STANDARD PROCUREMENT DOCUMENT

Request for Proposals Consulting Services

THE WORLD BANK
IBRD • IDA

OCTOBER, 2017

Revisions

October 2017

This revision dated October, 2017 incorporates new provisions on beneficial ownership and Direct Payment. The environmental, social, health and safety (ESHS) aspects have also been enhanced to include additional provisions on sexual exploitation and abuse (SEA) and gender based violence (GBV).

January 2017

This revision dated January, 2017 incorporates changes to enhance environmental, social, health and safety performance. In addition, a template for notification of intention to award a contract has been added and a few editorial enhancements made.

July 2016

These revisions dated July, 2016, incorporate a number of changes reflecting the Procurement Regulations for IPF Borrowers, July 2016.
.

Foreword

1. This Standard Procurement Document (SPD), Request for Proposals (RFPs), for selection of consultants to provide Consultancy Services, has been prepared by the World Bank[1] ("Bank") This SPD derives from the Master Procurement Document for Selection of Consultants ("Master Document"). The Master Document was prepared by participating Multilateral Development Banks ("MDBs") and reflects what are considered "best practices". This SPD follows the structure and the provisions of the Master Document, except where specific considerations within the respective institutions have required a change.

2. This SPD has been updated to reflect the World Bank's *Procurement Regulations for IPF Borrowers, July, 2016* as amended from time to time. This SPD is applicable to the selection of consultant(s), to provide Consultancy Services, funded, in whole or in part, by IBRD or IDA financed projects and whose Legal Agreement makes reference to the Procurement Regulations for IPF Borrowers.

3. The text shown in *Italics* is *"Notes to the Client*". It provides guidance to the entity in preparing a specific RFP. "Notes to the Client" should be deleted from the final RFP issued to the shortlisted Consultants.

4. This SPD can be used with different selection methods described in Bank's Procurement Regulations for IPF Borrowers (available at www.worldbank.org), including Quality-Based and Cost-Based Selection ("QCBS"), Quality-Based Selection ("QBS"), Selection under a Fixed Budget ("FBS"), and Least-Cost Selection ("LCS"). When mandating the use of this SPD on the implementing agency, however, primary consideration should be given to the complexity and value of the assignment.

5. The use of this SPD is not required for selections conducted under commercial practice, alternative procurement arrangements, selection of individual consultants, and in the case of entering into an agreement with a UN agency in a format approved by the Bank. For Selection Based on Consultant's Qualifications ("CQS") or assignments under any selection method normally costing less than US$300,000 equivalent relevant elements of this SPD may be used and further simplified for the purpose of a particular assignment. This SPD is for use by Borrowers only and shall not be used for selection of consultants under contracts signed between consultants and the Bank.

6. Before preparing a RFP for a specific assignment, the user must be familiar with the Procurement Regulations for IPF Borrowers, and must have chosen an appropriate method and the appropriate contract form. The SPD includes two standard forms of contract: one for time-based assignments and the other for lump-sum assignments. The

[1] References in this SPD to the "World Bank" or "Bank" include both the International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA).

prefaces to these two contracts indicate the circumstances in which their use is most appropriate.

To obtain further information on procurement under World Bank-financed projects or for any questions regarding the use of this SPD, contact:

Chief Procurement Officer
Standards, Procurement and Financial Management Department
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433 U.S.A.
http://www.worldbank.org

Standard Procurement Document

SUMMARY

PART I – SELECTION PROCEDURES AND REQUIREMENTS

Section 1: Request for Proposals (RFP) Letter

This Section is a template of a letter for a Request for Proposals from the Client addressed to a shortlisted consulting firm inviting it to submit a proposal for a consulting assignment. The RFP letter includes a list of all shortlisted firms to whom similar letters of invitation are sent, and a reference to the selection method and applicable Procurement Regulations for IPF Borrowers or policies of the financing institution that govern the selection and award process.

Section 2: Instructions to Consultants and Data Sheet

This Section consists of two parts: "Instructions to Consultants" and "Data Sheet". "Instructions to Consultants" contains provisions that are to be used without modifications. "Data Sheet" contains information specific to each selection and corresponds to the clauses in "Instructions to Consultants" that call for selection-specific information to be added. This Section provides information to help shortlisted consultants prepare their proposals. Information is also provided on the submission, opening and evaluation of proposals, contract negotiation and award of contract. Information in the Data Sheet indicates whether a Full Technical Proposal (FTP) or a Simplified Technical Proposal (STP) shall be used.

Section 3: Technical Proposal – Standard Forms

This Section includes the forms for FTP and STP that are to be completed by the shortlisted consultants and submitted in accordance with the requirements of Section 2.

Section 4: Financial Proposal – Standard Forms

This Section includes the financial forms that are to be completed by the shortlisted consultants, including the consultant's costing of its technical proposal, which are to be submitted in accordance with the requirements of Section 2.

Section 5: Eligible Countries

This Section contains information regarding eligible countries.

Section 6: Fraud and Corruption

This section includes the fraud and corruption provisions which apply to this selection process.

Section 7: Terms of Reference (TORs)

This Section describes the scope of services, objectives, goals, specific tasks required to implement the assignment, and relevant background information; provides details on the required qualifications of the key experts; and lists the expected deliverables. This Section shall not be used to over-write provisions in Section 2.

PART II – CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section 8: Standard Forms of Contract

This Section includes two types of standard contract forms for large or complex assignments: a Time-Based Contract and a Lump-Sum Contract. Each type includes General Conditions of Contract ("GCC") that shall not be modified, and Special Conditions of Contract ("SCC"). The SCC include clauses specific to each contract to supplement the General Conditions.

Each standard form of contract incorporates "Fraud and Corruption" (Section 6 of Part I) in a form of Attachment 1.

PART III – NOTIFICATION OF INTENTION TO AWARD AND BENEFICIAL OWNERSHIP FORMS

Section 9: Notification of Intention to Award and Beneficial Ownership Forms

This Section includes two forms. The first form is used to notify Consultants of the Client's intention to award the contract to the successful Consultant. The second form is used to obtain additional beneficial ownership information from successful Consultant for contracts identified in the Procurement Plan.

SELECTION OF CONSULTANTS

Request for Proposals Consulting Services

Procurement of:
Service consultancy for Real-Time Solar Photovoltaic Generation Forecasting

RFP No: SUBPROJECT 24-2 BR-ONS-411010-CS-QBS

Consulting Services for: Developing of a solar photovoltaic generation forecast model, considering the real-time horizon, which extends from minutes to twenty-four hours ahead. Additionally, advancements are expected for processes that encompass the use of different solar generation forecasting methodologies, considering machine learning techniques, regressive modeling, smart persistence, in addition to using numerical weather forecasting, as well as methodologies for analysis and processing of solarimetric and meteorological data observed in situ and derived from satellite data.

Client: OPERADOR NACIONAL DO SISTEMA ELÉTRICO

Country: Brazil

Issued on: February 28*, 2024*

TABLE OF CONTENTS

PART I

Section 1. Request for Proposal Letter

Request for Proposal Letter

Consulting Services

Name of Assignment: Hiring of consultancy for Real-Time Solar Photovoltaic Generation Forecasting
RFP Reference No.: SUBPROJECT 24-2 BR-ONS--411010-CS-QBS
Loan No./Credit No./ Grant No.:_Nº: 9074-BR
Country: Brazil
Date: 02/28/2024

To Joint Venture Vaisala, Terrabyte Analytics and Inesc P&D Brasil

Dear Mr. /Ms.:

1. The MINISTRY OF MINES AND ENERGY – MME has received financing from the International Bank for Reconstruction and Development (IBRD) in the form of a loan (toward the cost of Technical Assistance Project of the Energy and Mineral Sectors - META II. The OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS, an implementing agency of the Client, intends to apply a portion of the proceeds of this loan to eligible payments under the contract for which this Request for Proposals is issued.

   Payments by the Bank will be made only at the request of the OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS and upon approval by the Bank, and will be subject, in all respects, to the terms and conditions of the loan agreement. The loan agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by a decision of the United Nations Security council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the loan agreement or have any claims to the proceeds of the loan.

2. The Client now invites proposals to provide the following consulting services (hereinafter called “Services”): Solar Power Forecast: Study of influential variables and development of a forecast model.

3. This Request for Proposals (RFP) has been addressed to the following shortlisted Consultants:

   (a) Joint Venture *Solargis / IESS, constituted by the following companies:*
   Solargis s.r.o.
   IESS Ideal Estudos e Soluções Solares

(b) Joint Venture *Vaisala / Terrabyte Analytics / INESC P&D BRASIL, constituted by the following companies:*
Vaisala
Terrabyte Analytics
Inesc P&D Brasil - Instituto de Engenharia de Sistemas e Computadores, Pesquisa e Desenvolvimento do Brasil

(c) Joint Venture *Genesis / SteadySun / MC&E, constituted by the following companies:*
Genesis Pesquisa e Desenvolvimento LTDA.
SteadySun
MC&E- Marangon Consultoria e Engenharia

(d) Joint Venture *Solute / TIDOP, constituted by the following companies:*
Solute Engineers
TIDOP (Information Technologies for the Intelligent Digitization of Objects and Processes)

(e) Joint Venture *CESI/Climatempo, constituted by the following companies:*
Centro Elettrotecnico Sperimentale Italiano Giacinto Motta - CESI S.p.A
Agência Brasileira de Meteorologia Ltda. - Climatempo

(f) Joint Venture *PSR/TEMPO OK, constituted by the following companies:*
PSR Soluções e Consultoria em Energia Ltda
Tempo OK Tecnologia em Meteorologia Ltda

(g) Joint Venture *SIMEPAR/LACTEC/TRACTEBEL, constituted by the following companies:empresas:*
Sistema de Tecnologia e Monitoramento Ambiental do Paraná - SIMEPAR
Instituto de Tecnologia para o Desenvolvimento – LACTEC
Tractebel Engineering Ltda

4. It is not permissible to transfer this RFP to any other firm.

5. A firm will be selected under *the* Quality-Based Selection ("QBS"), procedures and in a Full Technical Proposal (FTP) format as described in this RFP, in accordance with the Bank's "Procurement Regulations for IPF Borrowerswhich can be found at the following website: www.worldbank.org

   The RFP includes the following documents:

   Section 1 – Request for Proposals Letter

   Section 2 - Instructions to Consultants and Data Sheet

   Section 3 - Technical Proposal FTP - Standard Forms

Section 4 - Financial Proposal - Standard Forms

Section 5 – Eligible Countries

Section 6 – Fraud and Corruption

Section 7 - Terms of Reference

Section 8 - Standard Forms of Contract Lump-Sum

6. Please inform us by March 18, *2024* in writing at *compras@ons.org.br; alexandre.ferreira@ons.org.br*:

   (a) that you have received this Request for Proposals; and

   (b) whether you intend to submit a proposal alone or intend to enhance your experience by requesting permission to associate with other firm(s) (if permissible under Section 2, Instructions to Consultants (ITC), Data Sheet 14.1.1).

7. Details on the proposal's submission date, time and address are provided in ITC 17.7 and ITC 17.9.

Yours sincerely,

OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS
To: Alexandre de Oliveira Ferreira
Phone: +55 21 3444-9147
E-mail: compras@ons.org.br; alexandre.ferreira@ons.org.br

Section 2. Instructions to Consultants and Data Sheet

[Notes to the Client: this part of Section 2, Instructions to Consultants, shall not be modified. Any necessary changes, acceptable to the Bank, to address specific country and project issues, to supplement, but not over-write, the provisions of the Instructions to Consultants (ITC), shall be introduced through the Data Sheet only. "Notes to the Client" should be deleted from the final RFP issued to the shortlisted Consultants].

Instructions to Consultants

A. General Provisions

1. Definitions

(a) "Affiliate(s)" means an individual or an entity that directly or indirectly controls, is controlled by, or is under common control with the Consultant.

(b) "Applicable Law" means the laws and any other instruments having the force of law in the Client's country, or in such other country as may be specified in the **Data Sheet**, as they may be issued and in force from time to time.

(c) "Bank" means the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).

(d) "Borrower" means the Government, Government agency or other entity that signs the *[loan/financing/grant[1]]* agreement with the Bank.

(e) "Client" means the implementing agency that signs the Contract for the Services with the selected Consultant.

(f) "Consultant" means a legally-established professional consulting firm or an entity that may provide or provides the Services to the Client under the Contract.

(g) "Contract" means a legally binding written agreement signed between the Client and the Consultant and includes all the attached documents listed in its Clause 1 (the General Conditions of Contract (GCC), the Special Conditions of Contract (SCC), and the Appendices).

(h) "Data Sheet" means an integral part of the Instructions to Consultants (ITC) Section 2 that is used to reflect specific country and assignment conditions to supplement, but not to over-write, the provisions of the ITC.

(i) "Day" means a calendar day, unless otherwise specified as "Business Day". A Business Day is any day that is an official working day of the Borrower. It excludes the Borrower's official public holidays.

[1] *["loan agreement" term is used for IBRD loans; "financing agreement" is used for IDA credits; and "grant agreement" is used for Recipient-Executed Trust Funds administered by IBRD or IDA]*

(j) "Experts" means, collectively, Key Experts, Non-Key Experts, or any other personnel of the Consultant, Sub-consultant or Joint Venture member(s).

(k) "Government" means the government of the Client's country.

(l) "in writing" means communicated in written form (e.g. by mail, e-mail, fax, including, if specified in the Data Sheet, distributed or received through the electronic-procurement system used by the Client) with proof of receipt;

(m) "Joint Venture (JV)" means an association with or without a legal personality distinct from that of its members, of more than one Consultant where one member has the authority to conduct all business for and on behalf of any and all the members of the JV, and where the members of the JV are jointly and severally liable to the Client for the performance of the Contract.

(n) "Key Expert(s)" means an individual professional whose skills, qualifications, knowledge and experience are critical to the performance of the Services under the Contract and whose CV is taken into account in the technical evaluation of the Consultant's proposal.

(o) "ITC" (this Section 2 of the RFP) means the Instructions to Consultants that provides the shortlisted Consultants with all information needed to prepare their Proposals.

(p) "Non-Key Expert(s)" means an individual professional provided by the Consultant or its Sub-consultant and who is assigned to perform the Services or any part thereof under the Contract and whose CVs are not evaluated individually.

(q) "Proposal" means the Technical Proposal and the Financial Proposal of the Consultant.

(r) "RFP" means the Request for Proposals to be prepared by the Client for the selection of Consultants, based on the SPD - RFP.

(s) "SPD - RFP" means the Standard Procurement Document - Request for Proposals, which must be used by the Client as the basis for the preparation of the RFP.

(t) "Services" means the work to be performed by the Consultant pursuant to the Contract.

(u) "Sub-consultant" means an entity to whom the Consultant intends to subcontract any part of the Services while the Consultant remains responsible to the Client during the whole performance of the Contract.

(v) "Terms of Reference (TORs)" (this Section 7 of the RFP) means the Terms of Reference that explains the objectives, scope of work, activities, and tasks to be performed, respective responsibilities of the Client and the Consultant, and expected results and deliverables of the assignment.

(w) "ESHS" means environmental, social (including sexual exploitation and abuse (SEA) and gender based violence (GBV)), health and safety.

2. Introduction

2.1 The Client named in the **Data Sheet** intends to select a Consultant from those listed in the Request for Proposals (RFP), in accordance with the method of selection specified in the **Data Sheet**.

2.2 The shortlisted Consultants are invited to submit a Technical Proposal and a Financial Proposal, or a Technical Proposal only, as specified in the **Data Sheet**, for consulting services required for the assignment named in the **Data Sheet**. The Proposal will be the basis for negotiating and ultimately signing the Contract with the selected Consultant.

2.3 The Consultants should familiarize themselves with the local conditions and take them into account in preparing their Proposals, including attending a pre-proposal conference if one is specified in the **Data Sheet**. Attending any such pre-proposal conference is optional and is at the Consultants' expense.

2.4 The Client will timely provide, at no cost to the Consultants, the inputs, relevant project data, and reports required for the preparation of the Consultant's Proposal as specified in the **Data Sheet**.

3. Conflict of Interest

3.1 The Consultant is required to provide professional, objective, and impartial advice, at all times holding the Client's interests paramount, strictly avoiding conflicts

with other assignments or its own corporate interests, and acting without any consideration for future work.

3.2 The Consultant has an obligation to disclose to the Client any situation of actual or potential conflict that impacts its capacity to serve the best interest of its Client. Failure to disclose such situations may lead to the disqualification of the Consultant or the termination of its Contract and/or sanctions by the Bank.

3.2.1 Without limitation on the generality of the foregoing, the Consultant shall not be hired under the circumstances set forth below:

a. Conflicting Activities

(i) Conflict between consulting activities and procurement of goods, works or non-consulting services: a firm that has been engaged by the Client to provide goods, works, or non-consulting services for a project, or any of its Affiliates, shall be disqualified from providing consulting services resulting from or directly related to those goods, works, or non-consulting services. Conversely, a firm hired to provide consulting services for the preparation or implementation of a project, or any of its Affiliates, shall be disqualified from subsequently providing goods or works or non-consulting services resulting from or directly related to the consulting services for such preparation or implementation.

b. Conflicting Assignments

(ii) Conflict among consulting assignments: a Consultant (including its Experts and Sub-consultants) or any of its Affiliates shall not be hired for any assignment that, by its nature, may be in conflict with another assignment of the Consultant for the same or for another Client.

c. Conflicting Relationships

(iii) Relationship with the Client's staff: a Consultant (including its Experts and Sub-consultants) that has a close business or family relationship with a professional staff of the Borrower (or of the Client, or of implementing agency, or of a recipient of a part of the Bank's financing) who are directly or indirectly involved in any part of (i) the preparation of the Terms of Reference for the assignment, (ii) the selection process for the Contract, or (iii) the supervision of the Contract, may not be awarded a Contract, unless the conflict stemming from this relationship has been resolved in a manner acceptable to the Bank

throughout the selection process and the execution of the Contract.

4. Unfair Competitive Advantage

4.1 Fairness and transparency in the selection process require that the Consultants or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to the assignment in question. To that end, the Client shall indicate in the **Data Sheet** and make available to all shortlisted Consultants together with this RFP all information that would in that respect give such Consultant any unfair competitive advantage over competing Consultants.

5. Fraud and Corruption

5.1 The Bank requires compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework, as set forth in Section 6.

5.2 In further pursuance of this policy, Consultants shall permit and shall cause their agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and their personnel, to permit the Bank to inspect all accounts, records and other documents relating to any shortlisting process, Proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

6. Eligibility

6.1 The Bank permits consultants (individuals and firms, including Joint Ventures and their individual members) from all countries to offer consulting services for Bank-financed projects.

6.2 Furthermore, it is the Consultant's responsibility to ensure that its Experts, joint venture members, Sub-consultants, agents (declared or not), sub-contractors, service providers, suppliers and/or their employees meet the eligibility requirements as established by the Bank in the applicable Procurement Regulations.

6.3 As an exception to the foregoing ITC 6.1 and ITC 6.2 above:

a. Sanctions

6.3.1 A Consultant that has been sanctioned by the Bank, pursuant to the Bank's Anti-Corruption Guidelines and in accordance with its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework as described in Section VI, Fraud and Corruption, paragraph 2.2 d., shall be

ineligible to be shortlisted for, submit proposals for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address specified **in the PDS**.

b. Prohibitions

6.3.2 Firms and individuals of a country or goods manufactured in a country may be ineligible if so indicated in Section 5 (Eligible Countries) and:

(a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the provision of Services required; or

(b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country.

c. Restrictions for State-Owned Enterprises

6.3.3 State-owned enterprises or institutions in the Borrower's country may be eligible to compete and be awarded a contract only if they can establish, in a manner acceptable to the Bank, that they: (i) are legally and financially autonomous, (ii) operate under commercial law, and (iii) are not under supervision of the Client.

d. Restrictions for Public Employees

6.3.4 Government officials and civil servants of the Borrower's country are not eligible to be included as Experts, individuals, or members of a team of Experts in the Consultant's Proposal unless:

(i) the services of the government official or civil servant are of a unique and exceptional nature, or their participation is critical to project implementation; and

(ii) their hiring would not create a conflict of interest, including any conflict with employment or other laws, regulations, or policies of the Borrower.

e. Borrower Debarment

6.3.5 A firm that is under a sanction of debarment by the Borrower from being awarded a contract is eligible to participate in this procurement, unless the Bank, at the Borrower's request, is satisfied that the debarment; (a) relates to fraud or corruption, and (b) followed a judicial or administrative proceeding that afforded the firm adequate due process.

B. Preparation of Proposals

7. General Considerations

7.1 In preparing the Proposal, the Consultant is expected to examine the RFP in detail. Material deficiencies in providing the information requested in the RFP may result in rejection of the Proposal.

8. Cost of Preparation of Proposal

8.1 The Consultant shall bear all costs associated with the preparation and submission of its Proposal, and the Client shall not be responsible or liable for those costs, regardless of the conduct or outcome of the selection process. The Client is not bound to accept any proposal, and reserves the right to annul the selection process at any time prior to Contract award, without thereby incurring any liability to the Consultant.

9. Language

9.1 The Proposal, as well as all correspondence and documents relating to the Proposal exchanged between the Consultant and the Client, shall be written in the language(s) specified in the **Data Sheet**.

10. Documents Comprising the Proposal

10.1 The Proposal shall comprise the documents and forms listed in the **Data Sheet**.

10.2 If specified in the **Data Sheet**, the Consultant shall include a statement of an undertaking of the Consultant to observe, in competing for and executing a contract, the Client country's laws against fraud and corruption (including bribery).

10.3 The Consultant shall furnish information on commissions, gratuities, and fees, if any, paid or to be paid to agents or any other party relating to this Proposal and, if awarded, Contract execution, as requested in the Financial Proposal submission form (Section 4).

11. Only One Proposal

11.1 The Consultant (including the individual members of any Joint Venture) shall submit only one Proposal, either in its own name or as part of a Joint Venture in another Proposal.

If a Consultant, including any Joint Venture member, submits or participates in more than one proposal, all such proposals shall be disqualified and rejected. This does not, however, preclude a Sub-consultant, or the Consultant's staff from participating as Key Experts and Non-Key Experts in more than one Proposal when circumstances justify and if stated in the **Data Sheet**.

12. Proposal Validity

12.1 **The Data Sheet** indicates the period during which the Consultant's Proposal must remain valid after the Proposal submission deadline.

12.2 During this period, the Consultant shall maintain its original Proposal without any change, including the availability of the Key Experts, the proposed rates and the total price.

12.3 If it is established that any Key Expert nominated in the Consultant's Proposal was not available at the time of Proposal submission or was included in the Proposal without his/her confirmation, such Proposal shall be disqualified and rejected for further evaluation, and may be subject to sanctions in accordance with ITC 5.

a. Extension of Validity Period

12.4 The Client will make its best effort to complete the negotiations and award the contract within the proposal's validity period. However, should the need arise, the Client may request, in writing, all Consultants who submitted Proposals prior to the submission deadline to extend the Proposals' validity.

12.5 If the Consultant agrees to extend the validity of its Proposal, it shall be done without any change in the original Proposal and with the confirmation of the availability of the Key Experts, except as provided in ITC 12.7.

12.6 The Consultant has the right to refuse to extend the validity of its Proposal in which case such Proposal will not be further evaluated.

b. Substitution of Key Experts at Validity Extension

12.7 If any of the Key Experts become unavailable for the extended validity period, the Consultant shall seek to substitute another Key Expert. The Consultant shall provide a written adequate justification and evidence satisfactory to the Client together with the substitution request. In such case, a substitute Key Expert shall have equal or better qualifications and experience than those of the originally proposed Key Expert. The technical evaluation score,

however, will remain to be based on the evaluation of the CV of the original Key Expert.

12.8 If the Consultant fails to provide a substitute Key Expert with equal or better qualifications, or if the provided reasons for the replacement or justification are unacceptable to the Client, such Proposal will be rejected with the prior Bank's no objection.

c. Sub-Contracting

12.9 The Consultant shall not subcontract the whole of the Services.

13. Clarification and Amendment of RFP

13.1 The Consultant may request a clarification of any part of the RFP during the period indicated in the **Data Sheet** before the Proposals' submission deadline. Any request for clarification must be sent in writing, or by standard electronic means, to the Client's address indicated in the **Data Sheet**. The Client will respond in writing, or by standard electronic means, and will send written copies of the response (including an explanation of the query but without identifying its source) to all shortlisted Consultants. Should the Client deem it necessary to amend the RFP as a result of a clarification, it shall do so following the procedure described below:

13.1.1 At any time before the proposal submission deadline, the Client may amend the RFP by issuing an amendment in writing or by standard electronic means. The amendment shall be sent to all shortlisted Consultants and will be binding on them. The shortlisted Consultants shall acknowledge receipt of all amendments in writing.

13.1.2 If the amendment is substantial, the Client may extend the proposal submission deadline to give the shortlisted Consultants reasonable time to take an amendment into account in their Proposals.

13.2 The Consultant may submit a modified Proposal or a modification to any part of it at any time prior to the proposal submission deadline. No modifications to the Technical or Financial Proposal shall be accepted after the deadline.

14. Preparation of Proposals Specific Considerations

14.1 While preparing the Proposal, the Consultant must give particular attention to the following:

14.1.1 If a shortlisted Consultant considers that it may enhance its expertise for the assignment by associating with other consultants in the form of a Joint Venture or as Sub-consultants, it may do so with either (a) non-shortlisted Consultant(s), or (b) shortlisted Consultants if permitted in the **Data Sheet**. In all such cases a shortlisted Consultant must obtain the written approval of the Client prior to the submission of the Proposal. When associating with non-shortlisted firms in the form of a joint venture or a sub-consultancy, the shortlisted Consultant shall be a lead member. If shortlisted Consultants associate with each other, any of them can be a lead member.

14.1.2 The Client may indicate in the **Data Sheet** the estimated Key Experts' time input (expressed in person-month) or the Client's estimated total cost of the assignment, but not both. This estimate is indicative and the Proposal shall be based on the Consultant's own estimates for the same.

14.1.3 If stated in the **Data Sheet**, the Consultant shall include in its Proposal at least the same time input (in the same unit as indicated in the **Data Sheet**) of Key Experts, failing which the Financial Proposal will be adjusted for the purpose of comparison of proposals and decision for award in accordance with the procedure in the **Data Sheet**.

14.1.4 For assignments under the Fixed-Budget selection method, the estimated Key Experts' time input is not disclosed. Total available budget, with an indication whether it is inclusive or exclusive of taxes, is given in the **Data Sheet**, and the Financial Proposal shall not exceed this budget.

15. Technical Proposal Format and Content

15.1 The Technical Proposal shall be prepared using the Standard Forms provided in Section 3 of the RFP and shall comprise the documents listed in the **Data Sheet.** The Technical Proposal shall not include any financial information. A Technical Proposal containing material financial information shall be declared non-responsive.

15.1.1 Consultant shall not propose alternative Key Experts. Only one CV shall be submitted for each Key Expert position. Failure to comply with this

requirement will make the Proposal non-responsive.

15.2 Depending on the nature of the assignment, the Consultant is required to submit a Full Technical Proposal (FTP), or a Simplified Technical Proposal (STP) as indicated in the **Data Sheet** and using the Standard Forms provided in Section 3 of the RFP.

16. Financial Proposal

16.1 The Financial Proposal shall be prepared using the Standard Forms provided in Section 4 of the RFP. It shall list all costs associated with the assignment, including (a) remuneration for Key Experts and Non-Key Experts, (b) reimbursable expenses indicated in the **Data Sheet**.

a. Price Adjustment

16.2 For assignments with a duration exceeding 18 months, a price adjustment provision for foreign and/or local inflation for remuneration rates applies if so stated in the **Data Sheet**.

b. Taxes

16.3 The Consultant and its Sub-consultants and Experts are responsible for meeting all tax liabilities arising out of the Contract unless stated otherwise in the **Data Sheet**. Information on taxes in the Client's country is provided in the **Data Sheet**.

c. Currency of Proposal

16.4 The Consultant may express the price for its Services in the currency or currencies as stated in the **Data Sheet**. If indicated in the **Data Sheet**, the portion of the price representing local cost shall be stated in the national currency.

d. Currency of Payment

16.5 Payment under the Contract shall be made in the currency or currencies in which the payment is requested in the Proposal.

C. Submission, Opening and Evaluation

17. Submission, Sealing, and Marking of Proposals

17.1 The Consultant shall submit a signed and complete Proposal comprising the documents and forms in accordance with ITC 10 (Documents Comprising Proposal). Consultants shall mark as "CONFIDENTIAL" information in their Proposals which is confidential to their business. This may include proprietary information, trade secrets or commercial or financially sensitive information. The submission can be done by mail or by hand. If specified

in the **Data Sheet**, the Consultant has the option of submitting its Proposals electronically.

17.2 An authorized representative of the Consultant shall sign the original submission letters in the required format for both the Technical Proposal and, if applicable, the Financial Proposal and shall initial all pages of both. The authorization shall be in the form of a written power of attorney attached to the Technical Proposal.

17.2.1 A Proposal submitted by a Joint Venture shall be signed by all members so as to be legally binding on all members, or by an authorized representative who has a written power of attorney signed by each member's authorized representative.

17.3 Any modifications, revisions, interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Proposal.

17.4 The signed Proposal shall be marked "ORIGINAL", and its copies marked "COPY" as appropriate. The number of copies is indicated in the **Data Sheet**. All copies shall be made from the signed original. If there are discrepancies between the original and the copies, the original shall prevail.

17.5 The original and all the copies of the Technical Proposal shall be placed inside a sealed envelope clearly marked "**TECHNICAL PROPOSAL**", "[Name of the Assignment]", [reference number], [name and address of the Consultant], and with a warning "**DO NOT OPEN UNTIL [INSERT THE DATE AND THE TIME OF THE TECHNICAL PROPOSAL SUBMISSION DEADLINE]**."

17.6 Similarly, the original Financial Proposal (if required for the applicable selection method) and its copies shall be placed inside of a separate sealed envelope clearly marked "**FINANCIAL PROPOSAL**" "[Name of the Assignment]", [reference number], [name and address of the Consultant], and with a warning "**DO NOT OPEN WITH THE TECHNICAL PROPOSAL**."

17.7 The sealed envelopes containing the Technical and Financial Proposals shall be placed into one outer envelope and sealed. This outer envelope shall be addressed to the Client and bear the submission address, RFP reference number, the name of the assignment, the Consultant's name

and the address, and shall be clearly marked "Do Not Open Before [insert the time and date of the submission deadline indicated in the **Data Sheet**]".

17.8 If the envelopes and packages with the Proposal are not sealed and marked as required, the Client will assume no responsibility for the misplacement, loss, or premature opening of the Proposal.

17.9 The Proposal or its modifications must be sent to the address indicated in the **Data Sheet** and received by the Client no later than the deadline indicated in the **Data Sheet**, or any extension to this deadline. Any Proposal or its modification received by the Client after the deadline shall be declared late and rejected, and promptly returned unopened.

18. Confidentiality

18.1 From the time the Proposals are opened to the time the Contract is awarded, the Consultant should not contact the Client on any matter related to its Technical and/or Financial Proposal. Information relating to the evaluation of Proposals and award recommendations shall not be disclosed to the Consultants who submitted the Proposals or to any other party not officially concerned with the process, until the Notification of Intention to Award the Contract. Exceptions to this ITC are where the Client notifies Consultants of the results of the evaluation of the Technical Proposals.

18.2 Any attempt by shortlisted Consultants or anyone on behalf of the Consultant to influence improperly the Client in the evaluation of the Proposals or Contract award decisions may result in the rejection of its Proposal, and may be subject to the application of prevailing Bank's sanctions procedures.

18.3 Notwithstanding the above provisions, from the time of the Proposals' opening to the time of Contract award publication, if a Consultant wishes to contact the Client or the Bank on any matter related to the selection process, it shall do so only in writing.

19. Opening of Technical Proposals

19.1 The Client's evaluation committee shall conduct the opening of the Technical Proposals in the presence of the shortlisted Consultants' authorized representatives who choose to attend (in person, or online if this option is offered in the **Data Sheet**). The opening date, time and the address are stated in the **Data Sheet**. The envelopes with

the Financial Proposal shall remain sealed and shall be securely stored with a reputable public auditor or independent authority until they are opened in accordance with ITC 23.

19.2 At the opening of the Technical Proposals the following shall be read out: (i) the name and the country of the Consultant or, in case of a Joint Venture, the name of the Joint Venture, the name of the lead member and the names and the countries of all members; (ii) the presence or absence of a duly sealed envelope with the Financial Proposal; (iii) any modifications to the Proposal submitted prior to proposal submission deadline; and (iv) any other information deemed appropriate or as indicated in the **Data Sheet**.

20. Proposals Evaluation

20.1 Subject to provision of ITC 15.1, the evaluators of the Technical Proposals shall have no access to the Financial Proposals until the technical evaluation is concluded and the Bank issues its "no objection", if applicable.

20.2 The Consultant is not permitted to alter or modify its Proposal in any way after the proposal submission deadline except as permitted under ITC 12.7. While evaluating the Proposals, the Client will conduct the evaluation solely on the basis of the submitted Technical and Financial Proposals.

21. Evaluation of Technical Proposals

21.1 The Client's evaluation committee shall evaluate the Technical Proposals on the basis of their responsiveness to the Terms of Reference and the RFP, applying the evaluation criteria, sub-criteria, and point system specified in the **Data Sheet**. Each responsive Proposal will be given a technical score. A Proposal shall be rejected at this stage if it does not respond to important aspects of the RFP or if it fails to achieve the minimum technical score indicated in the **Data Sheet**.

22. Financial Proposals for QBS

22.1 Following the ranking of the Technical Proposals, when the selection is based on quality only (QBS), the top-ranked Consultant is invited to negotiate the Contract.

22.2 If Financial Proposals were invited together with the Technical Proposals, only the Financial Proposal of the technically top-ranked Consultant is opened by the Client's evaluation committee. All other Financial Proposals are

returned unopened after the Contract negotiations are successfully concluded and the Contract is signed.

23. Public Opening of Financial Proposals (for QCBS, FBS, and LCS methods)

23.1 After the technical evaluation is completed and the Bank has issued its no objection (if applicable), the Client shall notify those Consultants whose Proposals were considered non-responsive to the RFP and TOR or did not meet the minimum qualifying technical score, advising them the following:

(i) their Proposal was not responsive to the RFP and TOR or did not meet the minimum qualifying technical score;

(ii) provide information relating to the Consultant's overall technical score, as well as scores obtained for each criterion and sub-criterion;

(iii) their Financial Proposals will be returned unopened after completing the selection process and Contract signing; and

(iv) notify them of the date, time and location of the public opening of the Financial Proposals and invite them to attend.

23.2 The Client shall simultaneously notify in writing those Consultants whose Proposals were considered responsive to the RFP and TOR, and that have achieved the minimum qualifying technical score, advising them the following:

(i) their Proposal was responsive to the RFP and TOR and met the minimum qualifying technical score;

(ii) provide information relating to the Consultant's overall technical score, as well as scores obtained for each criterion and sub-criterion;

(iii) their Financial Proposal will be opened at the public opening of Financial Proposals; and

(iv) notify them of the date, time and location of the public opening and invite them for the opening of the Financial Proposals.

23.3 The opening date should allow the Consultants sufficient time to make arrangements for attending the opening and shall be no less than seven (7) Business Days from the date of notification of the results of the technical evaluation, described in ITC 23.1 and 23.2.

23.4 The Consultant's attendance at the opening of the Financial Proposals (in person, or online if such option is indicated in the **Data Sheet**) is optional and is at the Consultant's choice.

23.5 The Financial Proposals shall be opened publicly by the Client's evaluation committee in the presence of the representatives of the Consultants and anyone else who chooses to attend. Any interested party who wishes to attend this public opening should contact the client as indicated in the **Data Sheet**. Alternatively, a notice of the public opening of Financial Proposals may be published on the Client's website, if available. At the opening, the names of the Consultants, and the overall technical scores, including the break-down by criterion, shall be read aloud. The Financial Proposals will then be inspected to confirm that they have remained sealed and unopened. These Financial Proposals shall be then opened, and the total prices read aloud and recorded. Copies of the record shall be sent to all Consultants who submitted Proposals and to the Bank.

24. Correction of Errors

24.1 Activities and items described in the Technical Proposal but not priced in the Financial Proposal, shall be assumed to be included in the prices of other activities or items, and no corrections are made to the Financial Proposal.

a. Time-Based Contracts

24.1.1 If a Time-Based contract form is included in the RFP, the Client's evaluation committee will (a) correct any computational or arithmetical errors, and (b) adjust the prices if they fail to reflect all inputs included for the respective activities or items included in the Technical Proposal. In case of discrepancy between (i) a partial amount (sub-total) and the total amount, or (ii) between the amount derived by multiplication of unit price with quantity and the total price, or (iii) between words and figures, the former will prevail. In case of discrepancy between the Technical and Financial Proposals in indicating quantities of input, the Technical Proposal prevails and the Client's evaluation committee shall correct the quantification indicated in the Financial Proposal so as to make it consistent with that indicated in the Technical Proposal, apply the relevant unit price included in the Financial Proposal to the corrected quantity, and correct the total Proposal cost.

b. Lump-Sum Contracts

24.1.2 If a Lump-Sum contract form is included in the RFP, the Consultant is deemed to have included all prices in the Financial Proposal, so neither arithmetical corrections nor price adjustments shall be made. The total price, net of taxes understood as per ITC 25, specified in the Financial Proposal (Form FIN-1) shall be considered as the offered price. Where there is a discrepancy between the amount in words and the amount figures, the amount in words shall prevail.

25. Taxes

25.1 The Client's evaluation of the Consultant's Financial Proposal shall exclude taxes and duties in the Client's country in accordance with the instructions in the **Data Sheet**.

26. Conversion to Single Currency

26.1 For the evaluation purposes, prices shall be converted to a single currency using the selling rates of exchange, source and date indicated in the **Data Sheet**.

27. Combined Quality and Cost Evaluation

a. Quality and Cost-Based Selection (QCBS)

27.1 In the case of QCBS, the total score is calculated by weighting the technical and financial scores and adding them as per the formula and instructions in the **Data Sheet**. The Consultant with the Most Advantageous Proposal, which is the Proposal that achieves the highest combined technical and financial scores, will be invited for negotiations.

b. Fixed-Budget Selection (FBS)

27.2 In the case of FBS, those Proposals that exceed the budget indicated in ITC 14.1.4 of the **Data Sheet** shall be rejected.

27.3 The Client will select the Consultant with the Most Advantageous Proposal, which is the highest-ranked Technical Proposal that does not exceed the budget indicated in the RFP, and invite such Consultant to negotiate the Contract.

c. Least-Cost Selection

27.4 In the case of Least-Cost Selection (LCS), the Client will select the Consultant with the Most Advantageous Proposal, which is the Proposal with the lowest evaluated total price among those Proposals that achieved the minimum qualifying technical score, and invite such a Consultant to negotiate the Contract.

D. Negotiations and Award

28. Negotiations

28.1 The negotiations will be held at the date and address indicated in the Data Sheet with the Consultant's representative(s) who must have written power of attorney to negotiate and sign a Contract on behalf of the Consultant.

28.2 The Client shall prepare minutes of negotiations that are signed by the Client and the Consultant's authorized representative.

a. Availability of Key Experts

28.3 The invited Consultant shall confirm the availability of all Key Experts included in the Proposal as a pre-requisite to the negotiations, or, if applicable, a replacement in accordance with ITC 12. Failure to confirm the Key Experts' availability may result in the rejection of the Consultant's Proposal and the Client proceeding to negotiate the Contract with the next-ranked Consultant.

28.4 Notwithstanding the above, the substitution of Key Experts at the negotiations may be considered if due solely to circumstances outside the reasonable control of and not foreseeable by the Consultant, including but not limited to death or medical incapacity. In such case, the Consultant shall offer a substitute Key Expert within the period of time specified in the letter of invitation to negotiate the Contract, who shall have equivalent or better qualifications and experience than the original candidate.

b. Technical Negotiations

28.5 The negotiations include discussions of the Terms of Reference (TORs), the proposed methodology, the Client's inputs, the special conditions of the Contract, and finalizing the "Description of Services" part of the Contract. These discussions shall not substantially alter the original scope of services under the TOR or the terms of the contract, lest the quality of the final product, its price, or the relevance of the initial evaluation be affected.

c. Financial Negotiations

28.6 The negotiations include the clarification of the Consultant's tax liability in the Client's country and how it should be reflected in the Contract.

28.7 If the selection method included cost as a factor in the evaluation, the total price stated in the Financial Proposal for a Lump-Sum contract shall not be negotiated.

28.8 In the case of a Time-Based contract, unit rates negotiations shall not take place, except when the offered Key Experts

and Non-Key Experts' remuneration rates are much higher than the typically charged rates by consultants in similar contracts. In such case, the Client may ask for clarifications and, if the fees are very high, ask to change the rates after consultation with the Bank. The format for (i) providing information on remuneration rates in the case of Quality Based Selection; and (ii) clarifying remuneration rates' structure under this Clause, is provided in Appendix A to the Financial Form FIN-3: Financial Negotiations – Breakdown of Remuneration Rates.

29. Conclusion of Negotiations

29.1 The negotiations are concluded with a review of the finalized draft Contract, which then shall be initialed by the Client and the Consultant's authorized representative.

29.2 If the negotiations fail, the Client shall inform the Consultant in writing of all pending issues and disagreements and provide a final opportunity to the Consultant to respond. If disagreement persists, the Client shall terminate the negotiations informing the Consultant of the reasons for doing so. After having obtained the Bank's no objection, the Client will invite the next-ranked Consultant to negotiate a Contract. Once the Client commences negotiations with the next-ranked Consultant, the Client shall not reopen the earlier negotiations.

30. Standstill Period

30.1 The Contract shall not be awarded earlier than the expiry of the Standstill Period. The Standstill Period shall be ten (10) Business Days unless extended in accordance with ITC 33. The Standstill Period commences the day after the date the Client has transmitted to each Consultant (that has not already been notified that it has been unsuccessful) the Notification of Intention to Award the Contract. Where only one Proposal is submitted, or if this contract is in response to an emergency situation recognized by the Bank, the Standstill Period shall not apply.

31. Notification of Intention to Award

31.1 The Client shall send to each Consultant (that has not already been notified that it has been unsuccessful) the Notification of Intention to Award the Contract to the successful Consultant. The Notification of Intention to Award shall contain, at a minimum, the following information:

(a) the name and address of the Consultant with whom the client successfully negotiated a contract;

(b) the contract price of the successful Proposal;

(c) the names of all Consultants included in the short list, indicating those that submitted Proposals;

(d) where the selection method requires, the price offered by each Consultant as read out and as evaluated;

(e) the overall technical scores and scores assigned for each criterion and sub-criterion to each Consultant;

(f) the final combined scores and the final ranking of the Consultants;

(g) a statement of the reason(s) why the recipient's Proposal was unsuccessful, unless the combined score in (f) above already reveals the reason;

(h) the expiry date of the Standstill Period; and

(i) instructions on how to request a debriefing and/or submit a complaint during the Standstill Period.

32. Notification of Award

32.1 Upon expiry of the Standstill Period, specified in ITC 30.1 or any extension thereof, and upon satisfactorily addressing any complaint that has been filed within the Standstill Period, the Client shall, send a notification of award to the successful Consultant, confirming the Client's intention to award the Contract to the successful Consultant and requesting the successful Consultant to sign and return the draft negotiated Contract within eight (8) Business Days from the date of receipt of such notification. If specified in the **Data Sheet**, the client shall simultaneously request the successful Consultant to submit, within eight (8) Business Days, the Beneficial Ownership Disclosure Form.

Contract Award Notice

Within ten (10) Business Days from the date of notification of award such request, the Client shall publish the Contract Award Notice which shall contain, at a minimum, the following information:

(a) name and address of the Client;

(b) name and reference number of the contract being awarded, and the selection method used;

(c) names of the consultants that submitted proposals, and their proposal prices as read out at financial proposal opening, and as evaluated;

(d) names of all Consultants whose Proposals were rejected or were not evaluated, with the reasons therefor;

(e) the name of the successful consultant, the final total contract price, the contract duration and a summary of its scope; and.

(f) successful Consultant's Beneficial Ownership Disclosure Form, if specified in Data Sheet ITC 32.1.

32.2 The Contract Award Notice shall be published on the Client's website with free access if available, or in at least one newspaper of national circulation in the Client's Country, or in the official gazette. The Client shall also publish the contract award notice in UNDB online

33. Debriefing by the Client

33.1 On receipt of the Client's Notification of Intention to Award referred to in ITC 31.1, an unsuccessful Consultant has three (3) Business Days to make a written request to the Client for a debriefing. The Client shall provide a debriefing to all unsuccessful Consultants whose request is received within this deadline.

33.2 Where a request for debriefing is received within the deadline, the Client shall provide a debriefing within five (5) Business Days, unless the Client decides, for justifiable reasons, to provide the debriefing outside this timeframe. In that case, the standstill period shall automatically be extended until five (5) Business Days after such debriefing is provided. If more than one debriefing is so delayed, the standstill period shall not end earlier than five (5) Business Days after the last debriefing takes place. The Client shall promptly inform, by the quickest means available, all Consultants of the extended standstill period

33.3 Where a request for debriefing is received by the Client later than the three (3)-Business Day deadline, the Client should provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of Public Notice of Award of contract. Requests for debriefing received outside the three (3)-day deadline shall not lead to extension of the standstill period.

33.4 Debriefings of unsuccessful Consultants may be done in writing or verbally. The Consultants shall bear their own costs of attending such a debriefing meeting

34. Signing of Contract

34.1 The Contract shall be signed prior to the expiration of the Proposal Validity Period and promptly after expiry of the Standstill Period, specified in ITC 30.1 or any extension thereof, and upon satisfactorily addressing any complaint that has been filed within the Standstill Period.

34.2 The Consultant is expected to commence the assignment on the date and at the location specified in the **Data Sheet**.

35. Procurement Related Complaint

35.1 The procedures for making a Procurement-related Complaint are as specified in the **Data Sheet**.

Section 2. Instructions to Consultants

E. Data Sheet

ITC Reference	A. General
1 (b)	*Brazil*
1 (l)	**Electronic –Procurement System** (DOES NOT APPLY)
2.1	**Name of the Client:** OPERADOR NACIONAL DO SISTEMA ELÉTRICO – ONS **Method of selection:** Quality-Based Selection - QBS as per the Procurement Regulations (available on www.worldbank.org)
2.2	**Financial Proposal to be submitted together with Technical Proposal**: Yes (X) No ( ) **The name of the assignment is**: Consultancy for Real-Time Solar Photovoltaic Generation Forecasting Note: Pay attention to the form of submission of proposals as described in item 17, separating the documents.
2.3	**A pre-proposal conference will be held**: Yes (X) or No ( ) Date of pre-proposal conference: March 15, 2024 Time: 15:30 to 17:30 p.m. Brazil Standard Time (GMT-3) Address: Virtual meeting by teams https://teams.microsoft.com/l/meetup-join/19%3ameeting_Y2M0YjAxZmMtODE2Yi00OTQxLWFiMTUtZDkwY2FlOTI0Njdh%40thread.v2/0?context=%7b%22Tid%22%3a%223adee5fc-933e-4911-ae1b-9c2fe7b84448%22%2c%22Oid%22%3a%223e7af231-ca3b-44a2-badf-7efa6690e5de%22%7d

	<u>During the meeting, the language to be used will be Portuguese.</u> Telephone: +55 21-3444-9147 E-mail: alexandre.ferreira@ons.org.br Contact person/conference coordinator: Alexandre de Oliveira Ferreira - Supply Analyst
2.4	**The Client will provide the following inputs, project data, reports, etc. to facilitate the preparation of the Proposals**: (DOES NOT APPLY)
4.1	(DOES NOT APPLY)
6.3.1	**A list of debarred firms and individuals is available at the Bank's external website**: www.worldbank.org/debarr
B. Preparation of Proposals	
9.1	**This RFP has been issued in the English language.** In addition, the RFP is translated into the Portuguese language. The consultant has the choice of submitting the Proposal in any of the languages stated above. In case of winning, the Contract will be signed in the language of the Proposal which shall be the governing language of the Contract. National Consultants should submit Proposal in Portuguese language in order to have the Contract signed (if awarded) in accordance with the requirements of article 224 of the Civil Code.
10.1	**The Proposal shall comprise the following**: **<u>For FULL TECHNICAL PROPOSAL (FTP):</u>** **1st Inner Envelope with the Technical Proposal:** (1) Power of Attorney to sign the Proposal (2) TECH-1 (3) TECH-2 (4) TECH-3

	(5) TECH-4 (6) TECH-5 (7) TECH-6 (8) TECH-7 (DOES NOT APPLY) AND **2nd Inner Envelope with the Financial Proposal (if applicable):** (1) FIN-1 (2) FIN-2 (3) FIN-3 (4) FIN-4 (5) Statement of Undertaking (if required under Data Sheet 10.2 below)
10.2	**Statement of Undertaking is required** Yes (X) or No ( )
11.1	**Participation of Sub-consultants, Key Experts and Non-Key Experts in more than one Proposal is permissible** Yes (X) or No ( )
12.1	**Proposals must remain valid for** *120 days* days after the proposal submission deadline.
13.1	**Clarifications may be requested no later than** 15 **days prior to the submission deadline.** The contact information for requesting clarifications is: E-mail: *;* compras@ons.org.br; alexandre.ferreira@ons.org.br
14.1.1	**Shortlisted Consultants may associate with** **(a) non-shortlisted consultant(s):** Yes (X) or No ( ) **Or** **(b) other shortlisted Consultants:** Yes (X) or No ( )

14.1.2 (do not use for Fixed Budget method)	**Estimated total cost of the assignment:** It is approximately US$640,000 or R$3.164.672,00 considering the exchange rate on february 02, 2024.
14.1.3 for time-based contracts only	(DOES NOT APPLY)
14.1.4 and 27.2 use for Fixed Budget method	(DOES NOT APPLY)
15.2	The format of the Technical Proposal to be submitted is: FTP (X) or STP ( ) Submission of the Technical Proposal in a wrong format may lead to the Proposal being deemed non-responsive to the RFP requirements.
16.1	*Considering that the activities will be carried out remotely and there will be no need for field work (only occasional meetings may be held in person), we understand that reimbursable expenses (indirect costs) are not applicable to this project. If there are any indirect costs, they must be included in the global price of the proposal.* *If the consultant considers the inclusion of reimbursable expenses necessary, these must be detailed and included in the global price of the proposal. Some examples are listed below:* *(1) daily expenses, including hotel for specialists;* *(2) travel costs by the most appropriate means of transportation and the most direct itinerary possible;* *(3) other allowances, if applicable, and contingent or fixed costs (if any).*

	The reimbursable expenses listed above are suggestive. Other reimbursable expenses that the consultant considers necessary to carry out the work may be added to Form FIN 5, provided they are clearly indicated. Since this is a Global Price Contract, all reimbursable expenses must be included in the total amount of the contract and will not need to be audited, but there must be no profit or other mark-up applied to these costs.
16.2	**A price adjustment provision applies to remuneration rates:** Yes ( ) or No (X)
16.3	**Information on the Tax Obligations of the Consultant in the Client's country can be found at:** I- International legal entities must pay action for the legal provisions: • IRRF – IN RFB 1.455/2014; • CIDE - Law 10.168/2000; • PIS/COFINS - Law 10.865/2004; • ISS - Complementary Law 116/2003; The payment for consulting services to companies domiciled abroad, the cost to the ONS is increased by 46.81% compared to the proposal of the Legal Entity domiciled in Brazil, this cost refers to the taxes mentioned above, which are incidents in the remittance of payment abroad. II- Local legal entities for: • IRRF – Decree 9.580/2018; • PCC – Lei 10.833/2003; It is important to highlight that consulting services provided remotely by companies established in Brazil and not included in the Simples Nacional are subject to tax retention at a rate of 6.15%. For the purpose of this RFP, the local tax is the ISS. The consultant should specify it separately on Forms FIN-1 and FIN-2 so that it can be added to the amount of the Financial proposal when negotiating the contract. The tax rate and amount must be stated separately and only this tax will be discussed during the Contract negotiations, as per Clause 25.1 of Section 2 of this RFP.
16.4	**The Financial Proposal shall be stated in the following currencies:**

	Consultant may express the price for their Services in any fully convertible currency, singly or in combination of up to three foreign currencies. **The Financial Proposal should state local costs in the Client's country currency (local currency):** Yes (X) or No ( ).
C. Submission, Opening and Evaluation	
17.1	**The Consultants shall not have the option of submitting their Proposals electronically.**
17.4	**The Consultant must submit:** (a) **Technical Proposal:** one (1) original and in digital media;; (b) **Financial Proposal:** one (1) original in physical environment.
17.7 and 17.9	**The Proposals must be submitted no later than:** **Data:** March *16, 2024* **Hora:** *If a proposal is sent on March 16, delivery must occur no later than 9 am local time.* *The following warning must be included on the outer part of the sealed envelope "Não abrir até às 10:00 do dia 16/04/2024".* **The Proposal submission address is:** To- OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS To the attention of Alexandre de Oliveira Ferreira Address – 251 Julio do Carmo Street – Neighborhood: Cidade Nova City - Rio de Janeiro - RJ State - Country: Brazil Zip Code 20.211-160
19.1	**An online option of the opening of the Technical Proposals is offered:** Yes (X) or No ( ) ***The online opening procedure shall be:*** The online the opening of the Technical Proposals will be held via Microsoft Teams meeting at 10:00 am on March 16, 2024. Meeting link:

	https://teams.microsoft.com/l/meetup-join/19%3ameeting_NjdlZWRlZjMtYjZkYS00YjcwLThjNWEtZmMwOWQ5OTJmODFi%40thread.v2/0?context=%7b%22Tid%22%3a%223adee5fc-933e-4911-ae1b-9c2fe7b84448%22%2c%22Oid%22%3a%223e7af231-ca3b-44a2-badf-7efa6690e5de%22%7d
19.2	(DOES NOT APPLY)
21.1 (for FTP)	Criteria, sub-criteria, and point system for the evaluation of the Full Technical Proposals: Points (i) **Specific experience of the Consultant (as a firm) relevant to the Assignment:** *[10]* (a) Experience with studies, development, and application of numerical weather prediction models, analysis of meteorological forecast data, and methodologies for forecasting meteorological variables. [1 point] (b) Experience with studies, development and application of satellite data, cloud identification and cloud motion forecasting techniques. [2.5 points] (c) Experience in technological solutions and technical consulting services in the electric power sector and intermittent sources, especially in solar photovoltaic generation, with Brazilian and/or International competence. [1 point] (d) Experience in analyzing, processing and filling out meteorological, solarimetric and photovoltaic solar generation data, as well as experience in storing and structuring large volumes of data. [2 points] (e) Experience in studies and development of methodologies for forecasting generation from intermittent sources (especially solar photovoltaic sources), including proven knowledge of applications with artificial intelligence and machine learning techniques [2.5 points] (f) Experience in project management related to this subproject. [1 point]

	(ii) **Adequacy and quality of the proposed methodology and work plan in responding to the Terms of Reference (TORs):** *[50]* *The Consulting Company's Technical Proposal will be evaluated, considering the adherence of the Proposal to the provisions of the Terms of Reference, and adopting the following evaluation sub-criteria and respective maximum partial scores:* ***(a) Technical approach and methodology: [35 points]*** *- The presentation of the methodology regard to the products to be delivered, including the description and steps to be carried out in the project, as described in the Terms of Reference, will be analyzed. The methodological aspects correlated to the actions proposed by the consultant will be considered, including work methods and tools for the analysis of the results, to obtain the results expected in the execution of the services object of this Request for Proposal.* ***(b) Work Plan: [5 points]*** *- The Work Plan proposed by the consultant will be evaluated, aiming to examine in detail its functionality, feasibility, and adequacy to the execution of the services, according to the technical approach and methodology proposed, as well as to evaluate the level of fulfillment of the Client's expectations in relation to the form of conducting the elaboration work of the Services that are the object of this Request for Proposal. Metrics and tools made available by the consultant for monitoring project development will also be considered and evaluated.* ***(c) Organization and staffing: [10 points]*** *- The organization and composition of the team of specialists as proposed by the consultant will be analyzed, including, but not limited to, the assignment of responsibilities and the team' s schedule of activities as presented in the Technical Proposal. The analysis also includes how the consultant intends to organize itself to conduct the activities and the personnel it intends to allocate, in the different phases of the services, according to the methodology and work plan it proposes.* (iii) **Key Experts' qualifications and competence for the Assignment:** *{Notes to Consultant: each position number corresponds to the same for the Key Experts in Form TECH-6 to be prepared by the Consultant}* *a) Position K-1: METEOROLOGIST/PHYSICIST [06]* *b) Position K-2: ENGINEER [06]* *c) Position K-3: DATA SCIENTIST [06]* *d) Position K-4: MATHEMATICIAN/STATISTICIAN [06]*

	f) Position K-5: TECHNICAL COORDINATOR _____[06] **Total points for criterion (iii):** *[30]* The number of points to be assigned to each of the above positions shall be determined considering the following three sub-criteria and relevant percentage weights: 1) General qualifications (general education, language skills, training, and experience): *[20 %]* 2) Adequacy for the Assignment (relevant education, training, experience in the sector/similar assignments)*: [80%]* Total weight: 100% (iv) **Transfer of knowledge (training) program** (relevance of approach and methodology): Total points for criterion (iv): *[10]* The models that will be developed to forecast real-time solar photovoltaic generation require the use of techniques associated with different areas of knowledge. In addition to this complexity, the ONS technical team needs to acquire knowledge regarding both the execution of the models and the techniques used, in order to guarantee future maintenance for real-time operation. Therefore, it is essential that a training and knowledge transfer plan appropriate to each module developed in this project is presented. **Total points for the four criteria*:*** **100** **The minimum technical score (St) required to pass is***: 70*
21.1 [for STP]	(DOES NOT APPLY)
	Public Opening of Financial Proposals
23.4	**An online option of the opening of the Financial Proposals is offered:** Yes (X) or No ( ). *The online opening procedure will be:*

	The online opening of financial proposals will take place through a meeting via the Microsoft Teams application. *The link to access the meeting will be sent at an appropriate time, after the analysis of the technical proposals has been completed.*
23.5	Following the completion of the evaluation of the Technical Proposals, the Client will notify all Consultants of the location, date and time of the public opening of Financial Proposals. Any interested party who wishes to attend this public opening should contact Alexandre de Oliveira Ferreira - compras@ons.org.br; alexandre.ferreira@ons.org.br and request to be notified of the location, date and time of the public opening of Financial Proposals. The request should be made before the deadline for submission of Proposals, stated above. Alternatively, a notice of the public opening of Financial Proposals may be published on the Client's website, if available.
25.1	For the purpose of the evaluation, the Client will exclude: (a) all local identifiable indirect taxes such as sales tax, excise tax, VAT, or similar taxes levied on the contract's invoices; and (b) all additional local indirect tax on the remuneration of services rendered by non-resident experts in the Client's country. If a Contract is awarded, at Contract negotiations, all such taxes will be discussed, finalized (using the itemized list as a guidance but not limiting to it) and added to the Contract amount as a separate line, also indicating which taxes shall be paid by the Consultant and which taxes are withheld and paid by the Client on behalf of the Consultant. In the case of National Consultants, for the purposes of letter (a) above, only Services Tax (ISS) will be considered as Local Tax and only ISS will be considered during contract negotiations. All other taxes or social charges, including PIS, COFINS, CSLL and IRPJ must be incorporated in the compensation costs as part of the financial proposal.
26.1	**The single currency for the conversion of all prices expressed in various currencies into a single one is**: *Real (BRL)* **The official source of the selling (exchange) rate is**: Central Bank of Brazil **The date of the exchange rate is:** Final Date for Submission of Proposals.

27.1 **(QCBS only)**	(NÃO SE APLICA)
	D. Negotiations and Award
28.1	**Expected date and address for contract negotiations:** **Date**: 60 day *after open proposal.* **Address:** Preferably, it will be carried out virtually.
32.1	The successful Consultant *shall not* submit the Beneficial Ownership Disclosure Form.
34.2	**Expected date for the commencement of the Services:** **Date**: May 2024 **at**: The services will be provided remotely.
35.1	The procedures for making a Procurement-related Complaint are detailed in the "Procurement Regulations for IPF Borrowers (Annex III)." If a Consultant wishes to make a Procurement-related Complaint, the Consultant shall submit its complaint following these procedures, In Writing (by the quickest means available, such as by email or fax), to: **For the attention**: **Gustavo Botrel Coutinho de Melo** **Title/position**: **Executive Supply Manager** **Client**: Operador Nacional do Sistema Elétrico **Email address**: **botrel@ons.org.br** In summary, a Procurement-related Complaint may challenge any of the following: **1.** the terms of this Request for Proposal; **2.** the Client's decision to exclude a Consultant from the procurement process prior to the award of contract; and **3.** the Client's decision to award the contract.

Section 3. Technical Proposal – Standard Forms

{Notes to Consultant shown in brackets { } throughout Section 3 provide guidance to the Consultant to prepare the Technical Proposal; they should not appear on the Proposals to be submitted.}

CHECKLIST OF REQUIRED FORMS

Required for FTP or STP ✓		FORM	DESCRIPTION	*Page Limit*
FTP	**STP**			
✓	✓	TECH-1	Technical Proposal Submission Form.	
✓ If applicable		TECH-1 Attachment	If the Proposal is submitted by a joint venture, attach a letter of intent or a copy of an existing agreement.	
✓ If applicable		Power of Attorney	No pre-set format/form. In the case of a Joint Venture, several are required: a power of attorney for the authorized representative of each JV member, and a power of attorney for the representative of the lead member to represent all JV members	
✓		TECH-2	Consultant's Organization and Experience.	
✓		TECH-2A	A. Consultant's Organization	
✓		TECH-2B	B. Consultant's Experience	
✓		TECH-3	Comments or Suggestions on the Terms of Reference and on Counterpart Staff and Facilities to be provided by the Client.	
✓		TECH-3A	A. On the Terms of Reference	
✓		TECH-3B	B. On the Counterpart Staff and Facilities	
✓	✓	TECH-4	Description of the Approach, Methodology, and Work Plan for Performing the Assignment	
✓	✓	TECH-5	Work Schedule and Planning for Deliverables	
✓	✓	TECH-6	Team Composition, Key Experts Inputs, and attached Curriculum Vitae (CV)	
✓	✓	TECH-7	Code of Conduct (ESHS)	

All pages of the original Technical and Financial Proposal shall be initialed by the same authorized representative of the Consultant who signs the Proposal.

FORM TECH-1

TECHNICAL PROPOSAL SUBMISSION FORM

{Location, Date}

To: *OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS*

Dear Sirs:

We, the undersigned, offer to provide the consulting services for developing of a solar photovoltaic generation forecast model, considering the real-time horizon, which extends from minutes to twenty-four hours ahead. Additionally, advancements are expected for processes that encompass the use of different solar generation forecasting methodologies, considering machine learning techniques, regressive modeling, smart persistence, in addition to using numerical weather forecasting, as well as methodologies for analysis and processing of solarimetric and meteorological data observed in situ and derived from satellite data., in accordance with your Request for Proposals (RFP) dated February 28, 2024 and our Proposal. We are hereby submitting our Proposal, which includes this Technical Proposal and a Financial Proposal sealed in a separate envelope.

{If the Consultant is a joint venture, insert the following: We are submitting our Proposal a joint venture with: {Insert a list with full name and the legal address of each member, and indicate the lead member}. We have attached a copy {insert: "of our letter of intent to form a joint venture" or, if a JV is already formed, "of the JV agreement"} signed by every participating member, which details the likely legal structure of and the confirmation of joint and severable liability of the members of the said joint venture.

{OR

If the Consultant's Proposal includes Sub-consultants, insert the following: We are submitting our Proposal with the following firms as Sub-consultants: {Insert a list with full name and address of each Sub-consultant.}

We hereby declare that:

(a) All the information and statements made in this Proposal are true and we accept that any misinterpretation or misrepresentation contained in this Proposal may lead to our disqualification by the Client and/or may be sanctioned by the Bank.

(b) Our Proposal shall be valid and remain binding upon us for the period of time specified in the Data Sheet, ITC 12.1.

(c) We have no conflict of interest in accordance with ITC 3.

(d) We meet the eligibility requirements as stated in ITC 6, and we confirm our understanding of our obligation to abide by the Bank's policy in regard to Fraud and Corruption as per ITC 5.

(e) We, along with any of our sub-consultants, subcontractors, suppliers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Client's country laws or official regulations or pursuant to a decision of the United Nations Security Council;

(f) *[Note to Client: Only if required in ITC10.2 (Data Sheet 10.2), include the following:* In competing for (and, if the award is made to us, in executing) the Contract, we undertake to observe the laws against fraud and corruption, including bribery, in force in the country of the Client.*]*

(g) Except as stated in the Data Sheet, ITC 12.7, we undertake to negotiate a Contract on the basis of the proposed Key Experts. We accept that the substitution of Key Experts for reasons other than those stated in ITC 12 and ITC 28.4 may lead to the termination of Contract negotiations.

(h) Our Proposal is binding upon us and subject to any modifications resulting from the Contract negotiations.

We undertake, if our Proposal is accepted and the Contract is signed, to initiate the Services related to the assignment no later than the date indicated in ITC 34.2 of the Data Sheet.

We understand that the Client is not bound to accept any Proposal that the Client receives.

We remain,

Yours sincerely,

_____

Signature (of Consultant's authorized representative) {In full and initials}:

Full name: {insert full name of authorized representative}
Title: {insert title/position of authorized representative}
Name of Consultant (company's name or JV's name):
Capacity: {insert the person's capacity to sign for the Consultant}
Address: {insert the authorized representative's address}
Phone/fax: {insert the authorized representative's phone and fax number, if applicable}
Email: {insert the authorized representative's email address}_____

{For a joint venture, either all members shall sign or only the lead member, in which case the power of attorney to sign on behalf of all members shall be attached}

FORM TECH-2 (FOR FULL TECHNICAL PROPOSAL ONLY)

CONSULTANT'S ORGANIZATION AND EXPERIENCE

Form TECH-2: a brief description of the Consultant's organization and an outline of the recent experience of the Consultant that is most relevant to the assignment. In the case of a joint venture, information on similar assignments shall be provided for each partner. For each assignment, the outline should indicate the names of the Consultant's Key Experts and Sub-consultants who participated, the duration of the assignment, the contract amount (total and, if it was done in a form of a joint venture or a sub-consultancy, the amount paid to the Consultant), and the Consultant's role/involvement.

A - Consultant's Organization

1. Provide here a brief description of the background and organization of your company, and – in case of a joint venture – of each member for this assignment.

2. Include organizational chart, a list of Board of Directors, and beneficial ownership. *[If required under Data Sheet ITC 32.1, the successful Consultant shall provide additional information on beneficial ownership, using the Beneficial Ownership Disclosure Form.]*

B - Consultant's Experience

1. List only previous similar assignments successfully completed in the last *10* years.

2. List only those assignments for which the Consultant was legally contracted by the Client as a company or was one of the joint venture members. Assignments completed by the Consultant's individual experts working privately or through other consulting firms cannot be claimed as the relevant experience of the Consultant, or that of the Consultant's partners or sub-consultants, but can be claimed by the Experts themselves in their CVs. The Consultant should be prepared to substantiate the claimed experience by presenting copies of relevant documents and references if so requested by the Client.

Duration	Assignment name/& brief description of main deliverables/outputs	Name of Client & Country of Assignment	Approx. Contract value (in US$ equivalent)/ Amount paid to your firm	Role on the Assignment
{e.g., Jan.2009–Apr.2010}	{e.g., "Improvement quality of.....": designed master plan for rationalization of .....; }	{e.g., Ministry of ....., country}	{e.g., US$1 mill/US$0.5 mill}	{e.g., Lead partner in a JV A&B&C}
{e.g., Jan-May 2008}	{e.g., "Support to sub-national government....." : drafted secondary level regulations on.....}	{e.g., municipality of....., country}	{e.g., US$0.2 mil/US$0.2 mil}	{e.g., sole Consultant}

FORM TECH-3 (FOR FULL TECHNICAL PROPOSAL)

COMMENTS AND SUGGESTIONS ON THE TERMS OF REFERENCE, COUNTERPART STAFF, AND FACILITIES TO BE PROVIDED BY THE CLIENT

Form TECH-3: comments and suggestions on the Terms of Reference that could improve the quality/effectiveness of the assignment; and on requirements for counterpart staff and facilities, which are provided by the Client, including: administrative support, office space, local transportation, equipment, data, etc.

A - On the Terms of Reference

{improvements to the Terms of Reference, if any}

B - On Counterpart Staff and Facilities

{comments on counterpart staff and facilities to be provided by the Client. For example, administrative support, office space, local transportation, equipment, data, background reports, etc., if any}

FORM TECH-4 (FOR FULL TECHNICAL PROPOSAL ONLY)

DESCRIPTION OF APPROACH, METHODOLOGY, AND WORK PLAN IN RESPONDING TO THE TERMS OF REFERENCE

Form TECH-4: a description of the approach, methodology and work plan for performing the assignment, including a detailed description of the proposed methodology and staffing for training, if the Terms of Reference specify training as a specific component of the assignment.

{Suggested structure of your Technical Proposal (in FTP format):

a) Technical Approach and Methodology
b) Work Plan
c) Organization and Staffing}

a) ***Technical Approach and Methodology.*** {Please explain your understanding of the objectives of the assignment as outlined in the Terms of Reference (TORs), the technical approach, and the methodology you would adopt for implementing the tasks [***Note to Client: add the following for supervision of civil works contracts:*** including the Environmental, Social (including sexual exploitation and abuse (SEA) and gender based violence (GBV)), Health and Safety (ESHS) aspects] to deliver the expected output(s), and the degree of detail of such output. Please do not repeat/copy the TORs in here.}

b) ***Work Plan.*** {Please outline the plan for the implementation of the main activities/tasks of the assignment, their content and duration, phasing and interrelations, milestones (including interim approvals by the Client), and tentative delivery dates of the reports. The proposed work plan should be consistent with the technical approach and methodology, showing your understanding of the TOR and ability to translate them into a feasible working plan. A list of the final documents (including reports) to be delivered as final output(s) should be included here. The work plan should be consistent with the Work Schedule Form.}

c) ***Organization and Staffing.*** {Please describe the structure and composition of your team, including the list of the Key Experts, Non-Key Experts and relevant technical and administrative support staff.}

FORM TECH-5 (FOR FTP AND STP)

WORK SCHEDULE AND PLANNING FOR DELIVERABLES

N°	Deliverables [1] (D-..)	Months											
		1	2	3	4	5	6	7	8	9	.....	n	TOTAL
D-1	{e.g., Deliverable #1: Report A												
	1) data collection												
	2) drafting												
	3) inception report												
	4) incorporating comments												
	5) delivery of final report to Client}												
D-2	{e.g., Deliverable #2:.....}												

1 List the deliverables with the breakdown for activities required to produce them and other benchmarks such as the Client's approvals. For phased assignments, indicate the activities, delivery of reports, and benchmarks separately for each phase.
2 Duration of activities shall be indicated in a form of a bar chart.
3. Include a legend, if necessary, to help read the chart.

FORM TECH-6 (FOR FTP AND STP)

TEAM COMPOSITION, ASSIGNMENT, AND KEY EXPERTS' INPUTS

N°	Name	Expert's input (in person/month) per each Deliverable (listed in TECH-5)										Total time-input (in Months)		
		Position		D-1	D-2	D-3	.....	D-...				Home	Field	Total
KEY EXPERTS														
K-1	{e.g., Mr. Abbbb}	[Team Leader]	[*Home*]	[2 month]	[1.0]	[1.0]								
			[*Field*]	[0.5 m]	[2.5]	[0]								
K-2														
K-3														
n														
								Subtotal						
NON-KEY EXPERTS														
N-1			[*Home*]											
			[*Field*]											
N-2														
n														
								Subtotal						
								Total						

1 For Key Experts, the input should be indicated individually for the same positions as required under the Data Sheet ITC21.1.

2 Months are counted from the start of the assignment/mobilization. One (1) month equals twenty two (22) working (billable) days. One working (billable) day shall be not less than eight (8) working (billable) hours.

3 "Home" means work in the office in the expert's country of residence. "Field" work means work carried out in the Client's country or any other country outside the expert's country of residence.

FORM TECH-6
(CONTINUED)

CURRICULUM VITAE (CV)

Position Title and No.	{e.g., K-1, TEAM LEADER}
Name of Expert:	{Insert full name}
Date of Birth:	{day/month/year}
Country of Citizenship/Residence	

Education: {List college/university or other specialized education, giving names of educational institutions, dates attended, degree(s)/diploma(s) obtained}

_____

Employment record relevant to the assignment: {Starting with present position, list in reverse order. Please provide dates, name of employing organization, titles of positions held, types of activities performed and location of the assignment, and contact information of previous clients and employing organization(s) who can be contacted for references. Past employment that is not relevant to the assignment does not need to be included.}

Period	**Employing organization and your title/position. Contact information for references**	**Country**	**Summary of activities performed relevant to the Assignment**
[e.g., May 2005-present]	[e.g., Ministry of ……, advisor/consultant to… For references: Tel……/e-mail……; Mr. Hbbbbb, deputy minister]		

Membership in Professional Associations and Publications:

_____

Language Skills (indicate only languages in which you can work): _____

_____

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	**Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks**
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved)	

Expert's contact information: (e-mail ……., phone……)

Certification:
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available, as and when necessary, to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

{day/month/year}

Name of Expert | Signature | Date

{day/month/year}

Name of authorized Representative of the Consultant (the same who signs the Proposal) | Signature | Date

FORM TECH-7 (FOR FULL TECHNICAL PROPOSAL ONLY)

(DOES NOT APPLY)

Section 4. Financial Proposal - Standard Forms

{*Notes to Consultant* shown in brackets { } provide guidance to the Consultant to prepare the Financial Proposals; they should not appear on the Financial Proposals to be submitted.}

Financial Proposal Standard Forms shall be used for the preparation of the Financial Proposal according to the instructions provided in Section 2.

FIN-1 Financial Proposal Submission Form

FIN-2 Summary of Costs

FIN-3 Breakdown of Remuneration, including Appendix A "Financial Negotiations - Breakdown of Remuneration Rates" in the case of QBS method

FIN-4 Reimbursable expenses

FORM FIN-1
FINANCIAL PROPOSAL SUBMISSION FORM

{Location, Date}

To: *OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS*
Address: Julio do Carmo, 251 – Cidade Nova – Zip code 20.211-160 –Rio de Janeiro / RJ, Brazil

Dear Sirs:

We, the undersigned, offer to provide the consulting services for Developing of a solar photovoltaic generation forecast model, considering the real-time horizon, which extends from minutes to twenty-four hours ahead. Additionally, advancements are expected for processes that encompass the use of different solar generation forecasting methodologies, considering machine learning techniques, regressive modeling, smart persistence, in addition to using numerical weather forecasting, as well as methodologies for analysis and processing of solarimetric and meteorological data observed in situ and derived from satellite data in accordance with your Request for Proposal dated May 28, 2024 and our Technical Proposal.

Our attached Financial Proposal is for the amount of {Indicate the corresponding to the amount(s) currency(ies)} {Insert amount(s) in words and figures}, *including of all indirect local taxes in accordance with ITC 25.1 in the Data Sheet.* The estimated amount of local indirect taxes is {Insert currency} {Insert amount in words and figures} which shall be confirmed or adjusted, if needed, during negotiations. {Please note that all amounts shall be the same as in Form FIN-2}.

Our Financial Proposal shall be valid and remain binding upon us, subject to the modifications resulting from Contract negotiations, for the period of time specified in the Data Sheet, ITC 12.1.

Commissions and gratuities paid or to be paid by us to an agent or any third party relating to preparation or submission of this Proposal and Contract execution, paid if we are awarded the Contract, are listed below:

Name and Address of Agents	Amount and Currency	Purpose of Commission or Gratuity

{If no payments are made or promised, add the following statement: "No commissions or gratuities have been or are to be paid by us to agents or any third party relating to this Proposal and Contract execution."}

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

_____

Signature (of Consultant's authorized representative) {In full and initials}:

Full name: {insert full name of authorized representative}
Title: {insert title/position of authorized representative}
Name of Consultant (company's name or JV's name):
Capacity: {insert the person's capacity to sign for the Consultant}
Address: {insert the authorized representative's address}
Phone/fax: {insert the authorized representative's phone and fax number, if applicable}
Email: {insert the authorized representative's email address}_____

{For a joint venture, either all members shall sign or only the lead member/consultant, in which case the power of attorney to sign on behalf of all members shall be attached}

FORM FIN-2 SUMMARY OF COSTS

Item	Cost			
	{Consultant must state the proposed Costs in accordance with ITC **16.4 of the Data Sheet**; delete columns which are not used}			
	{Insert Foreign Currency # 1}	*{Insert Foreign Currency # 2, if used}*	*{Insert Foreign Currency # 3, if used}*	*{Insert Local Currency, if used and/or required (16.4 Data Sheet}*
Cost of the Financial Proposal				
Including:				
(1) **Remuneration**				
(2) **Reimbursables**				
Total Cost of the Financial Proposal: {Should match the amount in Form FIN-1}				
Indirect Local Tax Estimates – to be discussed and finalized at the negotiations if the Contract is awarded				
(i) {insert type of tax e.g., VAT or sales tax}				
(ii) {e.g., income tax on non-resident experts}				
(iii) {insert type of tax}				
Total Estimate for Indirect Local Tax:				

Footnote: Payments will be made in the currency(ies) expressed above (Reference to ITC 16.4).

FORM FIN-3 BREAKDOWN OF REMUNERATION

When used for Lump-Sum contract assignment, information to be provided in this Form shall only be used to demonstrate the basis for the calculation of the Contract's ceiling amount; to calculate applicable taxes at contract negotiations; and, if needed, to establish payments to the Consultant for possible additional services requested by the Client. This Form shall not be used as a basis for payments under Lump-Sum contracts

A. Remuneration _____

No.	**Name**	**Position (as in TECH-6)**	**Person-month Remuneration Rate**	**Time Input in Person/Month** (from TECH-6)	*{Currency # 1- as in FIN-2}*	*{Currency # 2- as in FIN-2}*	*{Currency# 3- as in FIN-2}*	*{Local Currency- as in FIN-2}*
	Key Experts							
K-1			[*Home*]					
			[*Field*]					
K-2								
	Non-Key Experts							
N-1			[*Home*]					
N-2			[*Field*]					
				Total Costs				

Appendix A. Financial Negotiations - Breakdown of Remuneration Rates

1. Review of Remuneration Rates

1.1. The remuneration rates are made up of salary or a base fee, social costs, overheads, profit, and any premium or allowance that may be paid for assignments away from headquarters or a home office. An attached Sample Form can be used to provide a breakdown of rates.

1.2. If the RFP requests submission of a technical proposal only, the Sample Form is used by the selected Consultant to prepare for the negotiations of the Contract. If the RFP requests submission of the financial proposal, the Sample Form shall be completed and attached to the Financial Form-3. Agreed (at the negotiations) breakdown sheets shall form part of the negotiated Contract and included in its Appendix D or C.

1.3. At the negotiations the firm shall be prepared to disclose its audited financial statements for the last three years, to substantiate its rates, and accept that its proposed rates and other financial matters are subject to scrutiny. The Client is charged with the custody of government funds and is expected to exercise prudence in the expenditure of these funds.

1.4. Rate details are discussed below:

(i) Salary is the gross regular cash salary or fee paid to the individual in the firm's home office. It shall not contain any premium for work away from headquarters or bonus (except where these are included by law or government regulations).

(ii) Bonuses are normally paid out of profits. To avoid double counting, any bonuses shall not normally be included in the "Salary" and should be shown separately. Where the Consultant's accounting system is such that the percentages of social costs and overheads are based on total revenue, including bonuses, those percentages shall be adjusted downward accordingly. Where national policy requires that 13 months' pay be given for 12 months' work, the profit element need not be adjusted downward. Any discussions on bonuses shall be supported by audited documentation, which shall be treated as confidential.

(iii) Social Charges are the costs of non-monetary benefits and may include, inter alia, social security (including pension, medical, and life insurance costs) and the cost of a paid sick and/or annual leave. In this regard, a paid leave during public holidays or an annual leave taken during an assignment if no Expert's replacement has been provided is not considered social charges.

(iv) Cost of Leave. The principles of calculating the cost of total days leave per annum as a percentage of basic salary is normally calculated as follows:

$$\text{Leave cost as percentage of salary} = \frac{\text{total days leave x } 100}{[365 - w - ph - v - s]}$$

Where w = weekends, ph = public holidays, v = vacation, and s = sick leave.

Please note that leave can be considered as a social cost only if the Client is not charged for the leave taken.

(v) Overheads are the Consultant's business costs that are not directly related to the execution of the assignment and shall not be reimbursed as separate items under the Contract. Typical items are home office costs (non-billable time, time of senior Consultant's staff monitoring the project, rent of headquarters' office, support staff, research, staff training, marketing, etc.), the cost of Consultant's personnel not currently employed on revenue-earning projects, taxes on business activities, and business promotion costs. During negotiations, audited financial statements, certified as correct by an independent auditor and supporting the last three years' overheads, shall be available for discussion, together with detailed lists of items making up the overheads and the percentage by which each relates to basic salary. The Client does not accept an add-on margin for social charges, overhead expenses, etc. for Experts who are not permanent employees of the Consultant. In such case, the Consultant shall be entitled only to administrative costs and a fee on the monthly payments charged for sub-contracted Experts.

(vi) Profit is normally based on the sum of the Salary, Social costs, and Overheads. If any bonuses paid on a regular basis are listed, a corresponding reduction shall be made in the profit amount. Profit shall not be allowed on travel or any other reimbursable expenses.

(vii) Away from Home Office Allowance or Premium or Subsistence Allowances. Some Consultants pay allowances to Experts working away from headquarters or outside of the home office. Such allowances are calculated as a percentage of salary (or a fee) and shall not draw overheads or profit. Sometimes, by law, such allowances may draw social costs. In this case, the amount of this social cost shall still be shown under social costs, with the net allowance shown separately.

UNDP standard rates for the particular country may be used as reference to determine subsistence allowances.

Sample Form

Consultant: Country:
Assignment: Date:

Consultant's Representations Regarding Costs and Charges

We hereby confirm that:

(a) the basic fees indicated in the attached table are taken from the firm's payroll records and reflect the current rates of the Experts listed which have not been raised other than within the normal annual pay increase policy as applied to all the Consultant's Experts;

(b) attached are true copies of the latest pay slips of the Experts listed;

(c) the away- from- home office allowances indicated below are those that the Consultant has agreed to pay for this assignment to the Experts listed;

(d) the factors listed in the attached table for social charges and overhead are based on the firm's average cost experiences for the latest three years as represented by the firm's financial statements; and

(e) said factors for overhead and social charges do not include any bonuses or other means of profit-sharing.

_____
[Name of Consultant]

_____ _____
Signature of Authorized Representative Date

Name: _____

Title: _____

Consultant's Representations Regarding Costs and Charges
(Model Form I)

(Expressed in {insert name of currency*})

Personnel		1	2	3	4	5	6	7	8
Name	Position	Basic Remuneration Rate per Working Month/Day/Year	Social Charges[1]	Overhead [1]	Subtotal	Profit[2]	Away from Home Office Allowance	Proposed Fixed Rate per Working Month/Day/Hour	Proposed Fixed Rate per Working Month/Day/Hour[1]
Home Office									
Client's Country									

{* If more than one currency is used, use additional table(s), one for each currency}

1. Expressed as percentage of 1
2. Expressed as percentage of 4

FORM FIN-4 BREAKDOWN OF REIMBURSABLE EXPENSES

When used for Lump-Sum contract assignment, information to be provided in this Form shall only be used to demonstrate the basis for calculation of the Contract ceiling amount, to calculate applicable taxes at contract negotiations and, if needed, to establish payments to the Consultant for possible additional services requested by the Client. This form shall not be used as a basis for payments under Lump-Sum contracts

B. Reimbursable Expenses

N°	Type of Reimbursable Expenses	Unit	Unit Cost	Quantity	{Currency # 1- as in FIN-2}	{Currency # 2- as in FIN-2}	{Currency# 3- as in FIN-2}	{Local Currency- as in FIN-2}
	{e.g., Per diem allowances**}	{Day}						
	{e.g., International flights}	{Ticket}						
	{e.g., In/out airport transportation}	{Trip}						
	{e.g., Communication costs between Insert place and Insert place}							
	{ e.g., reproduction of reports}							
	{e.g., Office rent}							
	.....							
	{Training of the Client's personnel – if required in TOR}							
				Total Costs				

Legend:
"Per diem allowance" is paid for each night the expert is required by the Contract to be away from his/her usual place of residence. Client can set up a ceiling.

Section 5. Eligible Countries

In reference to ITC 6.3.2, for the information of shortlisted Consultants, at the present time firms, goods and services from the following countries are excluded from this selection:

Under the ITC 6.3.2 (a): none.

Under the ITC 6.3.2 (b): none.

Section 6. Fraud and Corruption

(This Section 6, Fraud and Corruption shall not be modified)

1. Purpose

1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

2. Requirements

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

a. Defines, for the purposes of this provision, the terms set forth below as follows:

i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;

iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

v. "obstructive practice" is:

(a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

(b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.

b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

d. Pursuant to the Bank's Anti- Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;[1] (ii) to be a nominated[2] sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;

e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers),, consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect[3] all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

---

1 For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

2 A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

3 Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

Section 7. Terms of Reference

Term of Reference for Subproject 24-2 of the STEP Acquisition Plan
Contracting of Consultancy 2

Subproject 24-2 – Real-Time Solar Photovoltaic Generation Forecasting

1 CONTEXTUALIZATION

The expansion of the installed capacity of photovoltaic power stations in recent years, added to the high growth projection of this source, specifically, in the Northeast, South and Southeast regions of Brazil, imposed on the National Electric System Operator (ONS) the need to improve the representation of this highly variable source of generation.

In this sense, it is extremely important that the forecasting of generation by solar photovoltaic source be made with sufficient precision both for the Real-Time Operation of the Brazilian National Interconnected System (SIN) and for the planning of the SIN Electric Energy Operation.

The solar photovoltaic source has several known benefits for Brazil in different levels: in the socioeconomic level, as it generates direct and indirect jobs and savings for the consumer; in the environmental aspect, as it is a renewable resource with less impact compared to the generation of other energy sources, mainly originating from fossil fuels; in the strategic level, given that a high volume of solar radiation reaches the surface in almost all of the Brazilian territory, enabling the implementation of generation closer to the load, which increases electrical safety.

Currently, solar photovoltaic generation accounts for 16% of the energy matrix, including central and distributed power stations. Furthermore, significant growth is expected for the coming years. As an example, the installed capacity of centralized generation at the end of October/2023 was 10 GW, expected to reach close to 19 GW in 2027. In terms of distributed generation, the installed capacity exceeds 23 GW (October/2023), expected to reach 40 GW in 2027.

2 JUSTIFICATION

Solar photovoltaic generation forecasting has uncertainties associated with meteorological factors, causing inevitable deviations, which require a greater operating power reserve to meet load variations, and the need for hydrothermal re-dispatch in cases of significant deviations. Such circumstances increase the cost of operation, generating more charges that reflect higher costs to consumers. Furthermore, the growth potential of solar sources in the Brazilian energy matrix has produces the need to obtain a better prediction of the generation from this source with greater accuracy in the different forecasting horizons, thus contributing to greater assertiveness for the operation of the SIN, and also for planning the Brazilian electrical system.

Therefore, it is important that the ONS has models and tools capable of assisting the system operation with greater predictability and assertiveness in forecasting the generation of this variable source.

3 OVERVIEW OF SUBPROJECT 24-2 OF THE ONS

Within the scope of project META II, the ONS has already started the selection process to contract with the first consultancy for Subproject 24 (Subproject 24-1 – Very Short and Short-term Solar Photovoltaic Generation Forecasting). The major purpose of the first consultancy is to develop a forecasting model for solar photovoltaic generation, considering the short- and very short-term horizon, which spans from one day to one month ahead.

Now, in Subproject 24-2 – Real-Time Solar Photovoltaic Generation Forecasting, we seek to specifically develop a solar photovoltaic generation forecast model, considering the real-time horizon, which extends from minutes to twenty-four hours ahead. The development of this model must include the use of different solar generation forecasting methodologies, considering machine learning techniques, regressive modeling, smart persistence, in addition to using numerical weather forecasting, as well as methodologies for analysis and processing of solarimetric and meteorological data observed *in situ* and derived from satellite.

The structure of the solar photovoltaic generation forecasting model will consist of five major modules:

(i) Database;

(ii) Intrahourly Forecasting;

(iii) Cloud Motion;

(iv) Day-ahead forecasting;

(v) Combined Model

Figure 1 shows the schematic diagram of the model that must be developed in the consultant's environment, following technological architecture specifications compatible with those used by the ONS.

Each module must include the results of studies performed, the computer codes developed, training, documentation, as well as a detailed description of the necessary information for execution. The entire developed structure must be hosted in a computational cloud environment, compatible with the ONS's structure, in order to allow centralized and safe storage.

Each module (I, II, III, IV and V) must be built to work independently, i.e., the input and/or output files must be standardized so they can be used in the execution of all other modules with no previous dependency. An exception to this condition of independence can be seen in module I, where the data can initially be obtained from different sources. However, it is expected that such information will be standardized to feed subsequent modules.

The arrows in the figure indicate a linear flow between the modules, i.e., solar photovoltaic generation forecasts will be produced independently in modules II to IV, using the information available in the database as input. Then, in module V, techniques that make it possible to combine the forecasts obtained independently must be evaluated in order to achieve the best possible forecast of solar photovoltaic generation, considering the real-time horizon of the ONS. It should be emphasized that the generation forecasts must have a time resolution of 5 minutes for the first half hour, followed by a 30-minute interval until 24 hours ahead. Furthermore, the execution of the chain of each module should be configurable to be updated at regular intervals throughout the day.

The details of the functionalities of each module and the data to be provided are presented below.

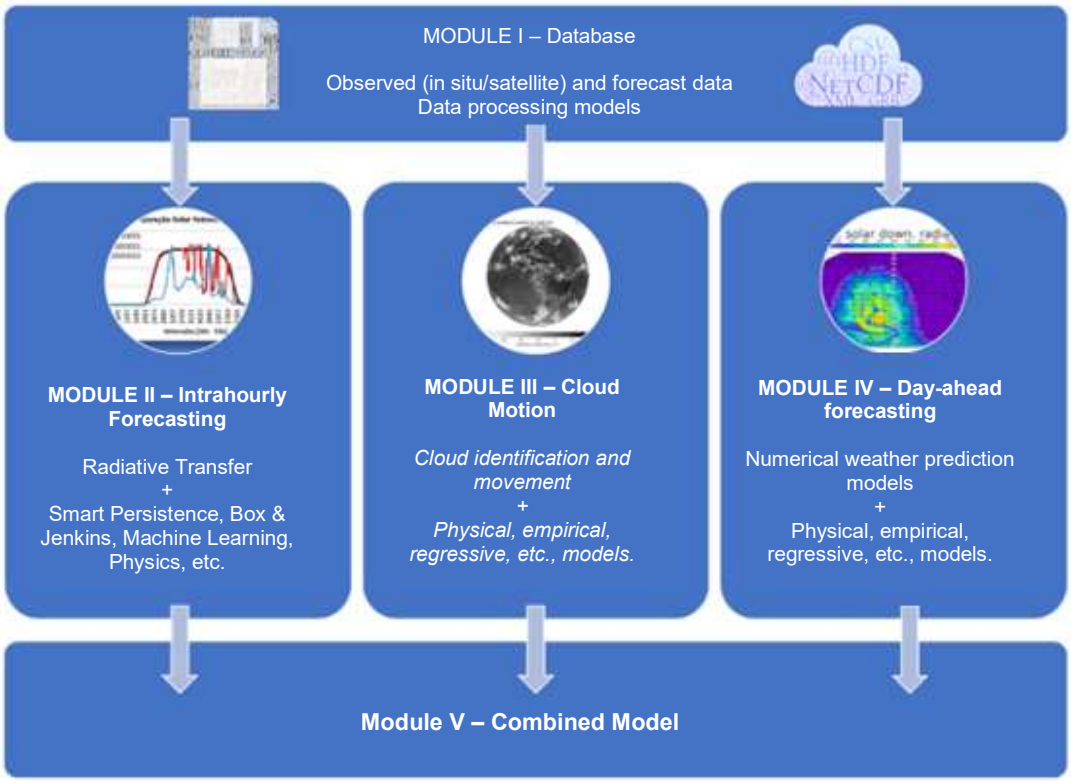


Figure 1 Schematic diagram of the real-time solar photovoltaic generation forecast model

3.1 Database

The five modules that make up the structure for the real-time solar photovoltaic generation forecast will consume and produce data from different sources, types and space-time resolutions. Therefore, a proper architecture is needed for storing and providing data, as well as standardizing such data to be used by modules which are subsequent to the database.

The data that will be used as input for the models may vary in terms of origin and storage format. Image data must be stored in systems that allow versioning and extraction of groups of images quickly, from varying timespans. Satellite data must be properly georeferenced, stored in an optimized way to extract specific information or information from specific areas, allowing the construction of time series of such information. Data observed *in situ* can be stored in databases optimized for time series or, to address horizontal scalability issues, in compressed files in formats optimized for data tables, partitioned according to some aggregation criteria, such as *Apache Parquet*. Plant registry data, such as installed capacity, number of photovoltaic panels, location, panel type, among others, can be stored in relational databases.

Read and write permissions for each piece of data must be configurable, and any accesses or changes must be registered, in order to make the processes performed auditable, safe and reproducible in the future.

In order to make up the database for the studies and development of the models forecast in each module of this project, the ONS will provide a previously structured database, containing observed data from solarimetric and weather stations in Brazil, as well as forecasts from publicly available meteorological models. Furthermore, the format of the files containing such data will be previously defined, in order to enable their use as input for subsequent modules.

Given the natural variability of the solar resource, the project should consider incorporating satellite data into the database, previously provided by the ONS, and also complementary information that is identified as reference and/or relevant information that make it possible to improve the quality of the observed data, as well as the evaluation, validation and correction of solar photovoltaic generation forecasts.

3.2 Intrahourly Forecast

In module II, forecasts of solar photovoltaic generation must be produced for up to 1 hour ahead, with high time resolution.

Different methodologies and techniques have been used in the literature to produce forecasts of solar photovoltaic generation in the intrahourly horizon. Therefore, it will be necessary to review the state of the art of the forecasts in this horizon, in order to define the best techniques to be tested and used to design models that can be developed and tested. The determination of the official model for this module must be made after evaluating a historical period of forecasts, comparing at least two different techniques, so that it is representative to validate the use of the forecasts. The analysis must be based on statistical measures that allow quantifying the quality of forecasts, and must consider at least the seasonality of weather conditions in solar generation power stations.

3.3 Cloud Motion

The forecast of solar photovoltaic generation for a few hours ahead is generally based on cloud motion. Therefore, the ONS needs systems capable of collecting satellite data and images, and processing this information so it can be used as input for developing forecast models for solar photovoltaic generation.

Thus, in module III, a system for collecting and quality controlling satellite images must be developed, which will be used as input for studies that allow identifying cloud cover and forecasting its movement, using things such as cloud vectorization techniques. In addition, physical and optical properties of the cloud cover must be extracted, allowing its subsequent

application to radiative transfer models, as well as the evaluation of the cloud cover characteristic and its relationship with the generation of photovoltaic energy.

Then, the result of the vectorization of cloud fields must be used to forecast the movement of clouds through extrapolation techniques. To select the vector that best represents cloud motion, block matching criteria are usually used. Other techniques, however, can be proposed, but must be compared to the one most widely used. Based on the forecast of cloud motion, techniques must be used to calculate the forecast of solar photovoltaic generation for the horizon of up to 6 hours ahead.

The entire system developed in this module, and its respective solar photovoltaic generation forecast model, must be created in an open source programming language, and properly documented, for example, in R or Python language, etc. Furthermore, additional data (such as satellite data) used as input for the solar photovoltaic generation forecast model developed in this module must be integrated into the database (module I).

3.4 Day-ahead forecast

In module IV, forecasts of solar photovoltaic generation must be produced for up to 24 hours ahead, based on forecasts of meteorological variables generated by Numerical Weather Prediction (NWP) models. It should be emphasized that, currently, the forecast of solar photovoltaic generation for 24 hours ahead is made by the ONS using an original methodology, based on Box&Jenkins class models and the estimation of hyperplanes for each half-hour of the day by grouping of photovoltaic power stations. The forecasts made are specific, i.e., based on deterministic photovoltaic generation paths.

Forecasts produced by NWP models can be improved/enhanced using post-processing techniques such as bias correction techniques. Then, such forecasts must be used to produce the solar photovoltaic generation forecast, using different methodologies (e.g., regressive models, artificial intelligence/machine learning), in order to select the most appropriate one for the model to be developed in this module.

A historical period of forecasts must be evaluated so that it is representative for validating the model developed in this module, considering at least the seasonality of meteorological variables throughout the year. Forecasts should be validated by comparing observed data from solarimetric stations and from weather station networks. The analysis must be based on statistical measures that allow quantifying the quality of irradiance and solar generation forecasts.

3.5 Combined Model

Module V of the real-time solar photovoltaic generation forecast model must integrate the forecasts produced in previous modules, creating a single forecast for up to 24 hours ahead,

which can have a time resolution of 5 minutes in the first half hour, and 30 minutes for up to 24 hours ahead.

In this module, a performance evaluation of previously developed models must also be performed, in order to determine weights for the generation forecasts obtained, so that the final forecast can be optimized for real time, or even generate a probabilistic forecast of the photovoltaic solar generation for all solar farms. Therefore, different performance evaluation techniques and combination of forecasts must be used and evaluated to design the final model. All codes developed must be provided and properly documented.

4 PURPOSE & SCOPE

4.1 Project purposes

The purpose of the project is to provide highly accurate solar photovoltaic generation forecast models for application to the real-time horizon, i.e., up to 24 hours ahead. The models must consider the use of different techniques and methods, according to the scope of the forecast, as well as different input data, such as meteorological variables, technical data from solar farms, historical generation series, satellite data, and forecasts from numerical weather prediction models. These models must meet real-time operation processes.

4.2 Specific scopes and goals

Although the focus of this project is real-time solar photovoltaic generation, the products of this project provide benefits beyond such scope. Among the activities planned for development, the construction of a model capable of combining solar photovoltaic generation forecasts with different time resolutions, as well as different scopes, stands out. For this, the combined model must employ forecast evaluation techniques, applying weight to different methodologies of solar photovoltaic generation forecast. The studies applied to the development of this model will provide a significant gain to the ONS, allowing the methodology applied here to be used in other areas that use forecasts, such as wind generation, load and streamflow forecasts.

The subproject will also allow the ONS to have their own system for acquiring satellite images, which can be used in other areas of the organization, contributing with real-time weather monitoring activities, for instance, in addition to serving as input for future developments associated with Distributed Micro- and Mini-Generation (DMMG) forecasts.

Furthermore, it is expected that this subproject can contextualize the state of the art of the methods applied to forecasting solar photovoltaic generation in the intrahourly horizon.

Taking these aspects into account, it should be emphasized that, in addition to monitoring and managing this subproject, the ONS is interested in the technical team taking part in all of the specification and development stages, maintaining the exchange of information, technical knowledge, experiences, aiming at absorbing the technologies studied and adopted in this project, considering the possibility of expanding the use of these technologies to other areas of the ONS. All models and tools tested and analyzed, even if they do not show good results for this project, must be briefly documented to meet the interests and goals of the ONS in order to add knowledge, given that their use may be interesting for other areas that perform forecasting and monitoring within the Operator.

To achieve the specific goals, the products from this project will be validated by the technical team. Validation details will be covered later in this document. The ONS values the transparency of its processes with agents in the electricity sector. Thus, it is understood that society will be able, at an appropriate time, to have access to the detailed documents and records of the technologies, mathematical models used and/or developed, as well as the algorithms of the forecast models, which will be open source and documented. Therefore, after the completion of the project, the ONS will own the rights to the delivered products, and may use, change and disclose all or part of the products.

5 EXPECTED RESULTS & PRODUCTS

5.1 Structure required to operationalize the solar photovoltaic generation forecast system

The operationalization of the real-time solar photovoltaic generation forecast system must include the methodological developments and the adequacy of the computer infrastructure in force at the ONS. Although the implementation of the system in the operational routine of the ONS is a later step, it is important to develop this system considering the environment in which it will be used. Therefore, deliverables involving operational models are expected to include an environment in which it is possible to perform such models, in order to enable their validations.

5.2 Expected products

The project is split into five macro steps, which correspond to the development of each of the modules shown in Figure 1. In Tables 1 to 5, the expected products for the project steps and their respective stages are listed.

Table 1 - Products of Subproject 24-2 Step 1 – Contracting with Consultancy 2

Products	Activities
Product 1	Organization and processing of the database

Table 2 - Products of Subproject 24-2 Step 2 – Contracting with Consultancy 2

Products	Activities
Product 2	Literature review on the state of the art and determination of methodologies for intrahourly solar photovoltaic generation forecast
Product 3	Development of the clear sky model
Product 4	Prototype of intrahourly forecast models using the selected methodologies
Product 5	Solar photovoltaic generation forecast for the intrahourly horizon

Table 3 - Products of Subproject 24-2 Step 3 – Contracting with Consultancy 2

Products	Activities
Product 6	System for acquiring satellite images, identifying and forecasting cloud
Product 7	Prototype of the cloud motion forecast model and its application in forecasting solar photovoltaic generation
Product 8	Solar photovoltaic generation forecast based on satellite data

Table 4 - Products of Subproject 24-2 Step 4 – Contracting with Consultancy 2

Products	Activities
Product 9	Obtaining the numerical weather prediction and defining variables of interest for forecasting solar photovoltaic generation
Product 10	Prototype of the solar photovoltaic generation forecast model for the 24-hour horizon, using forecasts from NWP models
Product 11	Solar photovoltaic generation forecast for the 24-hour horizon, using forecasts from NWP models

Table 5 - Products of Subproject 24-2 Step 5 – Contracting with Consultancy 2

Products	Activities
Product 12	Prototype of the combined model for solar photovoltaic generation forecast, considering the probabilistic forecast
Product 13	Solar photovoltaic generation forecast using the combined model

6 SCOPE OF WORK AND PROJECT BOUNDARIES

The project is split into five steps, namely:

(i) the first step related to the structuring of the database and developing methodologies for processing and making up records, if necessary;

(ii) the second one is focused on the development of a solar photovoltaic generation model for the intrahourly horizon;

(iii) the third step is associated with the development of the solar photovoltaic generation forecast model based on satellite data and cloud motion forecast;

(iv) the fourth step corresponds to the forecast of solar photovoltaic generation for up to 24 hours ahead, based on forecasts from NWP models;

(v) the fifth and final step refers to the development of the combined model, which will produce the solar photovoltaic generation forecast for the entire real-time horizon.

The ONS will provide a previously structured database, made up of data seen at solarimetric and weather stations in Brazil, as well as forecasts from meteorological models which are publicly accessible. It should be emphasized that the availability of observed data of a private nature will be made by respecting the confidentiality terms associated with the data. If the need to use other verified or forecast data not contained in the database is identified, this information must be defined, structured, made viable and delivered by the consultant during project development.

In addition, considering the state of the art of the numerical modeling of the atmosphere, the use of other numerical weather prediction models which the ONS does not yet have operationally may be proposed. If the consultant has to incur operational or acquisition costs to use data history or model history from other institutions, the cost-benefit ratio involved must be submitted and discussed with the technical team of the ONS. If the execution of NWP models not operationally executed by large meteorological centers is proposed, all relevant information for future implementation must be detailed, such as version of the model(s), initial and boundary conditions, parameterizations used and settings. The validation(s) must be submitted, comparing with existing numerical models and observed meteorological data. The consultant must present the benefits that using these non-operational models can bring to the ONS, in comparison with other publicly available models. In this case, they must also follow the ONS guidelines for operating the model(s) indoors, respecting the infrastructure available for execution, or in a third-party environment, providing all necessary information.

There are several products in this subproject based on computational implementation of mathematical models for generation forecast. However, some of the software products must be used in chain by the ONS, i.e., assigning the outputs of a program to the next one in the sequence. The entire body of software developed for a given product must respect common design standards, i.e., have standardized input arguments and output objects. Thus, products containing deliverables of computer codes of the project become modular and may be developed independently.

It should be emphasized that all computer programs delivered must be so along with their respective user manuals and technical documentation. In addition, training meetings must be

planned for its implementation, which can be held online or in-person as agreed upon between the ONS and the consultant. In this regard, the development team must propose, at first, a training schedule, with possible adjustments depending on the complexity and/or need for clarification by the technical team of the ONS. It should also be emphasized that all of the codes/programs/systems, as well as documents, must be thoroughly tested and validated by the consultant before the deliverables in the milestone of each product, as each deliverable will undergo validation and approval by the technical team of the ONS.

In addition, it should be emphasized that the architecture of the developed systems must be adequate to the infrastructure used by the ONS.

The forecasts produced by the models developed in this project must at least include the real-time horizon, that is, up to 24 hours ahead, considering different time resolutions along the horizon. To comply with the processes of the ONS, model results must be updated throughout the day, as new observations and forecasts become available. It should be emphasized that individual forecasts per power stations will be needed, which will be added later, according to the needs of the various processes of the ONS.

The following items describe in detail the products of each step, presented in Tables 1 to 5. A proposal meeting the demand for all requested products must be presented, describing them clearly, coherently and with the proper level of detail so that one can understand how each product will be developed. Deliverables involving the development of codes must include a user manual containing instructions for installing and executing each code, and the codes must be properly commented. In addition, as previously mentioned, products including the final versions of the models to be executed by the ONS must include the proper training to the technical team of the ONS.

For the purposes of this subproject, all information passed on by the ONS shall be considered confidential, as well as all products developed in this subproject shall be the exclusive property of ONS.

6.1 Step 1: Structuring of the real-time solar photovoltaic generation forecast database

This step consists of a single product, which consists of structuring a reliable, robust database that can be used in the development of the real-time solar photovoltaic generation forecast models.

The quality of data from solar farms, as well as data from other sources, must be assessed. This data must be consolidated and organized, containing a structure that enables future data to be incorporated, in addition to receiving data from other modules of this subproject, such as satellite data that will be used in module III.

The specific needs to be addressed in this step are presented in their single product below.

6.1.1 Product 1: Organization and processing of the database

Information with the verified data history, grouped by power plants, will be used extensively in the development of all other products of this subproject. Therefore, it is of great importance that this data is easily accessed not only during the execution of the project, but also after its completion.

As the amount of information tends to scale over time and with the number of existing instruments and power stations, it is necessary to make considerations regarding the performance of the system that stores and provides the data.

In this product, an environment must be structured for storing verified and processed data using methodologies that allow the automatic consistency of the data provided by the ONS. This environment must also be capable of providing data with a performance that enables the execution of applications developed in all other products of this project.

In addition to the verified data, ideally, this environment must be scalable to store data from different meteorological models, which must contain the same quantities/variables, but with different space and time resolutions, besides to satellite data. Thus, the entire project can be developed with quick access to data for training, validation and execution of the models associated with each product.

All data must be written and stored in a standardized manner, in order to facilitate its use to all other planned modules. The database environment must be built using the resources and flexibility of public cloud technology, with due access constraints upon authentication and authorization for reading and writing information. The technology will be defined, collectively with the consultant, during the development of this product, in order to identify what best meets the needs of this project in line with the infrastructure of the ONS.

The following must be delivered at the end of the development of this product, along with the database:

(i) documentation with the description of the variables contained on the base, and how they are written/read;

(ii) documentation describing the data processing process;

(iii) architecture diagram;

(iv) database structure creation scripts;

The database must be structured in order to receive the data used in this step and all of the information of all products developed in this project. This product will be validated by the technical team of the ONS, based on a test plan proposed by the consultant in order to assess database efficiency, as well as the existence of possible bugs. If the database provisioning step involves infrastructure automation steps, the means must be provided for the technical team of the ONS to be able to reproduce what was done.

6.2 Step 2: Development of solar photovoltaic generation forecast methodologies and models in the intrahourly horizon

Different methodologies and techniques have been used in the literature to produce solar generation forecasts according to the horizon and time resolution of the forecast. For intrahourly forecasts, several techniques can be applied using data and knowledge models (regressive models, models based on artificial intelligence, smart persistence models, etc.), together with radiative transfer models, mainly applied to clear sky conditions.

In this step, a model must be developed to produce solar photovoltaic generation forecasts for the horizon of up to 1 hour ahead, with high time resolution. However, before starting to develop the model, the consultant must make a literature review on the state of the art of solar photovoltaic generation forecasts in the intrahourly horizon. This literature review must support the choice of appropriate methodologies to develop the official model. Next, the model design process must begin by using and adapting a model for clear sky conditions, using techniques associated with the radiative transfer process. Finally, the methodologies considered most appropriate for intrahourly forecasting, considering the specificities of the ONS, must be applied to produce the solar generation model. This methodology will be validated by the technical team of the ONS and the official model to be used in the horizon of this step will be chosen. It should be emphasized that forecasts must be continually updated, considering their high time resolution and the availability of new data.

Therefore, this step consists of 4 products which will be further detailed as follows.

6.2.1 Product 2: Literature review on the state of the art and determination of methodologies for intrahourly solar photovoltaic generation forecast

Due to the growing number of techniques and methodologies that can be applied to design a solar photovoltaic generation forecast model for the intrahourly horizon, the state of the art on this topic must be well-known. Thus, this product must include a literature review based on scientific articles, dissertations, theses, technical notes, as well as other documents which can characterize what has been used in the major centers responsible for forecasting solar photovoltaic generation in the world.

After collecting this information, a pre-selection of techniques that may be more appropriate to the Brazilian reality must be made, considering the data provided by agents in the industry,

measured in solar farms, and the suitability of different models and techniques that may be tested and applied by the ONS. After this collection, the consultant must point to a set of models that can be developed and tested in a future product. These models and techniques will be pre-selected along with the technical team of the ONS.

The primary deliverable of this product will be a report containing the literature review, and methods that allow analyzing the methodologies and techniques that can be applied to the development of the intrahourly generation forecast model for the ONS. The major methods to be used must be evidenced in this report. The proposal regarding this product must describe, in a clear and structured manner, the procedures to be adopted to provide all the requested information.

6.2.2 Product 3: Development of the clear sky model

The forecast of intrahourly solar photovoltaic generation can be made using different techniques and methods, however, models based only on data can produce forecasts that have no physical sense, exceeding the maximum generation that could be obtained, i.e., the generation in a certain time with a clean atmosphere (clear sky conditions, without aerosols and/or gases that absorb solar radiation). Therefore, having a clear sky model suitable for the conditions observed in solar farms is important, whether to act as a limiter for data and knowledge models, such as regressive models or models based on artificial intelligence, or to be used as a reference for smart persistence models.

Therefore, in this product, a model capable of forecasting irradiance in solar farms under clear sky conditions must be developed. If systematic errors are identified in the forecasts produced, methods to correct such errors must also be studied and implemented.

The delivery of this product comprises the technical report with the description of the radiative transfer model used to calculate irradiance under clear sky conditions, as well as the technique for removing possible systematic errors. The developed computational codes must also be delivered, along with a user manual, describing the model's input/output data and containing its instructions for execution.

It should be emphasized that, to evaluate the proposals which are inherent to this product, in addition to the clarity and level of detail of the procedures that will be used, the technical team of the ONS will consider the originality of the proposal, the suitability of the proposed clear sky model, and the techniques and metrics appointed for the removal of errors and validation of the model developed. Furthermore, it is important to emphasize that the model developed in this product can also be applied to other modules of this subproject, seeking to improve irradiance and/or solar photovoltaic generation forecasts.

6.2.3 Product 4: Prototype of intrahourly forecast models using the selected methodologies

After the indication of the best methods and techniques to be used for the development of solar photovoltaic generation forecast models in the intrahourly horizon, through the literature review proposed in Product 2, the prototypes of the solar photovoltaic generation forecast models must be developed in this product for up to one hour ahead. Based on comparisons with the observations, this product must also indicate which model has the best performance to be operationally implemented.

Thus, the delivery of this product corresponds to the codes of the model prototypes to be developed and evaluated, along with a detailed technical report, indicating the performance of the models. The analyzes performed must emphasize the potentialities and possible inabilities of the tested models. The report must also describe in detail the techniques used to develop the prototypes of the models, and will be used as a reference for choosing the solar photovoltaic generation forecast model in the intrahourly horizon that will be operationally implemented.

The proposal for this product must describe, in a clear and coherent manner, how the performance of the model will be assessed, as well as a brief indication of the models, methods and techniques that may be suitable for testing is expected, even if they have not been defined.

6.2.4 Product 5: Solar photovoltaic generation forecast for the intrahourly horizon

This product consists of the implementation and operation of the model indicated as the most suitable for forecasting solar photovoltaic generation in the intrahourly horizon, from the performance evaluation performed in Product 4.

The model must be adapted for operation in an operational environment to be agreed upon between the consultant and the technical team of the ONS. It is expected that the model will be able to make forecasts in an operational manner, using, as input data, those available in the database that will be structured in Product 1 and have a standardized output to be used in module V of this subproject. The time for performing the model cannot be an impediment to its operational application, and, if it depends on long training times, these must be previously performed, at times other than that of the forecast. The model must undergo a period of operational validation with the ONS, which must verify their performance for a minimum period of one week. It should be emphasized that the forecasts produced by this model must

be continually updated, considering both the high time resolution at which they are produced and the availability of new data.

The consultant must offer proper training to the technical team of the ONS, in order to ensure the maintenance of the operational execution of the model.

The final delivery of this product must include a user manual for the model, containing the specification of the methods used, as well as instructions for its installation and operation. In addition, all codes developed must be provided in an open source language. If any operational flaws are found, the consultant must make adjustments to repair the model, which will be tested again for a minimum period of one week.

For this product, the technical team of the ONS will evaluate the level of detail of the information provided in the proposal, with the technical recommendations and adequacy of the implementation of the model with the ONS. The computer language that will be used to develop the model will also be considered, as well as the indication of a test routine for operational validation of the model.

6.3 Step 3: Development of solar photovoltaic generation forecast methodologies and models using satellite data

Among the techniques used for forecasting real-time solar photovoltaic generation, the one based on cloud motion forecast can be emphasized. Therefore, in this step a system for acquiring satellite images and data must be developed, followed by the employment of techniques for identifying and/or vectoring clouds, in order to forecast cloud cover movement. Based on cloud motion forecast, it is expected that a solar photovoltaic generation forecast model can be developed for the horizon of up to 6 hours ahead. The forecasts of this model must be continually updated, according to the availability of new satellite data and to the time resolution of the forecasts to be proposed.

All of the codes developed for satellite data acquisition, along with the systems used for identification, cloud motion forecast, in addition to the solar photovoltaic generation forecast model itself, must be provided at this step. Below is a more detailed description of the products to be delivered.

6.3.1 Product 6: System for acquiring satellite images, identifying and forecasting cloud motion

The main input for forecasting the solar photovoltaic generation of module III is cloud cover observed by satellite. Thus, this product corresponds to the development of a system to acquire observed satellite data, followed by the identification of clouds to forecast their movement.

The system to be developed must be able to geo-reference the acquired data, and also validate its quality. Furthermore, it is expected to be possible to extract physical and optical properties from the cloud cover, allowing its subsequent employment and use along with radiative transfer models, as well as an assessment of the characteristic of the cloud cover and its relationship with the generation of solar photovoltaic energy.

The system must be developed in an open source programming language, and must be able to write standardized files to be used as input for the model to be developed in Product 7. The files with the acquired satellite data must make up the database structured in module I of this subproject. The developed system must respect the infrastructure available with the ONS for internal execution.

Based on the data acquired and stored in the database, an algorithm must be included in this system to identify clouds according to their characteristics. Several satellite channels/bands can be used together to identify the cloud cover, or even level 2 or 3 satellite products, since they are temporally adapted to the needs of real-time solar photovoltaic generation forecasting. The characteristics of the cloud identification system must be described according to the method adopted, indicating its strengths and weaknesses. Furthermore, the algorithm developed here should indicate the cloud blocks, at each satellite observation time step, which will then be used to forecast cloud motion.

Finally, based on the identified cloud cover, the developed system must forecast cloud motion. One of the techniques that can be used must consider the grouping of pixels with cloud cover and its vectorization, however, alternatives to this technique can be proposed. The methodology used to forecast cloud motion must be described in the user manual. As mentioned before, the entire system must be written in open source code, which will be validated by comparing cloud motion forecasts with observed data.

Thus, the delivery of this product corresponds to the source code of the developed system, and its respective documentation, containing a user manual with a description of the code, as well as instructions for installing and running the system, in an operational manner.

The proposal must properly state the satellite images and data that will be acquired, as well as the techniques used to extract properties and characteristics of cloud cover, as well as justify the data that will be acquired, sizing the necessary database structure. The techniques to be used for detecting and forecasting cloud motion must also be properly appointed, showing how cloud cover blocks will be identified, and what technique will be used to forecast cloud motion. The cloud motion forecast horizon must be proposed by the consultant, and will be considered in the evaluation of the proposal, as well as the methods for evaluating the performance of such

forecasts. Finally, the originality, coherence and clarity of the activities proposed for the development of this product will be evaluated.

6.3.2 Product 7: Prototype of the cloud motion forecast model and its application in forecasting solar photovoltaic generation

Based on the cloud motion forecast, developed in Product 6, this product should describe the methodologies that can be used to forecast solar photovoltaic generation by applying cloud motion forecasts.

In addition, a prototype of the solar photovoltaic generation forecast model must be developed in this product. The performance evaluation provided in Product 6 should also be used here to define the solar generation forecast horizon, as well as the time resolution used in the forecasts.

The delivery of this product corresponds to the source code of the model prototype developed with a report containing a description of the methodology used in its development and a description of the model input data.

6.3.3 Product 8: Solar photovoltaic generation forecast based on satellite data

This product is the implementation and operation of the model proposed in Product 7. The model must be adapted for operation in an operational environment to be agreed upon between the consultant and the technical team of the ONS. The model must make the forecasts in an operational manner, and its output must be standardized to be used in module V of this subproject. Just like the model designed in module II, the time for performing this model cannot be an impediment to its operational application and, if it depends on long training times, such step must be previously performed, without affecting the performance of the forecast in real time.

The model must undergo a period of operational validation with the ONS, which must verify their performance for a minimum period of one week. The forecasts produced here must be continually updated, according to the availability of new satellite data and to the time resolution of the forecasts to be proposed.

The consultant must offer proper training to the technical team of the ONS, in order to ensure the maintenance of the operational execution of the model. If any operational flaws are found, the consultant must make adjustments to repair the model, which will be tested again for a minimum period of one week.

The final delivery of this product must include a user manual for the model, containing the specification of the methods used, as well as instructions for its installation and operation. In addition, all codes developed must be provided in an open source language.

For this product, the technical team of the ONS will evaluate the level of detail of the information provided in the proposal, with the technical recommendations and adequacy of the implementation of the model with the ONS. The computer language that will be used to develop the model will also be considered, as well as the indication of a test routine for operational validation of the model.

6.4 Step 4: Development of solar photovoltaic generation forecast methodologies and models for the 24-hour horizon, using forecasts from NWP models

In order to encompass the whole real-time solar photovoltaic generation forecast horizon, using forecasts from NWP models is also appropriate. Global and/or regional models can be used to obtain the forecast of meteorological variables which are intrinsic to solar generation, and, based on the forecast of these variables, produce generation forecasts for up to 24 hours ahead.

Therefore, in this step, we seek to develop a system for forecasting solar photovoltaic generation based on the forecast of meteorological variables derived from numerical weather prediction models. Below is a more detailed description of the products to be delivered.

6.4.1 Product 9: Obtaining the numerical weather prediction and defining variables of interest for forecasting solar photovoltaic generation

The forecasts of meteorological variables of interest for forecasting solar photovoltaic generation can be obtained from the outputs of operational models from major meteorology centers around the world, such as the USA's National Centers for Environmental Prediction (NCEP), and the European Center for Medium-Range Weather Forecasts (ECMWF), maintained by several countries in the European commonwealth, or by models to be acquired or implemented operationally in the ONS by the consultant.

In this product, the variables predicted by NWP models that will be used in the solar generation forecasting process must be defined and obtained. The need to continually update these forecasts throughout the day is emphasized, considering they are updated every 6 hours. To obtain forecasts of meteorological variables, 3 possibilities for the system to be developed should be considered:

- If the consultant chooses to use publicly available forecasts, the codes developed for obtaining the forecasts must be provided to the ONS;

- If the alternative chosen is to acquire results from operational models that need to be acquired at a cost, the benefits that the use of such models can bring to the ONS must be presented, in comparison with other publicly available models, and also a cost

estimate must be prepared for the ONS to produce generation forecasts based on the suggested models. Furthermore, a comparison of forecasts with a history of observed data of at least 3 years must be presented. In this case, the consultant must also provide all of the codes developed to obtain forecasts;

- If the need to use NWP models that are not operationally implemented by large meteorological centers is diagnosed, the consultant may propose using such models, presenting the benefits that they can bring to the ONS, in comparison with other publicly available models. The consultant must detail, in a report, all of the information which is relevant for future implementation, such as the version of the model(s), initial and boundary conditions, domains to be used, physical parameterizations adopted, settings, data flow and computer structure. In this case, they must also follow the ONS guidelines for operating the model(s) indoors, respecting the infrastructure available for execution, or in a third-party environment, providing all necessary information. Finally, the consultant must provide all of the codes necessary to execute the suggested model(s). The codes must be properly commented, in order to facilitate training the technical team of the ONS or of third parties for their execution.

As delivery of this product, the consultant must provide a user manual for the system developed to obtain forecasts of the meteorological variables of interest, with a detailed description of each step of the developed system, in addition to full instructions for implementing it. This system must produce a log file, detailing the execution of each step of the process, and also pointing out any execution errors that may occur. The consultant must offer proper training to the technical team of the ONS, in order to ensure the maintenance of the operational execution of the developed system.

Furthermore, the consultant must provide a report justifying the option for the meteorological variables to be used in the process. To evaluate the proposal presented for this product, the technical team of the ONS will consider the level of detail of the information provided in the proposal, with the technical indications and suitability of the system implementation with the ONS.

6.4.2 Product 10: Prototype of the solar photovoltaic generation forecast model for the 24-hour horizon, using forecasts from NWP models

This product is the definition of a methodology which is appropriate to forecast solar photovoltaic generation on the horizon of up to 24 hours ahead, using the forecasts of meteorological variables obtained from Product 9, followed by the development of the model to forecast generation using the methodology stated.

Several methods can be used to forecast solar photovoltaic generation using the forecasts of meteorological variables from NWP models, such as empirical methods, regressive methods, methods based on artificial intelligence or even physically based methods. In this regard, the

consultant must, at first, survey such possibilities, pointing out the advantages and disadvantages of each method, so that the most appropriate one to forecast generation can be defined, considering the location of solar farms in the different Brazilian regions. Then, the solar photovoltaic generation forecast model for the horizon of 24 hours ahead must be developed.

The delivery of this product corresponds to the source code of the prototype of the developed model, as well as a report containing a description of the methodology used in its development, and a description of the input data and output files.

6.4.3 Product 11: Solar photovoltaic generation forecast for the 24-hour horizon, using forecasts from NWP models

This product is the implementation and operation of the model proposed in Product 10. The model must make the forecasts in an operational manner, and its output must be standardized to be used in module V of this subproject. The time for performing the model cannot be an impediment to its operational application. The need to update forecasts throughout the day is emphasized here, i.e., it is necessary to consider updating forecasts every 6 hours, as new outputs of the NWP model are obtained.

The model must undergo a period of operational validation with the ONS, which must verify their performance for a minimum period of one week. The consultant must offer proper training to the technical team of the ONS, in order to ensure the maintenance of the operational execution of the model. If any operational flaws are found, the consultant must make adjustments to repair the model, which will be tested again for a minimum period of one week.

The final delivery of this product must include a user manual for the model, containing instructions for its installation and operation. In addition, all codes developed must be provided in an open source language.

For this product, the technical team of the ONS will evaluate the level of detail of the information provided in the proposal, with the technical recommendations and adequacy of the implementation of the model with the ONS. The computer language that will be used to develop the model will also be considered, as well as the indication of a test routine for operational validation of the model.

6.5 Step 5: Development of the combined model for obtaining the real-time solar photovoltaic generation forecast

The solar photovoltaic generation forecasts produced in Step 2, Step 3 and Step 4 are made for different time horizons and have different resolutions. Thus, in this step, a model capable of combining these forecasts must be developed in order to generate a unified forecast, both deterministic and probabilistic, of solar photovoltaic generation in the real-time horizon. This

model must be able to receive the operational forecasts produced by the previous modules, evaluate the performance of each of them, considering their horizons, and give weights to their contributions to obtain the official generation forecast. Mathematical tools which are appropriate to evaluate forecast performance must be used, as well as to select the method to be used to determine forecast weights. At the end of this step, the ONS will have a model that is suitable for real time, which will be used to forecast all of the solar farms with centralized generation of the SIN.

Below, each of the products of this last step of the project is presented in more detail.

6.5.1 Product 12: Prototype of the combined model for solar photovoltaic generation forecast, considering the probabilistic forecast

In order to determine the weight of each model's contribution for the final forecast of real-time solar photovoltaic generation, it is necessary to, at first, evaluate the performance of such forecasts. The consultant must propose metrics to evaluate the performance of the models developed and operationalized in the previous products/steps. Such metrics will be used to determine the contribution of each of the previous methodologies for the final official forecast.

Models which are capable of better evaluating and distributing these weights can be proposed. Such models can be based on regressive and/or artificial intelligence techniques. Therefore, it is necessary to evaluate and justify using the technique to be adopted.

As weights are used for solar photovoltaic generation forecasts, they can be used to produce a probabilistic solar photovoltaic generation forecast in the real-time horizon. In order to optimize this process, this product also requires the production of such probabilistic forecast, resulting in scenarios of maximum and minimum forecast generation, as well as the use of quantiles representing the dispersion of the forecast, in order to assist decision making in an operating environment.

A minimum evaluation period must be considered in order to cover the seasonality of solar generation behavior in different regions of the country. All of these aspects must be evidenced in the consultant's proposal in a clear and detailed manner, and will be considered for evaluating the proposal.

The delivery of this product corresponds to the source code of the developed model, as well as a report containing a description of the methodology used in its development, and its advantages and disadvantages compared to other methods. The report must also contain an evaluation of the performance of models developed in previous modules, in order to support the adopted options.

6.5.2 Product 13: Solar photovoltaic generation forecast using the combined model

After defining the model that will determine the weights of forecasts in Product 12, it must be implemented in the operating environment.

This product consists of adapting the model developed for operation in the ONS operating environment. It is expected that the model will be able to go through a validation round, which will verify if it presents the results that were obtained during its development. Graphical outputs of the forecast results should also be proposed here, in order to support the monitoring and updating of forecasts during real-time operation.

In the final delivery of this product, the model is expected to perform its forecasts in an operating environment, consuming data from appropriate sources, in specified formats and producing output data for the same environment. It is also expected that the time required to implement the model will not be an impediment to its operating application.

This is the final product and target of the subproject, therefore, the consultant must deliver the product with enough time in advance to allow interaction with the ONS and monitoring of execution in the ONS environment for a minimum period of 2 weeks. If corrections are necessary, a period will be agreed for monitoring after the adjustments made by the consultant have been completed. After the operationalization and due corrections, if any, the ONS will verify the accuracy of the information for a minimum period to be agreed with the consultant. In addition, situations of failures in the process which have not been previously forecast may occur during this period, and require corrections, if such failures are associated with the consultant's development.

Along with the operationalized model, including the graphical outputs of the generated forecasts, a user manual for the model must be provided to the ONS, containing all of its specifications, as well as instructions for its installation and operation. The consultant must also offer proper training to the technical team of the ONS, in order to ensure the maintenance of the operational execution of the model.

For this product, the technical team of the ONS will evaluate the level of detail of the information provided in the proposal, with the technical recommendations and adequacy of the implementation of the model with the ONS. The computer language that will be used to develop the model will also be considered, as well as the indication of a test routine for operational validation of the model.

7 DEADLINE/SCHEDULE

The following schedule will independently address each of the steps of Subproject 24-2. The deadlines are defined in calendar months, from the beginning of the project, and the period of

the products can run in parallel. The total period of the agreement, including all of the steps, must be 17 months.

All products that require delivery of codes must include training on how to use such codes.

In addition, weekly or fortnightly meetings should be planned to discuss the progress of activities. Such meetings shall be adjusted according to project needs.

7.1 Step 1 – Structuring of the real-time solar photovoltaic generation forecast database

Step 1 consists of structuring a reliable, robust database that will be used in the development of the real-time solar photovoltaic generation forecast models.

This step consists of a single product, which involves not only the preparation and structuring of the database, but also the preparation of all documentation that describes it, also containing the computer codes necessary for its formation. Table 1 characterizes the deliverables of this step, and also points out the estimated duration for the development of this product and its percentage agreement value. Payment in installments is considered according to the specificity of each by-product. It should be emphasized that, in general, a gradual increase is considered for the portions of deliverables of the products of this subproject, i.e., the values of the last portions of each product will, in most cases, be higher than the values of the first portions.

The number of deliverables is described under "Deliverables" in Table 1, and each delivery must occur at the end of the designated period, which is calculated by the ratio of the total product time by the number of deliverables. For instance, for Product 1, a partial report must be delivered in the middle of the 2nd month (containing all of the research within that work period), and at the end of the 3rd month, a final report (containing everything that was achieved, including the descriptive documentation of the database and possible computer codes which are necessary for its maintenance/updating). It should be emphasized that the final delivery must comprise all partial deliveries, however, there may be separate documents, since not all research items used during product development need to be referred to in the final document.

Table 1 STEP 1 activity schedule.

Expected Product				Duration	% of the agreement
Product	**Type**	**Description**	**Deliverables**		
1	Report, development and training	Database preparation, with documentation pertaining to its structuring and means of access	(Partial delivery, at the end of 45 days, of the Report containing the description of the environment) + (documentation and implementation of the database + codes and	3 months	6% in 2 installments

			training by the end of the 3rd month)		

7.2 Step 2 — Development of solar photovoltaic generation forecast methodologies and models in the intrahourly horizon

In Step 2, a model will be developed to produce solar photovoltaic generation forecasts for the horizon of up to 1 hour ahead, with high time resolution. This step comprises the delivery of 4 products, and the delivery schedule for each product, with its duration and percentage value of the agreement, is shown in Table 2.

Table 2 STEP 2 activity schedule

Expected Product				Duration	% of the agreement
Product	**Type**	**Description**	**Deliverables**		
2	Report	Literature review on solar photovoltaic generation in the intrahourly horizon, and determination of the forecasting methodologies to be developed	(Report with partial description at the end of the 2nd month) + (Final report by the end of the 4th month)	4 months	8% in 2 installments
3	Report, development and training	Development and Implementation of the radiative transfer model for clear sky conditions	(Partial description at the end of the 2nd month) + (codes and manual + training at the end of the 4th month) + (final report by the end of the 5th month)	5 months	8% in 3 installments
4	Report and development	Prototype and performance evaluation of models tested for intrahourly forecast	(Partial description at the end of the 2nd month) + (Partial description at the end of the 4th month) + (codes of developed prototypes + final report by the end of the 6th month)	6 months	10% in 3 installments

5	Report, development and training	Implementation and operation of the model for intrahourly solar photovoltaic generation forecast	(Partial description at the end of the 1st month) + (codes and manual + training at the end of the 3rd month)	3 months	5% in 2 installments

7.3 Step 3 — Development of solar photovoltaic generation forecast methodologies and models using satellite data

Step 3 is aimed at developing a forecast model for solar photovoltaic generation based on the cloud motion forecast observed by satellite. This step involves the development of 3 products, whose delivery schedules, with their duration and percentage value of the agreement, are shown in Table 3.

Table 3 STEP 3 activity schedule

Expected Product				Duration	% of the agreement
Product	**Type**	**Description**	**Deliverables**		
6	Report, development and training	Satellite images acquisition system, cloud identification and cloud motion forecast	(Partial description at the end of the 2nd month)+ (Partial description at the end of the 4th month) + (codes and manual + training + final report by the end of the 7th month)	7 months	12% in 3 installments
7	Report, development and training	Development of the solar photovoltaic generation forecast model using satellite data	(Partial description at the end of the 2nd month) + (codes + final report at the end of the 5th month)	5 months	8% in 2 installments
8	Report and development	Operating implementation of the solar photovoltaic generation forecast model using satellite data (product 7)	(Partial description at the end of the 1st month) + (codes and manual + training at the end of the 3rd month)	3 months	5% in 2 installments

7.4 Step 4 – Development of solar photovoltaic generation forecast methodologies and models for the 24-hour horizon, using forecasts from NWP models

In Step 4, a system for forecasting solar photovoltaic generation will be developed based on the forecast of meteorological variables derived from numerical weather prediction models. The step consists of the delivery of 3 products, and the delivery schedule for each of them, with their durations and percentage agreement values are shown in Table 4.

Table 4 STEP 4 activity schedule

Expected Product				Duration	% of the agreement
Product	**Type**	**Description**	**Deliverables**		
9	Report, development and training	System for obtaining forecasts of meteorological variables	(Partial description at the end of the 2nd month) + (codes and manual + training + final report by the end of the 4th month)	4 months	7% in 2 installments
10	Report, development and training	Development of the solar photovoltaic generation forecast model using NWP	(Partial description at the end of the 2nd month) + (codes + final report at the end of the 4th month)	4 months	7% in 2 installments
11	Report, development and training	Implementation of the solar photovoltaic generation forecast model using NWP	(Partial description at the end of the 1st month) + (codes and manual + training at the end of the 3rd month)	3 months	5% in 2 installments

7.5 Step 5 – Development of the combined model for obtaining the real-time solar photovoltaic generation forecast

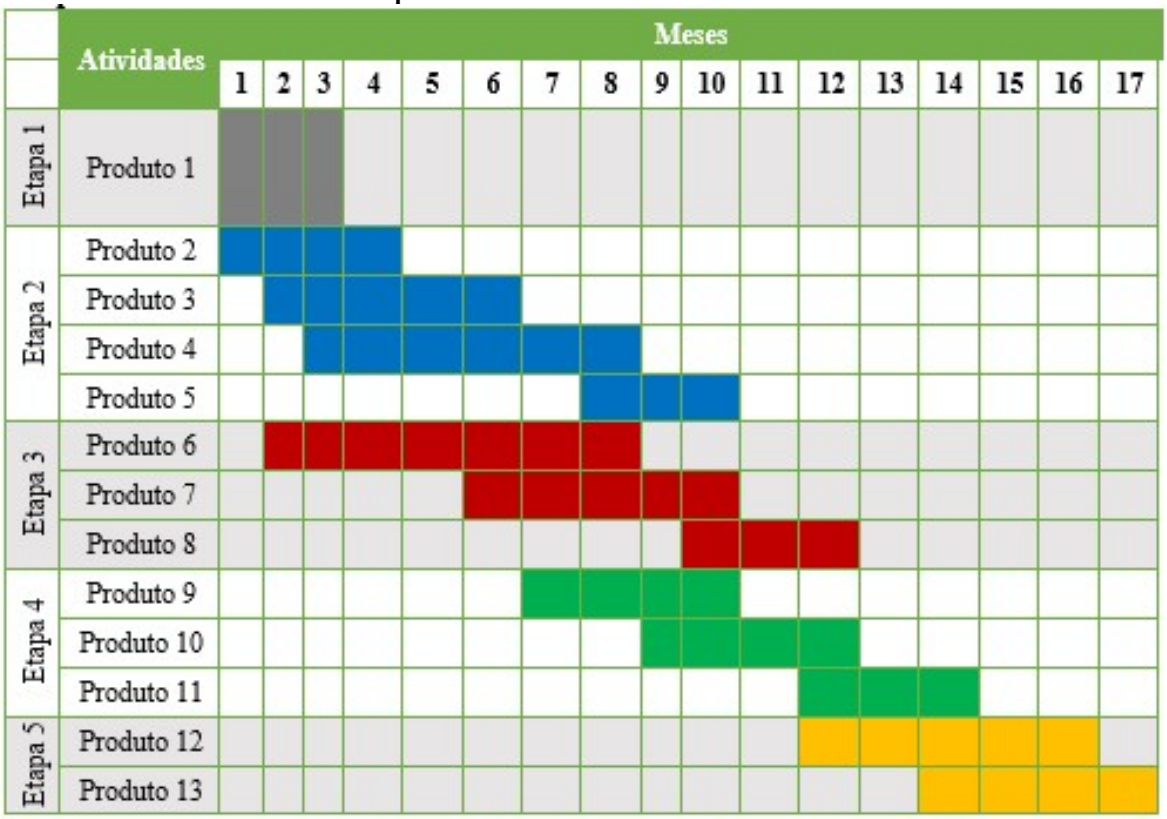
The fifth and final step of this subproject involves the development of a model capable of combining the forecasts made in modules II, III and IV, in order to generate a unified forecast of solar photovoltaic generation in the real-time horizon. The step involves the development of 2 products, whose delivery schedules, with their duration and percentage agreement value, are shown in Table 5.

Table 5 STEP 5 activity schedule

Expected Product				Duration	% of the agreement
Product	**Type**	**Description**	**Deliverables**		
12	Report and development	Evaluation of the models of generation and development of the combined model	(Report with the evaluation of forecast performance and methodology for determining the weights of the combined model at the end of the 2nd month) + (development of the combined model prototype + codes + final report and training by the end of the 5th month)	5 months	10% in 2 installments
13	Report, development and training	Operational implementation of the combined solar photovoltaic generation forecast model	(Partial description at the end of the 2nd month) + (codes and manual + operational implementation and training at the end of the 4th month)	4 months	9% in 2 installments

Table 6 shows the start and end months, approximately, of each activity of the schedule of the photovoltaic generation forecast model for the real-time horizon.

Table 6 Schedule of activities of the photovoltaic forecast model for the real-time horizon



8 TEAM QUALIFICATION AND SPECIFICATION

The consultant must have a multidisciplinary team, i.e., consisting of technical profiles that are in accordance with the characteristics and needs of this project. In general, the institution must have, among their staff, a project manager and the key professionals to achieve the purpose of this TOR.

The technical team of the ONS must take active part in the project and may support the development, since it has the capacity to contribute to the topics addressed and may give the necessary support for the better progress of the project.

Key team professionals will be assessed based on the evidence presented in their CVs. The know-how and experience required for key team positions must be evidenced through professional performance, scientific articles, participation in research and R&D projects, and program patents. It should be emphasized that the evidence presented must be linked to the services/subjects that are the purpose of this subproject.

8.1 Key Team

Meteorologist/Physicist (Specialist, PhD): The professional must have a university degree in Physics or Meteorology with a postgraduate, master's or doctoral degree in areas related to the products of this project. He/She must have at least 10 years' experience in research and development and/or professional performance related to the scope of the project, in addition to fluent English. Moreover, the professional must demonstrate knowledge and experience in analysis and processing of meteorological and solarimetric data, atmospheric modeling, and use of satellite data. It is desirable that the professional has know-how in open-source programming language, experience with computational intelligence and/or machine learning, and experience with processing and forecasting using raw data and satellite images.

Engineer: The professional must have a university degree in Electrical Engineering with a master's and/or doctoral degree in areas related to the products of this project. He/She must have at least 10 years' experience in research and development and/or professional performance related to the products of this project. The professional must demonstrate knowledge and experience in the Brazilian Electric Sector - SEB, mainly in power generation using solar photovoltaic sources. It is desirable that the professional speaks fluent English and have knowledge of open-source programming language and computational modeling.

Computer Scientist: The professional must have a university degree in Computer Engineering, Computer Science or Information Technology, with a postgraduate, master's and/or doctoral degree in areas related to the products of this project. He/she must have at least 10 years' experience in developing and applying machine learning techniques, open-source programming languages, statistical modeling focused on forecasting models and building data processing tools. In addition, he/she must have knowledge in storing and structuring large volumes of data and operating systems in public cloud environments. Ideally, they should have knowledge of image treatment and processing techniques.

Mathematician/Statistician: The professional must have a university degree in Mathematics or Statistics, with a postgraduate, master's and/or doctoral degree in areas related to the products of this project. He/she must have at least 10 years' experience in research and development, and/or professional performance related to forecasting models, mathematical and/or statistical models, in addition to open-source programming languages. Desirable: knowledge in optimization, machine learning, SEB and speak English fluently.

Technical Coordinator: The professional must have a university degree in Engineering, Meteorology, Computer Science, Mathematics or Physics, with a master's and doctoral degree in areas related to this project. He/She must have at least 10 years' experience in research and development, and/or professional performance related to the products of this project, in addition to working as a coordinator of multidisciplinary teams and project monitoring. Ideally, the professional must be experienced in project management in line with PMBOK® 6's or 7's

good practices, and knowledge of project management tools and swift methodology. The professional must speak fluent English and Brazilian Portuguese, and must demonstrate knowledge and experience in the SEB.

8.2 Support team

The support team is a team of professionals provided by the consultant to perform part of the services together with the key team, as per this TOR. The sizing of the support team must be determined by the consultant. Therefore, the sizing of the support team must be described in the technical proposal.

The support team must be multidisciplinary and consist of professionals with university degrees in Meteorology and/or Physics, Electrical or Civil or Environmental Engineering, Computer Science or Computer Engineering or Information Technology, and in Mathematics and/or Statistics.

As this is a team that will work on the developments of this subproject, it is understood that the support team must have knowledge compatible with that requested for the key team. It is of paramount importance that the support team, in addition to being a professional extension of the key team, has all the complementary knowledge required by the key team to develop the products of this subproject. The support team must meet some key requirements, including experience in: analysis and processing of meteorological, solarimetric and solar photovoltaic generation data; numerical modeling of the atmosphere; remote sensing of the atmosphere; numerical weather forecast correction techniques; mathematical and/or statistical models for forecasting; computational intelligence; and machine learning.

8.3 Team characteristics

The technical team must be made up of professionals with knowledge and experience in the following subjects: Brazilian Electric System; artificial intelligence; multivariate statistical methods; solar photovoltaic energy; data feeding and processing methodologies; mathematical forecast models; machine learning; numerical weather prediction models; remote sensing of the atmosphere; data storage and structuring; and advanced programming in languages such as R, PHYTON, JULIA, among other languages intended for data analysis and forecast models.

It is necessary that the general formation be complied with and appropriate for exercising each position referred to for the key and support teams.

The team must be able to develop and implement existing time series forecasting models to evaluate performance and propose new methods; artificial intelligence, machine learning models, computer modeling and creation of process flow in order to meet the scope of this project.

It is also expected that the consultant's team be formed by professionals at the junior, full, senior and expert levels. In addition, if the consultant identifies any need of having a professional with a profile which is different from those described before on the team, they must define and quantify the profile of such a professional. In addition, the number of professionals who must make up the key team will be defined by the consultant, according to project needs.

8.4 Required Consultant Profile

For this subproject, the consultant must have a minimum experience of 5 years in the following requirements:

(i) Experience with studies, development and application of numerical weather prediction models, analysis of meteorological data, and methodologies for forecasting meteorological variables;

(ii) Experience with studies, development and application of satellite data, cloud identification and cloud motion forecasting techniques;

(iii) Experience in technological solutions and technical consulting services in the electric power sector and intermittent sources, especially in solar photovoltaic generation, with Brazilian and/or international competence;

(iv) Experience in analyzing, processing and feeding in meteorological, solarimetric and solar photovoltaic generation data, as well as experience in storing and structuring large volumes of data;

(v) Experience in studies and development of methodologies for forecasting generation from intermittent sources (especially solar photovoltaic sources), including proven knowledge of applications with artificial intelligence and machine learning techniques;

(vi) Experience in project management on topics related to such subproject.

In order to prove the aforementioned requirements, the consultant must present, in their technical proposal, only the latest services (last 10 years) which are somewhat associated with the requirements and services requested in this TOR. It should be emphasized that the services presented must only be provided by the consultant as a company, not by their experts, either working privately or for other companies.

9 FORM OF PRESENTATION OF PRODUCTS

The products and results must be delivered in Portuguese, in digital format, as follows:

(i) Compositions: MS Word® 2013 or later version, with delivery of the file in ".doc"/".docx" format;

(ii) Spreadsheets, Charts and Tables: MS Excel® 2013 or later version;

(iii) Pictures in general: JPG, PNG, TIFF, GIF or BMP;

(iv) Presentations: MS PowerPoint® 2013 or later version;

(v) Products in the form of Reports must display the appropriate logos, to be inserted in the following order: ONS, META Project, World Bank and MME/Federal Government. A template file will be provided to the consultant in a ".doc"/".docx" format;

(vi) Any digital spreadsheets or other documents developed must be delivered unlocked and with no editing restrictions;

(vii) Software, mathematical models, forecasting models developed or evaluated to make up this project must be delivered with the documented source code, technical notes and user manual, also containing installation and execution instructions.

At first, the computer tools used in this work must be those currently used by the ONS. If the use of any tool that requires the acquisition of a license by the ONS is needed, then such a need must be informed and discussed in advance.

Products resulting from this project will be the sole property of the ONS, and may, in due time, be made available to society.

In addition to said logos, the following information must be informed in the products/reports: Research/Product/Work performed with funds from Loan Agreement No. 9074-BR, formalized between the Federative Republic of Brazil and the International Bank for Reconstruction and Development – IBRD, on July 21st, 2021.

10 PAYMENT METHODS

The estimated percentage of the total value of the Agreement for each product is provided in section 7 herein. Payment methods, as well as deadlines for delivery, validation, review by the consultant and approval of products, will be linked to the Agreement Draft, an instrument that is part of the Invitation to Bid.

11 SUPERVISION

The beginning of the work which is the subject matter of this TOR, as well as the presentation of the expected products, must be preceded by a meeting with the technical team of the ONS for the general orientation of the process and follow-up of the consultancy.

Given that the ONS will take active part in the project's development steps, ideally, the construction should be made by following the steps described in section 7, with intermediate deliverables of the products described in each stage. The ONS will have up to fifteen (15) days from the delivery date to validate each product. After validation, the formal acceptance will be issued by the technical team designated by the ONS.

12 AVAILABLE SUPPLIES & ELEMENTS

The ONS will provide the consultant with information necessary for the development of the project, however, confidentiality agreements must be drawn up regarding the data to be used. It should be emphasized that not all data necessary for the project can be obtained with the ONS, therefore, it is up to the consultant to list the sources for obtaining such data.

The consultant should provide for the execution of online meetings throughout the execution of the project. In addition, at least a one-week on-site visit to the ONS is expected, for adjustments and training of the final forecasting model developed. However, this is the minimum specification, and it is the consultant's responsibility to point out any needs for in-person work meetings with the ONS, which must take place as agreed upon by both parties. In this case, the ONS will arrange the appropriate physical environment to allow such scheduled meetings between the parties at their office in Rio de Janeiro.

13 TRAINING NEEDS

Section 6 describes the scope of work and project boundaries, including the training sessions provided for each step/stage, which is reinforced in section 7.

14 WORLD BANK ENVIRONMENTAL AND SOCIAL FRAMEWORK

All activities supported by the project, including studies for the proposition of policies and regulations must be analyzed in accordance with the World Bank's Environmental and Social Standards, which establish guidelines for identifying, assessing, mitigating and managing potential risks and impacts associated with projects funded by the Bank.

The adoption of the Environmental and Social Standards aims to support borrowers in adopting international best practices related to environmental and social sustainability, fulfilling their national and international environmental and social obligations, as well as increasing non-discrimination, transparency, participation, accountability, governance and improvement of the sustainable development results of the projects through ongoing stakeholder engagement. In addition to the World Bank Environmental and Social Framework, the World Bank Group's Environment, Health and Safety Guidelines (IFC-EHSGs) shall be complied with, including specific guidelines for the mineral, electric, and oil and gas industries.

The preparation of the work should consider the World Bank's Environmental and Social Framework, which became effective on October 1st, 2018, assessing potential social and environmental impacts of subprojects, whenever necessary. The most relevant standard for the concerned Subproject 24 is Environmental and Social Standard 2 - Working Conditions and Workforce of the team that will perform the studies.

15 INSTITUTIONAL AND ORGANIZATIONAL ARRANGEMENTS

Subproject 24 shall be managed by organizational structures linked to the Brazilian Ministry of Mines and Energy (MME) and to the Brazilian National Electric System Operator (ONS), as determined by the Operational Manual for the Project – MOP, available online at the MME website (www.mme.gov.br).

At the MME, the project will be managed by the Project Management Committee (CGP) and the Central Project Management Unit (UGP/C).

At the ONS, it will be managed by the Sectorial Project Management Unit (UGP/S), as schematically presented in

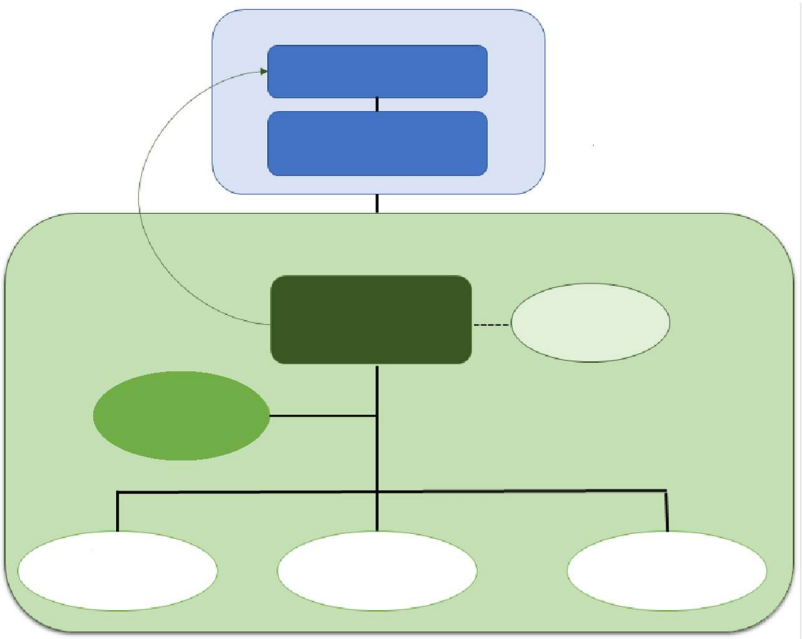


Figure 2.

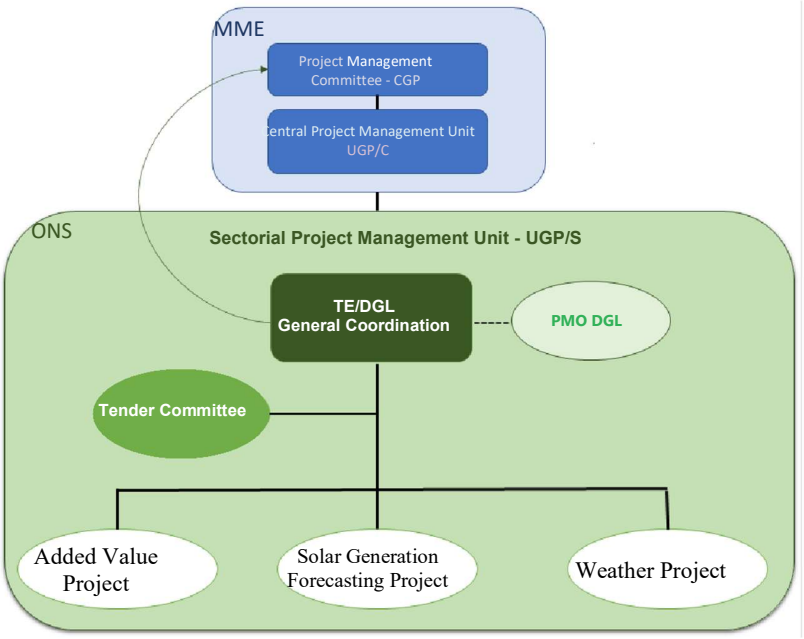


Figure 2 Functional structure of ONS' Sectorial Project Management Unit – UGP/S

Table 7 UGP/S Formation in ONS

UGP/S	Managements
General Coordination	Strategic Transformation Executive Management
DGL Projects Office	Strategic Transformation Executive Management

Tender Committee	Financial Executive Management
	Legal Executive Management
	Water Resources and Meteorology Management
	Methodology and Energy Model Management
	Calculation, Analysis and Operation Costs Executive Management
	Executive Supply Management
Solar Project 1(*)	Methodology and Energy Model Management

(*) Solar Project 1 is the short name for ONS's Subproject 24

16 LIST OF REIMBURSABLE EXPENSES

Reimbursable expenses corresponding to travel and per diem expenses may be applied to products that justify their presence in the ONS, such as implementation of models in the ONS's environment if remote implementation is not possible, training of the technical team of the ONS, etc.

17 LEGAL PROHIBITION

The contractor may not directly or indirectly hire, in any capacity, active servants of the Federal, State, Federal District or Municipal Government or employees of its subsidiaries and controlled companies, within the scope of international technical cooperation projects. *Art. 7 of Dec. 5,151 from 07/22/2004.*

18 TECHNICAL STAFF IN CHARGE

Name: Paulo Sergio De Castro Nascimento
Agency: Methodology and Energy Model Management – Operation Planning Board
Signature:
Name: William Cossich Marcial de Farias
Agency: Methodology and Energy Model Management – Operation Planning Board
Signature:

19 APPROVAL

Name: Maria Aparecida Martinez
Position: Executive Energy Planning Manager
Signature:

PART II

Section 8. Conditions of Contract and Contract Forms

LUMP-SUM FORM OF CONTRACT

S T A N D A R D F O R M O F C O N T R A C T

Consultant's Services

Lump-Sum

Contents

Preface

1. The standard Contract form consists of four parts: the Form of Contract to be signed by the Client and the Consultant, the General Conditions of Contract (GCC), including Attachment 1 - Fraud and Corruption; the Special Conditions of Contract (SCC); and the Appendices.

2. The General Conditions of Contract, including Attachment 1, shall not be modified. The Special Conditions of Contract that contain clauses specific to each Contract intend to supplement, but not over-write or otherwise contradict, the General Conditions.

CONTRACT FOR CONSULTANT'S SERVICES

Lump-Sum

Project Name - Service consultancy for Real-Time Solar Photovoltaic Generation Forecasting

***Loan* No.** 9074-BR

Contract No. SUBPROJECT 24-2 BR-ONS-411010-CS-QBS

Assignment Title: Developing of a solar photovoltaic generation forecast model, considering the real-time horizon, which extends from minutes to twenty-four hours ahead. Additionally, advancements are expected for processes that encompass the use of different solar generation forecasting methodologies, considering machine learning techniques, regressive modeling, smart persistence, in addition to using numerical weather forecasting, as well as methodologies for analysis and processing of solarimetric and meteorological data observed in situ and derived from satellite data.

between

_____

OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS

and

_____

[Name of the Consultant]

Dated: _____

I. Form of Contract

LUMP-SUM

(Text in brackets [ ] is optional; all notes should be deleted in the final text)

This CONTRACT (hereinafter called the "Contract") is made the *[number]* day of the month of *[month]*, *[year]*, between, on the one hand, *[name of Client or Recipient]* (hereinafter called the "Client") and, on the other hand, *[name of Consultant]* (hereinafter called the "Consultant").

[If the Consultant consist of more than one entity, the above should be partially amended to read as follows: "…(hereinafter called the "Client") and, on the other hand, a Joint Venture (name of the JV) consisting of the following entities, each member of which will be jointly and severally liable to the Client for all the Consultant's obligations under this Contract, namely, *[name of member]* and *[name of member]* (hereinafter called the "Consultant").]

WHEREAS

(a) the Client has requested the Consultant to provide certain consulting services as defined in this Contract (hereinafter called the "Services");

(b) the Consultant, having represented to the Client that it has the required professional skills, expertise and technical resources, has agreed to provide the Services on the terms and conditions set forth in this Contract;

(c) the Client has received [*or* has applied for] a loan [*or* credit *or* grant] from the [*insert as relevant, International Bank for Reconstruction and Development (IBRD) or International Development Association (IDA)]:* toward the cost of the Services and intends to apply a portion of the proceeds of this [loan/credit/grant] to eligible payments under this Contract, it being understood that (i) payments by the Bank will be made only at the request of the Client and upon approval by the Bank; (ii) such payments will be subject, in all respects, to the terms and conditions of the [loan/financing/grant] agreement, including prohibitions of withdrawal from the [loan/credit/grant] account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by the decision of the United Nations Security council taken under Chapter VII of the Charter of the United Nations; and (iii) no party other than the Client shall derive any rights from the [loan/financing/grant] agreement or have any claim to the [loan/credit/grant] proceeds;

NOW THEREFORE the parties hereto hereby agree as follows:

1. The following documents attached hereto shall be deemed to form an integral part of this Contract:

   (a) The General Conditions of Contract (including Attachment 1 "Fraud and Corruption");
   (b) The Special Conditions of Contract;
   (c) Appendices:

   Appendix A: Terms of Reference
   Appendix B: Key Experts
   Appendix C: Breakdown of Contract Price
   Appendix D: Form of Advance Payments Guarantee

   In the event of any inconsistency between the documents, the following order of precedence shall prevail: the Special Conditions of Contract; the General Conditions of Contract, including Attachment 1; Appendix A; Appendix B; Appendix C; Appendix D. Any reference to this Contract shall include, where the context permits, a reference to its Appendices.

2. The mutual rights and obligations of the Client and the Consultant shall be as set forth in the Contract, in particular:

   (a) the Consultant shall carry out the Services in accordance with the provisions of the Contract; and
   (b) the Client shall make payments to the Consultant in accordance with the provisions of the Contract.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

For and on behalf of *[Name of Client]*

_____

[Authorized Representative of the Client – name, title and signature]

For and on behalf of *[Name of Consultant or Name of a Joint Venture]*

_____

[Authorized Representative of the Consultant – name and signature]

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

For and on behalf of each of the members of the Consultant *[insert the Name of the Joint Venture]*

[Name of the lead member]

_____

[Authorized Representative on behalf of a Joint Venture]

[add signature blocks for each member if all are signing]

II. General Conditions of Contract

A. General Provisions

1. Definitions

1.1 Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

(a) "Applicable Law" means the laws and any other instruments having the force of law in the Client's country, or in such other country as may be specified in the **Special Conditions of Contract (SCC)**, as they may be issued and in force from time to time.

(b) "Bank" means the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).

(c) "Borrower" means the Government, Government agency or other entity that signs the financing agreement with the Bank.

(d) "Client" means the implementing agency that signs the Contract for the Services with the Selected Consultant.

(e) "Consultant" means a legally-established professional consulting firm or entity selected by the Client to provide the Services under the signed Contract.

(f) "Contract" means the legally binding written agreement signed between the Client and the Consultant and which includes all the attached documents listed in its paragraph 1 of the Form of Contract (the General Conditions (GCC), the Special Conditions (SCC), and the Appendices).

(g) "Day" means a working day unless indicated otherwise.

(h) "Effective Date" means the date on which this Contract comes into force and effect pursuant to Clause GCC 11.

(i) "Experts" means, collectively, Key Experts, Non-Key Experts, or any other personnel of the Consultant, Sub-consultant or JV member(s) assigned by the Consultant to perform the Services or any part thereof under the Contract.

(j) "Foreign Currency" means any currency other than the currency of the Client's country.

(k) "GCC" means these General Conditions of Contract.

(l) "Government" means the government of the Client's country.

(m) "Joint Venture (JV)" means an association with or without a legal personality distinct from that of its members, of more than one entity where one member has the authority to conduct all businesses for and on behalf of any and all the members of the JV, and where the members of the JV are jointly and severally liable to the Client for the performance of the Contract.

(n) "Key Expert(s)" means an individual professional whose skills, qualifications, knowledge and experience are critical to the performance of the Services under the Contract and whose Curricula Vitae (CV) was taken into account in the technical evaluation of the Consultant's proposal.

(o) "Local Currency" means the currency of the Client's country.

(p) "Non-Key Expert(s)" means an individual professional provided by the Consultant or its Sub-consultant to perform the Services or any part thereof under the Contract.

(q) "Party" means the Client or the Consultant, as the case may be, and "Parties" means both of them.

(r) "SCC" means the Special Conditions of Contract by which the GCC may be amended or supplemented but not over-written.

(s) "Services" means the work to be performed by the Consultant pursuant to this Contract, as described in Appendix A hereto.

(t) "Sub-consultants" means an entity to whom/which the Consultant subcontracts any part of the Services while remaining solely liable for the execution of the Contract.

(u) "Third Party" means any person or entity other than the Government, the Client, the Consultant or a Sub-consultant.

2. Relationship between the Parties

2.1. Nothing contained herein shall be construed as establishing a relationship of master and servant or of principal and agent as between the Client and the Consultant. The Consultant, subject to this Contract, has complete charge of the Experts and Sub-consultants, if any, performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.

3. Law Governing Contract

3.1. This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

4. Language

4.1. This Contract has been executed in the language specified in the **SCC**, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

5. Headings

5.1. The headings shall not limit, alter or affect the meaning of this Contract.

6. Communications

6.1. Any communication required or permitted to be given or made pursuant to this Contract shall be in writing in the language specified in Clause GCC 4. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent to such Party at the address specified in the **SCC**.

6.2. A Party may change its address for notice hereunder by giving the other Party any communication of such change to the address specified in the **SCC**.

7. Location

7.1. The Services shall be performed at such locations as are specified in **Appendix A** hereto and, where the location of a particular task is not so specified, at such locations, whether in the Government's country or elsewhere, as the Client may approve.

8. Authority of Member in Charge

8.1. In case the Consultant is a Joint Venture, the members hereby authorize the member specified in the **SCC** to act on their behalf in exercising all the Consultant's rights and obligations towards the Client under this Contract, including without limitation the receiving of instructions and payments from the Client.

9. Authorized Representatives

9.1. Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract by the Client or the Consultant may be taken or executed by the officials specified in the **SCC.**

10. Fraud and Corruption

10.1 The Bank requires compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework, as set forth in Attachment 1 to the GCC.

a. Commissions and Fees

10.2 The Client requires the Consultant to disclose any commissions, gratuities or fees that may have been paid or are to be paid to agents or any other party with respect to the selection process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee. Failure to disclose such commissions, gratuities or fees may result in termination of the Contract and/or sanctions by the Bank.

B. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

11. Effectiveness of Contract

11.1. This Contract shall come into force and effect on the date (the "Effective Date") of the Client's notice to the Consultant instructing the Consultant to begin carrying out the Services. This notice shall confirm that the effectiveness conditions, if any, listed in the **SCC** have been met.

12. Termination of Contract for Failure to Become Effective

12.1. If this Contract has not become effective within such time period after the date of Contract signature as specified in the **SCC**, either Party may, by not less than twenty two (22) days written notice to the other Party, declare this Contract to be null and void, and in the event of such a declaration by either Party, neither Party shall have any claim against the other Party with respect hereto.

13. Commencement of Services

13.1. The Consultant shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the **SCC**.

14. Expiration of Contract

14.1. Unless terminated earlier pursuant to Clause GCC 19 hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the **SCC**.

15. Entire Agreement

15.1. This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

16. Modifications or Variations

16.1. Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any proposals for modification or variation made by the other Party.

16.2. In cases of substantial modifications or variations, the prior written consent of the Bank is required.

17. Force Majeure

a. Definition

17.1. For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and makes a Party's performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible under the circumstances, and subject to those requirements, includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse

weather conditions, strikes, lockouts or other industrial action confiscation or any other action by Government agencies.

17.2. Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or such Party's Experts, Sub-consultants or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected to both take into account at the time of the conclusion of this Contract, and avoid or overcome in the carrying out of its obligations hereunder.

17.3. Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

b. No Breach of Contract

17.4. The failure of a Party to fulfill any of its obligations hereunder shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

c. Measures to be Taken

17.5. A Party affected by an event of Force Majeure shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall take all reasonable measures to minimize the consequences of any event of Force Majeure.

17.6. A Party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible, and in any case not later than fourteen (14) calendar days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give written notice of the restoration of normal conditions as soon as possible.

17.7. Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

17.8. During the period of their inability to perform the Services as a result of an event of Force Majeure, the Consultant, upon instructions by the Client, shall either:

(a) demobilize, in which case the Consultant shall be reimbursed for additional costs they reasonably and necessarily incurred, and, if required by the Client, in reactivating the Services; or

(b) continue with the Services to the extent reasonably possible, in which case the Consultant shall continue to be paid under the terms of this Contract and be reimbursed for additional costs reasonably and necessarily incurred.

17.9. In the case of disagreement between the Parties as to the existence or extent of Force Majeure, the matter shall be settled according to Clauses GCC 44 & 45.

18. Suspension

18.1. The Client may, by written notice of suspension to the Consultant, suspend part or all payments to the Consultant hereunder if the Consultant fails to perform any of its obligations under this Contract, including the carrying out of the Services, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the Consultant to remedy such failure within a period not exceeding thirty (30) calendar days after receipt by the Consultant of such notice of suspension.

19. Termination

19.1. This Contract may be terminated by either Party as per provisions set up below:

a. By the Client

19.1.1. The Client may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (f) of this Clause. In such an occurrence the Client shall give at least thirty (30) calendar days' written notice of termination to the Consultant in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e); and at least five (5) calendar days' written notice in case of the event referred to in (f):

(a) If the Consultant fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension pursuant to Clause GCC 18;

(b) If the Consultant becomes (or, if the Consultant consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;

(c) If the Consultant fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause GCC 45.1;

(d) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;

(e) If the Client, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;

(f) If the Consultant fails to confirm availability of Key Experts as required in Clause GCC 13.

19.1.2. Furthermore, if the Client determines that the Consultant has engaged in Fraud and Corruption in competing for or in executing the Contract, then the Client may, after giving fourteen (14) calendar days written notice to the Consultant, terminate the Consultant's employment under the Contract.

b. By the Consultant

19.1.3. The Consultant may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Client, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

(a) If the Client fails to pay any money due to the Consultant pursuant to this Contract and not subject to dispute pursuant to Clause GCC 45.1 within forty-five (45) calendar days after receiving written notice from the Consultant that such payment is overdue.

(b) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days.

(c) If the Client fails to comply with any final decision reached as a result of arbitration pursuant to Clause GCC 45.1.

(d) If the Client is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Consultant may have subsequently approved in writing) following the receipt by the Client of the Consultant's notice specifying such breach.

c. Cessation of Rights and Obligations

19.1.4. Upon termination of this Contract pursuant to Clauses GCC 12 or GCC 19 hereof, or upon expiration of this Contract pursuant to Clause GCC 14, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued on the date of termination or expiration, (ii) the obligation of confidentiality set forth in Clause GCC 22, (iii) the Consultant's obligation to permit inspection, copying and auditing of their accounts and records

set forth in Clause GCC 25 and to cooperate and assist in any inspection or investigation, and (iv) any right which a Party may have under the Applicable Law.

d. Cessation of Services

19.1.5. Upon termination of this Contract by notice of either Party to the other pursuant to Clauses GCC 19a or GCC 19b, the Consultant shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum. With respect to documents prepared by the Consultant and equipment and materials furnished by the Client, the Consultant shall proceed as provided, respectively, by Clauses GCC 27 or GCC 28.

e. Payment upon Termination

19.1.6. Upon termination of this Contract, the Client shall make the following payments to the Consultant:

(a) payment for Services satisfactorily performed prior to the effective date of termination; and

(b) in the case of termination pursuant to paragraphs (d) and (e) of Clause GCC 19.1.1, reimbursement of any reasonable cost incidental to the prompt and orderly termination of this Contract, including the cost of the return travel of the Experts.

C. OBLIGATIONS OF THE CONSULTANT

20. General

a. Standard of Performance

20.1 The Consultant shall perform the Services and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Consultant shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with the third parties.

20.2. The Consultant shall employ and provide such qualified and experienced Experts and Sub-consultants as are required to carry out the Services.

20.3. The Consultant may subcontract part of the Services to an extent and with such Key Experts and Sub-consultants as may be

approved in advance by the Client. Notwithstanding such approval, the Consultant shall retain full responsibility for the Services.

b. Law Applicable to Services

20.4. The Consultant shall perform the Services in accordance with the Contract and the Applicable Law and shall take all practicable steps to ensure that any of its Experts and Sub-consultants, comply with the Applicable Law.

20.5. Throughout the execution of the Contract, the Consultant shall comply with the import of goods and services prohibitions in the Client's country when

(a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country; or

(b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country.

20.6. The Client shall notify the Consultant in writing of relevant local customs, and the Consultant shall, after such notification, respect such customs.

21. Conflict of Interest

21.1. The Consultant shall hold the Client's interests paramount, without any consideration for future work, and strictly avoid conflict with other assignments or their own corporate interests.

a. Consultant Not to Benefit from Commissions, Discounts, etc.

21.1.1 The payment of the Consultant pursuant to GCC F (Clauses GCC 38 through 42) shall constitute the Consultant's only payment in connection with this Contract and, subject to Clause GCC 21.1.3, the Consultant shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or in the discharge of its obligations hereunder, and the Consultant shall use its best efforts to ensure that any Sub-consultants, as well as the Experts and agents of either of them, similarly shall not receive any such additional payment.

21.1.2 Furthermore, if the Consultant, as part of the Services, has the responsibility of advising the Client on the procurement of goods, works or services, the Consultant shall comply with the Bank's Applicable Regulations, and shall at all times exercise such responsibility in the best interest of the Client. Any discounts or commissions obtained by the Consultant in the

exercise of such procurement responsibility shall be for the account of the Client.

b. Consultant and Affiliates Not to Engage in Certain Activities

21.1.3 The Consultant agrees that, during the term of this Contract and after its termination, the Consultant and any entity affiliated with the Consultant, as well as any Sub-consultants and any entity affiliated with such Sub-consultants, shall be disqualified from providing goods, works or non-consulting services resulting from or directly related to the Consultant's Services for the preparation or implementation of the project.

c. Prohibition of Conflicting Activities

21.1.4 The Consultant shall not engage, and shall cause its Experts as well as its Sub-consultants not to engage, either directly or indirectly, in any business or professional activities that would conflict with the activities assigned to them under this Contract.

d. Strict Duty to Disclose Conflicting Activities

21.1.5 The Consultant has an obligation and shall ensure that its Experts and Sub-consultants shall have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of their Client, or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Consultant or the termination of its Contract.

22. Confidentiality

22.1 Except with the prior written consent of the Client, the Consultant and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the Consultant and the Experts make public the recommendations formulated in the course of, or as a result of, the Services.

23. Liability of the Consultant

23.1 Subject to additional provisions, if any, set forth in the **SCC**, the Consultant's liability under this Contract shall be provided by the Applicable Law.

24. Insurance to be taken out by the Consultant

24.1 The Consultant (i) shall take out and maintain, and shall cause any Sub-consultants to take out and maintain, at its (or the Sub-consultants', as the case may be) own cost but on terms and conditions approved by the Client, insurance against the risks, and for the coverage specified in the **SCC,** and (ii) at the Client's request, shall provide evidence to the Client showing that such insurance has been taken out and maintained and that the current premiums therefore have been paid. The Consultant shall ensure that such insurance is in place prior to commencing the Services as stated in Clause GCC 13.

25. Accounting, Inspection and Auditing

25.1 The Consultant shall keep, and shall make all reasonable efforts to cause its Sub-consultants to keep, accurate and systematic accounts and records in respect of the Services and in such form and detail as will clearly identify relevant time changes and costs.

25.2 Pursuant to paragraph 2.2 e. of Appendix to the General Conditions the Consultant shall permit and shall cause its subcontractors and subconsultants to permit, the Bank and/or persons appointed by the Bank to inspect the Site and/or the accounts and records relating to the performance of the Contract and the submission of the bid, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Consultant's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 10.1 which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures).

26. Reporting Obligations

26.1 The Consultant shall submit to the Client the reports and documents specified in **Appendix A**, in the form, in the numbers and within the time periods set forth in the said Appendix.

27. Proprietary Rights of the Client in Reports and Records

27.1 Unless otherwise indicated in the **SCC**, all reports and relevant data and information such as maps, diagrams, plans, databases, other documents and software, supporting records or material compiled or prepared by the Consultant for the Client in the course of the Services shall be confidential and become and remain the absolute property of the Client. The Consultant shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Client, together with a detailed inventory thereof. The Consultant may retain a copy of such documents, data and/or software but shall not use the same for purposes unrelated to this Contract without prior written approval of the Client.

27.2 If license agreements are necessary or appropriate between the Consultant and third parties for purposes of development of the plans, drawings, specifications, designs, databases, other documents and software, the Consultant shall obtain the Client's prior written approval to such agreements, and the Client shall be entitled at its discretion to require recovering the expenses related to the development of the program(s) concerned. Other restrictions about the future use of these documents and software, if any, shall be specified in the **SCC**.

28. Equipment, Vehicles and Materials

28.1 Equipment, vehicles and materials made available to the Consultant by the Client, or purchased by the Consultant wholly or partly with funds provided by the Client, shall be the property of the Client and shall be marked accordingly. Upon termination or

expiration of this Contract, the Consultant shall make available to the Client an inventory of such equipment, vehicles and materials and shall dispose of such equipment, vehicles and materials in accordance with the Client's instructions. While in possession of such equipment, vehicles and materials, the Consultant, unless otherwise instructed by the Client in writing, shall insure them at the expense of the Client in an amount equal to their full replacement value.

28.2 Any equipment or materials brought by the Consultant or its Experts into the Client's country for the use either for the project or personal use shall remain the property of the Consultant or the Experts concerned, as applicable.

D. CONSULTANT'S EXPERTS AND SUB-CONSULTANTS

29. Description of Key Experts

29.1 The title, agreed job description, minimum qualification and estimated period of engagement to carry out the Services of each of the Consultant's Key Experts are described in **Appendix B.**

30. Replacement of Key Experts

30.1 Except as the Client may otherwise agree in writing, no changes shall be made in the Key Experts.

30.2 Notwithstanding the above, the substitution of Key Experts during Contract execution may be considered only based on the Consultant's written request and due to circumstances outside the reasonable control of the Consultant, including but not limited to death or medical incapacity. In such case, the Consultant shall forthwith provide as a replacement, a person of equivalent or better qualifications and experience, and at the same rate of remuneration.

31. Removal of Experts or Sub-consultants

31.1 If the Client finds that any of the Experts or Sub-consultant has committed serious misconduct or has been charged with having committed a criminal action, or if the Client determines that a Consultant's Expert or Sub-consultant has engaged in Fraud and Corruption while performing the Services, the Consultant shall, at the Client's written request, provide a replacement.

31.2 In the event that any of Key Experts, Non-Key Experts or Sub-consultants is found by the Client to be incompetent or incapable in discharging assigned duties, the Client, specifying the grounds therefore, may request the Consultant to provide a replacement.

31.3 Any replacement of the removed Experts or Sub-consultants shall possess better qualifications and experience and shall be acceptable to the Client.

31.4 The Consultant shall bear all costs arising out of or incidental to any removal and/or replacement of such Experts.

E. Obligations of the Client

32. Assistance and Exemptions

32.1 Unless otherwise specified in the **SCC**, the Client shall use its best efforts to:

(a) Assist the Consultant with obtaining work permits and such other documents as shall be necessary to enable the Consultant to perform the Services.

(b) Assist the Consultant with promptly obtaining, for the Experts and, if appropriate, their eligible dependents, all necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in the Client's country while carrying out the Services under the Contract.

(c) Facilitate prompt clearance through customs of any property required for the Services and of the personal effects of the Experts and their eligible dependents.

(c) Issue to officials, agents and representatives of the Government all such instructions and information as may be necessary or appropriate for the prompt and effective implementation of the Services.

(d) Assist the Consultant and the Experts and any Sub-consultants employed by the Consultant for the Services with obtaining exemption from any requirement to register or obtain any permit to practice their profession or to establish themselves either individually or as a corporate entity in the Client's country according to the applicable law in the Client's country.

(e) Assist the Consultant, any Sub-consultants and the Experts of either of them with obtaining the privilege, pursuant to the applicable law in the Client's country, of bringing into the Client's country reasonable amounts of foreign currency for the purposes of the Services or for the personal use of the Experts and of withdrawing any such amounts as may be earned therein by the Experts in the execution of the Services.

(f) Provide to the Consultant any such other assistance as may be specified in the **SCC**.

33. Access to Project Site

33.1 The Client warrants that the Consultant shall have, free of charge, unimpeded access to the project site in respect of which access is required for the performance of the Services. The Client will be

responsible for any damage to the project site or any property thereon resulting from such access and will indemnify the Consultant and each of the experts in respect of liability for any such damage, unless such damage is caused by the willful default or negligence of the Consultant or any Sub-consultants or the Experts of either of them.

34. Change in the Applicable Law Related to Taxes and Duties

34.1 If, after the date of this Contract, there is any change in the applicable law in the Client's country with respect to taxes and duties which increases or decreases the cost incurred by the Consultant in performing the Services, then the remuneration and reimbursable expenses otherwise payable to the Consultant under this Contract shall be increased or decreased accordingly by agreement between the Parties hereto, and corresponding adjustments shall be made to the Contract price amount specified in Clause GCC 38.1

35. Services, Facilities and Property of the Client

35.1 The Client shall make available to the Consultant and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described in the Terms of Reference (**Appendix A)** at the times and in the manner specified in said **Appendix A.**

36. Counterpart Personnel

36.1 The Client shall make available to the Consultant free of charge such professional and support counterpart personnel, to be nominated by the Client with the Consultant's advice, if specified in **Appendix A**.

36.2 Professional and support counterpart personnel, excluding Client's liaison personnel, shall work under the exclusive direction of the Consultant. If any member of the counterpart personnel fails to perform adequately any work assigned to such member by the Consultant that is consistent with the position occupied by such member, the Consultant may request the replacement of such member, and the Client shall not unreasonably refuse to act upon such request.

37. Payment Obligation

37.1 In consideration of the Services performed by the Consultant under this Contract, the Client shall make such payments to the Consultant for the deliverables specified in **Appendix A** and in such manner as is provided by GCC F below.

F. PAYMENTS TO THE CONSULTANT

38. Contract Price

38.1 The Contract price is fixed and is set forth in the **SCC.** The Contract price breakdown is provided in **Appendix C**.

38.2 Any change to the Contract price specified in Clause GCC 38.1 can be made only if the Parties have agreed to the revised scope of

Services pursuant to Clause GCC 16 and have amended in writing the Terms of Reference in **Appendix A**.

39. Taxes and Duties

39.1 The Consultant, Sub-consultants and Experts are responsible for meeting any and all tax liabilities arising out of the Contract unless it is stated otherwise in the **SCC**.

39.2 As an exception to the above and as stated in the **SCC**, all local identifiable indirect taxes (itemized and finalized at Contract negotiations) are reimbursed to the Consultant or are paid by the Client on behalf of the Consultant.

40. Currency of Payment

40.1 Any payment under this Contract shall be made in the currency (ies) of the Contract.

41. Mode of Billing and Payment

41.1 The total payments under this Contract shall not exceed the Contract price set forth in Clause GCC 38.1.

41.2 The payments under this Contract shall be made in lump-sum installments against deliverables specified in **Appendix A**. The payments will be made according to the payment schedule stated in the **SCC**.

41.2.1 *Advance payment:* Unless otherwise indicated in the **SCC**, an advance payment shall be made against an advance payment bank guarantee acceptable to the Client in an amount (or amounts) and in a currency (or currencies) specified in the **SCC**. Such guarantee (i) is to remain effective until the advance payment has been fully set off, and (ii) is to be in the form set forth in **Appendix D**, or in such other form as the Client shall have approved in writing. The advance payments will be set off by the Client in equal portions against the lump-sum installments specified in the **SCC** until said advance payments have been fully set off.

41.2.2 *The Lump-Sum Installment Payments.* The Client shall pay the Consultant within sixty (60) days after the receipt by the Client of the deliverable(s) and the cover invoice for the related lump-sum installment payment. The payment can be withheld if the Client does not approve the submitted deliverable(s) as satisfactory in which case the Client shall provide comments to the Consultant within the same sixty (60) days period. The Consultant shall thereupon promptly make any necessary corrections, and thereafter the foregoing process shall be repeated.

41.2.3 *The Final Payment* .The final payment under this Clause shall be made only after the final report have been submitted by the Consultant and approved as satisfactory by the Client. The Services

shall then be deemed completed and finally accepted by the Client. The last lump-sum installment shall be deemed approved for payment by the Client within ninety (90) calendar days after receipt of the final report by the Client unless the Client, within such ninety (90) calendar day period, gives written notice to the Consultant specifying in detail deficiencies in the Services, the final report. The Consultant shall thereupon promptly make any necessary corrections, and thereafter the foregoing process shall be repeated. 41.2.4 All payments under this Contract shall be made to the accounts of the Consultant specified in the **SCC**.

41.2.4 With the exception of the final payment under 41.2.3 above, payments do not constitute acceptance of the whole Services nor relieve the Consultant of any obligations hereunder.

42. Interest on Delayed Payments

42.1 If the Client had delayed payments beyond fifteen (15) days after the due date stated in Clause GCC 41.2.2 , interest shall be paid to the Consultant on any amount due by, not paid on, such due date for each day of delay at the annual rate stated in the **SCC.**

G. Fairness and Good Faith

43. Good Faith

43.1 The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

H. Settlement of Disputes

44. Amicable Settlement

44.1 The Parties shall seek to resolve any dispute amicably by mutual consultation.

44.2 If either Party objects to any action or inaction of the other Party, the objecting Party may file a written Notice of Dispute to the other Party providing in detail the basis of the dispute. The Party receiving the Notice of Dispute will consider it and respond in writing within fourteen (14) days after receipt. If that Party fails to respond within fourteen (14) days, or the dispute cannot be amicably settled within fourteen (14) days following the response of that Party, Clause GCC 45.1 shall apply.

45. Dispute Resolution

45.1 Any dispute between the Parties arising under or related to this Contract that cannot be settled amicably may be referred to by either Party to the adjudication/arbitration in accordance with the provisions specified in the **SCC**.

II. General Conditions
Attachment 1
Fraud and Corruption

(Text in this Appendix shall not be modified)

1. Purpose

1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

2. Requirements

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

a. Defines, for the purposes of this provision, the terms set forth below as follows:

i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;

iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

v. "obstructive practice" is:

(a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

(b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.

b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

d. Pursuant to the Bank's Anti- Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;[1] (ii) to be a nominated[2] sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;

e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect[3] all accounts, records and other documents relating to the procurement process, selection and/or contract execution,, and to have them audited by auditors appointed by the Bank.

---

1 For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

2 A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

3 Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

III. Special Conditions of Contract

[Notes in brackets are for guidance purposes only and should be deleted in the final text of the signed contract]

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.1(a)	**The Contract shall be construed in accordance with the law of** Brazil.
4.1	**The language is:** T*he same language of proposal*
6.1 and 6.2	**The addresses are** *[fill in at negotiations with the selected firm]***:** Client : _____ _____ Attention : _____ Facsimile : _____ E-mail (where permitted):_____ Consultant : _____ _____ Attention : _____ Facsimile : _____ E-mail (where permitted) :_____
8.1	*[If the Consultant consists only of one entity, state "N/A";* *OR* *If the Consultant is a Joint Venture consisting of more than one entity, the name of the JV member whose address is specified in Clause SCC6.1 should be inserted here.]* **The Lead Member on behalf of the JV is** _____ _____ *[insert name of the member]*
9.1	**The Authorized Representatives are:** **For the Client:** *[name, title]*_____ **For the Consultant:** *[name, title]*_____
11.1	**The effectiveness conditions are the following**: (DOES NOT APPLY)
12.1	**Termination of Contract for Failure to Become Effective:**

	The time period shall be thirty days
13.1	**Commencement of Services:** **The number of days shall be seven.** Confirmation of Key Experts' availability to start the Assignment shall be submitted to the Client in writing as a written statement signed by each Key Expert.
14.1	**Expiration of Contract:** **The time period shall be** seventeen months.
21 b.	**The Client reserves the right to determine on a case-by-case basis whether the Consultant should be disqualified from providing goods, works or non-consulting services due to a conflict of a nature described in Clause GCC 21.1.3** Yes (X) No ( )

23.1	The following limitation of the Consultant's Liability towards the Client can be subject to the Contract's negotiations: "Limitation of the Consultant's Liability towards the Client: (a) Except in the case of gross negligence or willful misconduct on the part of the Consultant or on the part of any person or a firm acting on behalf of the Consultant in carrying out the Services, the Consultant, with respect to damage caused by the Consultant to the Client's property, shall not be liable to the Client: (i) for any indirect or consequential loss or damage; and (ii) for any direct loss or damage that exceeds one time the total value of the Contract; (b) This limitation of liability shall not (i) affect the Consultant's liability, if any, for damage to Third Parties caused by the Consultant or any person or firm acting on behalf of the Consultant in carrying out the Services; (ii) be construed as providing the Consultant with any limitation or exclusion from liability which is prohibited by the *[insert "*Applicable Law*", if it is the law of the Client's country, or insert "*applicable law in the Client's country*", if the Applicable Law stated in Clause SCC1.1 (b) is different from the law of the Client's country].* *[Notes to the Client and the Consultant: Any suggestions made by the Consultant in the Proposal to introduce exclusions/limitations of the Consultant's liability under the Contract should be carefully scrutinized by the Client and discussed with the Bank prior to accepting any changes to what was included in the issued RFP. In this regard, the Parties should be aware of the Bank's policy on this matter which is as follows:* *To be acceptable to the Bank, any limitation of the Consultant's liability should at the very least be reasonably related to (a) the damage the Consultant might potentially cause to the Client, and (b) the Consultant's ability to pay compensation using its own assets and reasonably obtainable insurance coverage. The Consultant's liability shall not be limited to less than a multiplier of the total payments to the Consultant under the Contract for remuneration and reimbursable expenses. A statement to the effect that the Consultant is liable only for the re-performance of faulty Services is not acceptable to the Bank. Also, the Consultant's liability should never be limited for loss or*

	damage caused by the Consultant's gross negligence or willful misconduct. *The Bank does not accept a provision to the effect that the Client shall indemnify and hold harmless the Consultant against Third Party claims, except, of course, if a claim is based on loss or damage caused by a default or wrongful act of the Client to the extent permissible by the law applicable in the Client's country.]*
24.1	**The insurance coverage against the risks shall be as follows:** **(a) Professional liability insurance, with a minimum coverage of the value of the contract.**
27.1	**No exceptions in the provision of property rights**.
27.2	[**The Consultant shall not use these data made available, collected and generated in this project and their respective reports for purposes unrelated to this Contract without the prior written approval of the Client**.]
32.1 **(a) through (e)**	(DOES NOT APPLY)
32.1(f)	(DOES NOT APPLY)
38.1	**The Contract price is:** _____ *[insert amount and currency for each currency as applicable] [indicate:* **inclusive** *or* **exclusive***]* **of local indirect taxes.** **Any indirect local taxes chargeable in respect of this Contract for the Services provided by the Consultant shall** *[insert as appropriate: "***be paid***" or "***reimbursed***"]* **by the Client** *[insert as appropriate:* **"for" or "to"***]* **the Consultant.** **The amount of such taxes is _____ [insert the amount as finalized at the Contract's negotiations on the basis of the estimates provided by the Consultant in Form FIN-2 of the Consultant's Financial Proposal.**

39.1 and 39.2	**The Client shall pay on behalf of the Consultant, the Sub-consultants and the Experts, any indirect taxes, duties, fees, levies and other impositions imposed, under the applicable law in the Client's country, on the Consultant, the Sub-consultants and the Experts in respect of:** **(a) any payments whatsoever made to the Consultant, Sub-consultants and the Experts (other than nationals or permanent residents of the Client's country), in connection with the carrying out of the Services;** **(b) any equipment, materials and supplies brought into the Client's country by the Consultant or Sub-consultants for the purpose of carrying out the Services and which, after having been brought into such territories, will be subsequently withdrawn by them;** **(c) any equipment imported for the purpose of carrying out the Services and paid for out of funds provided by the Client and which is treated as property of the Client;** **(d) any property brought into the Client's country by the Consultant, any Sub-consultants or the Experts (other than nationals or permanent residents of the Client's country), or the eligible dependents of such experts for their personal use and which will subsequently be withdrawn by them upon their respective departure from the Client's country, provided that:** **(i) the Consultant, Sub-consultants and experts shall follow the usual customs procedures of the Client's country in importing property into the Client's country; and** **(ii) if the Consultant, Sub-consultants or Experts do not withdraw but dispose of any property in the Client's country upon which customs duties and taxes have been exempted, the Consultant, Sub-consultants or Experts, as the case may be, (a) shall bear such customs duties and taxes in conformity with the regulations of the Client's country, or (b) shall reimburse them to the Client if they were paid by the Client at the time the property in question was brought into the Client's country.**
41.2	**The payment schedule:** ***STAGE 1 – Construction of the database for forecasting solar photovoltaic generation***

	1st payment: Product 1 – Preparation of the database, with documentation regarding its structuring and means of access, first installment in the total value of R$xxx.00 (.....), representing 2% (two percent) of the amount of the contract, paid upon partial delivery, at the end of 45 days, of the Report containing the description of the environment and approval by ONS. *2nd payment: Product 1 - Preparation of the database, with documentation regarding its structuring and means of access, second installment in the total amount of R$xxx.00 (.....), representing 4% (four percent) of the amount of the contract, paid upon presentation of documentation and implementation of the database + codes and training by the end of the 3rd month and approval.* *3rd payment: Product 2 - Bibliographic review on the state of the art and determination of methodologies for forecasting intra-hourly solar photovoltaic generation, first installment in the total value of R$xxx.00 (.....), representing 3% (three percent) of the contract amount, paid upon presentation and approval of the Report with partial description, at the end of the 2nd month.* *4th payment: Product 2 - Bibliographic review on the state of the art and determination of methodologies for forecasting intra-hourly solar photovoltaic generation, second installment in the total value of R$xxx.00 (.....), representing 5% (five percent) of the contract amount, paid upon presentation and approval of the Final Report by the end of the 4th month.* *5th payment: Product 3 - Development of the clear sky model, first installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon presentation and approval of the partial Description at the end of the 2nd month.* *6th payment: Product 3 - Development of the clear sky model, second installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon presentation and approval of the codes and manual + training at the end of the 4th month.* *7th payment: Product 3 - Development of the clear sky model, third installment in the total amount of R$xxx.00 (.....), representing 4% (four percent) of the contract amount, paid upon presentation and approval of the final report until the end of the 5th month.* *8th payment: Product 4 – Prototype and evaluation of intra-hourly forecasting models first installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon*

	presentation and approval of the partial description at the end of the 2nd month. *9th payment: Product 4 – Prototype and evaluation of intra-hourly forecasting models, second installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon presentation and approval of the partial Description at the end of the 4th month.* *10th payment: Product 4 – Prototype and evaluation of intra-hourly forecasting models, third installment in the total amount of R$xxx.00 (.....), representing 6% (six percent) of the contract amount, paid upon presentation and approval of codes for developed prototypes + final report by the end of the 6th month.* *11th payment: Product 5 - Implementation and operationalization of the model for forecasting photovoltaic solar generation for the intra-hourly horizon, first installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the amount of the contract, paid upon presentation and approval of the partial Description at the end of the 1st month.* *12th payment: Product 5 - Implementation and operationalization of the model for forecasting photovoltaic solar generation for the intra-hourly horizon, second installment in the total amount of R$xxx.00 (.....), representing 3% (three percent) of the amount of the contract, paid upon presentation and approval of the codes and manual + training at the end of the 3rd month.* *13th payment: Product 6 - Satellite image acquisition system, identification and prediction of cloud displacement, first installment in the total value of R$xxx.00 (.....), representing 2% (two percent) of the contract amount , paid upon presentation and approval of the partial Description at the end of the 2nd month.* *14th payment: Product 6 - Satellite image acquisition system, identification and prediction of cloud displacement, second installment in the total value of R$xxx.00 (.....), representing 2% (two percent) of the contract amount , paid upon presentation and approval of the partial Description at the end of the 4th month.* *15th payment: Product 6 - Satellite image acquisition system, identification and prediction of cloud displacement, third installment in the total value of R$xxx.00 (.....), representing 8% (eight percent) of the contract amount , paid upon presentation and approval of codes and manual + training + final report by the end of the 7th month.*

	16th payment: Product 7 - Development of the solar photovoltaic generation forecast model using satellite data, first installment in the total amount of R$xxx.00 (.....), representing 3% (three percent) of the contract amount, paid upon presentation and approval of the partial Description at the end of the 2nd month. *17th payment: Product 7 - Development of the solar photovoltaic generation forecast model using satellite data, second installment in the total amount of R$xxx.00 (.....), representing 5% (five percent) of the contract amount, paid upon presentation and approval of the codes + final report at the end of the 5th month.* *18th payment: Product 8 - Operational implementation of the solar photovoltaic generation forecast model using satellite data, first installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon presentation and approval of the partial Description at the end of the 1st month.* *19th payment: Product 8 - Operational implementation of the solar photovoltaic generation forecast model using satellite data, second installment in the total amount of R$xxx.00 (.....), representing 3% (three percent) of the contract amount, paid upon presentation and approval of codes and manual + training at the end of the 3rd month* *20th payment: Product 9 - System for obtaining forecasts of meteorological variables, first installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon presentation and approval of the Partial description at the end of the 2nd month.* *21st payment: Product 9 - System for obtaining forecasts of meteorological variables, second installment in the total amount of R$xxx.00 (.....), representing 5% (five percent) of the contract amount, paid upon presentation and approval of the codes and manual + training + final report by the end of the 4th month.* *22nd payment: Product 10 - Development of the photovoltaic solar generation forecast model using PNT, first installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon presentation and approval of the partial Description at the end of the 2nd month.* *23rd payment: Product 10 - Development of the photovoltaic solar generation forecast model using PNT, second installment in the total amount of R$xxx.00 (.....), representing 2% (five percent) of the contract*

	amount, paid upon presentation and approval of codes + final report at the end of the 4th month. *24th payment: Product 11 - Implementation of the photovoltaic solar generation forecast model using PNT, first installment in the total amount of R$xxx.00 (.....), representing 2% (two percent) of the contract amount, paid upon presentation and approval of the partial Description at the end of the 1st month.* *25th payment: Product 11 - Implementation of the photovoltaic solar generation forecast model using PNT, first installment in the total amount of R$xxx.00 (.....), representing 3% (three percent) of the contract amount, paid upon presentation and approval of codes and manual + training at the end of the 3rd month.* *26th payment: Product 12 - Assessment of generation models and development of the combined model, first installment in the total amount of R$xxx.00 (.....), representing 3% (three percent) of the contract amount, paid upon presentation and approval of the Report with the evaluation of forecast performance and methodology for determining the weights of the combined model at the end of the 2nd month.* *27th payment: Product 12 - Assessment of generation models and development of the combined model, second installment in the total amount of R$xxx.00 (.....), representing 7% (seven percent) of the contract amount, paid upon presentation and approval of the development of the combined model prototype + codes + final report and training by the end of the 5th month.* *28th payment: Product 13 - Operational implementation of the combined photovoltaic solar generation forecast model, first installment in the total amount of R$xxx.00 (.....), representing 3% (three percent) of the contract amount, paid upon presentation and approval of the partial Description at the end of the 2nd month.* *Final payment: Product 13 - Operational implementation of the combined solar photovoltaic generation forecast model, second installment in the total amount of R$xxx.00 (.....), representing 6% (six percent) of the contract amount, paid upon presentation and approval of codes and manual + operational implementation and training at the end of the 4th month.* *[Total sum of all installments shall not exceed the Contract price set up in SCC38.1.]*

	Approval of each product delivered must be carried out within 15 calendar days by the ONS technical team. If adjustments are required by the contractor, the maximum period granted will be 10 calendar days. *If there is a need to extend this new deadline, the justification must be presented by the contractor and any new deadline must be evaluated and approved by the ONS.* *The forecast of adjustments does not set a precedent for accepting deliveries with lower quality than desired. Adjustments should not affect the deadline for other deliveries foreseen in the contract.*
41.2.1	The following provisions shall apply to the advance payment and the advance bank payment guarantee: (DOES NOT APPLY) (1) An advance payment [of *[insert amount]* in foreign currency] [and of *[insert amount]* in local currency] shall be made within *[insert number]* days after the receipt of an advance bank payment guarantee by the Client. The advance payment will be set off by the Client in equal portions against [list the payments against which the advance is offset]. (2) The advance bank payment guarantee shall be in the amount and in the currency of the currency(ies) of the advance payment. (3) The bank guarantee will be released when the advance payment has been fully set off.
41.2.4	**The accounts are:** for foreign currency: *[insert account]*. for local currency: *[insert account]*.
42.1	**The interest rate is**: *The delay in the payment of the amounts actually owed to the CONTRACTOR due to the exclusive duty of the ONS, will result in the application of a late payment fine of 2% on the amount of the overdue invoice, in addition to late payment interest of 1% per month, on the amount of the overdue invoice. plus monetary restatement by the IGP-M/FGV index, both calculated pro rata die, from the due date until the actual payment.*
45.1	*[In contracts with foreign consultants, the Bank requires that the international commercial arbitration in a neutral venue is used.]* **Disputes shall be settled by arbitration in accordance with the following provisions:**

	1. Selection of Arbitrators. Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel composed of three (3) arbitrators, in accordance with the following provisions: (a) Where the Parties agree that the dispute concerns a technical matter, they may agree to appoint a sole arbitrator or, failing agreement on the identity of such sole arbitrator within thirty (30) days after receipt by the other Party of the proposal of a name for such an appointment by the Party who initiated the proceedings, either Party may apply to *Secretary-General of the Permanent Court of Arbitration, The Hague* for a list of not fewer than five (5) nominees and, on receipt of such list, the Parties shall alternately strike names therefrom, and the last remaining nominee on the list shall be the sole arbitrator for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) days of the date of the list, *Secretary-General of the Permanent Court of Arbitration, The Hague* shall appoint, upon the request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute. (b) Where the Parties do not agree that the dispute concerns a technical matter, the Client and the Consultant shall each appoint one (1) arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the arbitrators named by the Parties do not succeed in appointing a third arbitrator within thirty (30) days after the latter of the two (2) arbitrators named by the Parties has been appointed, the third arbitrator shall, at the request of either Party, be appointed at the time on the basis of the lowest price to be obtained from the following options: *the Secretary General of the Permanent Court of Arbitration, The Hague; the Secretary General of the International Centre for Settlement of Investment Disputes, Washington, D.C.; the International Chamber of Commerce, Paris.* (b) If, in a dispute subject to paragraph (b) above, one Party fails to appoint its arbitrator within thirty (30) days after the other Party has appointed an arbitrator may request the authority to be selected as indicated in the paragraph above to appoint a sole arbitrator for the matter in dispute, and the arbitrator appointed pursuant to such application shall be the sole arbitrator for that dispute.

	2. Rules of Procedure. Except as otherwise stated herein, arbitration proceedings shall be conducted in accordance with the rules of procedure for arbitration of the United Nations Commission on International Trade Law (UNCITRAL) as in force on the date of this Contract. 3. Substitute Arbitrators. If for any reason an arbitrator is unable to perform his/her function, a substitute shall be appointed in the same manner as the original arbitrator. 4. Nationality and Qualifications of Arbitrators. The sole arbitrator or the third arbitrator appointed pursuant to paragraphs 1(a) through 1(c) above shall be an internationally recognized legal or technical expert with extensive experience in relation to the matter in dispute and shall not be a national of the Consultant's home country *[If the Consultant consists of more than one entity, add:* or of the home country of any of their members or Parties*]* or of the Government's country. For the purposes of this Clause, "home country" means any of: (a) the country of incorporation of the Consultant *[If the Consultant consists of more than one entity, add:* or of any of their members or Parties*]*; or (b) the country in which the Consultant's [or any of their members' or Parties'] principal place of business is located; or (c) the country of nationality of a majority of the Consultant's [or of any members' or Parties'] shareholders; or (d) the country of nationality of the Sub-consultants concerned, where the dispute involves a subcontract.
	5. Miscellaneous. In any arbitration proceeding hereunder: (a) proceedings shall, unless otherwise agreed by the Parties, be held in *[select a country which is neither the Client's country nor the Consultant's country]*; (b) the *[type of language]* language shall be the official language for all purposes; and (c) the decision of the sole arbitrator or of a majority of the arbitrators (or of the third arbitrator if there is no such majority) shall be final and binding and shall be enforceable

	in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.
	In contracts with national consultants: In the event that this contract is signed with a national company, in order to resolve unresolved conflicts amicably, the parties elect the Judicial District of Rio de Janeiro/RJ, as the sole and competent court to resolve any doubts arising from this Contract, with express waiver of any other, however privileged it may be.

IV. Appendices

APPENDIX A – TERMS OF REFERENCE

[This Appendix shall include the final Terms of Reference (TORs) worked out by the Client and the Consultant during the negotiations; dates for completion of various tasks; location of performance for different tasks; detailed reporting requirements and list of deliverables against which the payments to the Consultant will be made; Client's input, including counterpart personnel assigned by the Client to work on the Consultant's team; specific tasks or actions that require prior approval by the Client.

Insert the text based on the Section 7 (Terms of Reference) of the ITC in the RFP and modified based on the Forms TECH-1 through TECH-5 of the Consultant's Proposal. Highlight the changes to Section 7 of the RFP]

……

APPENDIX B - KEY EXPERTS

[Insert a table based on Form TECH-6 of the Consultant's Technical Proposal and finalized at the Contract's negotiations. Attach the CVs (updated and signed by the respective Key Experts) demonstrating the qualifications of Key Experts.]

……

APPENDIX C – BREAKDOWN OF CONTRACT PRICE

[Insert the table with the unit rates to arrive at the breakdown of the lump-sum price. The table shall be based on [Form FIN-3 and FIN-4] of the Consultant's Proposal and reflect any changes agreed at the Contract negotiations, if any. The footnote shall list such changes made to [Form FIN-3 and FIN-4] at the negotiations or state that none has been made.]

When the Consultant has been selected under Quality-Based Selection method, also add the following:

> *"*The agreed remuneration rates shall be stated in the attached Model Form I. This form shall be prepared on the basis of Appendix A to Form FIN-3 of the RFP "Consultants' Representations regarding Costs and Charges" submitted by the Consultant to the Client prior to the Contract's negotiations.

Should these representations be found by the Client (either through inspections or audits pursuant to Clause GCC 25.2 or through other means) to be materially incomplete or inaccurate, the Client shall be entitled to introduce appropriate modifications in the remuneration rates affected by such materially incomplete or inaccurate representations. Any such modification shall have retroactive effect and, in case remuneration has already been paid by the Client before any such modification, (i) the Client shall be entitled to offset any excess payment against the next monthly payment to the Consultants, or (ii) if there are no further payments to be made by the Client to the Consultants, the Consultants shall reimburse to the Client any excess payment within thirty (30) days of receipt of a written claim of the Client. Any such claim by the Client for reimbursement must be made within twelve (12) calendar months after receipt by the Client of a final report and a final statement approved by the Client in accordance with Clause GCC 45.1(d) of this Contract*."]*

Model Form I
Breakdown of Agreed Fixed Rates in Consultant's Contract

We hereby confirm that we have agreed to pay to the Experts listed, who will be involved in performing the Services, the basic fees and away from the home office allowances (if applicable) indicated below:

(Expressed in [insert name of currency])*

Experts		1	2	3	4	5	6	7	8
Name	Position	Basic Remuneration rate per Working Month/Day/Year	Social Charges[1]	Overhead[1]	Subtotal	Profit[2]	Away from Home Office Allowance	Agreed Fixed Rate per Working Month/Day/Hour	Agreed Fixed Rate per Working Month/Day/Hour[1]
Home Office									
Work in the Client's Country									

1 Expressed as percentage of 1
2 Expressed as percentage of 4

* If more than one currency, add a table

Signature _____ Date _____

Name and Title: _____

APPENDIX D - FORM OF ADVANCE PAYMENTS GUARANTEE

[See Clause GCC 41.2.1 and SCC 41.2.1]

{Guarantor letterhead or SWIFT identifier code}

Bank Guarantee for Advance Payment

Guarantor: _____ *[insert commercial Bank's Name, and Address of Issuing Branch or Office]*

Beneficiary: _____ *[insert Name and Address of Client]*

Date: _____*[insert date]*____

ADVANCE PAYMENT GUARANTEE No.: _____*[insert number]*_____

We have been informed that _____ *[name of Consultant or a name of the Joint Venture, same as appears on the signed Contract]* (hereinafter called "the Consultant") has entered into Contract No. _____ *[reference number of the contract]* dated ___*[insert date]*_____ with the Beneficiary, for the provision of _____ *[brief description of Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum of _____ *[insert amount in figures]* (_____) *[amount in words]* is to be made against an advance payment guarantee.

At the request of the Consultant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ *[amount in figures]* (_____) *[amount in words]*[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's ~~a~~ written statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Consultant is in breach of its obligation under the Contract because the Consultant:

(a) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Consultant has failed to repay;
(b) has used the advance payment for purposes other than toward providing the Services under the Contract.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Consultant on their account number _____ at _____ *[name and address of bank]*.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Consultant as indicated in certified statements or invoices marked as "paid" by the Client which shall be presented to us. This guarantee shall expire, at

[1] The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Client.

the latest, upon our receipt of the payment certificate or paid invoice indicating that the Consultant has made full repayment of the amount of the advance payment, or on the __ day of *_[month]_____*, *[year]__*,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 revision, ICC Publication No. 758.

_____

[signature(s)]

{Note: All italicized text is for indicative purposes only to assist in preparing this form and shall be deleted from the final product.}

[2] Insert the expected expiration date. In the event of an extension of the time for completion of the Contract, the Client would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Client might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Client's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

PART III

Section 9. Notification of Intention to Award and Beneficial Ownership Forms

Notification of Intention to Award

[This Notification of Intention to Award shall be sent to each Consultant whose Financial Proposal was opened. Send this Notification to the authorized representative of the Consultant].

For the attention of Consultant's authorized representative
Name: *[insert authorized representative's name]*
Address: *[insert authorized representative's address]*
Telephone/Fax numbers: *[insert authorized representative's telephone/fax numbers]*
Email Address: *[insert authorized representative's email address]*

[IMPORTANT: insert the date that this Notification is transmitted to all Consultants. The Notification must be sent to all Consultants simultaneously. This means on the same date and as close to the same time as possible.]

DATE OF TRANSMISSION: This Notification is sent by: [*email/fax*] on [*date*] (local time)

Notification of Intention to Award

Client: OPERADOR NACIONAL DO SISTEMA ELÉTRICO - ONS
Contract title:
Country: *Brazil*
Loan No. /Credit No. /Grant No.: *nº 9074-BR* **RFP No:** *xxxx*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period you may:

a) request a debriefing in relation to the evaluation of your Proposal, and/or

b) submit a Procurement-related Complaint in relation to the decision to award the contract.

1. The successful Consultant

Name:	[*insert name of successful Consultant*]
Address:	[*insert address of the successful Consultant*]
Contract price:	[*insert contract price of the successful Consultant*]

2. Short listed Consultants ***[INSTRUCTIONS: insert names of all short listed Consultants and indicate which Consultants submitted Proposals. Where the selection method requires it, state the price offered by each Consultant as read out, and as evaluated. Include overall technical scores and scores assigned for each criterion and sub-criterion. Select Full Technical Proposal (FTP) or Simplified Technical Proposal (STP) in the last column below.]***

Name of Consultant	Submitted Proposal	[*use for FTP*] Overall technical scores	[*use for STP*] Overall technical scores	Financial Proposal price (if applicable)	Evaluated Financial Proposal price (if applicable)	Combined score and ranking (if applicable)
[*insert name*]	[*yes/no*]	**Criterion (i):** [*insert score*] **Criterion (ii):** [*insert score*] **Criterion (iii):** [*insert score*] Sub-criterion a: 1: [*insert score*] 2: [*insert score*] 3: [*insert score*] Sub-criterion b: 1: [*insert score*] 2: [*insert score*] 3: [*insert score*] Sub-criterion c: 1: [*insert score*] 2: [*insert score*] 3: [*insert score*] **Criterion (iv):** [*insert score*] **Criterion (v):** [*insert score*] **Total score: [*insert score*]**	**Criterion (i):** [*insert score*] **Criterion (ii):** [*insert score*] Sub-criterion a: [*insert score*] Sub-criterion b: [*insert score*] Sub-criterion c: [*insert score*] **Total score: [*insert score*]**	[*Proposal price*]	[*evaluated price*]	**Combined Score:** [*combined score*] **Ranking:** [*ranking*]
[*insert name*]	[*yes/no*]	**Criterion (i):** [*insert score*] **Criterion (ii):** [*insert score*] **Criterion (iii):** [*insert score*] Sub-criterion a:	**Criterion (i):** [*insert score*] **Criterion (ii):** [*insert score*] Sub-criterion a: [*insert score*] Sub-criterion b: [*insert score*]	[*Proposal price*]	[*evaluated price*]	**Combined Score:** [*combined score*] **Ranking:** [*ranking*]

Name of Consultant	Submitted Proposal	[*use for FTP*] Overall technical scores	[*use for STP*] Overall technical scores	Financial Proposal price (if applicable)	Evaluated Financial Proposal price (if applicable)	Combined score and ranking (if applicable)
		1: [*insert score*] 2: [*insert score*] 3: [*insert score*] Sub-criterion b: 1: [*insert score*] 2: [*insert score*] 3: [*insert score*] Sub-criterion c: 1: [*insert score*] 2: [*insert score*] 3: [*insert score*] **Criterion (iv):** [*insert score*] **Criterion (v):** [*insert score*] **Total score: [*insert score*]**	Sub-criterion c: [*insert score*] **Total score: [*insert score*]**			
[*insert name*]	[*yes/no*]	**Criterion (i):** [*insert score*] **Criterion (ii):** [*insert score*] **Criterion (iii):** [*insert score*] Sub-criterion a: 1: [*insert score*] 2: [*insert score*] 3: [*insert score*] Sub-criterion b: 1: [*insert score*] 2: [*insert score*] 3: [*insert score*] Sub-criterion c: 1: [*insert score*]	**Criterion (i):** [*insert score*] **Criterion (ii):** [*insert score*] Sub-criterion a: [*insert score*] Sub-criterion b: [*insert score*] Sub-criterion c: [*insert score*] **Total score: [*insert score*]**	[*Proposal price*]	[*evaluated price*]	**Combined Score:** [*combined score*] **Ranking:** [*ranking*]

Name of Consultant	**Submitted Proposal**	**[*use for FTP*] Overall technical scores**	**[*use for STP*] Overall technical scores**	**Financial Proposal price (if applicable)**	**Evaluated Financial Proposal price (if applicable)**	**Combined score and ranking (if applicable)**
		2: [*insert score*] 3: [*insert score*] **Criterion (iv):** [*insert score*] **Criterion (v):** [*insert score*] **Total score: [*insert score*]**				
[*insert name*]	…					
…	…					

3. Reason/s why your Proposal was unsuccessful [*Delete if the combined score already reveals the reason*]

[INSTRUCTIONS; State the reason/s why <u>this</u> Consultant's Proposal was unsuccessful. Do NOT include: (a) a point by point comparison with another Consultant's Proposal or (b) information that is marked confidential by the Consultant in its Proposal.]

4. How to request a debriefing [*This applies only if your proposal was unsuccessful as stated under point (3) above*]

DEADLINE: The deadline to request a debriefing expires at midnight on [*insert date*] (local time).

You may request a debriefing in relation to the results of the evaluation of your Proposal. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award.

Provide the contract name, reference number, name of the Consultant, contact details; and address the request for debriefing as follows:

Attention: [*insert full name of person, if applicable*]

Title/position: [*insert title/position*]

Agency: [*insert name of Client*]

Email address: [*insert email address*]

Fax number: [*insert fax number*] ***delete if not used***

If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.

The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

5. How to make a complaint

DEADLINE: The deadline for submitting a Procurement-related Complaint challenging the decision to award the contract expires on midnight, [*insert date*] (local time).

Provide the contract name, reference number, name of the Consultant, contact details; and address the Procurement-related Complaint as follows:

Attention: [*insert full name of person, if applicable*]

Title/position: [*insert title/position*]

Agency: [*insert name of Client*]

Email address: [*insert email address*]

Fax number: [*insert fax number*] ***delete if not used***

[At this point in the procurement process] [Upon receipt of this notification] you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

Further information:

For more information see the "Procurement Regulations for IPF Borrowers (Procurement Regulations) (Annex III)." You should read these provisions before preparing and submitting your complaint. In addition, the World Bank's Guidance "How to make a Procurement-related Complaint" provides a useful explanation of the process, as well as a sample letter of complaint.

In summary, there are four essential requirements:

1. You must be an 'interested party'. In this case, that means a Consultant who has submitted a Proposal in this selection process, and is the recipient of a Notification of Intention to Award.
2. The complaint can only challenge the decision to award the contract.
3. You must submit the complaint within the deadline stated above.
4. You must include, in your complaint, all of the information required by the Procurement Regulations (as described in Annex III).

6. Standstill Period

DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).

The Standstill Period lasts ten (10) Business Days after the date of transmission of this Notification of Intention to Award.

The Standstill Period may be extended. This may happen where we are unable to provide a debriefing within the five (5) Business Day deadline. If this happens we will notify you of the extension.

If you have any questions regarding this Notification, please do not hesitate to contact us.

On behalf of [*insert the name of the Client*]:

Signature: _____

Name: _____

Title/position: _____

Telephone: _____

Email: _____