THE HASHEMITE KINGDOM OF JORDAN

MINISTRY OF ENERGY & MINERAL RESOURCES

Renewable Energy Project of Direct Proposal Submission

Instruction and Requirements for Proposal Preparation and Submission (IRPP)

PV/CPV Power Projects
Transmission Grid Connected

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Disclaimer

The information presented in this IRPP is furnished solely for the purpose of assisting prospective Developers in making their own evaluation of the proposed Project and does not purport to be all-inclusive or to contain all the information that prospective Developers may require. Prospective Developers should make their own investigations, projections and conclusions and consult their own advisors to verify independently the information contained in this IRPP, and to obtain any additional information that they may require, prior to submitting a Proposal. Neither the Direct Proposals Committee, MEMR, NEPCO nor any of their advisors makes any representation or warranty as to the completeness of this IRPP nor have they any liability for any representations (expressed or implied) contained herein.

1 General Introduction and Background

1.1 Introduction

Reference is made to the Memorandum of Understanding (MOU), signed between the Ministry of Energy and Mineral Resources (MEMR) and the Developer.

The following Instructions and Requirements for Proposal Preparation and Submission (the "IRPP") provide the guidelines to the Developer to submit its technical and financial proposal (together a "Proposal") for the project as outlined in the MOU (the "Project") to the Direct Proposals Committee.

This IRPP is made up of three parts:

- Part I (Instruction for Proposal Preparation) comprises the instructions for Proposal preparation to be followed by the Developer, covering amongst other things an overview on the tender process, the rules for proposal preparation and submission, the methodology to be applied by the Direct Proposals Committee for the evaluation of the Proposal and the execution of the Power Purchase Agreement.
- Part II (Requirements for Proposal Preparation) includes the requirements for proposal preparation, comprising amongst other things the requirements and the information to be provided by the Developer in respect to
  - the Developers organization;
  - the technical requirements;
  - the eligibility of contractors, equipment suppliers and major equipment;
  - the implementation schedule; and
  - the commercial and financial structure.
- Part III (Draft Project Agreements) comprising a draft of the Power Purchase Agreement to be entered into between NEPCO and the Special Purpose Company (SPC), as well as a Draft Transmission Connection Agreement that will be entered into force between NEPCO and the SPC.

1.2 Background Explanation

MEMR is entrusted by the Renewable Energy and Energy Efficiency Law No (13) 2012 with the development of renewable energy sources for power generation through a direct proposal submission ("Direct Proposal Submission").

Upon the recommendation of His Excellency the Minister of Energy and Mineral Resources, the Cabinet decided at its meeting held on 4/1/2015 to permit electricity generation companies licensed and operating within the Kingdom to submit direct proposals to the Ministry of Energy and Mineral Resources in order to exploit renewable energy sources for the generation of electricity at the sites of such companies' stations; and that these proposals are to be dealt with in accordance with the provisions of the Renewable Energy and Energy Efficiency Law No. (13) of 2012 and with the by-laws and directives issued thereunder, while taking into account available grid capacity and interconnection studies as required for such projects.

1.3 Project milestones

The Developer shall adhere to the following Project Milestones:

Project Milestone	Latest Dates
Effective Date of the MOU	*[Date]*
Submission Date	*MOU + 6 months*
Evaluation of Proposal	*Submission Date + 6 months*
Signing of Project Agreements	*Notification of Acceptance + 2 months*
Scheduled Financial Closing Date	*Signing of the Power Purchase Agreement + 6 months*
Transmission Interconnection Date	*as agreed with NEPCO during proposal preparation phase (1)*
Latest Commercial Operation Date	*as agreed with NEPCO during proposal preparation phase (1)*
(1) The Developer shall approach NEPCO during the proposal preparation period with the following information: *a, Site coordinates* *b, Capacity of the power station* *c, General layout of the power plant* *NEPCO will respond, subject to the completeness of the information, within 6 weeks with the following:* *1. Connection details;* *2. Cost of connection; and* *3. Time for construction of connection.*	

2 Definition of Terms

The meaning of the terms used in this IRPP is set out below:

Ceiling Tariff	the ceiling tariff set out in the Reference Price List for PV plants issued by EMRC (at the time of issuance the Ceiling Tariff for PV Plants equals 100 fils / kWh).
Commercial Operation Date	the date on which the photovoltaic plant has been fully commissioned and testing has been successfully completed in line with the provisions set out in the PPA.
Connection Facilities	if applicable, the interconnection facilities (including transmission facilities to the NEPCO Grid and NEPCO's control and communications equipment), to be installed and maintained by NEPCO.
Developer	the company or consortium having signed the MOU.
Direct Proposals Committee	the committee established by the Government of Jordan in respect to the Direct Proposal Submission process consisting of representatives from MEMR, NEPCO, EMRC and other major stakeholders governmental parties.
Direct Proposal Submission	the direct proposal submission process as set out in the RE&EE Law.
Draft Power Purchase Agreement	the draft of the Power Purchase Agreement, which is included in Part III of this IRPP.
Draft Project Agreements	together the Draft Power Purchase Agreement and the Draft Transmission Connection Agreement
Draft Transmission Connection Agreement	the draft transmission and connection agreement for photovoltaic power plants as approved by EMRC and as included in Part III of this IRPP.
EPC Contract	the lump-sum turnkey contract entered into by the EPC Contractor and the SPC for the engineering, procurement and construction of the Project.
EPC Contractor	the contractor engaged by the SPC under the EPC Contract for purposes of engineering, procurement and construction of the Project.
EMRC	the Energy and Minerals Regulatory Commission established based on the Council of Ministers decision issued on 15/1/2001 and according to Electricity Law no.64 for the year 2002.

Financial Closing	the date when: (i) the financing documents covering one hundred percent (100%) of the total capital cost of the Project (except the percentage to be funded by Equity as set out in the Proposal), have been signed and are in full force and effect; and (ii) irrevocable and unconditional bank guarantees or standby letters of credit have been issued under the financing documents to support the Development Security with recourse to the Developer or its Affiliates only.
Financial Evaluation	the evaluation of the Financial Proposal as set out in Section 2.6 of Part I of the IRPP.
Financial Proposal	the financial proposal to be submitted in accordance with Section 1.3 of Part I of this IRPP.
Financial Proposal Opening	the public opening of the Financial Proposal as per Section 1.11 of Part I of this IRPP.
Financial Proposal Submission Letter	the letter to be provided by the Developer as part of its Financial Proposal in the form set out in Attachment A, Proposal Form A.2 to this IRPP.
Grid Code	the Transmission Grid Code issued by NEPCO in the amended version dated February 2010.
Instructions for Proposal Preparation and Submission	the instructions for preparation and submission of the Proposal as set out in Part I of this IRPP.
Interface	the interfaces as described in Section 3.2 of Part II of this IRPP.
Land Lease Agreement	If applicable, the lease agreement to be entered into between the SPC and the land owner granting the SPC certain land rights for the Site.
Letter of Commitment	the Letter of Commitment as described in Section 2.1 of Part II of this IRPP.
Memorandum of Understanding (MOU)	the Memorandum of Understanding signed between the Developer and MEMR.
MEMR	the Ministry of Energy and Mineral Resources of the Hashemite Kingdom of Jordan.
NEPCO	the National Electric Power Company of Jordan.
Nominal Power	means the aggregate nameplate capacity of the inverters actually installed in the PV plant.
Notification of Acceptance	the notification of the MEMR to the Developer as per Section 3.1 of Part I of this IRPP.
O&M Contract	the contract entered into by the O&M Contractor and the SPC for the operation and maintenance of the Project.

O&M Contractor	the contractor engaged by the SPC under the O&M Contract for purposes of operation and maintenance of the Project.
Peak Power	means the aggregate nameplate capacity of the PV/CPV modules actually installed in the PV plant.
Performance Security	the performance security to be furnished by the Developer in accordance with Section 3.4 of Part I of the IRPP.
Power Purchase Agreement (PPA)	the power purchase agreement to be entered into by NEPCO and the SPC, a draft of which is included in Part III (Draft Agreements) of the IRPP.
Project Agreements	The Power Purchase Agreement and the Transmission Connection Agreement
Projects Milestones	the milestone dates provided in Section 1.3 of this IRPP.
Proposal	together the Technical Proposal and the Financial Proposal of the Developer to be submitted to MEMR as agreed under the MOU and as per this IRPP.
Proposal Preparation Requirements	the requirements for the preparation of the Proposal as set out in Part II of this IRPP.
PV/CPV Plant Substation	the medium voltage / high voltage substation (33kV/132 kV) connecting the PV/CPV Power Plant to the NEPCO and/or Distribution Companies transmission network
PV/CPV Power Plant ("Plant")	the photovoltaic / concentrated photovoltaic power plant for the generation of electrical energy including but of limited to land, buildings, engineering and design documents, all power producing and auxiliary equipment.
PC/CPV Power Project ("Project")	the project to be developed under the Memorandum of Understanding consisting of the PV/CPV Power Plant and the PV/CPV Plant Substation
RE&EE Law	the Renewable Energy and Energy Efficiency Law No. (13) 2012
Reference Annual Electricity	the reference annual electricity generation as defined in Section 2.6.3.1 of Part I of this IRPP.
Reference Price List	the reference price list as published from time to time from EMRC
Site	the area of land as defined in Appendix I to the MOU.
Special Purpose Company (SPC)	the company established by the Developer under the Laws of the Hashemite Kingdom of Jordan for the sole purpose to implement, engineer, construct, finance own and operate the Project.
Submission Date	means the date and time during which the Proposal shall be received by DIRECT PROPOSALS COMMITTEE in accordance

	with Section 1.6 of Part I of this IRPP.
Successful Developer	the Developer who has been notified in accordance with Section 3.1 of Part I of this IRPP that its Proposal has been accepted.
Tariff	The electricity tariff proposed by the Developer in Section C of its Financial Proposal.
Technical Evaluation	the evaluation of the Technical Proposal as set out in Section 2.5 of Part I of the IRPP.
Technical Proposal	the technical proposal to be submitted in accordance with Sections 1.3 and 1.4.1 of Part I of the IRPP.
Technical Proposal Opening	the public opening of the Technical Proposal as per Section 1.11 of Part I of this IRPP.
Technical Proposal Submission Letter	the letter to be provided by the Developer as part of its Technical Proposal in the form set out in Attachment A, Proposal Form A.1 to this IRPP.
Total Project Budget	According to line item No. (9) in Proposal Form G.2: Breakdown of Total Project Cost (in 1,000 JOD).
Transmission Connection Agreement	the contract to be entered into between the SPC and NEPCO in respect to the connection of the Project to the Transmission Network as set out in Section 7.2.1 of Part II of this IRPP.
Transmission Network	the transmission network owned by NEPCO comprising of the 400 kV and 132 kV transmission circuits, 400/132/33kV substations and other associated plants and/or apparatus.
Validity Period	means the period of 365 (three hundred sixty five) days after the Proposal Submission during which the Proposal shall be valid in accordance with Section 1.8 of Part I of this IRPP.

Part I

Instructions to Developer

Part I. Instructions to Developer

1 Instructions for Proposal Preparation and Submission

1.1 Compliance with Instructions

The Developer shall submit the Proposal in accordance with the Instructions for Proposal Preparation and Submission set out in this Part I (Instructions for Proposal Preparation and Submission) of the IRPP. The Developer shall provide all information and complete all data sheets and data forms as required in Part II (Requirements for Proposal Preparation) to this IRPP.

Any deviations from the requirements or instructions in the IRPP shall clearly be indicated and explained by the Developer. Deviations and modifications are discouraged and the Direct Proposals Committee reserves the right to reject the Proposal as non-compliant in its sole discretion.

1.2 Clarification Questions

If a Developer has any doubt as to the meaning or intent of any sections of this IRPP or requires additional information, such Developer may, in writing, request clarification from Direct Proposals Committee. For this purpose the Direct Proposals Committee has established an electronic platform, which is mandatory to be used for any request for clarification following the receipt of this IRPP. A separate instruction for the use of the platform will be submitted by separate letter to the Developer that signed the MOU.

Any request for clarification must be received by no later than thirty (30) days prior to the agreed Submission Date , failing which the Direct Proposals Committee may disregard any such requests.

The Direct Proposals Committee will endeavour to respond to any request for clarification within two (2) weeks from the receipt of such request.

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1.3 Submission of Proposal

The Developer shall submit its Proposal in two envelops, one containing the Technical Proposal and one containing the Financial Proposal.

The Developer shall prepare one original of the Technical Proposal as described in Section 1.4.1 of this IRPP and one original of the Financial Proposal as described in Section 1.4.2, and clearly mark each as “ORIGINAL”. In addition, the Developer shall submit three (3) hard copies and three (3) electronic copies on CD Rom or memory stick of the Technical Proposal, and three (3) hard copies and three (3) electronic

copies on CD Rom or memory stick of the Financial Proposal and clearly mark them “COPY.”

In the event of any discrepancy between the original and the copies, the original shall prevail.

The original Technical Proposal submitted by the Developer shall include the original of the Technical Proposal Submission Letter, the form of which is included as Attachment A.1 to this IRPP, signed by a person or persons duly authorised to bind the Developer to the Technical Proposal. The Financial Proposal shall include the Financial Proposal Submission Letter, signed by a person or persons duly authorised to bind the Developer to the Financial Proposal. If the Proposal is submitted by two or more entities as Participants of a joint venture, a duly authorised person or persons of one or each such Participant shall sign the Technical Proposal Submission Letter and the Financial Proposal Submission Letter. In each case, powers of attorney or other documents evidencing authorisation of such persons to sign the Technical Proposal Submission Letter and the Financial Proposal Submission Letter shall be provided.

The original the hard copies and the electronic copies of the Technical Proposal shall be placed in a sealed envelope clearly marked “TECHNICAL PROPOSAL”. Similarly, the original and all copies of the Financial Proposal shall be placed in a sealed envelope clearly marked “FINANCIAL PROPOSAL” with a warning “DO NOT OPEN WITH THE TECHNICAL PROPOSAL”. The envelopes containing the Technical Proposal and Financial Proposals shall be placed into an outer envelope and sealed.

The inner envelopes and the outer envelope shall:

a) bear the name and address of the Developer;
b) be addressed in accordance to the address below;
c) be marked "Proposal for the Renewable Energy Project under Direct Proposal Submission";
d) bear a warning not to open before the time and date of Proposal opening.

If envelopes are not sealed and marked as required, the Authorities will assume no responsibility for the misplacement or premature opening of the Proposal.

The original and three of the copies of the Proposal shall be addressed and delivered by hand or by courier to:

Dr. Ghaleb Maabreh
Secretary General
Ministry of Energy and Mineral Resources
Zahran Street,
P.O. Box 140027
Amman, Jordan
Tel: +962 65828971

Proposals forwarded by facsimile, telex, telegram or e-mail will not be accepted and thus rejected.

1.4 Proposal Documents

1.4.1 Technical Proposal Documents

The Technical Proposal prepared by the Developer shall comprise two Volumes (i.e. Volume I and II) with the following contents:

Volume 1:

- Section A: Technical Proposal Submission Letter in accordance with Attachment A, Proposal Form A.1 to this IRPP;
- Section B: Information on Developer in accordance with Section I of Part II of this IRPP;
- Section C: Technical Proposal in accordance with Section 3 of Part II of this IRPP;
- Section D: Eligibility of the EPC Contractor in accordance with Section 5.1 of Part II of this IRPP;
- Section E: Implementation Schedule in accordance with Section 4 of Part II of this IRPP;
- Section F: Statement that each of the Draft Project Agreements are accepted or a marked-up copy of the Draft Power Purchase Agreement duly incorporating all requested modifications, in accordance with Section 7.1 of Part II of this IRPP;
- Section G: If applicable Land Lease Agreement, in accordance with Section 7.2 of Part II of this IRPP;

Volume 2:
If the Developer wishes to provide pre-printed documents about the Developer, any member of the Developer consortium or any Contractor, such pre-printed literature and materials shall be contained in Volume 2 of the Proposal.

1.4.2 Financial Proposal Documents

The Financial Proposal prepared by the Developer shall comprise one Volume with the following contents:

- Section A: Financial Proposal Submission Letter in accordance with Attachment A, Proposal Form A.2 to this IRPP;
- Section B: Commercial and financial information in accordance with Section 6 of Part II of this IRPP; and
- Section C: Tariff Proposal.

1.5 Language of Proposal

The Proposal, as well as all correspondence and documents relating to the Proposal exchanged by the Developer and the Direct Proposals Committee, shall be written in the English language. Supporting documents and printed literature that are part of the Proposal may be in another language provided they are accompanied by an accurate translation of the relevant passages in the English language, in which case, for purposes of interpretation of the Proposal, such translation shall govern.

1.6 Submission Date

The Proposal shall be received at the address set out in Section 1.3 of Part I of the IRPP on the Submission Date).

The Direct Proposals Committee, at its sole discretion, may extend the Submission Date in which case all rights and obligations of Direct Proposals Committee and the Developer previously subject to the Submission Date shall thereafter be subject to the deadline as extended.

1.7 Validity Period

The Proposal shall remain valid for a period of 365 (three hundred sixty five) days after the Submission Deadline. A Proposal valid for a shorter period shall be rejected by the Direct Proposals Committee as non-compliant.

In exceptional circumstances, prior to the expiration of the proposal validity period, the Direct Proposals Committee may request the Developer to extend the period of validity of their Proposals. The request and the responses shall be made in writing.

1.8 Withdrawal, substitution and modification of the Proposal

The Developer shall not withdraw, substitute or modify its Proposal after it has been submitted.

1.9 Amendments to the documents submitted as part of this IRPP

At any time, but not later than 20 (twenty) Business Days prior to the Submission Date, the Direct Proposals Committee may amend the documents attached to this IRPP by issuing addenda. Any addendum issued shall be part of the IRPP documents and shall be communicated in writing to each Developer. No other communications of any kind whatsoever will modify the IRPP documents. The Developer shall acknowledge receipt of all such amendments.

1.10 Opening of Technical and Financial Proposals and confidentiality

The Direct Proposals Committee will open the Technical Proposals in an open session on the day of the Submission Date as set out in Section 1.6 of Part I of the IRPP (the “Technical Proposal Opening"). A maximum of two (2) representatives of the Developer will be allowed to attend. At the Technical Proposal Opening, the Direct Proposals Committee will ensure that the duly executed Technical Proposal Submission Letter has been furnished by the Developer.

The Direct Proposals Committee will open the Financial Proposal in an open session (the “Financial Proposal Opening”). Only if the

Developer'sTechnical Proposals has been considered by the Direct Proposals Committee to be compliant in accordance with Section 2.5 of Part I of the IRPP will be invited in writing to participate in the Financial Proposal Opening. A maximum of two (2) representatives of the Developer will be allowed to attend.

At the Financial Proposal Opening, the Direct Proposals Committee will ensure that the duly executed Financial Proposal Submission Letter associated with the Financial Proposal has been furnished.

After the Technical Opening and Financial Opening, no information relating to the clarification, determination of responsiveness, evaluation and comparison of Proposals and recommendations concerning the acceptance of the Proposal, shall be disclosed to the Developer or any other person not officially involved in such clarification, determination, evaluation, comparison and recommendation, until the Notification of Acceptance has been submitted to the Successful Developerby the Direct Proposals Committee.

Any effort by a Developer (or any local agent or representative) to influence the Direct Proposals Committee or its advisors during the process of clarification, determination of responsiveness, evaluation, comparison and ranking of Proposals, or in decisions concerning the acceptance of the Proposal, may result in the rejection of such Developer's Proposal.

The Direct Proposals Committee shall not return the original or copies of the Proposal submitted by the Developer.

2 Evaluation of Proposals

2.1 Evaluation Process

The evaluation of the Proposal comprises two consecutive steps:

- the Technical Evaluation, which will be followed by
- the Financial Evaluation.

The Financial Evaluation will only take place once the Technical Evaluation has been finalized and the Technical Proposal has been accepted by the Direct Proposals Committee.

2.2 Clarification of Proposal

The Direct Proposals Committee may request additional information, clarifications and verifications with respect to any item contained in the Proposal. The Developer will be requested to respond in writing to any such request within a time period as specified in the request.

To assist in the examination and evaluation of the Proposal the Direct Proposals Committee may also require the Developer to attend clarification meetings to be held in Amman at MEMR's offices or at any other location that the Direct Proposals Committee may require.

2.3 Substantial Responsiveness

The Direct Proposals Committee will assess the responsiveness of the Technical Proposal and of the Financial Proposal.

The Direct Proposals Committee will evaluate only those Proposals determined to be substantially responsive to the requirements of this IRPP. A Proposal will be considered substantially responsive only if it proposes the development of the Project in conformity, both as to form and substance, with all of the technical, commercial, legal and financial requirements of this IRPP and otherwise contains all the information required to be provided by the Developer as stated in this IRPP.

A Proposal will be deemed substantially unresponsive in the event of any deviation or reservation from the terms and conditions of the IRPP which in any material respect would affect the scope, quality, or performance of the Project or NEPCO's or any other party's right's or the Developer's obligations under the Power Purchase Agreement,
The Direct Proposals Committee may waive any minor non-conformity or irregularity in a Proposal which does not constitute a material deviation

2.4 Reservation of Rights

The Direct Proposals Committee reserves the absolute right to accept or reject the Proposal or to annul or cancel the Direct Proposal Submission Process and reject the Proposals at any time without any liability to the Developer or any other party and without any obligation to inform the Developer of the grounds for its action.

2.5 Technical Evaluation

2.5.1 Qualification of contractors

In order to qualify for further evaluation, the Developer must, to the satisfaction of the Direct Proposals Committee, demonstrate that the EPC Contractor and the PV Equipment are in compliance with the requirements set out in Section 5 of Part II of this IRPP.

2.5.2 Rejection of the Proposal

The Proposal may be rejected if the Developer, without limitation:

a) fails to submit a substantially responsive Proposal, as defined in Section 2.3 of Part I of this IRPP; or
b) fails to submit the Technical Proposal, including all Proposal Forms, in the form specified in Section 1.4.1 of Part I of this IRPP; or
c) fails to submit the Technical Proposal Submission Letter in the form and in accordance with the requirements of Attachment A.1 to this IRPP; or
d) fails to provide information on the Developer's organization and the powers of attorney authorizing the execution of the Technical Proposal Submission Letter in accordance with Section 1 of Part II of this IRPP; or

e) fails to meet the eligibility and qualification requirements as set forth in Section 5 of Part II of this IRPP; or
f) fails to submit an Project Implementation Schedule in accordance with Section 4 of Part II of this IRPP; or
g) fails to submit the completed Section 3 of Part II of this IRPP; or
h) claims substantial departures from the terms or conditions of the Draft Power Purchase Agreement and the Draft Transmission Connection Agreement as included in Part III of this IRPP; or
i) fails to submit signed term sheets of the agreements as required by Section 7.2 of Part II of this IRPP; or
j) indicates a COD that is later than the Latest COD specified in Section 1.3 of the IRPP.
k) fails to comply to the local content requirements set out by the Ministry of Public Works and Housing Building.

2.5.3 Compliance of Technical Proposal

The Technical Proposals that has been determined to be "substantially responsive" in accordance with Part I, Section 2.3 of this IRPP will be subject to a more detailed assessment of the Project's ability to deliver the performance expected over the term of the Project. The evaluation will take into account, without limitation, the following criteria:

- Technical aspects:
  - Assumed electricity generation (Reference Annual Electricity);
  - Adequacy of technical performance (e.g. availability, efficiency);
  - Grid connection requirements;
  - Environmental impact; and
  - Operating characteristics;
- Level of Project development:
  - Level of design and engineering;
  - Stage, transparency and terms of EPC Contract and O&M Contract; and
  - Completeness of Proposal;
- Practicality of Project Implementation Schedule;
- Exceptions to the terms and conditions of the Draft Power Purchase Agreement,

2.6 Financial Evaluation

The financial evaluation of the Proposal will only take place if the Technical Proposal has been deemed substantially compliant with the criteria set out in Section 2.5.3 of Part I of this IRPP.

2.6.1 Rejection of the Proposal

The Proposal may be rejected if the Developer, without limitation:

a) fails to submit the Financial Proposal, including all Proposal Forms, in the form specified in Section 1.4.2 of Part I of this IRPP; or
b) fails to provide the Project cost estimates in accordance with Sections 6.2 and 6.3 of Part II of this IRPP; or

c) fails to provide the financial data in accordance with Section 6.4 of Part II of this IRPP; or
d) fails to submit the proposed Tariff in accordance Section 6.1 of Part II of this IRPP and with the draft PPA included in Part III to this IRPP; or
e) fails to adhere to best-practice standards in preparing the Developer's Financial Model as specified Section 6.5 of Part II of this IRPP.

2.6.2 Compliance of Financial Proposal

The Financial Proposal that has been determined to be "substantially responsive" in accordance with Section 2.3 of Part I of this IRPP will be subject to a more detailed assessment taking into account, without limitation, the following criteria:

- Adequacy of cost estimates (construction costs, operation and maintenance costs);
- Proposed Tariff shall not exceed the Ceiling Tariff;
- Financial viability of the Project:
  - Proposed financial structure;
  - Terms and conditions of proposed debt financing;
  - Ability to achieve timely closure of financing; and
  - Level of commitment of financing.

2.6.3 Price Evaluation

The Price Evaluation will be based on the offered tariff taking into consideration the capability of the Transmission System to accommodate such project.

2.7 Acceptance of Proposals

The Proposal that has been determined to be "substantially responsive" in accordance with Section 2.2 will be accepted on the basis of the proposed Tariff (which will be the Ceiling Tariff or below) taking into consideration the capability of the Transmission System.

MEMR has the right to select the proposal according to the proposed Tariff and subject to network constraints.

The Developerhaving been selected by MEMR (the Successful Developer) will be invited for Proposal negotiation.

3 Notification Acceptance, Award and Execution

3.1 Notification of Acceptance of the Proposal / or Notification if Proposal is not accepted

The Direct Proposals Committee will issue a notification (the "Notification") to the Developer, whose Proposal has been accepted in accordance with Section 2.7 of Part I of the IRPP (the “Successful Developer”).

The Developer, whose Proposal is accepted by the Direct Proposals Committee must acknowledge receipt of this Notification within one week from the date of issuance thereof.

It is the intention of the Direct Proposals Committee to keep the Proposal of the accepted Developer open for detailed clarifications and discussions until such time as the Project Agreements have been executed.

3.2 Negotiations

The Successful Developer will be invited by the Direct Proposals Committee to enter into negotiations and must promptly commence, in good faith, negotiations with MEMR and NEPCO.

In accordance with the provisions of Section 7 of Part II of this IRPP and the Renewable Energy and Energy Efficiency Law, negotiations of the Power Purchase Agreement will be limited to the specific additions or deletions proposed by the Developer in its Proposal.

In the event that MEMR and NEPCO determine that it is unlikely to satisfactorily reach execution of these agreements it may terminate those negotiations unilaterally.

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3.3 Signing of Agreements

When MEMR and NEPCO and the Successful Developer reach agreement on the implementation of the Project, the Successful Developer agrees to immediately proceed with finalization and completion of the Power Purchase Agreement and the Transmission Connection Agreement with NEPCO and continue with the satisfaction of all Conditions Precedent in the PPA in order to achieve financial closing and commence construction of the Project in accordance with the Project Implementation Schedule.

It is expected that, prior to signing of the Power Purchase Agreement and the Transmission Connection Agreement, the Developer has established the SPC, which will then sign the approved Power Purchase Agreement andTransmission Connection Agreement.

The SPC must sign the Project Agreements when called upon to do so. It will be required to send, within two (2) weeks from the date of receipt of notice to such effect, representatives with proper powers of attorney to MEMR's offices for the purpose of executing the finalized Project Agreements.

The Successful Developer will be responsible for the preparation of the complete Project Agreements and the related documents with such alterations or additions as agreed upon during contract negotiations between MEMR and NEPCO.

The Successful Developer will be responsible for any costs or expenses incurred by it in negotiating and executing the Power Purchase Agreement and in the preparation of originals and copies thereof and for achieving Financial Closing as well as satisfying the conditions precedent for the full effectiveness of the PPA. MEMR and NEPCO will be under no obligation to reimburse the Successful Developer for any such costs or expenses.

3.4 Performance Security

Within fourteen (14) days of both Parties after achievement of Financial Close, the Successful Developer must submit the Performance Security in the form set out in the Draft Power Purchase Agreement included in Part III of this IRPP. The Performance Security will cover costs and damages incurred by NEPCO due to delays in completion or failure to achieve commercial operation of the Project for which the Successful Developer is responsible or other breaches by the Successful Developer of its obligations under the Power Purchase Agreement. The Performance Security will cover the transmission cost incurred by NEPCO for the interconnection of the plant to the Transmission Network, as determined by NEPCO in Section 1.3 of the IRPP.

The Performance Security will remain valid for the period from the signature of the Power Purchase Agreement until the date of termination of the Power Purchase Agreement, provided that any claims covered by the Performance Security have been settled. After Commercial Operation Date, and subject to payment of any outstanding amounts owing to NEPCO, the Performance Security shall be reduced to 50% of the initial amount.

The costs for issuing and maintaining the Performance Security will be borne by the Successful Developer. If the Successful Developer fails to comply with the procedures outlined herein for furnishing the Performance Security, such Developer's Performance Security will be forfeited.

Part II

Requirements for Proposal Preparation

Part II. Requirements for Proposal Preparation

1 Proposal Submission Letters

The proposal submission letter accompanying the Technical Proposal included as Proposal Form A.1 in this IRPP (the "Technical Proposal Submission Letter") as well as the proposal submission letter accompanying the Financial Proposal included as a Proposal Form A.2 in this IRPP (the "Financial Proposal Submission Letter") shall be completed by the Developer without exception or alteration. Both letters must be signed by the authorized representative(s) of the Developer in accordance with Section 2 of Part II of this IRPP.

The Developer shall as Section A of its Technical Proposal submit the Technical Proposal Submission Letter and the Financial Proposal Letter as Section A of its Financial Proposal substantially in the forms set out in the Proposal Form A1 and A2 of Attachment A to this IRPP. The Proposal Submission Letters shall be accompanied by the power(s) of attorney authorizing the signatory to sign such letter. The power(s) of attorney shall be legalized by a Jordanian notary public or by a foreign notary public. If it is legalized by a foreign notary public then the notarization will also need to be legalized in that foreign country through the relevant Jordanian consulate or by a process recognized by the Government of Jordan.

2 Information on Developer

The Developer, and if the Developer is a consortium ("Developer Consortium"), each consortium member, shall be a business organization duly organized, existing and registered and in good standing under the laws of its country of domicile.

As part of its Proposal, the Developer shall furnish evidence to the Direct Proposals Committee of its legal structure and, in the case of a Developer Consortium, information with respect to (a) the legal relationship among the members of the Developer Consortium, and (b) the role and responsibility of each member of the Developer Consortium, including:

- a duly certified copy of the certificate of incorporation and registration of each member of the Developer Consortium;
- a certified copy of the complete joint venture or consortium agreement in the Lead Developer's country, signed by each and every member of the Developer; and
- power(s) of attorney authorizing the execution of such agreement, which shall be legalized by a Jordanian notary public or by a foreign notary public. If it is legalized by a foreign notary public then the notarization will also need to be legalized in that foreign country

through the relevant Jordanian consulate or by a process recognized by the Government of Jordan.

The Developer Consortium shall confirm the lead developer (the “Lead Developer”) as identified in the MOU. The Lead Developer will be authorized to act and receive instructions on behalf of all the consortium members. The Lead Developer will take the lead role in the Developer Consortium's Proposal preparation and, if designated as a compliant proposal, negotiation of the Power Purchase Agreement.

The Consortium members shall contribute, and maintain a share portion in the Special Purpose Company as identified in the MOU for a period of two (2) years after start of commercial operation of the Project. The Lead Developer shall maintain at least 30% of the Equity in the Special Purpose Company until the end of the PPA term. Any change in the structure of the share portion in the Special Purpose Company after the COD is subject to MEMR prior approval. The relevant provisions in the PPA (Article 20.2.) shall apply.

The Developer shall complete all Proposal Forms B.1 and B.2 included in Attachment B to this IRPP and submits them together with all relevant information as Section B of its Technical Proposal.

3 Minimum Technical Requirements for Solar Photovoltaic (PV) and Concentrated Photovoltaic (CPV) Power Project

[*Note to Developer: This Section 3 of Part II of the IRPP and all Annexes to this Section 3 shall be filled out and completed by the Developer and submitted as Section C of its Technical Proposal. The Developer shall delete those sections or items in the document which are not applicable to the proposed technology of the Plant. Following acceptance of the Proposal and the successful negotiations of the agreements as per Section 3 of Part I of this IRPP, the completed set of the documents included in Section C of the Technical Proposal (including all Annexures) shall become an Appendix to the PPA*.]

3.1 Facilities of the Project

3.1.1 Introduction

The [*Name of Plant*] shall comprise all facilities necessary for the generation of power from the solar resource as specified in this Section 3 of the IRPP.

The Site allocated for the [*Name of Plant*] (the "Plant") is located in [*to be stated by Developer*] of Jordan about [*to be stated by Developer*] km of the City of [*to be stated by Developer*]. [*Developer to provide details on the site and location*].

- Scheduled COD: [Day] [Month] [Year]
- Nominal Power (MW_{AC}): [Nominal Capacity]
- Peak Power (MW_p): [Peak Capacity]
- Size of PV plant (ha): [Size]

The Plant shall comprise the following facilities:

- Photovoltaic power generation with a plant size of [xxx,xxx.00] ha and with a total peak power of [xx.xx] MW_p, and a nominal power of [xx.xx] MW_{AC};
- Storage facilities for spare parts and consumables;
- Water supply and/or water tanks for cleaning the solar arrays including water purification system according to the needs, if necessary;
- Medium voltage interconnection of the PV/CPV Plant to the PV/CPV Plant Substation;
- PV/CPV Plant Substation including transformer station to the required voltage level (132 kV);
- Required telecommunication infrastructure including cabling and necessary hardware for required interface with grid operator;

- Required civil infrastructure including access roads from existing roads to the location of the PV/CPV Plant and PV/CPV Plant Substation;
- Additional required infrastructure (spare part storage, control room etc.) and necessary services (water, telephone, internet, etc.).

The Developer is free to design the PV/CPV Plant as the Developer deems appropriate as long as design conditions and performance requirements are in compliance with this Minimum Technical Requirements set out in the Section 3 of this Part II of the IRPP.

The PV/CPV Project together with all additional infrastructure, shall be constructed, operated and maintained by the Developer.

NEPCO will be responsible to connect the facility to the existing grid (from the PV plant substation) on the agreed high voltage level and for the construction and operation of all required facilities.

3.1.2 Scope of Work

The scope of works covers:

a) The survey and assessment of the Site;
b) The development, financing, insuring, detailed design engineering (including equipment specifications), coordination of subcontractors, permitting, procurement, manufacturing, factory testing, transport to site, installation, construction, commissioning, performance testing including site investigation, site development and all related civil works of the Project;
c) The following works such as:
    - Studies and Surveys
    - Preparatory Works
    - Civil Part
    - Mechanical Part
    - Electrical Systems
    - I&C and Communication Systems
    - Project development, implementation and supervision
    - Meteorological measurement (including equipment)
d) Providing security and surveillance on Site; and
e) The operation and maintenance of the Project.

The Developer shall include in its scope all the equipment, works and services necessary for complete, safe and reliable operation and maintenance of the Project in accordance with the terms of the Power Purchase Agreement even if certain essential works are not expressly stated in this Section 3 of Part II to the IRPP.

The work shall be performed according to the Good Utility Practice which means, at a particular time, those practices, methods and acts as are in accordance with good standards of prudence applicable to the international electricity generation industry which would have been expected to accomplish the desired result at lowest reasonable cost consistent with reliability, safety and expedition.

All equipment shall be newly manufactured by reputable manufacturers. No used, reconditioned or salvaged equipment or material will be allowed. All equipment used in connection with the Project shall be of proven design for the intended use of the equipment. As a general principle, field-commercially proven and up-to-date technologies will be selected and licensing terms agreed with the objective of maximizing value to NEPCO.

3.2 Interfaces

3.2.1 General

"Interfaces" are the physical points at which the Developer's interconnection facilities and other facilities meet.

The "Plant Related Interfaces" shall be considered by the Developer for this Project during construction and O&M phase over the term of the Power Purchase Agreement.

The Developer shall actively clarify all Interface requirements with the Transmission System Operator ("NEPCO"), suppliers, etc., interoperability shall be ensured. Further, the Developer shall provide all required hardware and software installations of the Interface up to the Interface point one (1) meter outside the Site subject to the co-operation of all involved parties.

3.2.2 Plant Related Interfaces.

The following Interfaces are related to the PV Plant and described in this Section:

- Interfaces with NEPCO:
  - Interfaces with the Connection Facilities
  - Interfaces with the NEPCO National Control Centre (NCC) in Amman South
  - Interfaces with MEMR headquarter in Amman
- Other Interfaces: [Developer to provide if applicable]

Where applicable, in addition to the Remote Terminal Unit (RTU) and Marshalling cabinet, the Developer is to provide for the control and monitoring of the PV/CPV Plant Substation a digital Substation Control and Monitoring System (SCMS). The related HMI systems shall be provided in the "switchgear and control building". For remote control from the NEPCO National Control Centre (NCC), the Developer is to provide Gateways. The Gateways shall be capable of serving as an RTU to the NEPCO NCC for acquiring and transmitting the power plant´s data to NCC.

The Gateway's should be able to communicate with NEPCO NCC through two separate gateways connected to two different communication channels. Each gateway shall be capable to communicate with NCC with one channel so that the gateways will be on main/standby basis for IEC 60870-5-101 Protocol, serial interface (RS-232c) data Communication. The gateway should be part of the (SCMS)

and connected on the same bus and not a separate PC. Transfer of control from Tow Gateway's to NCC shall be achieved through software, without affecting the safe operation and control of the power station.

The Tow Gateway's is supplied and purchased by the Developer (contractor) according to NEPCO requirements.

- It is the responsibility of the Developer to match his Equipments with NCC Master System Protocol parameters.

The Developer shall provide a complete and detailed description of the Interfaces as per Annex 7 to this Section 3 of Part II of the IRPP.

3.2.2.1 Interfaces with Transmission Network through the Connection Facilities

The Interfaces between the Plant and the Connection Facilities which shall be considered by the Developer shall be in line with the requirements of the Network Connection Agreement (or Transmission connection agreement) to be agreed on between NEPCO and the Developer during the Proposal development phase.

At least the following interfaces need to be covered within the above mentioned Agreement:

- HV conductors at the output of the PV/CPV Plant Substation as to be agreed with NEPCO;
- Plant interface to NCC network;
- [Developer to add additional items]

All fiber optic cable [FOC] terminations and communication equipment in the PV/CPV Plant Substation are to be provided by the Developer according to specifications of NEPCO.

3.2.2.2 Interfaces with NEPCO National Control Centre

The NEPCO National Control Center (NCC) will be located in [Amman South]. In order to link the Plant to the NEPCO National Control (NCC), the Developer shall make available all analogue and digital signals as requested by the NCC at an interface cubicle (provided and owned by Developer and located in an interface room in the control building of the Plant). The Developer will be responsible to provide the Cable and connection to an interface cubicle at NEPCO substation.
NEPCO will provide and own the interface cubicle at the Interconnection Facilities.

Cable protection cubicles (provided and owned by the Developer but located in a separate room in the control building of the power station) for HV-cable protection.

Fiber optic cable terminations at the Optical Distribution Frame (“ODF”) are to be provided and owned by the Developer and located in an interface room in the control building of the substation. In the ODF all

interface signals from/to the NCC shall be provided and data transmission is facilitated by the telecom equipment to be supplied under the scope of work. All interface equipment (hardware and software) together with the cables connecting them to the ODF shall be included in the scope of supply of the Developer.

The preliminary list of signals which shall be considered as a minimum scope, shall be provided by Developer based on the requirements of the Network Connection Agreement with NEPCO.

3.2.2.3 Interfaces with NEPCO and MEMR headquarter in Amman

The following signals shall be transmitted via OPGW to NEPCO's headquarter and MEMR in Amman:

- All signals transmitted to the NCC;
- All settlement metering and back-up metering signals;
- All further signals from the control room of the Plant as required by NEPCO.

3.2.2.4 Other Interfaces

The other interfaces result from specific Site and Project requirements, such as:

- Interfaces with telecommunication system
- Interfaces with new main access roads at Site
- Interfaces with Water Connection Facilities (e.g. water supply pipeline or unloading arms in case of truck delivery)
- Interfaces for auxiliary power supply

[*Developer to provide details in Annex 8 to this Section on the following interfaces - where applicable*].

3.3 Site Conditions

3.3.1 General

The Developer is responsible for its own investigations to establish sufficient and accurate information in support of its technical proposal. Direct Proposals Committee expectation is that the Developer has assessed the potential of the proposed Project Site andshall ascertain the nature and location thereof and all conditions which may affect the project costs.

The Developer shall make its own assessment and collect own information. Neither Direct Proposals Committee nor NEPCO nor any competent authority or other person or entity is responsible for the accuracy of any such information.

3.3.2 Site Location

The Site allocated for the [*Name of Plant*] (the "Plant") is located in [*to be stated by Developer*] of Jordan about [*to be stated by Developer*] km of the City of [*to be stated by Developer*]. [*Developer to provide details on the site and location*].

The Site is marked by the coordinates PA1, PA2, PA3, and PA4, having an area of about [*to be stated by Developer*] km [*to be stated by Developer*] km. [*Developer to provide details*].

The Site is situated within the following UTM Zone [*to be defined by Developer*] (international system 1924) coordinates: [*Developer to provide details*]

	Latitude (E)	**Longitude (N)**
Point	**UTM (m)**	**UTM (m)**
[Name of Plant] Overall Site		
PA-1	xxx,xxx.xxx	x,xxx,xxx.xxx
PA-2	xxx,xxx.xxx	x,xxx,xxx.xxx
PA-3	xxx,xxx.xxx	x,xxx,xxx.xxx
PA-4	xxx,xxx.xxx	x,xxx,xxx.xxx
Total area	x,xxx,000 m² (approx. x,xxx m x x,xxx m)	

3.3.3 Local Conditions

For a successful development of the Project, Developer shall carry out several investigation works and needs to collect certain information to provide Site and Project specific data to Direct Proposals Committee which support Developer's proposal.

The Developer shall undertake the following investigations and provide the respective data with the Technical Proposal

- Site description including survey of shading objects, available infrastructure and grid connection point;
- Acquisition of long term solar irradiation data for the selected site;
- At least one 'Solar resource assessment' study and 'Energy yield assessment' study following usual international procedures;
- Land survey, soil investigations and geotechnical study;
- Preliminary Environmental Assessment (Environmental Scoping Study);
- Description of the water supply management.

Developer is to provide the reports and the data within Annex 6 to this Section with the Technical Proposal.

In addition Developer shall collect and provide the following specific information for the Site:

- Site climatic conditions;
- Seismic loads;
- Hydrological conditions;
- Description of electrical infrastructure for PV plant interconnection; and
- Telecommunication facilities.

3.4 Design Requirements

3.4.1 General

This Section 3.4 describes the minimum technical requirements and guidelines for defining the technology and the design of the proposed Project.

In addition to the technical requirements of this Section, the selection of the technology, the design of the PV solar array and the facility layout are determined by the site conditions as described in Section 3.3 of Part II of this IRPP.

The Plant shall be designed, manufactured, erected and configured in such a way that it will achieve high availability and reliability with minimum power production costs and shall be designed to optimize the use of the solar resource by generating electricity.

All parts of the Plant must be suitable in every respect for a maximum efficient use of the Site under the anticipated operation conditions as well as the climatic conditions and environmental restrictions which are characteristic for the Site.

All Plant equipment and systems shall be built to appropriate internationally recognized standards and shall comply with all the applicable national codes and statutory codes.

Local minimum content shall be 20% and shall be reflected in Proposal Form F.2. (page 1of 2) Sub-Total 1: Construction Cost. The Total Local Costs shall be min. 20% of Total Costs in the table.

The Developer shall ensure that the EPC Contractor and the EPC Subcontractors utilise good engineering practices in preparing the design of the Plant. Equipment proposed to be used by the Developer and supplied by the EPC Contractor and/or the EPC Subcontractors must be of new manufacture and must be manufactured by reputable manufacturers with sufficient experience of the particular equipment proposed.

The Developer and the EPC Contractor, as well the EPC Subcontractors, shall apply a well established plant component classification and identification system. The international SI system of units shall be used for design, drawings, diagrams, instruments, etc.

The technical limits shall be defined by the Developer and described in detail in the Annex 6 to this Section 3 of Part II of the IRPP.

3.4.1.1 Design conditions

Climatic Conditions

Developer shall define the climatic conditions and especially the solar irradiation conditions to be considered for the design and rating of the Plant. Following parameters are to be considered:

Item	Unit	Value [Developer to define]
Design Climatic Conditions		
Yearly Global horizontal irradiation (GHI) at Design	kWh/m²	
Yearly irradiation in Plane of Array (POA) at Design	kWh/m²	
Maximum ambient temperature in the shade, to be taken as air inlet temperature for air-conditioning and ventilation	°C	
Minimum ambient temperature	°C	
Design relative humidity	%rH	
Average wind speed at 10m	m/s	
Mean annual rainfall (during summer time)	mm	
Mean annual rainfall (during winter time)	mm	
Maximum recorded rainfall in one day	m	
Dust concentration in the air	mg/m³	
Dust concentration in the air under sandstorm condition	g/m³	
Average Salt content in the air	mg/m³	

Seismicity:

The civil design shall take full account of the latest UBC/IBC rules and shall observe any regional requirements of the concerned authorities. Zone [*to be verified by Developer*] shall be foreseen for earthquake design at Site.

Lightning:

The lightning protection design shall take into account national and international norms and standards including risk evaluation of lightning strike on the selected site.

3.4.1.2 Inspection and testing

Inspection and testing requirements for the Plant are described in Schedule 10 (Commissioning) of the draft PPA.

NEPCO shall have the right to have their representatives present during all inspections and tests. The presence of NEPCO representatives during any inspection or test (or waiver by NEPCO of their right to witness any inspection or test) shall in no way relieve the Developer of its responsibility for supplying the equipment in accordance with the scheduled dates.

3.4.1.3 Performance Model

The Developer shall provide a performance model, complete with the related user manuals and data sheets of the selected main PV plant components (module, string box, inverter, transformer), to simulate the performance of the Plant and to determine the guaranteed values.

A performance model shall be provided by the Developer with the technical proposal as per Annex 10 (Performance Model) to this Section 3 of Part II of this IRPP, which shall include:

- Yield study using PV-syst V.6 with the following information:
  - Assumptions for historical (long-term) climatic data sources (Solar Gis, 3 Tier, or meteocontrol), detailed description of selected data
  - Plant configuration (system specification and design information: module – string length - inverter – transformer, etc.)
  - Selection of transposition model to determine the plane of array (POA) irradiation out of the global horizontal irradiation (GHI)
  - Assumptions for the simulation of the PV plant:
    - Albedo
    - Thermal losses
    - Ohmic (cable) losses
    - Module quality and mismatch losses
    - Soiling losses and reasons for it (e.g. with / without X module cleanings)
    - Other applicable assumption
  - Description of simulation process
  - Yearly yield in MWh and specific yield in [kWh/kWp]
  - Yearly and monthly GHI and POA irradiation in kWh/m² and cell and ambient temperature in °C
  - Description of actual losses (shading, irradiance level, temperature, module quality and mismatch, cabling DC, inverter, cabling AC, transformer, others)
  - Assumptions for degradation
  - Assumptions for availability
  - Monthly and total Performance Ratio values
  - Uncertainty analysis of the input data, assumptions, and the results
  - Determination of different probability cases P50, P75, P90

The performance model shall be audited by NEPCO and the Independent Engineer as defined in the PPA.

3.4.1.4 Environmental impact requirements

3.4.1.4.1 General

The Developer shall provide, operate and maintain the Plant to meet all applicable environmental regulations, environmental standards and stipulations of Jordan. The Developer shall demonstrate during the design and construction phase and during the performance tests respectively operation phase that the Plant is able to comply with all applicable environmental regulations and standards. Applicable

standards for environmental protection must be fulfilled without any restrictions.

3.4.1.4.2 Water pollution control requirements

The Developer shall consider all wastewater streams and segregate, collect, treat, discharge (and/or reuse them as the case may be) in a wastewater collecting system. This includes all the sanitary and other domestic wastewater out of canteens, laundries, offices, workshops, etc. and the industrial wastewater from processes, such as backwash water, rinse water and other process wastewater that cannot be re-used in other ways as blow-down water. The Developer shall provide the facilities for the treatment and disposal of all waste streams arising from the Plant processes including but not limited to containment systems, tanks and sumps.

3.4.1.4.3 Soil contamination control

Soil can become contaminated by oil and chemical spillage during construction, operation and maintenance of the Plant. The Plant shall be designed, constructed, operated and maintained in such a way that any soil contamination will be prevented.

During construction and operation, the Developer shall implement a management plan for contaminated soil. Contaminated soil has to be treated in ad hoc facilities and in accordance with the African Development Bank Health and Safety Guidelines, the World Bank safeguards operational policies and guidelines and EIB environmental and social practices handbook guidelines.

3.4.1.4.4 Permissible noise levels

The Developer has to design, construct and operate the PV facility in a way that resulting noise does not exceed local Jordanian regulations for the different areas (residential, industrial etc.).

3.4.1.4.5 Preliminary Environmental Assessment

A Preliminary Environmental Assessment (“PEA”) or environmental scoping study shall be carried out by the Developer prior to bid submission and shall be provided in Annex 5 to this Section 3 of this Part II.

The PEA shall identify the social and environmental issues that are likely to be of most importance, and eliminates (‘scopes out’) those that are of relatively little concern. In this way, the subsequent EIA study (see Section 3.4.1.4.6) can focus on the potentially significant effects, and both time and resources will not be diverted into unnecessary investigations.

The PEA shall be based on, and prepared according to the local environmental and social requirements, standards and regulations for

Jordan. In addition, and in accordance with international best practice, the PEA shall cover:

- The identification of the key environmental constraints and opportunities;
- The 'scoping' out of any issues unlikely to be significant;
- The identification of relevant local, national and international environmental standards and legal requirements;
- The identification of relevant environmental planning policies;
- The identification of the existing facilities and other proposals for the area which may conflict with the proposals;
- The identification and evaluation of the baseline environmental conditions in the area to provide a basis for assessing the incremental impact of the development including existing pollution levels and nuisances;
- Establishment of assessment criteria for each of the environmental issues;
- The identification of areas where data required for the study is lacking or insufficient;
- The identification of further required studies, modeling, investigations and environmental assessment for the study areas; and
- The identification of any additional regulatory approval and government policies that need to be addressed.

3.4.1.4.6 Environmental Impact Assessment Study (EIA)

The Developer shall start with the preparation of the Environmental Impact Assessment Study (EIA) no later than the signing date of the PPA. The preparation of the EIA and the necessary baseline investigations shall be shown in the Project Implementation Schedule. The latter shall form part of the Proposal.

The EIA Study preparation shall be done according to Jordanian Laws and Regulations. Amongst others the following issues shall be addressed:

- Ground contamination;
- Environmental standards;
- Social and Environmental Assessment; and
- Environmental Monitoring Plan

It is expected that a true and complete copy of the EIA and related approvals are available prior to Financial Close.

3.4.1.5 Operational requirements

The design of the entire Plant shall be based on the following operation requirements:

- The Plant shall have reactive power compensation equipment for off-line consumers to guarantee a power factor of [0.95] [*to be verified by Developer]*.
- The Plant shall be operated with full compliance with the environmental requirements, within the technical limits of the Plant.
- The power plant will be operated in accordance to the highest possible load conditions limited by the solar irradiation only.
- The PV Plant operation shall have no negative impact on the electrical network frequency and voltage.
- Grid transient instabilities and grid disturbances due to voltage and/or frequency variation shall not immediately activate the PV plant protection system to disconnect the PV plant from the grid. Automatic grid synchronisation equipment (such as remote reconnection of the MV switch and remote synchronisation systems) shall be operated in accordance with the relevant grid characteristics.
- For the whole life time of the Plant there shall be no Potential Induced Degradation (PID) on the purchased photovoltaic modules. This shall be monitored and guaranteed by the module supplier and Contractor "modules are PID free". Alternatively functional grounding of the negative string pole may be provided.
- Full compliance with the specified conditions of the admissible air pollution, provided in the Preliminary Environmental Report.
- All Plant facilities and equipment shall be arranged and spaced sufficiently to enable satisfactory operation and maintenance of the Plant.
- The Plant must not contribute to primary and secondary control of the transmission code. However, Plant operation shall have no negative impact on the system frequency.
- Planned maintenance of the Plant shall be carried out in accordance with the equipment manufacturers suggested maintenance requirements and the scheduling requirements of NEPCO. Normally, maintenance activities for the Power Plant shall be planned to take place during low solar irradiation conditions or at night.
- Back-up Emergency generator(s) shall supply energy during black out conditions to power auxiliary loads such as monitoring systems, communication means and site surveillance.
- Operation and maintenance schedules and management: The Developer is requested to provide information on his operation and maintenance approaches for the Plant.
- The Developer shall install, own and operate a least minimum of three (3) meteorological stations (with pyranometers of secondary standard in plain of array), although more units might be requested by MEMR. Developer's meteorological stations shall be located at the Site and shall communicate the measured data with the Plant DCS.
- The Developer shall ensure that equipment used for ongoing Plant performance monitoring shall at all times have a valid calibration certificate. The Developer shall provide the calibration certificates to NEPCO at NEPCO's reasonable request.

3.4.1.6 Electrical grid connection requirements

The Connection Conditions for PV/CPV Power Plants have to comply with the Grid Code and in particular with the Technical Requirements and Evaluation of Grid Code Compliance for Photovoltaic Power Plants connected to the high voltage level in Jordan. The Connection Conditions as stated in the Grid Code, specify both the minimum technical, design and operational criteria which must be complied with by the Developer as a user connected to the Transmission System and the minimum technical, design and operation criteria with which NEPCO will comply in relation to the part of the Transmission System at the connection side with the Plant.

The Developer shall provide NEPCO with the following studies:

- System Impact Study and Integration of PV/CPV Plant on Grid. (Static, dynamic and transient stability, Short Circuit Impact, Voltage Impact and Thermal Impact etc.)

- Network Model and PV/CPV Power Plant Model.

The Developer shall provide NEPCO with the following studies after proposal submission stage:

- Detailed State Study (Transient Analysis and Power Quality Studies) as outlined in Annex 5b

Consequently, the minimum technical, design and operational criteria shall enable NEPCO to comply with its statutory and Transmission License obligations. The Developer is responsible to use for their design the latest edition of the Jordanian Grid Code as published on the website of EMRC.

The Developer shall approach NEPCO to coordinate the signal exchange as well as the necessary hardware and consequently provide NEPCO with all electrical data of the Plant according to the Grid Code.

The full compliance with the Grid Code shall be proven by electrical system studies and investigations during project realization.

Furthermore, specific technical requirements of NEPCO, for connecting the proposed Plant to the Grid and which shall be fulfilled by the Developer need to be considered. The Developer is requested to coordinate directly with NEPCO for handling and fulfilling the electrical grid connection requirements as well as the requirements for settlement metering.

It is required by NEPCO that the developer should install two transformers . Each transformer size should be designed to evacuate full power of the PV Plant and to comply with the Transmission Technical Requirements.

3.4.1.7 Standards and Codes

3.4.1.7.1 General

The Developer shall ensure that the engineering, design, construction, testing, etc. of all Plant components, including all auxiliary facilities and systems, are according to internationally recognized standards and codes in their latest edition.

The latest editions of the standards, codes and recommendations and directives issued by the following organizations shall apply for the design, construction, testing and commissioning of the Project.

International standards (shall prevail)

ISO	International Standardization Organization
IEC	International Electrotechnical Commission

National standards

ANSI	American National Standards Institute
BSI	British Standards Institution
DIN	Deutsches Institut für Normung
EN NFPA	European Standards National Fire Protection Association

In addition to the standards stated above, the design of the Plant shall strictly meet all requirements of the Grid Code.

The Developer shall provide the list of codes and standards to be used in the design, construction and testing of the Plant as per Annex 4 to this Section 3 of Part II of the IRPP.

Amongst others, the following international standards shall apply for the installation, testing, and operation of the Photovoltaic Power Plant:

General:

- IEC 60364 (all parts), Low-voltage electrical installations
- IEC 61936-1, Power installations exceeding 1 kV a.c. - Part 1: Common rules
- IEC 60071, Insulation co-ordination - Part 1: Definitions, principles and rules
- IEC 60068, Environmental testing - Part 1: General and guidance

PV Installation:

- IEC 60364-7-712:2002, Electrical installations of buildings – Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems
- EN 50521:2008 Connectors for PV systems
- IEC 60228, 60364-1,60332-1-2, 60754-1 and -2, 61034, TÜV approval 2Pfg1169: cable design and wiring for the electrical infrastructure and connection infrastructure (DC cables should be solar cables)

Commissioning and Documentation:

- IEC 60364-6, Low-voltage electrical installations – Part 6: Verification
- IEC 62446, Grid connected photovoltaic systems – Minimum requirements for system documentation, commissioning tests and inspection

Power Transformers:

- IEC 60076, Power Transformers - Part 1: General

HV+MV Switchgears:

- IEC 62271, High voltage switchgear and controlgear
- IEC 60376, Specification of technical grade sulphur hexafluoride (SF6) for use in electrical equipment

LV System:

- IEC 61439, Low-voltage switchgear and controlgear assemblies - Part 1: General rules
- IEC 60439, Low-voltage switchgear and controlgear assemblies
- IEC 60947, Low-voltage switchgear and controlgear - Part 1: General rules

Earthing & Lightning Protection:

- IEEE 80
- IEEE 665
- IEC 62305 (all parts), Protection against lightning
- IEC 60099 Surge arresters

EMC:

- IEC 61000, Electromagnetic compatibility (EMC)

Buildings and housings, inverter protection:

- IEC 60721-3-3 Section 3: Classification of environmental conditions (stationary use at weather protected locations)
- IEC 60721-3-4 Section 4: Classification of environmental conditions (stationary use in non-weather protected locations)

3.4.1.8 Quality assurance and control

During project execution, Developer will be required to develop, implement and maintain a project specific quality plan covering all aspects of the PPA.

3.4.1.9 HSE management

The Developer shall prepare and implement a comprehensive Health, Safety and Environment (HSE) policy and associated procedures that will govern Developer’s actions at all times during the design preparation and construction of the Project as well as during the operating phase of the [Name of Plant] IPP Plant.

3.4.1.10 Spare parts, consumables and special tools

The Developer shall provide all spares necessary for discharging his responsibilities in carrying out the work, including commissioning and during the Warranty Period. The Developer shall ensure that he has prompt access to the spares to avoid delay to completion, commissioning or loss of generation.

All tools and equipment to facilitate maintenance of all the Plant, including cranes and lifting equipment shall be included.
All the special tools that are necessary for the overhaul, maintenance and adjustment of the whole Plant shall be provided. Toolboxes and tool cabinets shall be provided to the extent required.

3.4.2 Particular requirements

The Developer shall define the Particular requirements for Plant systems and equipments. The below listed minimum particular requirements are considered as overall guidelines and need to be detailed by Developers own EPC tender requirements for the Plant.

The Developer shall provide below listed documents and data within Annex 6 to this Section with the Technical Proposal.

3.4.2.1 Overall requirements

Each Plant item shall be designed to withstand the most extreme ambient conditions to which it may be subjected.

The Developer shall ensure the security on the site of the Project as judged necessary.
The Developer shall ensure that the Plant has a high level of fire protection in accordance with National Fire Protection Association (NFPA) Codes. The Developer shall adopt recommendations of NFPA 850.
The Developer shall provide a first aid medical facility within the Site.

3.4.2.2 Mechanical systems requirements

The following mechanical requirements for the main systems shall be taken under consideration by Developer:

3.4.2.2.1 Materials

Materials selected by the Developer shall be proven adequate and sufficient for the complete term of the Project.
The Developer shall carefully consider all corrosion and erosion possibilities subject to the environment of the Site and nearby facilities and all non-metallic materials in contact with distillate or potable water shall be proven, tested and certified as suitable for its purpose by an internationally recognized testing authority. Non-metallic materials shall

also be resistant to high UV exposure and high temperature operation regimes.

3.4.2.2.2 Solar field

The Solar field shall be designed, manufactured and configured in accordance with a commercially proven design in such a way that the conversion of solar irradiation into electricity is based on high efficiency and achieves high availability and reliability of the Solar field.

3.4.2.2.3 Degrees of protection against access

Components such us transformer enclosures, inverter enclosures, cabinets, connectors, etc, shall be properly selected in order to guarantee the protection against ingress of solid and water harmful elements. Environmental site conditions should be taken into consideration during their selection.

3.4.2.2.4 Mounting frames

The Solar field is to be installed in either fixed ground mounted systems or tracking systems. Regardless the system selected by the Developer, the mounting system, including foundations and structures, shall be designed and assembled to withstand wind speeds up to [XXX km/h][1] (3 second gust) measured at 10m on site.

3.4.2.2.5 Ventilation system

It shall be ensured correct and proper ventilation inside cabinets, by means of ventilation grills, for inverter, transformer and switchgear. A correct indoor temperature under outdoor temperature within the range of local conditions (see Section 3.4.1.1) shall be ensured. The relevant heat removal study for inverter / transformer shall be provided as part of the Proposal.

3.4.2.3 Medium voltage cabling

All inner PV plant MV cabling shall be executed as underground cables by means of concrete channels, cable trenches or if applicable cable plowing.

All design documents including layout, single line diagrams and technical specifications of selected products are to be provided by the Developer.

3.4.2.4 Electrical requirements

The following electrical requirements shall be taken into consideration by the Developer:

[1] Developer to determine

- Protection systems to disconnect the Plant in order to minimize damage from faults shall be in place and conform to the Grid Code;
- The Developer will be responsible for protecting the Plant in case the frequency and voltage of the Power Grid System exceeds the limits specified in the Grid Code;
- All MV and LV switchgears, DC equipment and safe AC equipment shall be suitably housed;
- The mechanical protection class of all LV switchgears shall be minimum IP55. DC rectifiers and inverters, including but not limited to uninterruptible power supplies (UPS), shall be minimum IP65 outdoor (or indoor with dust sealed enclosure, e.g. cabinet or container);
- All LV main switchgears shall be of the withdrawal type. DC and safe AC distributions may be of fixed installed type;
- The design ambient temperature of the electrical equipment shall be 50°C;
- All electrical equipment shall be routine tested in factories. Type tests will not be repeated if type test certificates of the same equipment are available;
- The generator transformers and the isolated phase busducts shall be designed to be able to transmit the maximum output of the solar sub-arrays at all possible ambient temperatures. The unit auxiliary transformers shall be designed for the ambient conditions on Site;
- Bushings, surge arresters and cable sealing ends utilized for outdoor connections shall have a minimum creepage distance of 50mm/kV.

3.4.2.5 I&C requirements

For control and monitoring of the substation a digital Substation Control and Monitoring System (SCMS) with related HMI systems shall be provided in the "switchgear and control building". For remote control from the NCC the required signal exchange via the telecommunication equipment shall be provided.

Specific requirements for installed measuring equipment, measuring accuracy and master data that must be made available by NEPCO for a power plant to be connected to transmission network. The project developer shall coordinate with NEPCO in order to obtain the corresponding information and requirements. The PV plant operator shall ensure continuity in sending sizes active power, reactive power, voltage and frequency to the network operator as appropriate.

Redundant AC, Safe AC and DC auxiliary energy back up systems shall be provided. Each battery shall be able to supply the loads for 3 hours in case of a total supply voltage failure.

An earthing system according VDE 0101 or IEEE 80 shall be provided.

Man-machine interface
The I&C systems shall be designed that the Plant will be remotely controlled from a central control room via redundant VDU based man-machine interface.

Interfaces for serial data communication shall be enabled for utilizing international standardized data transmission protocols (e.g. IEC 60870-5-101, IEC 60870-5-104, IEC 60870-5-102, IEC 61850, etc.). Interoperability between equipment from different manufacturers shall be ensured.

Not less than 10% of the Interface equipment at each Interface installed shall be provided as excess capacity in order to allow for an additional 10% of signals without the need for additional Interface equipment. The signals to be exchanged with NEPCO are subject to agreement between NEPCO and the Developer.

3.4.2.6 Metering requirements

The settlement meter shall be located at the point of common coupling the switchyard. The electrical losses from the step-up transformer to the settlement metering point are to be borne by the Developer. The developer shall clearly design and describe the metering concept and the meter devices to record the energy produced by the PV plant and energy consumed by auxiliary loads.

Metering shall be in accordance with the requirements of the Grid Code. The Developer shall provide the complete metering equipment according to such requirements.

Provisions shall be made for signaling the above data to the NCC. The Developer shall provide, at its sole cost and expense, the telecommunications equipment.

Installation, testing, inspection, repair, recalibration and replacement of the metering system and any backup metering system shall be performed by the Developer according Transmission Metering Code.

3.4.2.7 Civil requirements

All construction activities shall occur within the Site boundary limits with the exception of those activities related to the interconnections between the Site and the common infrastructures, which will be performed by the Developer outside the Developer’s fence: Plant electrical interconnection to the Grid, construction power supply, tele-communications, Plant access road interconnection as specified in Annex 3 to Section 3 of Part II of this IRPP.

The Bidder must verify the most suitable access between the official existing road systems to the project area and be responsible for all required planning, design, permitting, and construction and maintenance activities for required new access roads.

Where the access road is connected to the public road network, the Bidder has to comply with the relevant rules and regulations.

The Developer shall design, build, operate and maintain the Plant drainage system. The Plant drainage system shall respect as much as possible the original natural drainage of the Site.

Seismic load on buildings and structures shall be based on Seismic Zone as per the Uniform Building Code or its accepted European equivalent. In addition, horizontal lateral forces shall not be less than 4% of the total vertical load. All earthquake calculations shall be made in accordance with the latest version of the respective Jordanian regulations.

The Developer shall be responsible for backfilling and grading of the Site as required for construction, operation, and maintenance of the Plant. In addition, all inert material surpluses shall be managed within the limit of the Site. The concrete structures shall be designed to resist physical and chemical attack due to environment conditions, soil or groundwater. The metal structures including painting and protections shall be designed to resist physical and chemical attack due to environment conditions.

3.5 Technical documentation and information to be provided

The following describes the minimum scope of information, documents, drawings, etc. to be submitted by the Developer to NEPCO prior to the Closing Date and after the Closing Date during the design and engineering phase and during site construction of the Project, as listed in Annex 3 and Annex 5 of this Section 3 of Part II of this IRPP. NEPCO reserves the right to request from the Developer such additional information, drawings, documents, etc. as may be reasonably required for proper understanding and definition of the design and engineering of the Project interfaces.

The Developer shall provide six (6) copies of all drawings and documentation to be submitted by it together, in the case of a final submittal of any document, with a well organized electronic file, in TIFFG4 or PDF format, except as may otherwise be required by the provisions of the EPC Contract or as may otherwise be reasonably required by the NEPCO and to each other concerned Person two (2) copies of all documentation (with electronic copy in the case of a final submittal) relating to, or containing information with respect to, Connection Points or other interfaces between the Project, the Jordanian NCC, the Grid Station, the electrical transmission system or others, as the case may be.

The description and specifications of the electrical protective devices to be incorporated in the Project in order to protect the transmission system are of particular importance, and require the approval of NEPCO prior to incorporation into the basic and detail design of the Project.

3.5.1 Documentation to be Submitted Prior to Financial Closing

The following documents shall be submitted by the Developer to NEPCO and the Independent Engineer by the dates set forth below or, if not specified, as and when required but in any event prior to the Closing Date:

- quarterly progress reports - by no later than one (1) week after the last day of each month commencing on the Effective Date;
- drawings and documents required for permitting, certifying and/or licensing of the Plant, and copies of all correspondence exchanged prior and after Closing Date between Developer and Governmental entities having jurisdiction over same;
- general arrangement and layout drawings;
- system description of the main systems;
- description of Developer's settlement system for the Plant within two (2) months after Effective Date;
- Time schedule and work program including relevant Milestones and Milestone Dates, showing:
  - the critical path for the design, procurement, construction, installation, testing and commissioning of the Facility;
  - all principal activities relating to the design, site surveys, construction, installation, testing and commissioning of the Facility;
  - activities in weekly time scales, their order, duration and interrelationship, including the Scheduled Commercial Operation Date and the other Milestone Dates;
  - any Authorizations which must be obtained prior to the commencement of construction of the Facility;
  - if known, the impact and the estimated potential impact of any delaying events or circumstances;
  - a program for the timing of the Commissioning Tests;
  - any allowances for delay; and
  - any other matters which may have a material effect on the time required to complete the Facility in accordance with this Agreement,

  and including time and progress charts arranged so that actual progress can be shown against anticipated progress, including by reference to the Scheduled Commercial Operation Date and the other Milestone Dates.

  For all major activities like e.g. construction and installation of PV modules, cabling works and substation (incl. tie-in) a method statement must be provided by the Bidder describing how the works are intended to be performed, safety measures to be taken, equipment to be used, etc.

- performance test procedure; and
- required consents.
- Documentation concerning operation and maintenance concept
  - General description;
  - Description of scheduled activities;
  - Organizational structure of O&M;
  - Required onsite buildings and facilities; and
  - Spare part management concept

3.5.2 Documentation to be submitted after Financial Closing

The following documents shall be delivered for the Plant by the Developer to NEPCO and the Independent Engineer by the dates set

forth in the following or, if not specified, as and when each such document is obtained by the Developer, as the case may be:

- copies of all applications submitted by the Developer to the relevant Governmental Entities for the Governmental Authorization or otherwise required under applicable Legal Requirements, to commence the construction of the Plant, together with copies of all supporting documentation submitted therewith within two (2) months after Financial Closing;
- Environmental Impact Assessment review report and procedures and test specifications related to all environmental investigations, surveys and monitoring undertakings, as well as relevant test results promptly after their completion;
- project documents (data sheets, specifications, P&I diagrams, drawings) for major systems;
- bi-monthly status reports - by no later than ten (10) days after the last day of each relevant month;
- any revision of the Project Implementation Schedule - by no later than seven (7) Days after such revisions; and
- Commissioning program with the respective test procedures.

The following documents shall be submitted prior to site construction:

- Not later than thirty (30) days prior to the proposed Commercial Operation Date, evidence that the Developer has obtained (from the Governmental Entities having jurisdiction), all material permits, licenses, approvals and other governmental authorizations required for the operation of such Plant.

3.5.3 Documentation to be submitted prior to Site Construction

All documents and Permits required for site construction shall be submitted prior to site construction.
At least thirty (30) Days prior to the start of construction on the Project or offsite areas, evidence demonstrating that the Developer has obtained from all other Governmental Entities having jurisdiction all material Governmental Authorizations and consents or no objection letters required to commence construction of the Project or that the Contractor has taken all steps within its control to apply for and to obtain such Governmental Authorization (in the case of those that it has not yet been obtained as of such date).

3.5.4 Documentation to be submitted during Site Construction

The following documents shall be submitted during site construction:

- It is to be noted that for all major works not only in the Site, but also for those works, which are located within respective Transmission & Dispatch Company areas or related to facilities of such entities a method statement for the proposed works is to be included in the permit to work application along with the approved design review documentation at and specifics of the construction works and any associated risk evaluation for the relevant owner;

- The temporary building permit or the no objection certificates, as applicable, issued by the various departments such as, for example, Civil Defense, Town Planning or Public Works or other relevant Governmental Authority to the Developer in accordance with applicable Law, and all related permits, consents and approvals related to the construction of the Project;
- Performance Test procedure in compliance with Annex A.2 of the Appendix 1 of Part III of the IRPP and further specified in the respective implementation contract (i.e. EPC Contract);
- At least thirty (30) days prior to any Scheduled Commercial Operation Date, evidence that the Developer has obtained (from the Governmental Entities having jurisdiction), all material permits, licenses, approvals and other governmental authorizations required for the operation;
- The Contractor shall submit to the Owner drawings, diagrams, graphs, curves, calculations, schedules for information, review or approval the content of which shall be commonly agree upon during contract negotiations. The quality of all documents submitted shall conform to acceptable international practice;
- Provision of documentation related to Interfaces (detailed in Section 3.2 of Section 3 of this Part II).

3.5.5 Documentation to be retained at Site

Additional to the submission of the documentation as mentioned above following documentation (including electronic files) has to be retained on Site:

- Operation and maintenance manuals;
- Copies of all test results for tests performed, to the extent as normally retained in accordance with Good Utility Practice;
- As-built drawings for the Plant, including the civil and architectural works; and
- All further technical documentation normally retained on Site in accordance with Good Utility Practice.
- PV module´s flash tests
- As Built drawings

3.6 List of Abbreviations

AC	Alternating Current
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
BSI	British Standards Institution
CT	Current Transformer
DC	Direct Current
DIN	Deutsches Institut für Normung
EN	European Standards
ENL	Energy not Delivered
EPC	Engineering, Procurement and Construction
EU	European Union
FOC	Fiber Optic Cable

GPS	Global Positioning System
ha	Hectare
HIS	Hydraulic Institute Standards
HMI	Human Machine Interface
HSE	Health, Safety and Environment
HV	High Voltage
HVAC	Heating, Ventilation and Air Conditioning
I&C	Instrumentation and Control
IEC	International Electrotechnical Commission
ISO	International Standardization Organization
IPP	Independent Power Producer
LDC	Load Dispatch Centre
LV	Low Voltage
LVRT	Low voltage ride through
MOU	Memorandum of Understanding
MV	Medium Voltage
NFPA	National Fire Protection Association
OHL	Overhead Line
OPGW	Optical Ground Wire
O&M	Operation and Maintenance
PCOD	Project Commercial Operation Date
PEA	Preliminary Environmental Assessment
PPA	Power Purchase Agreement
PPS	Uninterruptible power supplies
PR	Performance ratio
PV	Photovoltaic
RCD	Residual Current Device
RFP	Request For Proposal
RSC	Reference Site Conditions
SI	Système Internationale
UBC	Uniform Building Code
VOC	Volatile Organic Compounds

3.7 Annexes to Section 3 of Part II of the IRPP

Annex 1 - Technical Design Data

[The Technical Design Data to be submitted by the Developer and shall be based on Section 3.4 of Part II of this IRPP]

Annex 2 - Main PV equipment specifications

- PV module
- Inverter
- Mounting frame
- MV and HV equipment and installations

Annex 3 - Drawings & Diagrams

The following drawings and diagrams shall be submitted as Annex 3:

- Civil Layouts
  - Project Location
  - Site Map
  - Overall General Layout
  - Overall General Layout - Site Investigation Plan
  - Overall General Layout - Interfaces
  - Overall General Layout - Road connection
- Basic Data
  - Meteorological data
  - Existing Transmission Network
  - General Environmental Regulations
  - Security Requirements
- Electrical
  - Tentative overall SLD (Single Line Diagram)
  - Type Test Requirements Electrical (-if applicable-)
  - Acceptable Manufacturer to the Transmission System Operator (-if applicable-)

Annex 4 - Codes and Standards

[The Codes and Standards will be submitted by the Developer and shall be based on Section 3.4 of Part II of this IRPP]

Annex 5 - Studies & Investigations

[The Studies and Investigations undertaken by Developer will be submitted by the Developer and shall be based Section 3.3 and 3.4 of Part II of this IRPP]

Annex 5a - Studies & Investigations required at proposal stage

Facilities of the Project

Introduction

The [*Name of Plant*] shall comprise all facilities necessary for the generation of power from the solar resource.
The Site allocated for the [*Name of Plant*] (the "Plant")
is located in [*to be stated by Developer*] of Jordan
about [*to be stated by Developer*] km of the City of [*to be stated by Developer*].
[*Developer to provide details on the site and location*].

- Scheduled COD: [Day] [Month] [Year]
- Nominal Power (MW_{AC}): [Nominal Capacity]
- Peak Power (MW_p): [Peak Capacity]
- Size of PV plant (ha): [Size]

The Plant shall comprise the following facilities:

EQUIPMENT DATA

GRID EQUIVALENT (NEPCO):

- Given data
- Parameter set-up

Project TRANSFORMERS

- Given data
- Inverter Step Up Transformers
- Grid Transformers
- Low voltage side nominal power
- Load losses per winding
- No load current
- Parameter set-up

Project CABLES

- Given data
- Parameter set-up

Project PV SYSTEM

- Inverter
- Given data (Data sheet of the inverter used)
- Parameter set-up

Project Wind Turbine

- Given data
- Parameter set-up

(Preliminary Study)
Steady State study

Note: This study should be complying with grid code and (PV/wind) Technical requirements published by MEMR.

Note: the preliminary Grid Impact study will be delayed until the selection of winning bidders and the final sites, but certainly before signing the corresponding PPA

Steady State Study If the entire network 2015-2016 provided

- Power Flow and Equipment (step-up transformers, transmission lines) Loading Verification.
- load flow data of the transformers and cables (presented in a tabular form)

- Voltage-frequency operating range (Voltage Profile Assessment)
- Duration of operation in relation to voltage and frequency

- Short Circuit Analysis

  - Determination of short-circuit current contributions
  - Proposed Switchgear Ratings

- **Contingency Analysis**
  - PV /wind farm disconnected - contingency analysis
  - PV /wind farm connected – contingency analysis

- Active power control
  - Active power reduction by defined set point
  - Active power reduction for over frequency

- Reactive Power Compliance
  - Reactive Power Control
  - Power factor range and control capability
  - Verification of reactive power at pcc (Active and reactive power PQ capability)

Conclusions

Steady State Study If the equivalent network at PCC (SCR& X/R ratio) provided

- Load flow data of the transformers and cables In the project (presented in a tabular form)

- Voltage-frequency operating range (Voltage Profile Assessment)
- Duration of operation in relation to voltage and frequency

- Active power control
  - Active power reduction by defined set point
  - Active power reduction for over frequency

- Reactive Power Compliance
  - Reactive Power Control
  - Power factor range and control capability
  - Verification of reactive power at pcc (Active and reactive power PQ capability)
- Short Circuit Analysis
  - Determination of short-circuit current contributions
  - Proposed Switchgear Ratings

Annex 5b - Studies & Investigations required after proposal stage

(Detailed Study)

Transiant Analysis and power quality studies

Note: This study should be complying with grid code and (PV/wind) Technical requirements published by MEMR.

Requirements during contingency

Low Voltage Ride-Through (LVRT) with respect to staying grid connected

- Possible combined implementation of reference tracking Var controller and fast voltage controller
- Dynamic Model Parameter Review and Testing

- Generator Parameters
- Level of wind / PV Energy Generator Modeling.
- Modeling of Other Wind Farms or PV plants (generic model if it is not available).
- Level of PV Generator Modeling
- Dynamic RMS simulation studies
  - Full load simulation cases
  - Partial load simulation cases
  - Dynamic Results for case of Loss of proposed PV or wind project
- High Voltage Ride-Through (HVRT)

5. Requirements concerning harmonics emission and grid resonances

- Voltage flicker
- Harmonics
- Phase Unbalance

Annex 6 - Technical Limits

[The Technical Limits of the Plant will be submitted by the Developer and shall be based on Section 3.4 of Part II of this IRPP]

Annex 7 - Interfaces (Battery Limits)

[The Interfaces (Battery Limits) will be submitted by the Developer and shall be based on Section 3.2 of Part II of this IRPP]

Annex 8 - Grid Connection

[The Grid Connection Requirements will be submitted by NEPCO based on Section 3.4 of Part II of this IRPP]

Annex 9 - Supporting Documents to Developer's Technical Proposal

[Any documentation that the Developer intents to provide in order to support the technical documentation of its Proposal]

Annex 10 - Performance Model

[In accordance with Section 3.4.1.3. of Part II]

4 Implementation Schedule

The Developer shall prepare a Project Implementation Schedule for the Project along the details set out in Proposal Form E attached to this IRPP. The Developer shall consider the milestones set out in Section 1.3 of this IRPP as a basis for the Project Implementation Schedule. For the period up to Financial Closing, the Developer shall indicate in details all steps that are required to achieve Financial Closing in time with the Project Milestones.

The Proposal Form E shall become part of the PPA.

5 Eligibility of EPC Contractors and PV Equipment

5.1 Eligibility of EPC Contractor

In order for the Direct Proposals Committee to accept the Proposal the Developer must provide documentary evidence supporting the eligibility of its main contractors to satisfactorily perform their duties with respect to the Project.

The Developer must demonstrate, to the satisfaction of the Direct Proposals Committee, the following:

- The EPC Contractor (or its nominated subcontractor) must have two references of similar nature and complexity with PV technology within the last five (5) years, which have been operational since more than one (1) year; one with a capacity of (20) MW or above, and the other with a capacity of (10) MW or above.

The Developer must furnish, as part of the Proposal, the information and documents evidencing the eligibility of its main contractors using the Proposal Forms C.1 to C.2 as set out in Attachment C to this IRPP.

5.2 BOO Experience of the Developer

The Developer shall demonstrate its ability to obtain sufficient funds to develop, design, construct, commission and own the Project. Therefore the Applicant (and if applicable at least one member of the Applicant) shall illustrate its previous successful experience in raising sufficient debt participation and substantial equity participation (>USD 5 million) by providing in Section C.3. all relevant data in order to demonstrate experience with BOO(T) projects of similar size, investment volume and complexity than the proposed project in the power sector, designed, developed or constructed during the last five (5) years. This may also include plants or projects which are currently under construction. The Developer shall use the format as set out in Proposal Form C.3.for each BOO(T) project reference.

The Developer may also include any other relevant information concerning the Developer's BOO experience that the Developer believes will support MEMR in assessing the Developers eligibility in this request.

5.3 Eligibility of PV Equipment

In order for the Direct Proposals Committee to accept the Proposal the Developer must provide documentary evidence supporting the eligibility of its main equipment manufacturers and suppliers to satisfactorily perform over the PV plant´s life time.

The Developer must demonstrate, to the satisfaction of the Direct Proposals Committee, the following:

- The proposed PV module in the project shall have been installed in at least two commercial projects of similar peak power.
- PV module must comply with European and international standards, regardless the PV module technology to be deployed, and fulfill the criteria for protection class II.

The inverter type must have been in operation in at least 2 commercial projects (not demonstration projects) of similar nominal power, for at least 24 months. The plant owner shall certify that the inverter has achieved a technical availability of at least 95% for 12 consecutive months of operation.

Mounting systems and tracking systems: The Project developer shall provide with a list of references and commercial track record of the proposed PV mounting system.

MV and HV equipment: The Project developer shall provide with a list of references and commercial track record of the proposed equipment suppliers.

The Developer must furnish, as part of the Proposal, the information and documents evidencing the eligibility of its main equipment and equipment suppliers using the Proposal Form D as set out in Attachment D to this IRPP.

6 Financial Information

The Developer shall provide as part of its Proposal the following commercial and financial Information:

- Proposed Tariff in accordance with Section 6.1 of this Part II
- Total Project Budget in accordance with Section 6.2 of this Part II
- Breakdown of Operation and Maintenance Cost post Commercial Operation Date of the Plant in accordance with Section 6.3 of this Part II
- Financing Information in accordance with Section 6.4 of this Part II including the details on debt financing and financing term sheet as set out therein
- Financial Model in accordance with Section 6.5 of this Part II

6.1 Proposed Tariff

The proposed Tariff must be equal or below the Ceiling Price for electricity for photovoltaic power plants.

The proposed Tariff shall recover the funding costs for the development, construction, commissioning of the Project and to recover its operation and maintenance costs as well as its costs of decommissioning. The Tariff proposal shall be submitted as Section C of the Financial Proposal as in accordance with the Attachment F, Proposal Form F.1 attached to this IRPP.

The Tariff will be a flat one part rate paid in Jordanian Fills for each kWh of electricity delivered to NEPCO ("Energy Output") (or for each kWh deemed to be delivered under the deemed commissioning or deemed delivery regime set out in the relevant provisions in the PPA.

The Tariff applies for the Energy Output (or the electricity deemed to be delivered in accordance with the PPA) for a fully commissioned PV facility from Commercial Operation Date onwards to the end of the 20 year term. For any Energy Output prior to Commercial Operation Date a pre-COD tariff equaling 25% of the Tariff will apply.

6.1.1 Tariff Structure

The Tariff will be a flat one part rate paid in Jordanian Fills for each kWh of electricity delivered to NEPCO from the Plant in accordance with the provisions set out in the PPA.

6.1.2 Indexation

The Tariff will not be subject to any indexation in respect to foreign or local inflation indicators.

6.1.3 Exchange Rate Adjustment

The part of the tariff as indicated in the proposed Tariff in accordance with the Attachment F, Proposal Form F.1 attached to this IRPP shall be adjusted to reflect changes in the JOD/US$ exchange rate. The Reference Exchange Rate for proposal preparation shall be 0.70845 JD/US$.

6.1.4 Environmental attributes

Emission reduction credits will be in the ownership of NEPCO. The SPC will be required to ensure that all emission reduction credits are vested and that all documents and information required for this purpose has to be provided to NEPCO by the SPC. The SPC will not receive any additional compensation or indemnity.

6.2 Total Project Budget

The Developer is required to provide in Section B of its Financial Proposal a detailed breakdown of the Total Project Budget for the period prior to the Commercial Operation Date. This breakdown must include the following cost categories:

- EPC Contract costs;
- Owner‘s Contingencies;
- Costs for initial inventory to the extent not included in the EPC Contract;
- Development costs in the period up to and including the date of satisfying the Conditions Subsequent;
- Owner's costs in the period from the date of satisfying the Conditions Subsequent prior to COD;
- Operating costs for the Project and O&M Contractor costs prior to COD;
- Insurance costs prior to COD;
- Financing costs, including, but not limited to, fees payable to lenders, interest during construction, including hedging costs, upfront fees and commitment fees based on the information in the Financing Term Sheet; and
- the amount of any reserve accounts and initial working capital that require funding.

Total Project Budget costs shall be allocated between local and foreign components as set out in Proposal Form F.2 included in Attachment F to this IRPP.

The timing and occurrence of the Total Project Budget shall be set out in Proposal Form F.5.1 in Attachment F to this IRPP.

6.3 Breakdown of Operation and Maintenance Cost

In accordance with Proposal Form F.3 of Attachment G to this IRPP, the Developer is required to provide a breakdown of its operation and maintenance costs over the term of the PPA, for the services carried out:

- by the O&M Contractor on behalf of the SPC; and
- by the SPC itself.

The Developer shall use the split as set out in Proposal Form F.3.2 of Attachment F however shall be free to add line items as deemed necessary. The costs must further be allocated between local and foreign components as set out in Proposal Form F.3.1 of Attachment F.

The operating and maintenance costs shall form the basis of the Tariff submitted with its Proposal, such that there is forecast revenue and cost matching for operating and maintenance over the term of the PPA.

6.4 Financing Information

Financing for the Project will be the sole responsibility of the Developer. The Developer will be free to finance the Project in any way it sees fit.

Each Developer shall provide a financing plan for the Project. The financing plan shall be supported by a comprehensive term sheet for the debt financing that shall be attached to Section B of the Financial Proposal.

The Developer shall provide a preliminary letter of commitment from the financial institutions supporting the Proposal specifying amongst other things:

- level of approval obtained; and
- that the Draft Power Purchase Agreement andthe Draft Transmission Connection Agreement included in Part III of this IRPP are acceptable subject only to any issues that are identified in the mark-ups provided by the Developer as part of its Proposal.

The financial institutions shall have a well established track record of underwriting and arranging project finance for BOO / BOOT based infrastructure projects of a similar size than the proposed Project.

In respect to the financing plan the Developer shall provide the following information which shall be consistent with the term sheet mentioned above:

- the sources and uses of funds in the form set out in Proposal Form F.4 of Attachment F to this IRPP;
- the drawdown schedule for debt and equity in the form set out in Proposal Form F.5.2 of Attachment F of this IRPP;
- the terms and conditions of debt financing in the form set out in Proposal Form F.6 of Attachment F of this IRPP; and
- the repayment schedule including the interest margins in the form set out in Proposal Form F.7 of Attachment F of this IRPP Financing Plan.

6.5 Financial Model

The Developer shall submit a detailed financial model (the “Financial Model”) for the project as part of Section B of the Financial Proposal:

The Financial Model shall contain worksheets within all calculations required by the Proposal Forms under the Attachment F to this IRPP. These Proposal Forms should be actively linked to the remainder of the Financial Model and should be fully functional when submitted with the Proposal.

The Financial Model must be structured in such a way that the period from the day following Financial Closing until the Scheduled COD is forecast on a monthly basis. Post-COD forecasts should be made on a semi-annual basis such that each semi-annual period post-COD starts at

the beginning of a Contract Year. Similarly, they must finish at the end of a Contract Year.

The Financial Model is required to adhere to best practice standards, which shall include, but are not limited to:

- Efficiency and accuracy, e.g.:
  - Use of logical operators instead of complex nested IF functions;
  - No hard coding (i.e., no hard constants used within formulae) except in input schedules or where the purpose is exceptionally clear and in formulae requiring a transformation in units; and
  - Clear distinction between input, output and backing (calculation) schedules;

- Consistency, e.g.:
- No change of formulae across rows;
- Formatting to be consistent throughout the Financial Model;
- Columns to be consistent with respect to project periods from sheet to sheet; and
- Columns to be internally consistent within a row with respect to either monthly or semi-annual periodicity;

- Flexibility, e.g.:
  - Ability to run sensitivities as required below;
  - Ability to update economic or technical assumptions without detailed recoding; and
  - Financial Model should not operate on a “black box” principle (e.g., overly complex calculation macros);

- Ease of audit, e.g.:
  - Use of detailed notes where formulae are complex;
  - Break down of complex formulae across many rows;
  - No feedback from output or calculation schedules into input schedules;
  - Input cells differentiated from calculation or output cells; and
  - Macros should contain comments describing their action and their names should be descriptive;

- User-friendliness, e.g.:
  - Simple on-screen notes / instructions;
  - Adherence to international accounting standards for financial statements; and
  - No workbook, worksheet or Visual Basic module level password or time-lock protection.

6.5.1 Outputs

Financial projections for the Proposal must include, at the least, the following in addition to what is required to be included on the "Formsheets" worksheets:

- cash flow statement;
- profit and loss account;

- balance sheet;
- a schedule of movements on financing;
- a schedule of the Equity Return over the life of the Project (nominal and real); and
- a schedule of the Project's internal rate of return (nominal and real), prior to inclusion of the impact of financing.

These financial projections must be presented on a semi-annual basis such that each semi-annual period is assumed to start and end on dates which are based on six month multiples from the Scheduled COD.

The Financial Model shall as well contain a summary of the financial and economic assumptions (including assumptions on depreciation rates, taxation, local and foreign inflation etc.) used for the calculations. The reference exchange rate shall be 1.41 US$ = 1 JOD which shall be kept constant during the calculation period of the financial model (no exchange rate adjsutment)..

6.5.2 Sensitivities

The Financial Model should allow for the following sensitivities to be tested, within reasonable bounds:

- EPC cost overruns;
- O&M cost overruns;
- Interest rates;
- Exchange rates;
- Delays in construction; and
- Annually provided Net Electrical Energy.

7 Project Agreements

7.1 Draft Agreements

A draft of the Power Purchase Agreement (the "Draft Power Purchase Agreement"), and a draft of the Transmission Connection Agreement (the "Draft Transmission Connection Agreement"), together the "Draft Project Agreements", are included in Part III of the RFP.

The Draft Project Agreements are based on negotiated renewable energy projects from the Stage 1 and 2 of Direct Proposal Submissions and therefore have been approved by the NEPCO Board and by the Council of Ministers. They therefore shall be considered as fixed.

Should the Developer nevertheless wish to propose any adjustments to the Draft Power Purchase Agreement, these may be indicated by way of track-changes to the documents and accompanied with explanatory notes in the form of footnotes. However, it is emphasized that any proposed adjustments shall be minimum in number and extent and shall not seek to address the risk sharing principles incorporated within the

attached Draft Power Purchase Agreement. Any material changes to the Draft Power Purchase Agreement will render the Proposal to be non-compliant.

Only plant specific mark-ups will be considered in the Draft Transmission Connection Agreement.
The Developer must include in Section F of its Proposal

a) a statement that it accepts the Draft Project Agreements as included in Part III in their entirety as part of the Proposal; or
b) a statement that it accepts the Transmission Connection Agreement and a marked-up copy of the Draft Power Purchase Agreement which clearly indicate all deletions or additions desired by the Developer to be made to such Draft Agreements. Riders and brief commentary explaining the reasons for proposed revisions are mandatory.

The Proposal will be evaluated, among other things, in respect to the extent of its compliance with the terms and conditions set forth in the Draft Power Purchase Agreement. Significant exceptions to this draft will render the Proposal to be non-compliant. An exception is considered significant when it is in MEMR's or NEPCO's opinion unreasonable, not in the best interest of the Project or results in an unacceptable change in the risk allocation reflected in the Draft Power Purchase Agreement.

Negotiations of the Power Purchase Agreement will be limited to the specific additions or deletions proposed by the Developer.

7.2 Land Lease Agreement

If applicable, the Land Lease Agreement will be entered into between the SPC and the private Land Owner after signing of the Project Agreements and prior to Financial Closing. The LLA shall establish

- that the SPC will be granted an exclusive long-term leasehold interest in the Site for the duration of the PPA;
- that the Term of the LLA may be extended in case of an extension of the PPA;
- shall be assignable to NEPCO in case of early termination of the PPA; and
- that the SPC reinstates all parts of the Site by expiry of the PPA to a state which is comparable in all material respects to the state in which the land owner has handed over the Site to the Developer.

The Developer shall deliver in Section G of its Technical Proposal a complete version of the Land Lease Agreement initialled by both parties.

8 Miscellaneous

8.1 Permits and licenses

It is the responsibility of the Developer to obtain all Authorizations necessary to implement and operate the Project and to ensure that the

costs of such Authorizations are included in its Proposal. The Developer must be familiar with the procedures and time frames required to obtain such Authorizations. It is emphasized that the responsibility for identifying and obtaining the required Authorizations rests solely with the Developer.

The Developer must take into consideration the time required to obtain the necessary Authorizations and to conduct all necessary studies that are associated with them.

The Developer must consider any fees payable for permits and licenses in the calculation of the proposed Tariff.

8.2 Laws

The Developer must at all times comply with the Laws in force in the Hashemite Kingdom of Jordan. All agreements will be governed by and construed in accordance with the Laws of the Hashemite Kingdom of Jordan. Any tax structure proposed by the Developer must fully comply with the provisions of all Jordanian tax laws. The Developer must engage a local legal advisor and a local tax advisor during Proposal preparation.

8.3 Insurance

The provision of appropriate general insurance coverage during construction and operation of the Project, and which complies with the requirements of the PPA, is the responsibility of the Developer and, where relevant, must be in place by Conditions Satisfaction Date.

The Developer must provide a summary insurance program as part of its Proposal in Formsheet F.8. This insurance program should at least meet or exceed the program set out in Schedule 12 (Insurances) of the draft PPA (as submitted in the Developer's Proposal).

Part III

Draft Power Purchase Agreement

Part III. Draft Project Agreements

1 Draft Power Purchase Agreement

draft see separate file

2 Draft Transmission Connection Agreement

draft see separate file

ATTACHMENTS TO IRPP FOR PV POWER PLANTS

Table of Contents

Attachment A to

Instruction and Requirements for Proposal Preparation and Submission (IRPP)

PROPOSAL FORM A: PROPOSAL SUBMISSION LETTERS

Proposal Form A.1:
Form of Technical Proposal Submission Letter

Eng. *Dr. Ghaleb Maabreh*
Secretary General
Ministry of Energy and Mineral Resources
Zahran Street, Sweifiah
11814 Amman
The Hashemite Kingdom of Jordan.

We, the undersigned

Last Name:
First Name:
Title: [Chairman / Vice Chairman / President / Vice President]

of [name of company], acting as the legal representative of [*name of the Consortium*] (the "Developer") pursuant to the [power of attorney] [powers of attorney]) attached hereto as Appendix A, hereby certify, represent, warrant and agree, on behalf of the Developer that:

1. This Techical Proposal Submission Letter is furnished pursuant to the Instruction and Requirements for Proposal Preparation and Submission (the "IRPP") dated [__, *2015*] accepted by the Ministry of Energy and Mineral Resources and the Developer as amended, modified, supplemented or varied from time to time. All capitalized terms used herein but not otherwise defined herein shall have the meanings accorded to such terms in the IRPP.

2. Having examined and being fully familiar with all the provisions of the IRPP and any and all addenda thereto and the nature and scope of the contractual obligations to be undertaken by us, we hereby offer to undertake the [*name of Project*] on a build, own and operate basis in compliance with all requirements of the IRPP,
   (a) to provide to NEPCO [XX MW] of Capacity of photovoltaic energy,
   (b) in accordance with the draft Power Purchase Agreement (PPA) and Transmission Connection Agreement (TCA) attached to the IRPP except as such PPA has been clearly marked in our Proposal to reflect our desired modifications thereto,
   (c) at the tariff proposed in Section C of our Financial Proposal,
   (d) at the design and performance levels as stated in Section D of our Technical Proposal,
   (e) in accordance with the implementation schedule enclosed in Section E of our Technical Proposal, and
   (f) otherwise in accordance with all terms and conditions of the IRPP.

3. We hereby agree that our Proposal constitutes our firm, irrevocable offer that is binding upon us and will remain valid for a period of 365 (three hundred and sixty five) days following the Submission Deadline (the "Validity Period"), except as such period may be extended by us at the request of the Ministry of Energy and Mineral. We accept that such extension may be requested by the Ministry of Energy and Mineral Resources at its sole discretion at any time before the expiration of the Validity Period.

4. We understand the evaluation criteria established by the Ministry of Energy and Mineral Resources in the IRPP and acknowledge that Ministry of Energy and Mineral Resources is not obligated to accept our Proposal and may at any time reject our Proposal at its sole discretion.

5. In the event that we are invited by Ministry of Energy and Mineral Resources to do so, we agree to attend negotiation meetings at our own costs with Ministry of Energy and Mineral Resources on open technical, commercial and legal issues of our Proposal and to do so in good faith, and to execute the Project Agreements included in the IRPP in the form thereof agreed upon with MEMR / NEPCO during the before-mentioned negotiation meetings, and to furnish the Performance Security as specified in the agreed PPA.

Signature: _____

All correspondence relative to this proposal is to be addressed to:

Address:

Telephone number:
Telefax number:

Attachments: Powers of Attorney

Proposal Form A.2:
Form of Financial Proposal Submission Letter

Eng. *Dr. Ghaleb Maabreh*
Secretary General
Ministry of Energy and Mineral Resources
Zahran Street, Sweifiah
11814 Amman
The Hashemite Kingdom of Jordan.

We, the undersigned

Last Name:
First Name:
Title: [Chairman / Vice Chairman / President / Vice President]

of [name of company], acting as the legal representative of [*name of the Consortium*] (the "Developer") pursuant to the [power of attorney] [powers of attorney]) attached hereto as Appendix A, hereby certify, represent, warrant and agree, on behalf of the Developer that:

1. This Financial Proposal Submission Letter is furnished pursuant to the Instruction and Requirements for Proposal Preparation and Submission (the "IRPP") dated [__,*2014*] accepted by the Ministry of Energy and Mineral Resources and the Developer as amended, modified, supplemented or varied from time to time. All capitalized terms used herein but not otherwise defined herein shall have the meanings accorded to such terms in the IRPP.

2. Having examined and being fully familiar with all the provisions of the IRPP and any and all addenda thereto and the nature and scope of the contractual obligations to be undertaken by us, we hereby offer to undertake the [*name of Project*] on a build, own and operate basis in compliance with all requirements of the IRPP,
   (a) to provide to NEPCO [XX MW] of Capacity of photovoltaic energy,
   (b) in accordance with the draft Power Purchase Agreement ("PPA") attached to the IRPP except as such PPA has been clearly marked in our Proposal to reflect our desired modifications thereto,
   (c) at the Tariff proposed in Section C of our Financial Proposal,
   (d) at the design and performance levels as stated in Section D of our Proposal,
   (e) in accordance with the implementation schedule enclosed in Section E of our Technical Proposal, and
   (f) otherwise in accordance with all terms and conditions of the IRPP.

3. We hereby agree that our Proposal constitutes our firm, irrevocable offer that is binding upon us and will remain valid for a period of 365 (three hundred and sixty five) days following the Submission Deadline (the "Validity Period"), except as such period may be extended by us at the request of the Ministry of Energy and Mineral. We accept that such extension may be requested by the Ministry of Energy and Mineral Resources at its sole discretion at any time before the expiration of the Validity Period.

4. We understand the evaluation criteria established by the Ministry of Energy and Mineral Resources in the IRPP and acknowledge that Ministry of Energy and

Mineral Resources is not obligated to accept our Proposal and may at any time reject our Proposal at its sole discretion.

5. In the event that we are invited by Ministry of Energy and Mineral Resources to do so, we agree to attend negotiation meetings at our own costs with Ministry of Energy and Mineral Resources on open technical, commercial and legal issues of our Proposal and to do so in good faith, and to execute the Project Agreements included in the IRPP in the form thereof agreed upon with *MEMR / NEPCO* during the before-mentioned negotiation meetings, and to furnish the Performance Security as specified in the agreed PPA.

Signature: _____

7. All correspondence relative to this proposal is to be addressed to:

Address:

Telephone number:
Telefax number:

Attachments: Powers of Attorney

Attachment B to

Instruction and Requirements for Proposal Preparation and Submission (IRPP)

PROPOSAL FORM B: LEGAL FORM OF DEVELOPER

Proposal Form B1:
Legal Form of Developer

No.	Information Required	Response
1.	Name of Developer[2]	
2.	Address	
3.	Name and Position of Authorised Representative	
4.	Telephone / Fax / E-Mail	
5.	Legal Form[3]	
6.	Capitalisation	
7.	Organisational Charts Attached	
8.	Constitutional Documents and Joint Venture Agreement[4] Attached	

[2] Whether an individual Developer or a Developer Consortium. In the case of a Developer Consortium, the names of all members of the Developer Consortium shall be approved in writing by MEMR.
[3] E.g. Single Corporate Entity, Consortium
[4] E.g. Shareholders' Agreement, Consortium Agreement, Development Agreement, Memorandum and Articles of Association etc.

Proposal Form B2:
Developer Consortium

No.	Information Required	"Lead Developer"	Member of Developer Consortium	Member of Developer Consortium	Member of Developer Consortium
1.	Name				
2.	Address				
3.	Name and Position of Point of Contact				
4.	Telephone / Fax / E-Mail				
5.	Legal Form				
6.	Ultimate Parent Company Name and Address				
7.	Net Assets / Shareholders Funds of Parent Company (financial year 2014)				
8.	Principal Role in Project				
9.	Organisational Documents Attached				
10.	Provision of audited financial statements for the Parent Company's financial years 2012, 2013 and 2014				
11.	Current long term unsecured Parent Company foreign currency credit rating (S&P, Moody's, Others)				
12.	Confirmation letter /certificate from company's bankers or auditors on good financial standing				
13.	Confirmation letter /certificate from company's legal advisors that the company has not been involved in illegal actions				

Attachment C to

Instruction and Requirements for Proposal Preparation and Submission (IRPP)

PROPOSAL FORM C: ELIGIBILITY OF EPC CONTRACTOR AND O&M CONTRACTOR

Proposal Form C.1: General information about EPC Contractor

No.	Information Required	Response
1.	Name	
2.	Address (Head Office)	
3.	Name and Position of point of contact	
4.	Telephone / fax / e-mail	
5.	Legal form	
6.	Principal area of business	
7.	No. of staff in principal business	Engineers: Others:
8.	No. of Photovoltaic projects successfully completed	
9.	No. of Photovoltaic projects currently in execution	
10.	Parent company net assets / shareholders funds for the last three years	
11.	Parent company net income for the last three years	
12.	Provision of audited financial statements for Parent Company's financial years for the last three years	
13.	Current long term unsecured parent company foreign currency credit rating (S&P, Moody's, others)	

If EPC Contractor is a consortium, the Developer shall provide the form sheet for each contractor member comprising the "EPC Contractor"

Proposal Form C.2: Project references of EPC Contractor
Photovoltaic project No. 1

No.	Information Required	Response
1.	Name of Photovoltaic Project	
2.	Location of Project	
3.	Name of Project Company	
4.	Name of Developer(s)/Owner	
5.	Value of contract	
6.	Status of Project	Under Construction:
		Under Operation:
7.	No. and rated capacity of PV modules	
8.	Rated capacity of entire Project	
9.	Principal manufacturers of major equipment	PV modules:
		Inverters:
		Mounting frames:
10.	Duration of construction period	
11.	Duration of guarantee for turbines	
12.	Commercial operation date	

Developer to submit additional form sheets for EPC Contractor's projects No. 2, 3, etc., as well as for principal sub-contractors.

Proposal Form C.3: Project references and financial capability of BOO(T) projects in the power generation sector designed, developed and/or constructed within the last five (5) years or under construction

Name of Applicant or member of a joint venture or consortium, to whom this form applies

	Name of project / Member owning the project	Type of RE or fuel	Date of COD	Country / Location / area	Type of activity involved in project	Contracting/ concession Authority / Client	Share of Applicant or member in project company
1							
2							
3							
4							
5							
6							
Signature:							
For (Name of Company):							

[Provide the following summary table in respect of each project in the power generation sector for which the Applicant or its members has developed a limited recourse financing package within the last five (5) years]

	Item	
1	Name of Project	
2	Location of Project	
3	Type of plant	
4	Owner of the Plant	
5	Date of Financial Closing (if applicable)	
6	Date of Project commercial date of operation	
7	Applicant's Role in the Project (pre and post completion)	
8	Project / Plant Cost (USD)	
9	Sources of Debt Funding	
10	Lead Arranger for Debt Funding	
11	Sources of Equity Funding	
12	Financing contributed by Applicant	
Signature:		
For (Name of Company):		

Attachment D to

Instruction and Requirements for Proposal Preparation and Submission (IRPP)

PROPOSAL FORM D: ELIGIBILITY OF MAIN EQUIPMENT AND EQUIPMENT SUPPLIERS

Proposal Form D: Eligibility of Main Equipment

Type of equipment	Name of manufacturer (including ultimate parent company)	Point of contact, position, address, telephone, fax, e-mail
PV module		
Inverter		
Mounting system / tracking system		

Manufacturer/supplier to provide references for each type of main equipment, which should include the following information:

- Name of plant / client;
- type, size and main parameters;
- year of commissioning; and
- relevant operational parameters (hours of operation, starts, etc.).

Attachment E to

Instruction and Requirements for Proposal Preparation and Submission (IRPP)

PROPOSAL FORM E: PROJECT IMPLEMENTATION SCHEDULE

Proposal Form E: Project Implementation Schedule

Milestones	Date
PPA Effective Date	
PPA Financial Closing date	
Start of site mobilization	
Start of site preparation	
Civil Works	
Start of site leveling	
Completion of site leveling	
Start of foundation works inverter/transformer cabins	
Start of foundation works mounting frames/trackers	
Start of access road works	
Start of internal road works	
Completion of site preparation (leveling)	
Completion of cable ducts and trenches	
Completion of central control building	
Completion of gates, fencing and perimeter road	
Completion of drainage system	
Delivery at site of	
Mounting frames/trackers metal support	
PV modules (first batch)	
PV modules (last batch)	
Inverters (first batch)	
Inverters (last batch)	
LV/MV transformers	
Power transformer	
MV/HV equipment	
Substation equipment	
Mechanical completion date of Plant facilities / systems	
Completion of mounting frame/tracker	
Completion of inverter/transformer stations	
Completion of LV cabling	
Completion of MV cabling	
Completion of PV module installation	
Completion of meteorological station	
Completion of MV network	
Completion of plant´s substation	
Completion of grid connection	

Completion of site surveillance system	
Completion of electrical works	
Completion of I&C	
Completion of connection to Connection Facilities, LDC, other external facilities and systems	
Access road from main road to solar plant gate	
HV terminal at NEPCO grid station	
LV terminal at local power distribution facility (NEPCO Facilities)	
LDC integration works	
Commissioning of Plant facilities and systems (functional tests and trial run)	
Energization of power transformer	
Energization of LV/MV transformers	
Start of first solar sub-array	
End of last solar sub-array	
Test of I&C	
Test of monitoring/SCADA	
Test of surveillance system	
Entire PV/CPV Project	
Performance Test	
Scheduled Project Commercial Operation Date (PCOD)	

Attachment F to

Instruction and Requirements for Proposal Preparation and Submission (IRPP)

PROPOSAL FORM F: FINANCIAL INFORMATION

Proposal Form F.1: Tariff Proposal

	Unit	Value
Tariff	Jordanian Fils / kWh	[●]
Foreign (US$ portion) of the Tariff	%	[●]

Proposal Form F.2: Breakdown of Total Project Cost (in 1,000 US$)
(Page 1 of 2)

No.	Item	Total Costs	Total Foreign Costs	Total Local Costs	Remarks
1	**Construction Cost of BOO PV Project**				
1.1	***Preparatory Works***				
1.1.1	*Studies and Surveys*				
1.1.2	Preparatory Works				
1.2	**Infrastructure Works**				
1.2.1	Civil Infrastructure within Plant Boundaries				
1.2.2	Non Technical Buildings and Structures				
1.2.3	Mounting frame/tracker foundations				
1.2.4	Drainage System				
1.2.5	Electrical and I&C Systems				
1.2.6	Meteorological Station foundation				
1.2.7	Inverter/transformer/substation foundations				
1.2.8	Other: specify				
1.3	**Electromechanical components and installation**				
1.3.1	PV modules				
1.3.2	Inverters				
1.3.3	LV/MV transformer				
1.3.4	Power transformer				
1.3.5	Earthing and lightning				
1.3.6	MV switchgear				
1.3.7	HV switchgear				
1.3.8	Monitoring/I&C/SCADA systems				
1.3.9	Meteorological station				
1.3.10	Plant Substation				
1.3.11	Reactive power compensation equipment				
1.3.12	Other (please specify)				
1.4	**Cabling**				
1.4.1	DC cabling, installation and ducts				
1.4.2	LV AC cabling installation and ducts				
1.4.3	MV AC cabling installation and trenches				
1.4.4	Cabling: surveillance, monitoring				
1.4.5	Earthing and lightning				
1.4.6	Other: specify				
	Sub-Total 1: Construction cost				

Proposal Form F.2: Breakdown of Total Project Cost (in 1,000 US$)
(Page 2 of 2)

No.	Item	Total Costs	Total Foreign Costs	Total Local Costs	Remarks
2	**Owner's Contingencies**				
3	**Initial Inventory**				
3.1	Spare parts and tools (1)				
3.2	Other (please specify)				
3.3	Other (please specify)				
	Sub-Total 3: Initial Inventory				
4	**Development Costs (2)**				
5	**Owner's Cost prior to COD**				
5.1	Cost incurred by Project Company				
5.2	O&M Cost incurred by O&M Contractor				
	Sub-Total 5: Owner's Cost prior to Project COD				
6	**Financing Cost** (3)				
6.1	Interest During Construction				
6.2	Up-front financing fees				
6.3	Commitment fees				
6.4	Agency fees				
	Sub-Total 6: Financing Costs				
7	**Initial Working Capital**				
8	**Reserve Accounts** (4)				
8.1	Debt Service Reserve Account				
8.2	O&M Reserve Account				
	Sub-Total 8: Reserve Accounts				
9	**Total Project Budget (Sub-Totals 1+2+3+4+5+6+7+8)**				

General remarks:

a) For calculation purposes use Reference Exchange Rate of US$ 1.41 = 1 JOD.
b) All the costs shall be given free on construction site (incl. transportation, transportation insurances, taxes, levies and duties as applicable) and shall include engineering, erection, testing and commissioning.
c) All costs shall exclude VAT, if applicable.

Notes:

(1) The Bidder shall indicate to what extend spare parts are included in the EPC Contract
(2) Includes, but is not limited to, technical, legal, financial advisory, insurance advisory and any other internal and external advisory and development costs including travel and accommodation up to and including Conditions Satisfaction Date
(3) In accordance with the Financing Term Sheets
(4) If funded prior to Commercial Operation Date(5) **Sub-Total 1: Total Project Budget has to be compliant with the local content requirements of the Ministry of Public Works and Housing Building.**

Proposal Form F.3: Breakdown of Operating Cost post COD
Proposal Form F.3.1: Semi-Annual breakdown of Operating Cost post COD into local and foreign portions (in US$ 1,000)

	Contract Year	**1**		**2**		**3**		**…**		**…**		**…**		**…**		**20**	
	Semi-annual period post COD	**1**	**2**	**3**	**4**	**5**	**6**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**…**	**39**	**40**
1.	**Cost incurred by Project Company (including cost incurred by O&M Contractor)**																
1.1	Foreign currency operating cost																
1.2	Local currency operating cost																
2.	**Total operating cost (1.1+1.2)**																

General remarks:

a) For calculation purposes use the Reference Exchange Rate.
b) Bidder to complete Proposal Form with semi-annual periods post COD.
c) All operating cost provided in this Proposal Form F3 must be in constant money referred to the Proposal Submission Date. No assumptions on inflation shall be applied.
d) The totals on this Proposal Form F3.1 must match the totals in Proposal Form F.3.2.

Proposal Form F.3: Breakdown of Operating Cost post COD
Proposal Form F.3.2: Semi-Annual breakdown of Operating Cost post COD (in US$ 1,000)

	Contract Year	1		2		3		…		…		…		…		20	
	Semi-annual period post COD	1	2	3	4	5	6	…	…	…	…	…	…	…	…	39	40
1	**Cost incurred by Project Company**																
1.1	Management staff and labour																
1.2	Administrative and general expenses																
1.3	Insurances																
1.4	Consultants/Auditors																
1.5	Cost related to Usufruct Agreement/Licensing etc.																
1.6	Others (please specify)																
	Sub-Total 1: Cost of Project Company																
2	**O&M Cost incurred by O&M Contractor**																
2.1	Operator fee																
2.2	Plant management																
2.3	O&M labour																
2.4	Insurances																
2.5	Equipment rental																
2.6	Major overhauls																
2.7	Plant maintenance																
2.8	Spare parts																
2.9	Water																
2.10	Consumable																
2.11	Others (please specify)																
	Sub-Total 2: Cost of O&M Contractor																
3	**Total Operating Cost (Subtotals 1+2)**																

General remarks:

a) For calculation purposes use the Reference Exchange Rate.
b) Bidder to complete formsheet with semi-annual periods post COD.
c) All operating cost provided in this Proposal Form F2 must be in constant money referred to the Proposal Submission Date. No assumptions on inflation shall be applied.
d) The totals on this Proposal Form F3.2 must match the totals in Proposal Form F3.1.

Proposal Form F.4: Sources and Uses of Funds

Refer-ence (1)	USES	in US$ 1,000	in JOD 1,000	SOURCES	in US$ 1,000	in JOD 1,000
1	Construction cost			**Share Capital**		
				[Consortium Member 1] (2)		
2	Owner's contingencies			[Consortium Member 2] (2)		
				Total Share Capital		
3	Initial inventory					
				Shareholders' Loans and other Equity		
4	Development costs			[Consortium Member 1] (2)		
				[Consortium Member 2] (2)		
5	Owners' cost prior to COD			Total Share Capital		
6	Financing cost			**Debt**		
				[Funding Source 1] (2)		
7	Initial working capital			[Funding Source 2] (2)		
				Total Debt		
8	Reserve accounts					
	Total Uses of Funds			**Total Debt**		

Notes:
(1) Reference to the items in Proposal Form F1
(2) Delete or add as required

Proposal Form F.5: Disbursement schedule and drawdown schedule
Proposal Form F.5.1: Disbursement schedule during construction period

Line reference	Construction period	Unit	Month 1	Month 2	Month 3	…	…	…	…	…	…
1	Construction cost	US$ 1,000									
		%									
2	Owner's contingencies	US$ 1,000									
		%									
3	Initial inventory	US$ 1,000									
		%									
4	Development costs	US$ 1,000									
		%									
5	Owners' cost prior to COD	US$ 1,000									
		%									
6	Financing cost	US$ 1,000									
		%									
6	Initial working capital	US$ 1,000									
		%									
8	Reserve accounts	US$ 1,000									
		%									
	Total	US$ 1,000									
		%									

General remarks:

a) For calculation purposes use the Reference Exchange Rate.
b) Month 1 is the first month of the construction period. Bidder to add months prior to COD as required.

Proposal Form F.5: Disbursement schedule and drawdown schedule
Proposal Form F.5.2: Drawdown schedule for debt and equity

Construction period	Unit	Month 1	Month 2	Month 3	…	…	…	…	…	…
Equity	US$ 1,000									
	%									
Shareholder subordinated debt	US$ 1,000									
	%									
Debt [Funding source 1] (1)	US$ 1,000									
	%									
Debt [Funding source 2] (1)	US$ 1,000									
	%									
Debt [Funding source 3] (1)	US$ 1,000									
	%									
Total	US$ 1,000									
	%									

General remarks:

a) For calculation purposes use the Reference Exchange Rate.
b) Month 1 is the first month of the construction period. Bidder to add months prior to COD as required.

Note:
(1) Add or delete funding source as required

Proposal Form F.6: Sources, terms and conditions of debt financing

Item	Parameter	[Funding Source 1] (1)	[Funding Source 2] (1)
Name of Provider			
Currency of Facility Total Facility Amount	[currency] [in 1,000]		
Start of Availability End of Availability	[date] [date]		
Start of repayment period Grace periods	[date] [date]		
Final Maturity Repayment Periods Amortization Style (2)	[date] [semi annual periods]		
Interest Rate (3) Hedging Margin Interest Rate/Margin during Construction Period (4) Interest Rate/Margin during Repayment Period (4) Basis for Interest Payment (5)	- - % % -		
Upfront Charges Commitment Fees Agency Fees per semi annual period	% % [in 1,000]		
Margins on positive cash balances Margins on negative cash balances	- -		

General remark:
The information provided above shall be consistent with the Senior Debt term sheet attached to the Bank Acknowledgment Letter set out in Proposal Form B2 included in Part IV of this RFP.

Notes:
(1) Add or delete columns as required.
(2) Insert "1" in case of bidder's profile repayment, "2" in case of equal principal repayment, "3" in case of annuity repayment and "4" in case of sculpted repayment.
In case of a sculpted repayment profile ("4"), Bidder shall provide schedule on a semi-annual basis as per Proposal Form G.7.
(3) Bidder to indicate whether fixed or floating interest rates shall apply.
(4) If interest margins vary during the construction or operation period, Bidder shall provide exact margin schedule as per Proposal Form G.7.
(5) For each funding source, Bidder shall provide information with respect to the interest payment and the reference rate.

Proposal Form F.7: Repayment schedule and interest margin

Contract Year		1		2		3		…		…		…		…		20	
Semi-annual period post COD		1	2	3	4	5	6	…	…	…	…	…	…	…	…	39	40
Item	**Unit**																
[Funding Source 1] (1)																	
Repayment Period	[number]																
Actual Date of Repayment in Period	[date]																
Principal Repayment	%																
Percentage of Debt Amortized	%																
Interest Margin Applied in Period	%																
[Funding Source 2] (1)																	
Repayment Period	[number]																
Actual Date of Repayment in Period	[date]																
Principal Repayment	%																
Percentage of Debt Amortized	%																
Interest Margin Applied in Period	%																
[Funding Source 3] (1)																	
Repayment Period	[number]																
Actual Date of Repayment in Period	[date]																
Principal Repayment	%																
Percentage of Debt Amortized	%																
Interest Margin Applied in Period	%																

General remark:
Bidder to complete Proposal Form with semi-annual periods post COD

Note:
(1) Add or delete funding source as required

Proposal Form F.8: Insurance Program

[Developer to provide]