name]</i>

[The following table shall be filled in for the main applicant and in the case of a JV applicant, each member]

[Identify contracts that demonstrate continuous concentrated solar power energy work Starting January 2012. List contracts chronologically, according to their commencement (starting) dates.]

Starting Year	Ending Year	Contract Identification	Role of Applicant
<i>[indicate year]</i>	<i>[indicate year]</i>	Contract name: <i>[insert full name]</i> Solar station size (MW): Contract amount (€): Award date: Completion date: Brief Description of the Works performed by the Applicant: <i>[describe works performed briefly]</i> Name of Employer: <i>[indicate full name]</i> Address: <i>[indicate street/number/town or city/country]</i> Contact Person Name & Details: <i>[name, phone, email]</i>	<i>[insert "Prime Consultant" or "JV Member" or "Sub-consultant" or other role]</i>
<i>[indicate year]</i>	<i>[indicate year]</i>	Contract name: <i>[insert full name]</i> Solar station size (MW): Contract amount (€): Award date: Completion date: Brief Description of the Works performed by the Applicant: <i>[describe works performed briefly]</i> Name of Employer: <i>[indicate full name]</i> Address: <i>[indicate street/number/town or city/country]</i> Contact Person Name & Details: <i>[name, phone, email]</i>	<i>[insert "Prime Consultant" or "JV Member" or "Sub-consultant" or other role]</i>

<i>[indicate year]</i>	<i>[indicate year]</i>	Contract name: [insert full name] Solar station size (MW): Contract amount (€): Award date: Completion date: Brief Description of the Works performed by the Applicant: [describe works performed briefly] Name of Employer: [indicate full name] Address: [indicate street/number/town or city/country] Contact Person Name & Details: [name, phone, email]	<i>[insert "Prime Consultant" or "JV Member" or "Sub-consultant" or other role]</i>
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[Add rows, if necessary]

Form 9 - Team Composition and Task Assignments

1. Team Leader and Renewable Energy Engineer

Name	Phone number	Email

2. Electrical Engineer

Name	Phone number	Email

3. Institutional Expert

Name	Phone number	Email

4. Environmental and Social Specialist

Name	Phone number	Email

5. Financial and Economic Expert

Name	Phone number	Email

Form 10- CVs of Key Experts

[Use this standard format for specifying the name of each key expert. The CV of the key expert must be attached separately.]

Team Leader and Renewable Energy Engineer	
Person name:	
Title in the project:	
Affiliation:	
Experience	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	

Electrical Engineer	
Person name:	
Title in the project:	
Affiliation:	
Experience	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	

Institutional Expert	
Person name:	
Title in the project:	
Affiliation:	
Experience	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	

Environmental and Social Specialist	
Person name:	
Title in the project:	
Affiliation:	
Experience	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	

Financial and Economic Expert	
Person name:	
Title in the project:	
Affiliation:	
Experience	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	

Form 11 - CVs of Team Members

[Use this standard format for specifying names of key people that constitute the team. CV's of the team members must be attached separately.]

[If the bidder intends to subcontract any of the key activities, then the subcontractor name shall be clearly identified in the Affiliation, and attach a letter of support from the subcontractor stating the name of the project and personnel provided. Add more rows if necessary.]

CSP Consultancy Services	
Person name:	
Title in the project:	
Affiliation:	
Experience	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	
Date range:	
Project name:	
Role:	

[Add tables as needed]

Form 12 – Letter of Commitment of Key Experts

To: Lebanese Center for Energy Conservation

Beirut

Corniche du Fleuve

I, the undersigned, acting as *[key expert]* declare that:

I am committed to the consultancy services company *[Insert Name of Company]* during the entire period of the project entitled “Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon”, and will not be a part of any other submittal with any other company to this bid.

Signed *[insert signature of key expert]*

Name *[insert full name of key expert]*

Address *[insert street number/town or city/country address]*

Dated on *[insert day number]* day of *[insert month]*, *[insert year]*

Form 13 – Financial Form

[This list is to be filled only with the man-days in the operational and technical proposal folder and should include the price only in the financial offer envelope]

<i>Milestone</i>	<i>Man-days (breakdown per expert)</i>	<i>Pricing (in Euros)</i>
Current status of the national electricity grid and current and planned investments in (renewable) energy generation and electricity distribution and transmission		
Assessment of the most cost-effective CSP option for Lebanon		
Analysis of the most suitable location for CSP plant installation in the Hermel region		
Environmental and Social Impact Assessment (ESIA)		
Financial analysis of a selected CSP type in the Hermel region		
Social/economic cost-benefit analysis of a selected CSP type in the Hermel region		
Identification of potential donors and other private investment options		
Description of other potential renewable energy sources		
Tender documents for detailed design of the system and construction and implementation of the project		
Total		

[Add rows to include all milestones that the consultant deems necessary]

[The more detailed the list of milestones is, the better]

N. Appendices

1. Climatic Zoning 2005
2. Technical Specifications Book

Appendix 1. Climatic Zoning 2005

Month	Average Daily Global Horizontal Irradiation (Wh/m ²)
Zone	Inland
January	2522.2
February	3282.2
March	4861.2
April	5979.5
May	6837.6
June	7211.3
July	7037.5
August	6405.2
September	5466.1
October	3828.4
November	2765.4
December	2241.2
Average	4877.6

Additional climatic data for Inland Zone can be found in the Climatic Zoning for Buildings in Lebanon (2005) developed by the United Nations Development Programme (UNDP) and the Ministry of Public Works and Transportation- General Directorate of Urban Planning.

Appendix 2. Technical Specifications Book for the Request for Proposal (RFP) for Consultancy Services for the Development of a Concentrated Solar Power (CSP) Plant in Hermel Lebanon

Prepared by the Lebanese Center for Energy Conservation (LCEC)

October 2019

Beirut, Lebanon

The Lebanese Center for Energy Conservation (LCEC) reserves the right to request additional information to be added to the RFP.

Should any company interested in submitting a proposal fail to provide its contact details to the LCEC, the LCEC shall not be responsible if such company fails to receive any updates to this document or clarifications relating thereto.

The enclosed technical specifications book is prepared by the Lebanese Center for Energy Conservation (LCEC).

October 219 - Beirut, Lebanon

Technical Specifications Book for the Request for Proposal (RFP) for
Consultancy Services for the Development of a Concentrated Solar
Power (CSP) Plant in Hermel Lebanon

Table of Contents

A. Abbreviations	74
B. Introduction	75
C. Context.....	77
D. The infrastructural project	83
E. Background.....	85
F. Scope	88
G. Phase I.....	91
H. Phase II	102
I. Deliverables, timeframe and location	105
J. Profile of the consultancy team.....	108
K. Form of contract and payment structure	110
Annexes	111

A. Abbreviations

CD	Compact Disk
CSP	Concentrated Solar Power
D2B	Develop to Build Project
DNI	Direct Normal Irradiation
EDL	Electricité du Liban
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plans
GoL	Government of Lebanon
LCEC	Lebanese Center for Energy Conservation
MEW	Ministry of Energy and Water
MW	Megawatt
NCEA	The Netherlands Commission for Environmental Assessment
NREAP	National Renewable Energy Action Plan
PPA	Power Purchase Agreement
PV	Photovoltaic
RFP	Request for Proposal
RVO	Netherlands Enterprise Agency
URL	Uniform Resource Locator

B. Introduction

1. The Government of Lebanon (GoL) has applied for a Develop2Build (D2B) grant from the Netherlands Enterprise Agency (RVO) to assess the feasibility of installing and operating a Concentrated Solar Power (CSP) plant in the Hermel Region in Lebanon (D2B18L801).
2. Lebanon faces a gap between electricity supply and demand of 3,478 GWh in 2009. According to the Lebanese Center for Energy Conservation (LCEC), this gap is as much as 6,132 GWh in 2018 (based on an annual gap of 1GW). Although the country has a nationwide access to electricity of 100% since 2012, the gap results in daily power shortages. The Policy Paper for the Electricity Sector of 2010 mentions that the supply of energy averaged 21.2 hours for greater Beirut area to 15.89 hours for the southern region, the country average is 18 hours (75%) of electricity supplied per day. The electricity shortages are caused by multiple reasons, including the inflow of 1.5 million Syrian refugees causing an increase in demand, 40-50% (non)technical losses in the transmission and distribution system and inefficiencies of power generation due to old and poorly maintained power plants.
3. The daily electricity shortages are causing an annual deficit of USD 1.5 billion dollars on the public purse, while losses on the national economy are estimated at at least USD 2.5 billion dollars per year (LCEC, 2009).
4. Lebanon still relies heavily on fossil fuels. In 2009, the electricity generation accounted for 53.9% of the total oil imports. With global oil and gas prices rising, this puts further pressure on national expenses. Moreover, The National Renewable Energy Action Plan of Lebanon 2016-2020 has set a target of reaching renewable energy generation of 72% of total energy generation by 2020 and 30% by 2030. However, World Bank data on renewable electricity output and total electricity output shows that the share of renewable energy in Lebanon decreased from over 7% in 2013 to less than 3% in 2015. Hence, there is a need to replace old power plants by modern, sustainable and efficient power plants.
5. The main objectives of this project are to increase national energy supply and to increase the share of renewable energy. It is also required to generate electricity from renewable sources with storage facilities that are able to supply electricity on a continuous basis; comparable to a conventional thermal power plant. Within the context of these objectives, the project aims to construct a 50 MW CSP plant in the Hermel Kaa region in Northern Lebanon. The development of a CSP plant can fulfill the requirement of a renewable energy source with continuous electricity generation. Moreover, it is in line with the National Renewable Energy Action Plan (NREAP) of Lebanon 2016-2020, which explicitly mentions the development of this power plant.

6. The GoL intends to contract a consulting company (or a consortium of consulting companies) to undertake the necessary preparatory studies to develop the project. The Lebanese Center for Energy Conservation (LCEC) under the Ministry of Energy and Water (MEW) is the Executing Agency for this project. The preparatory studies will be undertaken in order to provide sufficient information regarding the scope, needs, design, costs, potential social and environmental impacts, potential funding sources and financial & socio-economic sustainability of the project. This information is needed for potential donors and private entities for financing the project implementation.
7. The document at hand covers the preparatory studies for the CSP plant in Hermel Lebanon: feasibility study including demand/supply gap analysis, technical-, financial-, and economic aspects, capacity development assessment and an Environmental and Social Impact Assessment (ESIA) as well as potential funding options and tender documents for detailed design and implementation of the project.

C. Context

8. Lebanon is facing daily electricity shortages due to a lack of sufficient supply among other reasons. One part of the solution to close the electricity supply/demand gap is to construct new and efficient power plants. In addition, Lebanon has set a target to reach 12% of renewable energy in the Lebanese energy mix by 2020 and to reach 30% by 2030. This target is confirmed in the National Renewable Energy Action Plan (NREAP, 2016-2020) and is formulated as follows: “the amount of energy produced by renewable energy sources in 2020 should be equal to 12% (and 30% in 2030) of the total amount of energy needed for electricity and heating demand in the country”.
9. In the context of additional and renewable energy supplies, the NREAP details 3 scenarios of implementation: pessimistic, realistic and optimistic. The following table shows amounts and sources of renewable energy generation what is considered the "realistic scenario" for 2020.

Realistic scenario NREAP	2020	
Renewable Energy source	Electricity Generation (MW)	Electricity Generation (GWh)
Wind	200	595.7
Concentrated Photovoltaics	150	240.0
Distributed PV panels	100	160.0
Concentrated Solar Power Plant	50	170.6
Solar Water Heating	1,053,988 m ²	685.5
Hydro Energy	331.5	961.9
Geothermal Energy	1.3	6.0
Bio-generated Energy	-	771.5
Total Renewable Energy		3,591.0
Total Primary Energy Demand		29,587.7
Target Renewable Energy (in %)		12.1%

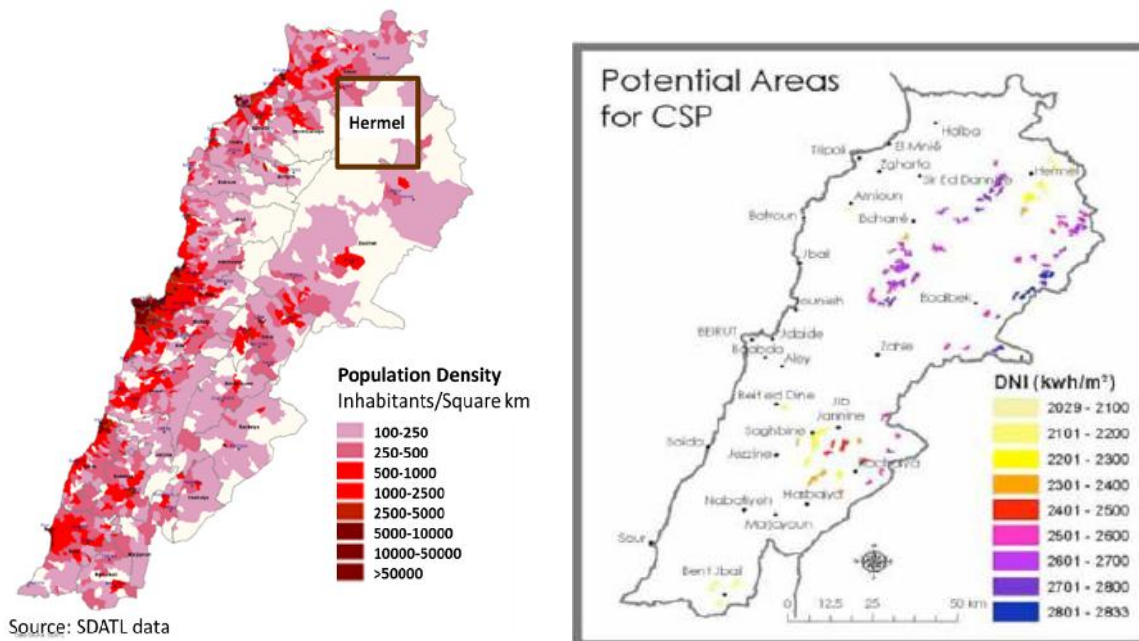
10. The above mentioned measures are expected to generate a total of 3,591 GWh by 2020. To date, not all measures have been implemented yet. In March 2018, the Ministry of Energy and Water (MEW) launched a new call to the private sector to participate in the construction of hydroelectricity power plants with an installed capacity of 300 MW. For wind and solar PV expansion, the implementation is currently in the planning stage and a 200 MW wind project is to be implemented after 2020. The development of Concentrated Solar Power (CSP) plant needs to undergo a feasibility assessment prior to implementation.

11. Given the Lebanese need for increasing the national electricity supply and the current low share (far below the target of 12%) of renewable energy sources², the development of renewable energy systems and power plants is urgently required. Lebanon has almost 300 sunny days per year, with average daily solar insolation of 4.8 kWh/m² (source: El-Jamal et al., 2015). The table below shows the number of days with sunshine per month (source: meteoblue.com).

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Days with sunshine	18	17	21	24	28	30	31	31	20	27	20	18

12. Given the high number of solar hours and large exposure to direct normal irradiance, Lebanon has great potential to develop energy from sunlight. Energy generation from sunlight can be achieved through PV panels, concentrated photovoltaics, direct heating of water through sunlight and by Concentrated Solar Power (CSP) power plants. CSP is regarded as an interesting technique due to the storage possibilities and capacity to generate electricity during night-time. It thus continuously supplies energy to the national grid and is less dependent on direct solar irradiance compared to other solar power techniques.
13. One of the high-potential areas for solar energy such as CSP in Lebanon, is the Hermel region. Hermel is located in Northern Lebanon bordering Syria and is inhabited by 48,000 people. The region is characterized by semi-arid land and is a district with the least number of inhabitants per square kilometer (66 inhabitants/km²). The large strips of inhabited land that have a slope less than 3 degrees and year-round abundant sunshine with Direct Normal Irradiation levels (DNI 2,100 kWh/m²/year) offers good conditions for a CSP plant. Moreover, Hermel contains a river that can supply the CSP plant with required cooling water.

² According to World Bank data on renewable electricity output and total electricity output, the share of renewable energy decreased from over 7% in 2013 to less than 3% in 2015.



14. Goods/materials for the CSP plant need to be transported from the capital city Beirut. The distance to travel from Beirut to Hermel is approximately 140 km by road. The travel time may however take-up a couple of hours due to bad road conditions.
15. Electricity of Lebanon (EDL-Electricité du Liban) is a public institution under the Ministry of Energy and Water (MEW) and is responsible for electricity generation, transmission and distribution from all energy sources. The electricity sector in Lebanon is for 90% controlled by EDL. Other participants in the energy sector include hydroelectric power plants owned by the Litani River Authority (public company), while concessions for hydroelectric power plants are owned by Nahr Ibrahim and Al Bared (private companies). These companies sell their produced electricity to EDL.
16. The majority of produced electricity in Lebanon originates from thermal power plants (installed capacity of 2,764 MW) and hydro power plants (installed capacity of 274 MW) in 2009. The energy produced from these plants is 88% of the total production in 2009. The fuel cost for operating power plants vary widely from 9 USDc/kWh to 22 USDc/kWh. In addition, Lebanon purchases energy from Syria (589 GWh) and Egypt (527 GWh) which constitutes 7.5% of total energy production.
17. The main EDL transmission network consists of high voltage power lines including 66, 150,220, and 400 kV lines through both over-head power lines and underground cables (see figure below). EDL has 68 major power substations for converting power from high voltage to medium voltage. The network is connected to all parts of the country and Lebanon has an electricity coverage rate of nearly 100% since 2012.

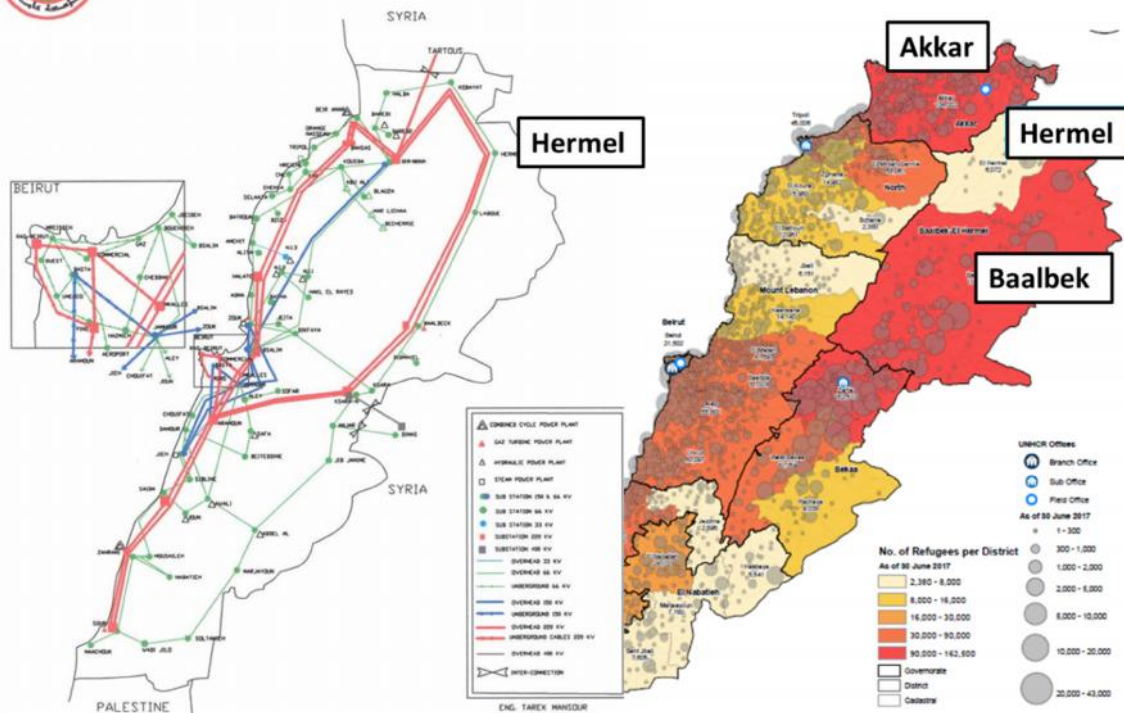


REPUBLIQUE LIBANAISE ELECTRICITE DU LIBAN

400-220-150-66-33 kV NETWORK



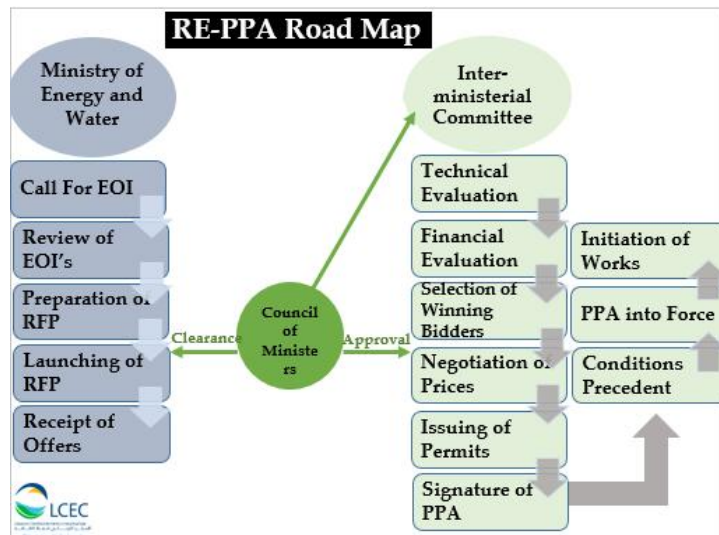
SYRIA REFUGEE RESPONSE
LEBANON Syrian Refugees Registered
30 June 2017



18. Hermel is connected to the 220 kV and 66 kV transmission network which makes it possible to connect a CSP plant located in this region to the national grid. Total losses on the distribution system are about 40% (more than USD 300 million), in part due to technical losses (15%), non-technical losses (20%) and uncollected bills (5%). Non-technical losses are attributed to either electricity consumed through illegal connections, meter manipulations, or electricity consumed without being billed due to shortcomings in the billing system. The arrears and uncollected bills represent a value of more than USD 1.3 billion, of which 75% can be attributed to the private sector and 25% to the public sector, frontier villages and Palestinian camps.
19. The average cost of electricity in 2009, including EDL's fixed costs, was 0.1714 USD/kWh (255 LBP), of which 0.1077 USD/kWh represents fuel costs and 0.0637 USD/kWh represents costs for generation, transmission and distribution. The cost of fuel fluctuates depending on international oil and gas prices. The energy charge for low voltage residential customers varies from 0.023 USD/kWh (LBP 35) to 0.13 USD/kWh (LBP 200) in blocks of 100 kWh. In addition, customers pay a monthly subscription fee of USD 0.80/5A and a rehabilitation fee of USD 3.30-6.60 per month. The industrial tariffs are based on operating hours (day/night, winter/summer) and vary between 0,053 USD/kWh (LBP 80) and 0.21 USD/kWh (LBP 320). Hence, electricity is highly subsidized large for both small and large users. Current tariffs (valid since 2018) are not adequate to cover the aforementioned 2009 costs of energy generation, transmission and distribution, not to mention current (2018, probably

significantly higher) generation, transmission and distribution costs (compared to 2009). Penalties are given in case electricity bills are not paid.

20. In case of electricity shortages from the national grid, people may use external generators. Customers typically pay a lump sum for a subscription which varies depending on the region and the cut-off hours. A usual generator subscription would be USD 100 per 5A per month.
21. According to the national law, EDL is the exclusive authority responsible for the generation, transmission, and distribution. However, the energy laws on electricity regulation do not allow private electricity generation. However, laws 462 and 288 regulating the electricity sector do allow private electricity generation. Law 462 was passed in 2002 but is still not ratified. This law organizes the electricity sector in Lebanon and allows participation of the private sector in electricity generation. Law 288/2015 is an amendment of law 462 that states: "Provisionally and for a period of two years, until the appointment of the Regulatory Authority members, electricity production licenses are granted by a decision of the GoL upon the proposal of the Ministry of Energy and water and Ministry of Finance." It is renewed every two years.
22. Due to high investments associated with installment of renewable power plants, the GoL approved the introduction of PPA schemes. PPA is the power purchase agreement scheme adopted for renewable energy projects where the private sector is responsible of building, maintaining, operating and commissioning a renewable energy power plant. The government will purchase the generated electricity based on a fixed price for 20-25 years.
23. On 1 February 2018, the first PPA was signed for a 200 MW wind project. So far, three private companies in Akkar have received permits to build wind farms in this northern region of Lebanon to generate 200 MW in total. These companies are Hawa Akkar, Lebanon wind power, and Sustainable Akkar.
24. An overview of the PPA procedure in Lebanon is presented below:



D.The infrastructural project

25. Given the need for increasing energy supply through renewable energy sources in Lebanon, the project intends to construct and to operate a Concentrated Solar Power (CSP) plant in the Hermel region. The overall objective of this infrastructural project is to contribute to reducing the nationwide gap between electricity supply and demand and to contribute to an increase in the share of renewable energy by 12% in 2020 and by 30% in 2030. Moreover, the objective is to install a renewable energy source with storage capacity to supply electricity on a continuous basis. In this context, CSP is regarded as a promising option according to the National Renewable Energy Action Plan.
26. The specific project objective is to construct and to operate a CSP plant to generate 170.6 GWh per year on a continuous basis in the Hermel region in Lebanon.
27. This will be pursued by:
-) Assessing the most suitable location in the Hermel region for the construction of a CSP plant;
 -) Assessing the capacity and availability of the national grid, including losses during transmission and distribution;
 -) Construction of a CSP plant of 50 MW with 7.5 hours of storage capacity;
 -) Operation and connection the CSP plant to the national grid.
28. The Consultant shall first identify suitable location(s) for installation and operating a CSP plant in the Hermel region based on conditions of the land, DNI, infrastructural conditions, and the availability of national power lines, among other parameters that the Consultant considers relevant. The Consultant shall also assess the status of the national grid, including losses of the network, to identify suitable connection point(s) to the grid. The CSP plant of 50 MW should have sufficient storage capacity (estimated approximately 7.5 hours) to generate electricity on a continuous basis including nighttime and days with reduced sunlight. The Consultant is also required to assess the operating and maintenance requirements of CSP plants and the accompanying required capacities.
29. The table below provides a synopsis of the infrastructural project's provisional logical framework.

	Description	Indicator	Target
Impact	Reduced greenhouse gas emission from electricity generation	CO2 emission reduction in kilotons per year compared to Business-As-Usual	110
	Improved national production due to reduced electricity shortages	Improvements in business generation	qualitative
Outcome	Reduced gap in electricity demand and supply	Hours of daily electricity shortages reduction compared to Business-As-Usual	t.b.d.
	Share of renewable energy in Lebanon increased	Percentage of renewable energy from total energy generation in Lebanon due to the CSP plant	t.b.d
Output	CSP plant constructed on suitable location in Hermel	Capacity in MW	50 MW with 170.6 GWh/year
	CSP properly maintained and operationalized	Number of people with required capacity to maintain and operate a SCP plant	t.b.d
		Hours of electricity production per day	24 hours/day
Input	Project budget, field visits, desk studies, interviews, etc.		

E. Background

30. In 2018, Lebanon had an actual installed capacity of around 65.5% of the power demand in the country noting that the yearly increase in electricity demand is around 3%³. This makes the energy sector one of the most challenging to the Government of Lebanon, making energy efficiency solutions essential to overcome the energy sector's problems.
31. The Government of Lebanon is keen to overcome the problems of the electricity sector in order to meet the expected economic growth that would provide considerable social and economic benefits, and reach the target of 12% from renewable energy by 2020. This target is only achievable through the utilization of renewable energy power plants and specifically solar technologies in a country that has an estimation of 300 sunny days per year.
32. In June 2010, the Policy Paper for the Electricity Sector that was presented by the Ministry of Energy and Water (MEW) to the Council of Ministers set a target of increasing installed production capacity through an arrangement of actions including thermal as well as renewable energy power plants.
33. In November 2011, the Council of Ministers approved the National Energy Efficiency Action Plan (NEEAP) 2011-2015, prepared by the Lebanese Center for Energy Conservation (LCEC) and presented by the MEW. Initiative 7 of the NEEAP 2011-2015 is about "Electricity Generation from Solar Energy", with the objective to "start the development and promote the generation of electricity from solar PV and CSP stations".
34. In January 2017, The MEW launched the National Renewable Energy Action Plan (NREAP) 2016-2020. The NREAP 2016-2020 includes a specific chapter for concentrated solar power generation with a realistic target of 50 MW and an optimistic target of 100 MW, both with 7.5 hours of storage.
35. An in-kind contribution of 580 kEuros will be used by the Netherlands Enterprise Agency (RVO) to develop a full CSP feasibility study in Hermel region. The grant arrangement
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³ Updated policy paper for the electricity sector, Ministry of Energy and Water, March 2019

signed on July 2, 2019 has marked the start of the cooperation between the Netherlands Enterprise Agency (RVO) and the Lebanese Center for Energy Conservation (LCEC).

36. This project is called “Consultancy Services for the Development of a Concentrated Solar Power Plant in Hermel Lebanon”. It targets the feasibility study of a CSP plant in Hermel, Lebanon.
37. The project will be under the supervision and management of the LCEC, and in close coordination with Lebanon’s national electric utility Electricité du Liban (EDL).
38. The studies will be undertaken in two phases. Phase I consists of the development of the Feasibility Study and an Environmental and Social Impact Assessment (ESIA) scoping. Based upon the outcomes of this feasibility study a go/no go decision will be taken by the Netherlands Enterprise Agency (RVO).
39. In case of a favorable outcome, the same contracted consulting company will subsequently continue in Phase II with the final ESIA as well as preparation of tender documentation. In case of an unfavorable decision (i.e. a no go) the project will be stopped at once. In that case the contract of the selected consulting company would end as well.
40. The expected duration of the project is 14 months starting the date of the contract signature with the consultant.
41. The financing for the project is completely available to the LCEC through funding by the Dutch Ministry of Foreign Affairs under the grant facility Develop2Build (D2B).
42. The disbursement schedule which shows the financial impact of such an event in terms of payments to the consultant is detailed in the annex. The disbursement is set in euros.
43. The consultant submits the invoices to the LCEC, including the documentation described in the conditions of the disbursement schedule.
44. The LCEC will send the invoice(s) and the required documents to RVO.
45. Payment by RVO will be made directly to the Consultant on behalf of LCEC to the extent and on the conditions described in the disbursement schedule.

46. Before contract award, LCEC submits the final contract with its payment schedule for a Statement of No Objection by RVO. Subsequently, RVO may unilaterally revise the disbursement schedule of this project in accordance with the payment schedule.
47. RVO is unilaterally and unconditionally qualified to adjust the disbursement schedule.
48. RVO can issue a Statement of no objection and release the final disbursement after a Statement of acceptance is received from LCEC on the D2B-project deliverables.
49. RVO may reduce the Grant amounts according to the outcome of the procurement process and the implementation of the contracts.
50. Final payments are determined by RVO upon actual expenditure of eligible project costs.
51. Funds which RVO has placed at the project's disposal and which are left unspent after completion of the D2B-project will be returned to RVO immediately and unconditionally.
52. The consultant will supply during and after implementation of the D2B-project accurate, detailed and complete information to the LCEC regarding the project.
53. At no cost to the LCEC and RVO, the consultant will acknowledge RVO 's funding in publications, advertising, speeches, lectures, interviews, press releases and other similar activities, ensuring the appropriateness and accuracy of any messages.
54. RVO and LCEC may, or may instruct others to, inspect or audit the activities carried out in respect of the project including the consultant's financial reports and financial accounts and/or the periodic reports described in the provisions above.
55. The consultant will render every assistance to the official(s) appointed by the RVO and LCEC to carry out such inspection and will allow them access to any documents related to this project. The costs of any such inspection or audit will be borne by RVO.

F. Scope

In general terms the present study shall encompass the tasks summarized below. The task list proposed is non-exhaustive and shall be considered by the bidders as indicative. The bidders are expected to critically analyze and comment the tasks according to their own appreciation of the nature, number and sequencing of the activities and to develop their proposal respectively.

The studies will be undertaken in two phases. Phase I consists of the development of the Feasibility Study and an ESIA scoping. Based upon the outcomes of this feasibility study a **go/no go decision** will be taken by the Netherlands Enterprise Agency (RVO) regarding the Develop to Build (D2B) project as a whole.

In case of a favorable outcome, the same contracted consulting company will subsequently continue in Phase II with the final ESIA as well as preparation of tender documentation. In case of an unfavorable decision (i.e. a no go) the project will be stopped at once. In that case the contract of the selected consulting company would end as well. The disbursement schedule in chapter g shows the financial impact of such an event in terms of payments to the consultant.

The consultant shall study as per the requirements of this technical specifications book, the feasibility of at least 50 MW CSP plant in Hermel, Lebanon, to complement the current electricity generation from EDL. The assignment shall comprise the elaboration of the studies and documents mentioned here below:

-) Current status of the national electricity grid and current and planned investments in (renewable) energy generation and electricity distribution and transmission;
-) Assessment of the most cost-effective CSP option for Lebanon;
-) Analysis of the most suitable location for CSP plant installation in the Hermel region;
-) Environmental and Social Impact Assessment (ESIA);
-) Financial analysis of a selected CSP type in the Hermel region;
-) Social/economic cost-benefit analysis of a selected CSP type in the Hermel region;
-) Identification of potential donors and other private investment options;
-) Description of other potential renewable energy sources;
-) Tender documents for detailed design of the system and construction and implementation of the project.

The key research questions for the feasibility study are:

- J Is a CSP plant required to partly reduce the electricity demand and supply gap and to reach the target of 12 % renewable energy of the Lebanese energy mix in 2020 and 30% of the total electricity consumed in 2030:
 - e- How large is the recent gap between electricity demand and supply in Lebanon;
 - f- What are the most recent and planned developments in electricity generation, transmission and distribution;
 - g- How large are the current technical and non-technical transmission and distribution losses;
 - h- What are recent developments in renewable energy generation and to what extent does CSP contribute to the share of renewable energy generation in Lebanon.
- J What is the most suitable location for a CSP plant in the Hermel region;
- J What is the most cost-effective CSP plant option with a capacity of at least 50 MW and 7.5 hours of storage for Lebanon;
- J Is the development of the most cost-effective plant option technically, financially, environmentally and socially feasible in Lebanon and are sufficient funding options available for the required investments;
- J Which other renewable energy generation options with comparable storage facilities are possible in case CSP is not feasible;
- J If the project is feasible, what is the most appropriate design and connection option to the national grid and how should this be maintained

In addition to the feasibility study that considers the technical, financial and socio-economic aspects of the project, an environmental and social impact assessment (ESIA) is needed to identify and manage the environmental and social project risks. This ESIA is required to meet the IFC / World Bank performance standards and the regulations of the Ministry of Environment and the Ministry of Energy and Water in Lebanon.

It should be noted that the development of a CSP plant goes beyond the system alone. The final design should also include necessary infrastructural measures to connect the CSP to the national grid. However, potential investments to the national grid itself are excluded. The design of the CSP shall consider a horizon of 25 years from the date of commissioning of the system, although the CSP plant is expected to have a longer economic life-time.

The study should present several alternative options of renewable energy sources (for at least 50 MW) that can deliver electricity to the national grid (other than CSP). These alternatives do not require financial, economic and environmental and social analyses. However, cost

estimates (CAPEX as well as OPEX) for alternative solutions with storage capacity should be presented and compared with CSP.

Only after the decision whether the development of CSP is feasible, the preparation of Tender Documentation is needed for detailed design of the selected CSP option as well as construction & implementation of the project. The consultant shall be responsible for all aspects of the feasibility study including but not limited to the aforementioned studies and documents.

G.Phase I

1- Inception phase

Upon the start of the contract the Consultant shall familiarize itself with available documents, the situation on the ground and relevant stakeholders in Lebanon. The team of key experts shall establish communication links and procedures with the stakeholders and as far as necessary update and refine the methodology elaborated in the proposal. A kick-off meeting shall be held in Lebanon, introducing the Consultant, the team and the scope of the services to all relevant stakeholders. Upon completion of the Inception Phase, the Consultant is expected to submit a draft "Inception Report". This report will be presented and discussed with the client and relevant stakeholders. The objective of the inception report is to further define the scope of the studies and to identify all relevant stakeholders. After taking into account the feedback of the client and other stakeholders the Inception Report will be finalized.

2- Feasibility and technical studies

The main purpose of the feasibility and technical studies is to present the Lebanese Center for Energy Conservation (LCEC), under the Ministry of Energy and Water, the necessity and technical and financial feasibility of a CSP plant in Hermel and a description of potential several alternative renewable energy generation options with 7.5 hours of storage (hydro pumped storage, solar PV with battery storage, etc.). The Consultant shall determine the required interventions to assure that the CSP will be operational and maintained. In this respect, the Consultant should take a 25-year time horizon into account with single implementation of the CSP plant.

The feasibility study should have sufficient quality to be acceptable to RVO and other potential funding agencies (international financing institutions (IFIs) or bilateral donors). The feasibility study should be consistent with international standards of IFIs.

During the first phase of the D2B project, the following detailed tasks shall be carried out:

-) Technical studies including desk study and data collection, demand and supply gap analysis, site selection and cost estimates of CSP types;
-) Institutional assessment;
-) Identification of (co)financing sources;
-) Financial and economic analysis;

- o Estimate, based on the analyses from above, the current and future electricity supply and demand gap.
-) Transmission and distribution system: the system is facing high percentages of (non)technical losses which need to be quantified.
 - o Assess the current (non) technical losses in the transmission and distribution system;
 - o Assess planned investments in the transmission and distribution network and estimate future (2030) rate of (non)technical losses of the system.
-) Contribution of CSP to the energy problem in Lebanon: based on the electricity demand/supply and transmission and distribution analyses, estimate the current and future (2030) contribution of the CSP plant of at least 50 MW with 7.5 hours storage on i) closing (part of) the gap between demand and supply and ii) its contribution to the share of renewable energy sources in Lebanon.

2.1.3 Identification of CSP types and cost-estimates

-) Review of existing and planned CSP projects in the region, or with similar climatologic conditions as Lebanon, and verify:
 - o Cleanness conditions;
 - o Expected ratio of degradation over time for the different parts of a CSP plant (such as the mirrors, etc.);
 - o Potential manufacturer's availability in the region.
-) Identification of various CSP types (various optical types) with a capacity of at least 50 MW and 7.5 hours of storage capacity, its impacts on the environment as well as the associated risks (see task 2.6);
 - o Estimates of investment costs (CAPEX) for different types, including contingencies, etc. CAPEX estimates should be in line with international standards and available national or local data regarding unit prices.
 - o Accompanying operations and maintenance costs (OPEX) for the abovementioned types, distinguished into relevant fixed and variable components, and based on stakeholder consultation and comparison with similar projects in the region. The different types should be clearly presented using maps, diagrams, flowcharts, tables and costs, in order to facilitate the analysis and selection of the optimal alternative.
 - o Study the temporal (seasonal) variations of electricity generation of the selected type
-) It should be assessed whether future expansion of CSP is possible within the context of environmental and social conditions, available land, etc.

The ESIA has to be conducted in accordance with the Lebanese EIA Decree and the IFC Performance Standards. At this stage the NCEA can conclude that IFC Performance Standards (PS) 1-3 will most certainly apply, PS 4, 5, 6 and 8 will possibly apply and that PS 7 will probably not apply (see Annex 1). The ESIA also has to be in line with the “Strategic Environmental Impact Assessment for Lebanon's Renewable Energy Sector”⁴. This report does not mention the requirements for CSP projects, however, it could be used for reference.

Under this task, the Consultant⁵ will prepare an ESIA Scoping Report in line with the requirements of the Lebanese EIA Decree (see Annex 2). This process starts with the submission of a Project Screening Form to the Lebanese Ministry of Environment (MoE). The ESIA scoping needs to identify the environmental and social issues that need to be addressed in project design and implementation for the various CSP types. Besides various CSP types, the ESIA also requires the inclusion of a baseline scenario (without energy plant) as well as other renewable energy sources with 7.5 hours of storage facilities (see also 2.5). Focus in this first phase is to:

Development. This is decided by the MoE ministerial decision 5BB/1 of 2015.

-) Include information on the project's land-use, nature of production processes, quality and quantity of waste and an estimation of number of people, vehicles and equipment and their movements, including emissions that may occur.
-) Impact on water resources: CSP requires water for cooling purposes and might require water for cleaning of the mirrors. It should be assessed whether sufficient water is available and to what extent conflict of water use may arise due to the CSP plant and other options.
-) Land availability: CSP requires a certain amount of land. Land acquisition and the impacts on local population should be assessed and compared to baseline and other options.
-) Social impacts on local population: the establishment of the CSP plant may result in additional noise and air pollution (specifically during construction). The level of pollution for the local population should be assessed and compared to baseline situation and other options.

⁴ <http://climatechange.moe.gov.lb/viewfile.aspx?id=249>

⁵ The Consultant writing the ESIA scoping and ESIA should be qualified by the Council for Reconstruction and Development. This is decided by the MoE ministerial decision 5BB/1 of 2015.

- J Biodiversity and ecosystems: CSP, especially solar tower variants, are notorious for killing birds. The availability of bird migration zones should be assessed and compared to baseline and other options.
- J During the identification and ranking of CSP type options (in task 2.1.4), the social and environmental impacts of interventions should be considered and compared to baseline and other options.
- J Identification of impact mitigation measures that need to be further addressed during the Full Fledged ESIA (see phase II).

The consultant will need to deliver a coherent ESIA scoping report that explains how the preliminary ESIA steps have been integrated into the other feasibility activities, and which demonstrates how the ESIA work has influenced and utilized the analysis under section 2.1 up to 2.4 and vice versa. The report defines the scope of the subsequent ESIA process and draws conclusions on the process to come (i.e. on timing of the ESIA activities, consultation, etc.).

The following needs to be presented in the ESIA scoping:

- a) **Consistency analysis:** The purpose of this step in the ESIA scoping is to check the consistency of the project under development with existing (national, regional and sectoral) policies, plans and programs (PPP). The consequences of these PPPs for the project (for project objectives or for conditions and standards to be met, for example) need to be analysed and described;
- b) **Alternative options:** As part of the ESIA scoping it is important to check whether there are any intervention (packages) that should be considered from an environmental or social perspective (this should be in-line with task 2.4). The ESIA scoping report should explain how such considerations have been included;
- c) **Identification of impacts** (including cumulative effects): in the ESIA scoping the key impacts of the (packages) of interventions need to be identified, and these need to be integrated into the comparison and prioritization of those interventions;
- d) **Stakeholder Consultation:** the ESIA scoping should be done in coordination with the Lebanese Ministry of Environment (MoE) and through informing and consulting the stakeholders as identified by the MoE (listed in Annex 5 of the Lebanese EIA Decree). These stakeholders include local authorities, ministries and affected persons, In addition, the

concerned municipality will publish about the project and the upcoming ESIA and seeks for public feedback. The ESIA scoping should describe how stakeholders have been identified and included, how their input has been utilized and what information has been provided to stakeholders to inform their involvement.

After submission of the ESIA scoping, the MoE declares within 15 days its position (approval, pending approval or requesting additional information). The scoping report shall also be made available to the public.

2.1.6 CSP type selection

Perform a multi-criteria analysis of the various CSP types and alternative renewable energy options with 7.5 hours of storage, which should be based on at least CAPEX and OPEX analysis and environmental and social impacts. The Consultant will organize a workshop with relevant partners in Lebanon (EDL, municipalities of the region, Ministry of Environment) and RVO to present and discuss the technical studies and outcomes of the multi-criteria analysis. During this stakeholder workshop, the participants will select the preferred CSP type. The further mentioned analysis in 2.2 - 2.4 should be based upon the selected preferred CSP type.

2.2 Institutional assessment (for preferred CSP type)

The Consultant shall analyze the existing institutional framework/stakeholders (national, regional and local levels), their roles, functions and responsibilities as well as capacities and capabilities (including their role in the project). Identify potential issues and concerns that stakeholders may have. The Consultant is expected to estimate the impact of these issues and problems on project execution.

Given the political involvement and related risks in the energy sector, the Consultant needs to conduct a Force Field Analysis and Theory of Change. Force Field Analysis⁶ requires to study the current equilibrium between stakeholders and forces within the sector that drive and/or resist change. The Consultant could follow the following steps:

-) Describe the proposal for change;

⁶ Guidelines on Force Field Analysis: <https://daniellock.com/force-field-analysis/>

-) Identify internal and external forces for change;
-) Identify internal and external forces against change;
-) Evaluate the forces by assigning scores describing the strength of each force.

A Theory of Change⁷ is essentially a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context. It is focused in particular on mapping out or "filling in" what has been described as the "missing middle" between the objectives of a project (its activities or interventions) and how these lead to desired goals being achieved. The Consultant could follow these steps:

-) Define the desired impact or ultimate outcome⁸ that this project would have on the local economy or community, these effects can be economic, socio-cultural, institutional, environmental, technological or of other types;
-) Define the inputs⁹ and activities¹⁰ of the project.
-) Define the pathways through which this project (inputs and activities) contributes to the desired results/impact: what is the logical way in which this project contributes to its objectives/through which intermediary steps do these results occur?

The assessment should be regarded as a quick scan and should provide some practical recommendations, including the need for Technical Assistance (capacity development).

Relevant stakeholders include, but may not be limited to:

-) Lebanese Center for Energy Conservation (LCEC);
-) Ministry of Energy and Water (MEW);
-) Electricité du Liban (EDL);
-) Association of Lebanese Industrialists (ALI);
-) Industrial Research institute (IRI);
-) Libnor (Standardization institution);

⁷ Guidelines on Theory of Change:

http://www.theoryofchange.nl/sites/default/files/resource/hivos_toc_guidlines_final_nov_2015.pdf

⁸ Impact is the (positive and negative) long-term effect on identifiable population groups produced by a development intervention, directly or indirectly, intended or unintended. These effects can be economic, sociocultural, institutional, environmental, technological or of other types. There are usually many factors that influence the impact besides the project.

⁹ Inputs are the financial, human, material, technological and information resources used for the development intervention

¹⁰ Activities are the actions taken or work performed through which inputs, such as funds, technical assistance and other types of resources are mobilized to produce specific outputs

-)] Municipalities and local community representatives of the selected region;
-)] Private investors in the energy sector active in Lebanon;
-)] RVO: Netherlands Enterprise Agency

2.3 Identify sources of co-financing (for preferred CSP type)

The Consultant is required to present an overview of donors and (inter)national development banks (including World Bank, FMO, Green Climate Fund, other) and potential private entities, which can co-finance the project. This assessment should include a list of co-financiers, available funding for this project and conditions of payment (grant, loan (by type), interest rate, grace period, repayment period, etc.).

2.4 Financial and Economic Analysis (for preferred CSP type)

The Consultant should prepare a financial and economic analysis consistent with international IFI standards for cost-benefit analysis (CBA). The financial and economic analysis of the preferred CSP type should be based on the above gathered information.

The financial (cash-flow) analysis should estimate investment and O&M costs over time and any direct financial revenues related to operating interventions.

Concerning the direct financial revenues, the following issues needs to be discussed and agreed upon:

- Will the new company/entity responsible for running the CSP plant be part of the Ministry of Energy and Water or LCEC or will it be a separate legal entity?;
- A power purchase agreement (PPA) tariff has to be determined between the Ministry of Energy and Water / LCEC, EDL and the CSP plant owner. This PPA tariff must be based on a (minimum) requirement on the financial IRR of the project (to guarantee a sustainable operation). The basis has to be clear before conducting the financial analysis;
- For RVO's DRIVE instrument, the minimum rate for financial sustainability is 4% (as a cut-off rate), but also higher cut-off rates needs to be discussed and applied in the model to see at the end the effect on the accumulated cash flow (taking into account the financing of the project).

Finally, an assessment of re-investments has to be carried out to keep the CSP operating in a sustainable way.

The economic analysis should estimate the socio-economic costs and benefits of implementing the project (through the with- and without-the-project methodology). All investment and operational costs and revenues shall be converted to economic costs and benefits by:

- i) Eliminating transfer payments (taxes and duties) as well as price contingencies (inflation, foreign exchange movements and interest during construction, if applicable);
- ii) Applying shadow pricing for foreign cost component and local unskilled labour.

The types of economic benefits from the preferred CSP type shall be identified and quantified - e.g. the avoided cost of generating the same unit of energy from marginal generation sources (Avoided Fuel and O&M cost of fuels used for electricity production by production company supplying energy to EDL). Next, one should also take into account the environmental externalities (GHG emissions: avoided cost of environmental damage, reduced air pollution) and employment benefits.

The economic costs of the project shall also be derived from the financial costs.

Normal results of Financial Analysis and Economic Analysis (IRR's, NPV's and cost-benefit ratios) should be presented. Insights in financial sustainability should be provided also in regard of coverage of O&M costs by national or local authorities. All cash-flow models (financial analysis, economic analysis in excel or other software) will be handed over to the client as annexes to the feasibility report. In the economic analysis a social discount rate should be selected that is representative for Lebanon and has to be defined by the Consultant. In both analysis, a sensitivity analysis shall be undertaken considering different scenarios for the main parameters in the model.

2.5 Alternative renewable energy options

In addition to the above mentioned studies, the Consultant is requested to present a list with alternative forms of renewable energy generation based on the electricity supply and demand gap analysis and identification of power shortages occurrences in 2.1.2. The alternative renewable energy sources should have a storage capacity of 7.5 hours.

-) Identify alternative options of renewable energy generation to address the electricity supply and demand gap issues in Lebanon.
-) Rank the alternative options based on estimated CAPEX, OPEX and environmental and social impacts. These estimates should be based on literature review and stakeholder consultations in Lebanon.
-) Compare the alternatives with the selected CSP type from section 2.1.3 and present pros and cons of both CSP and alternative options.

2.6 Carry out tasks in parallel

The Consultant shall prepare the feasibility and preliminary design study in parallel with the preliminary ESIA. This will help to ensure that the design and ranking of possible solutions is

not only based on technical and financial & economic feasibility, but also on environmental sustainability and social acceptability.

H.Phase II

3- Go/No Go moment

Depending on the technical viability, financial and economic feasibility, availability of funding, institutional analysis and the ESIA scoping (see section 2), a go/no go decision will be taken by RVO in consultation with LCEC. This decision is based on the outcomes of the feasibility study of the identified options. This decision will also be based on the approval of the Ministry of Environment on the ESIA scoping and the outcomes of the stakeholder consultations. If the construction of a CSP plant is not feasible, a full-fledged ESIA and the development of tender documents will not be conducted. In case of an unfavorable decision (i.e. a no go) the project will be stopped at once. In that case the contract of the selected consulting company would end as well.

3.1 Detailed Environmental and Social Impact Assessment (ESIA)

Based on the selected preferred CSP in phase I and in case of a favorable go/no go decision, the Consultant¹¹ shall conduct a full-fledged ESIA for the selected alternative (see sections 2.2 - 2.4) based on the ESIA Scoping Report submitted in task 2.1.5. This detailed ESIA should follow the Lebanese EIA Decree 8633/2012 (see Annex 3) and the IFC Performance Standards.

The ESIA scoping should be expanded by:

Comparison of different alternatives: besides various CSP types, the ESIA also requires the inclusion of a baseline scenario (without energy plant) as well as other renewable energy sources with 7.5 hours of storage facilities (see also task 2.5).

Mitigation measures: The full-fledged ESIA should identify measures needed to prevent, reduce and eliminate as fully as possible any significant adverse effects of the project interventions under consideration.

¹¹ The Consultant writing the ESIA scoping and ESIA should be qualified by the Council for Reconstruction and Development. This is decided by the MoE ministerial decision 5Bg/1 of 2015.

Assessment framework: For further developing and comparing the (packages of) project interventions and associated measures, an assessment framework is needed: which environmental, social and economic effects and criteria are relevant and which indicators can be used to assess the different project intervention packages (and the associated measures) against those criteria. It is important to identify 'significant' effects and (measurable) indicators, taking different stakeholders in the area into account.

Stakeholder consultations: the following stakeholders should be consulted: official agencies, NGOs, and groups affected by the project. The minutes from dialogue, stakeholder consultation meetings and public hearings are attached to the ESIA.

The detailed ESIA report will include an **Environmental and Social Management Plan (ESMP)**. The main purpose of the Environmental and Social Management Plan is to reduce the potential negative impacts to a reasonable level and where relevant enhance the positive impacts. The ESMP will detail actions to be carried out and those that should not be carried out, including how actions should be carried out in order to avoid negative impacts. The ESMP will also clearly state who is responsible for implementation of each of the identified measures and actions and will indicate capacity and budget requirements. According to the Lebanese EIA Decree, the ESMP should also include an institutional capacity development plan to implement the recommendations of the ESIA. Finally, the ESMP includes the condition that any changes in project design will be assessed for environmental and social consequences.

After completion, the Consultant submits the ESIA to the Ministry of Environment (MoE). The MoE may request for additional information if needed, and will declare within 2 months its position (approval, conditional approval or rejection of the ESIA). The official department concerned with the project shall issue a license in the light of the position of the MoE on the ESIA. In addition, the MoE will monitor the application of the ESMP.

3.2 Tender documents

The Consultant will be responsible for the preparation of Tender Documents that will enable LCEC to launch a tender for implementation, based on international and national regulations. LCEC intends to launch one tender to select one contractor. This tender documentation should include requirements for performing a detailed design study of the selected CSP option as well as requirements for the construction and implementation of the chosen CSP works. The approved ESIA and ESMP should also be fully integrated into the detailed design and scope of work.

The Tender Documents shall address (but are not restricted to):

-) Tendering procedures:
 - o Instruction to tenderers
 - o Evaluation and qualification criteria
 - o Tender forms
-) Requirements:
 - o The Terms of Reference with the scope of work for:
 - Detailed Design of the project
 - Construction and implementation of the project
 - o Technical specifications
-) Conditions of contract and contract form
-) All relevant information:
 - o Studies from Phase 1 and 2
 - o Drawings
 - o Bill of Quantities
 - o Priced Bill of Quantities

I. Deliverables, timeframe and location

1- Deliverables

The consultant is required to submit the following deliverables (in draft version and final version):

1. Inception report (phase I);
2. Technical study including results from desk study, electricity demand and supply gap analysis, identification of CSP types and cost-estimates, site selection and preliminary ESIA (phase I);
3. Report regarding process and outcomes of the CSP selection stakeholder workshop (phase I);
4. Feasibility studies including institutional analysis, availability of finances, financial & economic analyses (Phase I);
5. Description of alternative energy sources other than CSP (phase I);

Go/No Go Decision

6. Full Fledged ESIA (phase II);
7. Tender documents for detailed design as well as construction and implementation of the project (Phase II).

Deliverables 6 and 7 shall only be developed if a positive go/no go decision has been taken.

The reports will have a clear and concise executive summary (of maximum 5 pages) and a maximum of 50 pages. Clear structure, comprehensiveness and readability of the reports are major requirements. Detailed analyses, tables, maps and drawings shall be included as annexes.

All deliverables should be submitted in both hardcopy (one original and two copies) and softcopy in English.

2 Timeframe

The assignment is expected to be completed within twelve months from contract signature.

Table 1: Deliverables

Deliverable	Due Date
Inception report	Up to one Month
Technical studies	Up to 5 Months
Stakeholder workshop CSP selection report	Up to 6 Months
Feasibility studies	Up to 8 Months
Alternative energy sources study	Up to 8 Months
Total feasibility of components under Phase I	Up to 9 Months
GO / NO GO MOMENT	
Comprehensive ESIA	Up to 12 Months
Tender documents	Up to 12 Months
Final acceptance of the assignment	Up to 14 Months

3 Location

The assignment will be conducted mainly at the premises of the Consultant. A number of missions are required to Lebanon in case of a Consultant whose office is located outside the country. If the consultant(s) is located outside of Lebanon, a local office/address shall be assigned for them in Beirut. The minimum suggested missions are:

-) Inception mission;
-) Mission for data collection, site selection and stakeholder consultation for the feasibility and technical studies;
-) Mission for preliminary ESIA;
-) Workshop to present the feasibility and conceptual design study (including preliminary ESIA) to local communities and national entities;
-) Workshop for development of local expertise to cater to different stages of the installation of a CSP plant;
-) International trainings for 5 local CSP experts;
-) Mission for the final presentation of the feasibility study and tender documents (phase II).

The consultant should specify the missions to Lebanon in the technical proposal and include the incidental expenditures related to the missions in the financial proposal.

4 Submission and approval of the reports

A digital and hard copy of the above deliverables has to be submitted to LCEC. A digital copy of the above deliverables has to be submitted to the RVO, Develop2Build. The report must be written in English. The ESIA Scoping Report and detailed ESIA should be written in English and Arabic and be submitted to the Ministry of Environment for approval.

J. Profile of the consultancy team

The Consultant shall be a reputable Renewable Energy Engineering Consultancy firm with at least 20 years of experience in renewable energy engineering. The Consultant should be fully conversant with Lebanon's procurement documents, Conditions of Contract and construction of projects in developing countries. The Consultant should have a track record in similar projects carried out in Lebanon and/or the Middle Eastern region. Experience in the design of CSP plants is a requirement.

The Consultant is responsible for the sufficiency and adequacy of its work. These Terms of Reference are not intended to be an exhaustive list of all activities, but should be considered an indication of the level of work minimally required for the outputs. Although the work is divided into various elements, the Consultant shall ensure that it forms a holistic, integrated study resulting in sustainable outputs.

The personnel assignment schedule shall be coherent with the work plan (activity schedule) and with the number of man-months which will be reflected in the cost breakdown of the Financial proposal.

The Consultant shall provide adequate staff with appropriate qualification and experience to undertake the works described herein. It is expected that the staff/areas of expertise as indicated below, will be included in the team. The team of key personnel shall comprise at least the competences/functions mentioned below. The bidders shall submit CVs of the key experts in accordance with the format attached to the Invitation to Tender. The bidders are free to propose additional expertise fields and a pool of supporting experts.

Table 3: Team profile

Position	Qualification Description
Key expert 1: Team Leader and Renewable Energy Engineer	A qualified renewable energy engineer with 15 years, experience in design of renewable energy infrastructure including solar energy. At least 5 years, experience in Lebanon or Middle Eastern region, including experience in CSP plant projects.
Key expert 2: Electrical Engineer	A qualified electric engineer with 10 years, experience in the design of high and medium voltage installations in Lebanon or Middle Eastern region. Experience with renewable energy installations (solar, wind, hydro, other) is required.
Key expert 3: Institutional expert	A qualified expert with a minimum of 10 years, experience in institutional assessments in Lebanon or Middle Eastern region.
Key expert 4: Environmental & Social Specialist	10 years' appropriate experience in managing and conducting ESIA according to international standards (like IFC). Experience in Lebanon or Middle-Eastern region. The consultant writing the ESIA scoping and ESIA should be qualified by the Council for Reconstruction and Development (CDR). The CDR has a list of accredited national firms qualified to conduct ESIA's.
Key Expert 5: Financial and economic expert	An economic/financial expert with 10 years of international experience in financial modelling and cost-benefit analysis, preferably related to energy projects.

K. Form of contract and payment structure

The form of Contract shall be lump sum. Payments for the services shall be made on the basis of agreed Lump Sums for each completed milestone of the assignment. RVO will pay the Consultant directly on behalf of the LCEC.

The relative milestone payments in proportion to the total sum for the assignment are given below:

Table 4: Payment schedule

Milestone (After Approval by the Client)	Percentage of contract value
Inception Report	15%
Technical Studies incl. ESIA scoping, Institutional Assessment, and Feasibility Study	65%
GO / NO GO MOMENT	
Detailed ESIA	10%
Tender Documents	5%
Final presentation of feasibility study (including final ESIA)	5%
Total Lump Sum Contract	100%

Approval and payment procedure

The consultant submits the draft deliverables to LCEC. LCEC and RVO will jointly review the reports and send their joint comments to the consultant. After taking into account the comments, the Consultant submits the final deliverables to LCEC.

LCEC and RVO approve the final deliverables through issuing a Statement of Acceptance, after which the Consultant can send an invoice to LCEC. LCEC will request RVO to pay the Consultant on their behalf.

Annexes

Annex 1 - Preliminary Assessment of Environmental and social Impact

The NCEA's conclusions on the E(S)IA requirements for the projects below cannot be taken as legal advice or a substitute for a formal screening decision by the relevant local authorities.

Screening Situation

The proposed project intends to construct a Concentrated Solar Power Plant of 50 MW capacity in the Hermel Kaa region in Northern Lebanon. The energy generated by the plant will produce electricity by heating up a fluid, producing steam and activating turbines. The power plant will be connected to two existing transmission lines. It is not clear what kind of infrastructure will be needed to connect the plant to the transmission lines. Further details about the technology, design, project location and other existing developments in the area are not yet clear.

Screening against national E(S)IA¹² regulation: Screening approach and conclusion

In Lebanon's ESIA regulation (Decree 8633/2072¹³), power generation and its distribution are included both in the list of projects that require an ESIA study (Annex 1, sub 8) and the list of projects that require initial environmental examination (Annex 2, sub 6). That means that the project could require an ESIA or must at least submit an initial environmental examination report in which more details must be given on project activities, location (maps), the

¹² ESIA versus EIA: The NCEA generally uses the term Environmental and Social Impact Assessment (ESIA) instead of Environmental Impact Assessment (EIA). This serves to emphasize that social impacts are integral to impact assessment. Many international financing institutions use the same terminology. The IFC performance standards, for example, also use the ESIA acronym. However, in many country regulations the more traditional term of EIA is used (but note that social impacts are usually required to be included in the scope of such an EIA). In some of the screening advices in this document both terms will be used: ESIA, generally when the NCEA refers to the instrument, EIA when referring to the applicable regulation.

¹³ A draft decree of 2015 exists, but has not been adopted officially. The NCEA therefore uses the 2012 decree for screening.

surrounding environment, expected impacts, mitigation measures and estimated costs of the environmental management plan.

Based on this information and the significance of the expected impacts, the Ministry of Environment (MoE) will draw a conclusion whether an ESIA is needed. The decree does not provide a list of thresholds or criteria for decision making. The decree is clear that an ESIA will be required if the project takes place in an environmentally sensitive area as outlined in Annex 3¹⁴. This is also the case when there is question of land reclamation. The project memo does not touch upon the exact location and whether there will be land reclamation. It is hence not possible to draw a final screening conclusion.

Yet, considering the nature of the project, its presence in Annex I and 2, and the intended power plant capacity, there is a very likely chance that an ESIA will be required. The NCEA recommends to check this conclusion with the Ministry of Environment.

Which IFC Performance Standards are triggered? Assessment and conclusion

In an updated screening in March 2018, the NCEA had outlined which of the IFC Performance Standards are likely to be triggered.

) **PS 1: Assessment and Management of Environmental and Social Risks and Impacts**
- Triggered.

This standard applies to all projects, requiring that project proponents identify and assess environmental and social impacts, and avoid, minimize or compensate impacts as needed and to implement appropriate environmental and social action plans.

This standard also requires that stakeholders and affected people are meaningfully engaged throughout the project and impact assessment and that grievance mechanisms are established. Having a robust stakeholder engagement into project design implies that the needed time and resources should be made available.

) **PS 2: Labor and Working Conditions** - *Triggered*

The project will involve the mobilization of a workforce during construction, operations, maintenance work and decommissioning of the CSP. The project design and

¹⁴ Annex 3 gives a list of areas where projects require an ESIA including a.o; protected areas, wetlands, natural forests, touristic and historic sites, river banks and river waterways, springs, areas with endangered species, watersheds and public lands.

the ESIA need to create a clear picture of the workforce to be involved, and the health and safety issues that are at play. These should subsequently be taken into consideration in the ESMP and in the tender documents and monitored during implementation.

) **PS 3: Resource Efficiency and Pollution Prevention** - *Triggered*

In the alternatives to be considered and in the ESIA it can be explored how resource efficiency can be achieved, for instance in relation to water use, the created (water) waste of the system, and ways to avoid / minimize energy losses during transmission. In addition, in the sourcing of the solar infrastructure, more sustainable options could be considered.

) **PS 4: Community Health, Safety and Security** - *Possibly Triggered*

Depending on the selected location for the CSP and connections to the national grid. During the scoping / preliminary ESIA) phase, it should become clear whether communities live or make use of the project location or its surroundings, the potential impacts they might encounter at different project phases. At this stage, also issues related to land ownership and claims on natural resources need to be considered to get insight in potential conflicts that the project may arise.

) **PS 5: Land Acquisition and Involuntary Resettlement** - *Possibly triggered*

Depending on the locations to be selected, physical or economic resettlement might be at play. This needs to be identified in the ESIA scoping phase. Local ESIA procedures do not outline requirements for resettlement. However, in case of resettlement, irrespective of the number of people, this needs to be dealt with in line with this performance standard. This might imply the need to formulate a Resettlement Action Plan, and / or to put into place measures to compensate for and to restore people's livelihoods, through a participatory process and to establish grievance mechanisms.

) **PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources** - *Possibly triggered*.

Depending on project's location. This should be confirmed in the ESIA scoping phase by bringing into picture the local environment and issues like biodiversity, ecosystem services.

) **PS 7: Indigenous Peoples** - *Not likely to be triggered*

No information about indigenous groups can be found. This should be confirmed by studies at the scoping phase.

) **PS 8: Cultural Heritage** - *Possibly triggered*

Depending on project location to be selected. At the scoping stage, it needs to be confirmed if there are historical artefacts, cultural heritage objects or values attached to the project area.

Important procedural milestones and other points of attention for the upcoming E(S)IA process

Important procedural milestones in ESIA in Lebanon:

- 1) Project owner will submit a screening application, including a map showing the project location at scale 1 / 20.000, to the competent department¹⁵ inquiring about the classification of his project.
 - a. Note that in this case, as it seems likely that either ESIA or IEE will be required, the project owner is recommended to inquire as early as possible what supplementary documents are likely to be required, rather than waiting for the MoE to inform him. The project owners 'project brief' could be used as the initial environmental report.
- 2) The competent department will request a statement from the Ministry of Environment on the classification of its project.
- 3) The Ministry of Environment shall advise the competent department and the project owner of the classification decision within 15 days from the date of the registration of the classification request (ESIA study or initial environmental examination required).
- 4) If the proposed project requires an ESIA study, the project owner shall, in coordination with the Ministry of Environment, identify the ESIA scope of the project.
- 5) Once advised, the municipality (or the governor or commissioner in case there is no municipality) where the project will be located, should immediately advertise the project to inform the public.
- 6) The Ministry of Environment will give the public a chance to provide feedback to the Ministry or the competent department. The ESIA scoping report will subsequently be (conditionally) approved by the Ministry of Environment within 15 days from receiving it, after which it will be made available to the public and the parties concerned.
- 7) The Ministry of Environment shall review the ESIA report and its conformity to the ESIA scoping report approved within two months from the date of receiving the ESIA report.

¹⁵ The component department changes according to each project. In this case the component authority is probably the Ministry of Energy and Water and the Lebanese Centre for Energy Conservation (LCEC).

- 8) After reviewing the final copy of the ESIA report, the Ministry of Environment will declare its position regarding the report, either with approval or conditional approval or rejection with explanation. Such position will be made available to the public and the parties involved.
- 9) The competent department shall issue a license of the private project in light of the position of the Ministry of Environment regarding the ESIA report.
- 10) The Ministry of Environment will monitor the application of the environmental management plan.

Other points of attention in the ESIA process:

NCEA activities in the country (if any)

In December 2015, the NCEA supported the Norwegian Environmental Agency in facilitating a training on SEA and ESIA in Lebanon. This training was part of the Oil for Development Programme and focused on the oil and gas sector.

Annex 2 - Required Information for the EIA Scoping

1. **Introduction:** this paragraph defines the objective of the EIA scoping report, the project under study, in addition to explanation of the EIA executive measures.
2. **Background information:** this paragraph include5 relevant information about potential parties conducting the EIA study, a synopsis of the basic content of the proposed project, a statement of the importance of the project, its objectives, the implementing office, and a summary of the history of the project, the alternatives and related projects. Reference will be made to any projects planned or currently implemented in the same area since they could be competing with the project under consideration in terms of resources.
3. **Objective:** this paragraph identifies the EIA scope, and discusses its timing in view of the phases of preparing, designing and implementing the project.
4. **EIA requirements:** this paragraph sets forth any regulations and guidelines organizing the EIA implementation. It defines the content of the EIA scoping report.
5. **Study area:** this paragraph shows the boundaries of the area covered by the study for the purposes of environmental impact assessment. If there is a neighbouring or far away area that should be studied in terms of the potential consequences of implementing or managing this project, such area should be included in the EIA scoping report.
6. **Scope of work:** in some cases, knowing clearly the tasks of the project owner, facilitates defining them fully in the EIA scoping report. However, in other cases, there is a need to carry out specialized field studies or forming models in order to assess the consequences of the proposed project, and at that point, the project owner is required to define these certain tasks in detail. The scope of work includes the following points:

6.1 Policy, legal and administrative frameworks: an investigation of the enforceable regulations, principles, and standards observed by the environment sector at the local and national levels (the study sets forth the known considerations, and the project owner is requested to verify the existence of any other considerations), laws governing the sector under which the project is included. The information should address

specifying the official department concerned, and its potential at the local and national levels.

6.2 Assistance in coordinating among official departments and public participation: assistance in coordinating the study with official departments, seeking feedback of local NGOs and groups affected by the project, and keeping the minutes of meetings, other activities, communications, comments and how to act regarding them. The EIA scoping report identifies the types of activities such as the meeting on work scoping attended by stakeholders, briefing sessions at the environment sector for project employees, supporting consultants of the environment sector, public seminars etc.

6.3 Description of the proposed project: description of project components, the relevant maps according to the appropriate scale and photos, information of project location, comprehensive design, size, capacity, work program, services, the duration of operation, etc.

6.4 Description of the surrounding environment of the project: gathering and evaluation basic information of environmental characteristics of the study location (physical, chemical, biological, social and economic environment) taking into consideration any expected modifications before the commencement of the project or any likely changes in future.

6.5 Potential environmental impact of the project: it should be distinguished between positive and negative effect, direct and indirect impact, short term and long term impact. Permanent unavoidable consequences should be identified, as well as defining universal and cross border effects. The project owner should describe estimation means and techniques used in assessing the impact of the project on the environment. The scope and quality of available information will be determined, together with an explanation of significant information gaps and uncertainties regarding the assessment of the potential impact of the proposed project. It is advisable to review the conditions of some planned studies in order to obtain the missing information. This paragraph should list the possible mitigation measures per each impact and recommend the most effective and low cost measures.

6.6 Analysis of project alternatives: preliminary description of alternatives studied during the preparation of the proposed project and listing other alternatives that can achieve the same objectives. The concept of these alternatives generally include the

selection of project site, its designs and technology, construction methods and the stages, and the operation and maintenance procedures. A preliminary comparison will be made among these alternatives in terms of potential environmental effects, their costs relative to the capital and operation, adequacy of local conditions, institutional requirements, training needs, and monitoring and control requirements. It should, as much as possible, identify the preliminary cost and profits of all alternatives, as well as the estimated cost of mitigation measure. The alternation regarding the no implementation of the project should also be included to clarify environmental conditions "AS IS" without the project.

6.7 Environmental management plan: this plan should include:

-) Mitigation measures for negative impact;
-) Monitoring and control plan;
-) Institutional capacity development plan to implement recommendations contained in the EIA report.

The project owner should prepare a detailed environmental management plan including mitigation measures for all negative consequences, monitoring and control program, the needs of workers and institutions to apply these measures. The cost of this plan should also be identified, including compensations for those affected by impact that will not be mitigated.

7. **The Report:** The EIA report should be brief addressing only major environmental issues. The body text should focus on investigation results, the conclusion, practical recommendations supported by summaries of the gathered information, and any approved references to explain and interpret such information. The detailed or unclear information is not appropriate in the body text, and should be presented in the annexes or in a separate document. The same thing applies to unpublished documents used in the EIA study and they should be grouped in an annex.

Annex 3 - Required Information for the EIA study

The EIA report should include the following information (not necessarily in this order):

1. Executive summary

2. Table of contents

3. Introduction

-) Objective and rationale of the project
-) Definition of the project and the project owner
-) Brief description of the type, size and location of the project
-) Importance of the project to the country
-) The EIA scoping, which include the person or the agency that prepared the study

4. Policy, legal and administrative frameworks:

-) Official department concerned, its capabilities at local and national levels
-) Environmental legislation, other regulations related to the environment, the policy observed in the country
-) Environmental requirements for any of the parties participating in financing the project
-) Applicable Environmental agreements or treaties the country have joined

5. Public participation:

-) Official agencies
-) NGOs
-) Groups affected by the Project

6. Description of the proposed project:

-) Type of the project
-) Location of the project: maps showing the project site and its impact
-) Size of the project, including the related activities
-) Proposed program for construction and operation

7. Description of the surrounding environment of the project:

7.1 Physical and chemical environment:

- J Topographical and geological aspects, and the impact of earthquakes and other hazards
- J Study of surface and underground water
- J Measuring sea and coasts
- J Available means of discharging polluted water, and the quality of water
- J Surround air quality, sources of air pollution
- J Climate and weather service
- J Noise

7.2 Biological environment:

- J Vegetation and animal life
- J Fish and water living creatures
- J Rare or endangered species
- J Sensitive areas (forests, protected areas, natural parks, etc)

7.3 Socio-economic environment:

- J Demographics (population, social fabric, employment, income distribution, customs and traditions, people expectations etc)
- J Development activities (infrastructure, industry, agriculture, institutions, tourism, recreation etc)
- J Land use
- J Traffic
- J Public health
 - J Historic and archaeological heritage
 - J Aesthetic values
 - J Culture and civilization values (customs and tradition, aspirations)

8. Potential environmental impact of the project:

8.1 Physical and chemical environments

8.2 Biological environment

8.3 Social and economic environment

9. Preliminary analysis of project alternatives:

- J Non establishment of the project
- J Alternative projects with same objectives

-) Same project with different technologies
-) Comparing various environmental and economic potentials

10. Environmental management plan:

10a. Negative impact mitigation program:

-) Summary of significant environmental consequences
-) Technical detail of each mitigation measure (applicable to which impact, the conditions of their application, designs, detailed fittings and operational procedures)
-) Potential environmental effects of these measures
-) Linkage between these measures and other mitigation programs
-) Cost of negative impact mitigation program

10b. Monitoring and control program:

-) Specific technical detail of control means (control standards, control techniques, periodicity of the required control, control location, measurement procedures, keeping and analyzing' information, and emergency measures)
-) Reporting and report submission
-) Detailed budget, acquisition program and the required supplies
-) Cost of monitoring and control program

10c. Institutional capacity development program:

-) Detailed description of institutional procedures required for the above environmental measures (responsibility for implementing mitigation measures and control/follow up procedures etc).
-) Technical assistance programs
-) Acquisitions and supplies
-) Organizational changes
-) Cost of institutional capacity development program

11. Conclusion:

-) Net profit justifying the establishment of the project
-) Explanation of how to mitigate negative impact
-) Prior preparations for following up control and supervision

12. Annexes:

-) Minutes of public participation

-) Summary of project-related documents
-) Tables and information statements
-) List of related reports
-) List of scientific and non-scientific references used
-) List of the names of who prepared the EIA report (individuals and agencies)

Note: The Ministry of Environment has the right to modify items required in this annex in accordance with environmental essentials that are applicable to standards and role of the project. Special consideration is given to the application of article 12 "Information publication".