Request for Proposals

RFP-UESP-2021-053

Services
for the Elaboration of the Project Design Documentation:
the Bankable Feasibility Study and
the Technical and Economical Substantiation (Ukrainian TEO).

Issuance Date:	**December 28, 2021**
Proposal Conference:	**January 20, 2022, from 14:00 to 17:00 (Kyiv time).**
Deadline for Questions:	**January 27, 2022, at 23:00 (Kyiv time).**
Deadline for Technical Proposals:	**February 21, 2022, at 23:00 (Kyiv time).**
Deadline for Financial Proposals:	**March 4, 2022, at 23:00 (Kyiv time).**

Issuance of this RfP does not constitute an award commitment on the Tetra Tech ES, Inc., nor does it commit to pay for any costs incurred in preparation or submission of comments/suggestions of a proposal. Proposals are submitted at the risk of the bidders. All preparation and submission costs are at the bidder's expense.

1. Contents

2. INTRODUCTION. 3

3. BIDDER'S REQUIREMENTS. 3

4. SOURCE, ORIGIN AND NATIONALITY RESTRICTIONS. 4

5. DEADLINE FOR SUBMISSION OF PROPOSALS. 4

6. QUESTIONS AND CLARIFICATIONS. 4

7. PROPOSALS PREPARATION INSTRUCTIONS. 7

8. TECHNICAL PROPOSAL. 8

9. FINANCIAL PROPOSAL. 11

10. EVALUATION CRITERIA. 12

11. PERIOD OF PERFORMANCE. 14

12. TERMS OF PAYMENT 14

13. DUNS NUMBER AND SAM.GOV REGISTRATION 14

14. NEGOTIATIONS 15

15. MULTIPLE AWARDS/NO AWARD 15

ATTACHMENT A – TECHNICAL SPECIFICATION 16

ATTACHMENT B – DETAILED BUDGET 40

ATTACHMENT C − REPRESENTATIONS AND CERTIFICATIONS 42

ATTACHMENT D − CERTIFICATE OF CURRENT COST OR PRICING DATA 46

2. INTRODUCTION.

The purpose of this RfP is to solicit proposals for:

Services for the Elaboration of the Project Design Documentation: the Bankable Feasibility Study and the Technical and Economical Substantiation (Ukrainian TEO),

of which extent, expectations, definitions, and details are outlined in the **Attachment A** to this RfP – Technical Specification.

3. BIDDER'S REQUIREMENTS.

The Bidder is expected to be a consortium or partnership between (an) International Partner(s) and (a) Ukrainian Local Partner(s), bringing together the adequate balance of knowledge and capacity between the international experience in the design and engineering of the technologies and functionalities to be applied in the project (primarily, a grid-scale hybrid battery energy storage system used for frequency regulation), and the local Ukrainian expertise and experience for the adequate and timely preparation, delivery, and effective expert support up to approval/endorsement according to local regulations and procedures, of the project design documents (primarily, so-called TEO) for alike-size and similar technologies and/or other relevant projects in the electric power sector.

The Bidder's qualification details are defined in Attachment A "About the bidder".

The Bidder must provide the following information and references to be qualified for the procurement process:

1. Company's information, including official registered title, type of business, address, and contact person information. This applies to all Bidder's International Partner(s) and Local Partner(s) as well as to the eventual subcontractor(s), if any.
2. A short description of the company and of past similar experience relevant to its intended part of assignment. This applies to all Bidder's International Partner(s) and Local Partner(s) as well as to the eventual subcontractor(s), if any.
3. Overall technical approach to fulfill the specifications defined in Attachment A to this RfP – Technical Specification.
4. Certification that the Bidder company is not owned or controlled in total or in part by any entity of any government.
5. Certification on any party engaged by the Bidder for this project, including any International Partner, Local Partner, or subcontractor, if any, that it is not owned or controlled in total or in part by any entity of any government.
6. The Bidder Representations and Certifications (the form provided in Attachment C to this RfP) completed and signed by the Bidder and included with the Bidder's proposal. Proposals that do not include these certifications will not be considered.
7. Certification that the Bidder in its activities adheres the policies and standards that comply with the World Bank Group's Environmental and Social Framework (ESF)[1], entered into force in 2018, as well as the declaration that, in the process of designing and providing other services under this

[1] Link to ESF: https://www.worldbank.org/en/projects-operations/environmental-and-social-framework

consultancy assignment, the Bidder will comply with the aforesaid ESF with respect to its own permanent and temporary personel and subcontractors.

Bidders listed in the Excluded Parties List System will not be considered. The Excluded Parties List can be found at:

https://sam.gov/search/?index=ex&sort=-relevance&page=1&pageSize=25&sfm%5Bstatus%5D%5Bis_active%5D=true

4. SOURCE, ORIGIN AND NATIONALITY RESTRICTIONS.

The USAID authorized Geographic Code for the Energy Security Project is 935.

Code 935 is the USAID authorized Geographic Code for procurement of goods and services: it covers any area or country including the cooperating country but excluding the foreign policy-restricted countries ("prohibited sources").

Reference: USAID ADS Chapter 310 "Source, Origin, and Nationality of Commodities", and all its sub-sections. The document is available on the link below:

https://pdf.usaid.gov/pdf_docs/Pdacq310.pdf

5. DEADLINE FOR SUBMISSION OF PROPOSALS.

All proposals are due by:

Deadline for Technical Proposals **- February 21, 2022,** no later than **23:00** local time in Kyiv, Ukraine.

Deadline for Financial Proposals - **March 4, 2022**, no later than **23:00** local time in Kyiv, Ukraine.

Proposals must be submitted via e-mail at the address of ESP Procurement Office of Tetra Tech:

UESPprocurement@tetratech.com

Files are acceptable in the following formats: PDF, and/or Microsoft Word and/or Microsoft Excel.

All proposals must fully respond to the Technical Specifications enclosed as **Attachment A** to this RfP and must include quotes in the format provided in the **Attachment B** to this RfP **– Table 1 – Detailed Budget**.

Proposals received after the above-stated due date and time will not be considered for this procurement.

6. QUESTIONS AND CLARIFICATIONS.

To provide interested Bidders with an opportunity to learn more about this RfP, the project details and the solicitation process, a proposal conference will be held shortly after the publication of the RfP, where Bidders can present any questions or comments.

6.1. Proposal Conference, and Submission of Questions Before the Proposal Conference.

Tetra Tech welcomes any Bidder to attend the proposal conference.

Pre-registration to attend the proposal conference is required. Please email your registration request and any advance questions by:

January 18, 2022, at **23:00** local time in Kyiv, Ukraine,

To the email address of ESP Procurement Office of Tetra Tech:

UESPprocurement@tetratech.com

After receiving email confirming the registration and no later than 24 hours before the proposal conference, Bidders may submit any written questions.

Written notes from the proposal conference and questions received will be provided electronically to all registered Bidders, including those Bidders, who submitted written questions prior to the proposal conference, even if they were unable to attend the proposal conference in person.

Written questions received will be shared exactly as written to the email address of ESP Procurement Office of Tetra Tech:

UESPprocurement@tetratech.com

The proposal conference will be held virtually through MS Teams on:

January 20, 2022, from **14:00** to **17:00** local time in Kyiv, Ukraine.

The meeting link or invite will be sent by email to the registered Bidders no later than 24 hours before the proposal conference.

6.2. Submission of Questions and Requests for Clarification After the Proposal Conference.

All questions or requests for clarification regarding this RfP must be in writing, in English, and submitted to the email address of ESP Procurement Office of Tetra Tech:

UESPprocurement@tetratech.com

No later than:

January 27, 2022, at **23:00** local time in Kyiv, Ukraine.

Questions and requests for clarification, and the responses thereto, will be circulated electronically to all registered Bidders, including those Bidders, who were unable to attend the proposal conference in person.

Only written answers from ESP Procurement Office of Tetra Tech will be considered official and carry weight in the RfP process and subsequent evaluation. Any answers received outside the official channel, whether received verbally or in writing, from employees or representatives of Tetra Tech, or any other party, will not be considered official responses regarding this RfP.

6.3. Clarifications on Terms Used in this RfP and Attachments / Annexes.

Clarifications on the terminology used in this document,

TEO.

Is the abbreviation of the Ukrainian wording for “Technical and Economical Substantiation”, which means both the process and the resulting project design documentation very similar to the standard “design draft” or “30% engineering” or “design for permitting”, including the Bill of Materials (BoM) and, in this case, the financial feasibility study.

The TEO:

- must be compliant with Ukrainian regulations, norms, and standards;
- must be based on and compliant with input data to be provided by UHE before the start of design works and to include technical specifications and a document called "Design Assignment" (or "Task for Designing");
- shall be subject to "approval" (or "endorsement") in accordance with the Ukrainian rules and procedures.

The end Customer (UHE) insisted on the utilization of a latest version of the Ukrainian construction estimation software containing the information modelling tool, namely, either "BTK" ("Budivelni Tekhnologii-Koshtorys", link: https://smeta.ua/), or as an alternative, "AVK-5" (https://avk5.com.ua/), which outputs are intended for this project. This software is similar to other project estimation tools like Sage Timberline Office, Xpedeon, WinEstimator, e4Clicks Project Estimator, ProEst Estimating, Pulsar or SuccessEstimator, just to name a few.

OVNS

Is the abbreviation of the Ukrainian wording for the "Environmental Impacts Assessment", which is mandatory for projects on construction of non-industrial or industrial facilities, which findings must be included into and constitute an integral component of the project design documentation (in particular, TEO)[2] and which is executed in accordance with the Ukrainian national construction regulations[3].

OVD

Is the alternative abbreviation of the Ukrainian wording for the "Environmental Impact Assessment" (including also social impact assessment), which is approximately equivalent to a standard Environmental and Social Impact Assessment (ESIA), which is mandatory for those construction objects and facilities falling under specific categories defined by the law as being subject to OVD, which findings must be attached to the project design documentation (in particular, TEO)[4], and which is executed in accordance with the Law "On Environmental Impact Assessment"[5]. Details are provided in **Attachment A Annex 1 "Overall Scope of the TEO").**

Design Assignment (or Task for Designing).

Is the end Customer's (UHE's) ToR for assignment of the TEO development, and it shall be incorporated as the front page of the TEO documentation. The draft Design Assignment constitutes an integral part of the scope of work (SoW) and attached thereto as annex (see Attachment A Annex 2 to this RfP). The Design Assignment (Task for Designing) content and structure shall be further agreed upon between the end Customer (UHE) and the awardee before or during the inception phase, and, subject to ESP/Tetra Tech's no-objection, it shall be finally approved by the end Customer (UHE) prior to the start of design and survey works.

Designer.

Refers to the awardee's Local Partner(s) in the context of execution of the Design Assignment (Task for Designing) for elaboration of the TEO, and to the awardee as a single partnership,

[2] According to Annexes B, D and E of DBN A.2.2-3-2014 "Composition and Content of Project Design Documentation for Construction" the section "Environmental Impact Assessment (OVNS)" is mandatory for the projects on construction of non-industrial or industrial facilities.
[3] Primarily, in accordance with DBN A.2.2-1-2003 "Composition and Content of Environmental Impact Assessment (OVNS) Materials".
[4] Article 31 of the Law of Ukraine "On Regulation of Urban Development" of February 17, 2011 No. 3038-VI.
[5] Law of Ukraine "On Environmental Impact Assessment" of May 23, 2017 No. 2059-VIII.

inclusive of all team members (both the International Partner(s) and the Local Partner(s), as well as the eventual subcontractor(s), if any), in the context of the entire RfP/SoW and subsequent assignment.

Expert Examination (or so-called "expertise").

The term is close to the process performed by the "independent certification entities", when it comes to evaluate the compliance of the project design documentation with standards and requirements. This title is used in Ukraine in reference to the assessment of the quality of the design solutions reflected in the project design documentation (including TEO) before its approval or adoption.

The expert examination must be performed by an independent third party (called "expert organization"). This third party could be a private or government entity, listed by the Ukrainian Ministry of Regional Development among those authorized to execute this "Expert Examination" function[6], which intends to identify eventual deviations from the applicable requirements for strength, reliability and durability of buildings and structures, and engineering infrastructure, their operational safety, and the compliance with applicable norms and standards regarding environmental, human, labor protection, fire safety, energy efficiency etc.

Approval/Endorsement (of the TEO).

Once the TEO has favorably passed the Expert Examination, the further approval/endorsement means the formal coordination and/or acceptance of the TEO by the relevant public authorities, up to the Cabinet of Ukraine, or alternatively, by the Project's Owner and the end Customer (UHE) itself although in the latter case subject to certain conditions to be met by UHE. The end Customer (UHE) shall notify the awardee in due time and in advance about the intended way of approval/endorsement of the TEO.

7. PROPOSALS PREPARATION INSTRUCTIONS.

All Bidders must follow the instructions set forth herein to be qualified for the procurement process. If a Bidder does not follow the instructions set forth herein, the Bidder's proposal may be eliminated from further consideration or the proposal may be downgraded and not receive full credit under the applicable evaluation criteria.

Technical and Financial Proposals must be submitted separately. All proposals should be submitted in English and signed by the Bidders.

Bidders should prepare their Financial Proposal simultaneously to the Technical Proposal, although the Financial Proposal must not be submitted before the Bidder is notified of being qualified or shortlisted.

[6] The list of expert organizations which meet the Criteria established by the Order of the Ministry of Regional Development dated 15.08.2017 № 204 and are able to execute the expert examination of construction projects can be found at: https://www.minregion.gov.ua/napryamki-diyalnosti/building/pricing/perelik -ekspertnih-organizatsiy / perelik-ekspertnih-organizatsiy-shho-vidpovidayut-kriteriyam-vstanovlenim-nakazom-minregionu-vid-15-08-2017-204-ta-mozhut-provoditi-ekspertizu-proektiv-budivnitstva-2 / Limitations: regions of coverage by the expert organization - the entire territory of Ukraine, for the construction objects with consequences (responsibility) class - CC3 and with sources of financing - involving public funds.

8. TECHNICAL PROPOSAL.

Under no circumstances may any financial information be included in the Technical Proposal.

No cost information or any prices, whether for deliverables or line items, may be included in the Technical Proposal.

Financial information must only be shown in the Financial Proposal.

The Technical Proposal (sections B, C, D, and E below; excluding annexes and CVs) shall not exceed 38 pages.

Proposals will be scored on a 100-point scale. Available points for each evaluation factor are given below.

Bidders must address each evaluation factor.

The suggested outline for the Bidder's Technical Proposal is provided below.

A. Bidder's Overall Organization Information (12 pages maximum).

- Composition of the partnership / consortium (all International Partners and Local Partners), other subcontractors, with their official registered titles, types of businesses, list of offices, if applicable, addresses, telephones, and websites – 2 pages maximum.
- Bidder's presentation – 4 pages maximum.
- International Partner(s) – another 2 pages maximum (each).
- Local Partner(s) – another 2 pages maximum (each).
- Bidder's and applicable partners, DUNS number.
- Bidder's, partners and eventual subcontractors authorized "Point of Contact" with phone number(s) and email address(es).

B. Bidder's Qualification (6 pages maximum).

The Bidder must meet the following minimum criteria to get his Technical Proposal considered:

a) For International Partner(s) – aggregated, if more than one partner:

- Annual turnover of at least USD 10 (ten) million or equivalent in the last 5 (five) years, and
- 5 (five) projects in the last 3 (three) years related to the works to be performed by International Partner(s) within the present assignment, or relevant parts of them, including:
    - 2 (two) projects on the implementation of utility-scale battery storage used for frequency regulation (providing FCR / aFRR at power transmission level) of similar capacity per site or greater, and
    - 3 (three) projects of alike capacity per site or greater, with transmission grid connected solar PV, and/or
    - 3 (three) projects involving engineering and/or construction / refurbishment / integration of interconnections at power transmission level.

b) For Local Partner(s) – aggregated, if more than one partner:

The successful preparation of the project design documents (stages TEO and/or Project) in Ukraine and providing support to the client up to obtention of the documents' endorsement/approval and/or adoption, for at least:

- 10 (ten) acceptable projects in the power sector (those listed below as "Acceptable projects") with consequence class not lower than CC3 related to the works to be performed by Local Partner(s) within the present assignment or relevant parts of them including:

  - 3 (three) acceptable projects in the power sector ("Acceptable projects" are listed below) in the last 7 (seven) years, each with a minimum project value of UAH 110 (one hundred and ten) million (equivalent of around USD 4 (four) million).

The information on each project must include: project's general description, key works performed which required the designing process (stages TEO and/or Project), the client, the project value, the date of TEO/Project delivery to the client, and the date of its final endorsement/approval by appropriate authority, with the name of that authority.

Acceptable projects may include:

- The construction, upgrade (technical re-equipment, modernization), and/or rehabilitation of large-scale hydro power plants, pump storage power plants, thermal cycle power plants, inclusive of open switchyard, other type switchgears, and connection to the grid, and/or
- The construction, upgrade (technical re-equipment, modernization), expansion, and/or rehabilitation of high-voltage transmission level substations inclusive of open switchyard, and/or
- The design or integration of custom energy management systems (EMS) for integration with the existing SCADA System, and/or
- The construction of utility-scale solar photovoltaic plants and their interconnection to the transmission level grids (voltage from 110 kV and above), and/or
- Associated sites preparation, constructability and logistics management, environmental and social impact assessment (assessing risks, addressing hazards), site and labor's health, human safety and welfare.

C. Technical Capability (16 pages maximum).

Description of the Bidder's relevant projects and/or works focused on activities/qualifications similar to the tasks provided for in **Attachment A "Technical Specification"** hereto.

The International Partner(s):
A maximum of 14 (fourteen) projects listed within 8 pages or less, of assignments related to the works to be performed by International Partner(s) within the present assignment or relevant parts of them, as described above, in section B. "Bidder's Qualification".

The Local Partner(s):
A maximum of 14 (fourteen) projects listed within 8 pages or less, of assignments related to the works to be performed by Local Partner(s) within the present assignment or relevant parts of them, as described above, in section B. "Bidder's Qualification". The list will include: each project' general description, key works performed which required the designing process (stages TEO and/or Project), the client, the project value, the date of TEO/Project delivery to the client, and the date of its final endorsement/approval by appropriate authority, with the name of that authority.

Project name or task	Project or task description	Client contact info	Project or Task Value in USD	TEO Details	Works start and finish dates	Date Endorsement Obtained

D. Technical and Performance Approach (6 pages maximum).

Present a narrative and/or charts describing how the Bidder understands and intends to implement the tasks provided for in **Attachment A "Technical Specification"**.

The Technical Approach and design methodology shall mainly demonstrate the Bidder's familiarity with, knowledge of and experience in implementing the intended technology of utility-scale hybrid hydro-BESS systems and their application for frequency regulation across the national transmission system as well as the Bidder's general understanding of peculiarities of the designing and eventual implementation of this technology in Ukraine.

The Bidder shall propose his approach and envisioned design methodology of the technical solutions to better integrate this BESS control technology (through the EMS) with both the transmission system control systems, operated by the TSO, and the HPP facilities' control systems to ensure the optimal deliverance of ancillary services for FCR and aFRR (Frequency Containment Reserve and automatic Frequency Restoration Reserve) at national transmission system level.

The Bidder's approach shall also highlight the proposed communications system and platforms to be included within the overall proposed solution approach.

In addition, the Bidder shall provide hisassignment's management approach and methodology to ensure adequate performance and compliance with the intended implementation timeline, in particular:

- A description of how the Bidder will manage the delivery of the services and how the Bidder will interact with UHE and ESP/Tetra Tech.

- A detailed work plan that outlines the proposed activities over the course of the period of performance, key implementation milestones, and performance indicators. The detailed work plan shall be aligned with the tentative schedule of the processes provided in section **"Period of Performance" of Attachment A "Technical Specification"**.

E. Proposed Staff (10 pages maximum, excluding CVs).

The Bidder's partners' and eventual subcontractor's key personnel proposed for the project:

1 page per person maximum, highlighting roles in other projects relevant to this scope.

The International Partner(s):

Key personnel shall include at minimum:

1 x Project Manager,
1 x Technical Manager,
1 x Financial Manager,
1 x ESIA Manager,
1 x EPC Expert.

The Local Partner(s):

Shall include at minimum:

1 x Chief Architect of the Project (GAP), and/or
1 x Chief Engineer of the Project (GIP), and
All positions which are mandated by Ukrainian regulations and/or deemed critically necessary to prepare and deliver the TEO and ESIA tasks until "approval/endorsement".

For any of the Bidder's partners or eventual subcontactors, some key personnel positions may be aggregated as by capabilities and experience of the person proposed to cover these various positions.

The Curriculum Vitae for ALL key personnel must not exceed 4 pages each and include:

- Affiliation/Organization.
- Years of Professional Experience.
- Relevant Experience to the SoW in this RfP (see **Attachment A "Technical Specification"**). Please avoid experience unrelated to the project's technologies and areas of concern.
- Fluency in English.
- Relevant education and/or certification/charter for those required.

In addition to presenting the CVs, Bidders should complete and include the table below:

Proposed Personnel's Name, Last Name	Proposed Position Under This Assignment	Specific experience for the Position	Years of Professional Experience

9. FINANCIAL PROPOSAL.

Bidders should prepare their Financial Proposal simultaneously to the Technical Proposal, although the Financial Proposal must not be submitted before the Bidder is notified of being qualified or shortlisted.

Submission of the Financial Proposal ahead of shortlisting or qualification notification shall result in disqualification of the Bidder.

A. Detailed Budget.

This is a Fixed Price contract; therefore, a total all-inclusive sum must be stated.

The Bidder may complete the **Table 1 of Attachment B "Detailed Budget"** to allow Tetra Tech/ESP to compare all quotes and make a competitive selection.

The budget should be provided in MS Excel format with unlocked cells and formulas.

The price proposal can include, but is not required, line items as those proposed in the template shown in the **Attachment B**, e.g., key personnel daily rates, number of trips and costs, software licenses, and other direct costs which the Bidder may like to breakdown.

Offers may show unit prices, quantities, and total price.

All items, services, etc. must be clearly labeled and included in the total offered price.

The price proposal shall also include a budget description explaining the basis for the estimate of every cost element or line item.

Supporting information must be provided in sufficient detail to allow understanding of each cost element or line item.

Tetra Tech/ESP reserves the right to request additional cost information if the evaluation committee has concerns of the reasonableness, realism, or completeness of a Bidder's proposed price.

The Bidder shall provide unit pricing in US dollars (USD).

Prices quoted in this document shall be valid for a 60-day period, include all taxes and other costs but excluding the VAT tax originated in Ukraine.

B. Proposed Billing Rates Certification.

Document on company letterhead certifying the labor rates being proposed are standard rates and have been previously billed to clients for similar work. Proof maybe required after award.

C. Representations and Certifications.

Templates for these documents can be found in **Attachment C** and must be submitted as part of the Financial Proposal.

D. Non-government owned certification.

Certification that company is not owned or controlled in total or in part by any entity of any government. This requirement extends to all the Bidder's proposed partners and eventual subcontractors.

E. Certificate of current cost or pricing data.

Template for these documents can be found in **Attachment D** and must be submitted as part of the Financial Proposal.

10. EVALUATION CRITERIA.

Only qualified Bidders, which Technical Proposals meet the technical evaluation, will have their Financial Proposal evaluated.

Technically selected Bidders, together with the selection confirmation, will receive, also by email, the Project's precedent documents and a draft contract with the end Customer (UHE).

Technically selected Bidders will be notified by email and requested to submit their Financial Proposal before the indicated submission deadline (which will not exceed 5 working days) to the email address of ESP Procurement Office of Tetra Tech:

UESPprocurement@tetratech.com

Award will be made to the Bidder representing the best value in consideration of past performance, qualifications, technical and performance approach, and price factors.

A. Technical Proposal evaluation.

Technical criteria are more important than financial criteria, although prices must be reasonable and will be considered in the evaluation, with Bidders being encouraged to provide a discount to their standard commercial rates.

Tetra Tech reserves the right to conduct discussions with selected Bidder(s) to identify the best value offer.

Award of any resulting Subcontract Agreement shall be made by Tetra Tech on a best value basis.

Tetra Tech reserves the right to request a test assessment from Bidders to assess their qualifications.

The submitted technical information will be scored by the Tetra Tech's evaluation committee using the following technical evaluation criteria (maximum 80 points in total).

Given the specific expertise required to perform the services in question only Bidders with a technical score of 50 points or higher will be considered for evaluation of their Financial Proposals.

Evaluation Criteria for Technical Proposal	Points (maximum)
I. Technical and Performance Approach	30
II. Proposed Staff (separately for International Partner(s) / Local Partner(s))	15 / 10
III. Past Performance (separately for International Partner(s) / Local Partner(s))	15 / 10
TOTAL	**80**

B. Financial Proposal evaluation.

The lowest cost qualified Financial Proposal will receive the maximum score of 20 points.

The other proposals will be scored inversely proportional to their price and computed as follows:

$$Sf = 20 * Fm/F$$

where:

Sf - financial Score of the Financial Proposal evaluated.

Fm - price of the lowest priced Financial Proposal among those qualified.

F - price of the Financial Proposal under consideration.

Tetra Tech reserves the right to conduct discussions with selected Bidder(s) to identify the best value offer.

Award of any resulting Subcontract Agreement shall be made by Tetra Tech on a best value basis, with evaluation of proposed price as well as proposed services and implementation schedule.

11. PERIOD OF PERFORMANCE.

The expected period of performance is up to 9 calendar months or 275 calendar days (however not exceeding 165 working days) from the date of the Contract, with further details provided in section **"Period of Performance" of Attachment A "Technical Specification")**, including up to 6 calendar months or 183 calendar days (equivalent to 125 working days) to complete accepted deliverables, plus tentatively up to 3 calendar months or 92 calendar days (though not exceeding 40 working days), with a flexible start date and schedule, for the expert services to support the end Customer (UHE) during the expert examination and further process up to approval/endorsement of the TEO**.**

A tentative schedule of the processes is provided in section "**Implementation Phases" of Attachment A "Technical Specification"**.

In any case, the total period of performance will be considered completed once the TEO approval / endorsement has been formally obtained.

12. TERMS OF PAYMENT

Payment for the awarded agreement shall be made in several consecutive installments, in line with the tentative schedule of the processes (provided below, in section "**Implementation Phases" of Attachment A "Technical Specification"** and according to the payment schedule outlined in **Table 2 "Payment schedule" of Attachment B "Detailed Budget"**, against the invoices supported by the evidence of deliverables and/or milestones completion, as follows:

a) Each payment (installment) except final one – within thirty (30) days after evidence of each deliverable and its acceptance, and

b) Final payment (installment) – within forty-five (45) days after satisfactory completion and acceptance of services (confirmed by the signed handover or acceptance certificate or equivalent document on the delivery-and-acceptance of completed design works and services).

Payment will be made by Tetra Tech ES, Inc. via bank wire transfer in US dollars.

13. DUNS NUMBER AND SAM.GOV REGISTRATION

Active DUNS number or evidence of process of registering for DUNS number is required at stage of submitting proposal. DUNS Number shall be active and SAM.gov registration completed before finalization of agreement.

All Bidder's partners and second-tier subcontractors must comply with the requirements outlined in the RfP, including obtaining DUNS and SAM numbers if the proposed partner and/or second-tier subcontract price is above $30,000. Only legal entities need DUNS numbers.

Information regarding obtaining a DUNS number may be found here:

https://fedgov.dnb.com/webform

14. NEGOTIATIONS

Best offer proposals are requested. It is anticipated that a contract will be awarded solely based on the original offers received. However, Tetra Tech reserves the right to conduct discussions, negotiations and/or request clarifications prior to awarding a contract.

Furthermore, Tetra Tech reserves the right to conduct a competitive range and to limit the number of Bidders in the competitive range to permit an efficient evaluation environment among the most highly-rated proposals.

Highest-rated Bidders, as determined by the technical evaluation committee, may be asked to submit their best prices or technical responses during a competitive range.

15. MULTIPLE AWARDS/NO AWARD

Tetra Tech ES, Inc. reserves the right to issue multiple awards or no awards.

ATTACHMENT A – TECHNICAL SPECIFICATION

SCOPE OF WORK:

Services for the Elaboration of the Project Design Documentation: the Bankable Feasibility Study and the Technical and Economical Substantiation (Ukrainian TEO).

PERIOD OF PERFORMANCE:

Estimated up to 9 calendar months or 275 calendar days (however not exceeding 165 working days) from the date of the Contract, including:

- up to 6 calendar months or 183 calendar days (equivalent to 125 working days) for the development of the project design documentation, and
- tentatively, up to 3 calendar months or 92 calendar days (however not exceeding 40 working days), with a flexible start date and schedule, for the expert services to support the end Customer (UHE) during the Expert Examination and up to approval / endorsement of the Ukrainian TEO.

PLACE OF PERFORMANCE:

Ukraine

PROJECT DESCRIPTION.

The investment project is originated by the combination of a rapidly increasing share of variable renewable energy (RE) generation in Ukraine, which requires a higher level of flexibility in the IPS of Ukraine, and the quality of balancing and ancillary services demanded by the new electricity market. These challenges have gained even higher importance due to the intended integration of the IPS of Ukraine to the European Network of Transmission System Operators for Electricity (ENTSO-E), which requires significant increase in the flexibility of the system, primarily during its isolated test operation, but also after the synchronization, when the Ukraine's system is finally connected to and becomes a part of the European grid.

The investment project,

> **"Ukraine – Improving Power System Resilience for European Power Grid Integration Project (Installation of Hybrid Systems for Electricity Production in PrJSC UkrHydroEnergo) – P176114"** (the Project),

is directed to increase the frequency response and flexibility of the Integrated Power System (IPS) of Ukraine to facilitate its integration to the ENTSO-E.

The Project's concept and design are based on a technology (already known and tested in various locations worldwide but new to the Project country) of hybrid operation of the existing hydropower generation and pump storage plants of UHE with new utility-scale battery energy storage systems (BESS) jointly managed by an advanced control system formed through the integration of the new energy management system (EMS) with the existing plant's SCADA, to provide a quick frequency response to the national power grid – the IPS of Ukraine.

The Project provides an innovative, least-cost and carbon-free solution for the IPS of Ukraine that will expand the range and quality of the ancillary services provided by PrJSC UkrHydroEnergo (UHE) to the IPS, ensuring increased economic efficiency, flexibility and primary response capacity of the IPS, while also reducing the cost of regulating the IPS in Ukraine, and, at the same time, reducing the wear-and-tear on hydro units, extending their overhaul interval and lifetime, thereby reducing UHE's both operational and capital expenditures, eventually improving the overall power system reliability and stability, and leading to improved power quality.

More specifically, the Project envisages the installation of 197 MW high power and fast discharge BESS in a combination with 35.9 MWp solar photovoltaic panels (to be used as back-up power supply in low water conditions and for covering plant internal and auxiliary power needs), which will be operated in conjunction with the existing hydropower turbines, at four strategically selected hydropower plants, including Kyiv (or Kyivska) HPP / PSP, Kaniv (or Kanivska) HPP, Kremenchuk (or Kremenchutska) HPP, Middle Dnieper (or Seredniodniprovska) HPP, located along Ukraine's main hydropower generation backbone Dnipro. The Project will also include the installation of 15 MW of long-duration BESS and 28 MWp of solar photovoltaic panels at Dniester (or Dnistrovska) HPP that will be not only used by UHE, but also for charging public transport electric vehicles.

Each of the sites' new BESS units will be functionally integrated with the existing hydropower units and the new solar PV facilities, and jointly managed by the advanced control system resulting from the integration of the new EMS (controlling the BESS and the solar PV) with the existing HPP/PSP's in-plant SCADA (Emerson's Ovation 3.3.2) thus enabling coordinated hybrid operation of the various units within the plant, and, on the other hand, communicating with both the UHE's central SCADA and the existing dispatch and control systems (SCADA, AGC and other) of the TSO (Ukrenergo) for the coordination in the provision of frequency regulation services for the IPS.

As a result, the Project will extend the range of ancillary services, with first priority given to Frequency Containment Reserve (FCR), and capability to also provide Automated Frequency Restoration Reserve (aFRR), frequency and power regulation system (FPRS), reactive power / voltage regulation, "black start", and others which could be eventually provided.

BESS and EMS are designed to be installed within each of the selected hydropower plants. Solar PV will be also installed at each hydropower plant and are designed primarily to cover the internal and auxiliary power needs from the hydro plants own operations. Thus, solar PV are designed to help UHE reduce on-site operational costs without delivering this solar-generated electricity directly to the national grid, although PV output could be routed to charge the BESS under certain operational settings.

In addition, the design of the system at Dniester HPP site includes an opportunity for the local municipality to provide charging points for electric vehicles. The Project will also help enhance private sector engagement in electricity storage.

The Project also contributes to the implementation of Ukraine's National Emission Reduction Plan 2033, as it creates an emission-free source of system flexibility, not contingent on the availability of resources and the working status of the provider.

The commissioning of the Project in envisaged in 2023, that would enable to prepare the IPS of Ukraine for the testing operation before the intended technical integration to ENTSO-E.

PROJECT SPONSORS AND KEY STAKEHOLDERS.

The Project is supported by the World Bank's debt financing through the loans to be extended to UHE by the International Bank for Reconstruction and Development (IBRD) and the Clean Technology Fund (CTF) under a sovereign guarantee to be provided by Ukraine.

USAID's program Energy Security Project (ESP), of which Tetra Tech ES Inc is the implementer, provides technical assistance to UHE and finances and/or implements certain related work. More specifically, ESP proposed the Project's initial concept, developed a pre-feasibility study including a comprehensive financial model, prepared a package of documents required under the World Bank's environmental and social framework (ESF), and contributed to the Project planning (including the procurement plan and the implementation schedule) thus enabling and facilitating the Project preparation, appraisal, and approval at both sides of the deal.

Furthermore, ESP has undertaken the present procurement of the project design documentation, including the feasibility study applicable for the World Bank and aligned with the best practice worldwide and Ukrainian TEO applicable for UHE operating within the specific framework of Ukrainian laws and regulations, being mutually corresponding and compatible in terms of the Project concept, design, composition, and cost breakdown.

UHE is the beneficiary (the "Beneficiary") and the owner of the final implemented Project (the "Project Owner"). UHE is also the recipient (end Customer) of these tendered services and of the resulting project design documentation. UHE is the operator of all large hydro power plants (HPPs) and almost all (except one) hydro pump storage plants (PSPs) in Ukraine.

National Power Company Ukrenergo (Ukrenergo) is the transmission system operator (TSO) of Ukraine with the functions of operational and technological control of the Integrated Power System (IPS) of Ukraine, transmission of electricity via trunk power grids from power generation to distribution networks and also to certain large industrial customers, as well as the commercial metering administrator and the settlement administrator in the electricity market of Ukraine.

Government Governance / Supervision

UHE is a state-owned Private joint-stock company governed by the Cabinet of Ministers of Ukraine through the Ministry of Economy of Ukraine and by the Supervisory Board appointed by the Cabinet of Ministers of Ukraine.

The Ministry of Energy of Ukraine is appointed by the Cabinet of Ministers of Ukraine as an authorized implementing authority in charge of preparation, coordination, financial planning, overall supervision, and monitoring of the Project.

Ukrenergo is a state-owned Private joint-stock company governed by the Ministry of Energy of Ukraine and by the Supervisory Board appointed by the Ministry of Energy of Ukraine upon endorsement of the Cabinet of Ministers of Ukraine.

EMPLOYER.

USAID ESP program, through Tetra Tech ES Inc as implementer, is the employer ("Employer") of the awardee and the supervisor of the consultancy assignment, being the organizer and financier of the present procurement, which is held under the standards and procedures defined by USAID procurement requirements and international best practices.

UHE as the Project Owner/Beneficiary is the end Customer and the end-user of both the services under this consultancy assignment and the resulting project design documentation, which includes the feasibility study applicable for the World Bank within its project implementation cycle and, the "Technical and Economical Substantiation" (the "TEO", in Ukrainian abbreviation), with the latter (the TEO) to be approved / endorsed in accordance with the Ukrainian law and regulations.

To this effect, and after the official award and signature of contract with the Employer, the awardee will be requested to enter into a contract with the end Customer (UHE) for implementation of design and survey works; sample (draft) of such contract will be made available, **upon request,** to the technically qualifying or shortlisted bidders.

Communications between the awardee and the end Customer (UHE)

The awardee shall communicate with the end Customer (UHE) through the Employer or directly, with a copy to the Employer. In the case of direct communication, the Employer's no-objection on all essential issues shall be obligatory.

Responsibilities

The awardee shall be responsible before the end Customer (UHE) for any defects in the project design documentation.

Neither the Employer nor USAID shall assume any liability for any results of services, acts, omissions to act, delays, incorrect or improper performance, or negligence of the end Customer (UHE) or the awardee, their agents or employees, nor shall they bear any responsibility for any harm, losses, lost benefit, excessive taxation, injury or property damage resulting from any activities conducted by the end Customer (UHE) or the awardee during implementation of, as a result of, or in relation to this consultancy assignment.

ASSIGNMENT.

The present procurement is aimed at the consultancy assignment for the elaboration of the project design documentation for the Project. This project design documentation should be applicable for both the World Bank, and hence compliant with its frameworks, regulations, guidelines, standards and best practice applied worldwide, and the end Customer (UHE) implementing the Project according to Ukrainian law, regulations, and standards. Nevertheless, the resulting project design documentation developed for the World Bank and for the end Customer (UHE) must consistently correspond to each other in terms of the Project concept, design, composition and cost breakdown.

On the one hand, the intended financing requires a bankable feasibility study as an underlying document for the World Bank's project planning, procurement, monitoring, and evaluation procedures. UHE and ESP have already prepared the Pre-Feasibility Study[7], which contains the key supporting information, among others, regarding technologies, operation modes, financials, project siting and environmental studies.

Based on these, the World Bank has accomplished the Project appraisal and studies under its Environmental and Social Framework (ESF) and disclosed their findings on the Project information web-page[8], versions latest published on June 9, 2021, including the Project Appraisal Document

[7] The Pre-Feasibility Study "Installing Hybrid Systems to Increase Efficiency of PrJSC Ukrhydroenergo Operation in the Conditions of Integration of the Ukraine's Power System to ENTSO-E" prepared by ESP, as of December 15, 2020.
[8] The Project page: https://projects.worldbank.org/en/projects-operations/document-detail/P176114?type=projects

(PAD4429)[9], the Appraisal Environmental and Social Review Summary (ESRS)[10], the Environmental and Social Commitment Plan (ESCP)[11], and the Stakeholder Engagement Plan (SEP)[12]. The Environmental and Social Management Plan (ESMP) and the Environmental Monitoring and Management Plan (EMMP), that have also been prepared in accordance with the ESF, are yet to be published.

On the other hand, UHE as the Project Owner/Beneficiary needs the TEO to be compliant with the Ukrainian legal requirements to be approved/endorsed in accordance with appropriate regulations and procedures.

Besides that, the decision of the Cabinet of Ministers of Ukraine on approval of the loan[13] was based on the Financial and Economic Rationale for the Project "Ukraine - Improving Power System Resilience for European Power Grid Integration (Installation of Hybrid Systems for Electricity Production in Ukrhydroenergo)" prepared by UHE and the Ministry of Energy of Ukraine and submitted to the Cabinet of Ministers of Ukraine in May 2021, which should be considered.

With a view to guarantee the application of best modern technology at optimal cost and to fulfill the regulatory and implementation requirements of both Ukraine and the World Bank regarding the Project, the Employer will engage the consultancy services of a specialized contractor to consist of:

a) International company(-ies) and/or expert(-s) (the “International Partner(s)”) with a proven track record of successful experience in designing and/or implementing investment projects of similar type, technology (hybrid BESS including EMS), size, and complexity (grid-scale facility used for frequency regulation, i.e. providing FCR, aFRR, and connected to the transmission system operator’s control systems) – regarding the general management and coordination of the consultancy assignment, the responsibility/liability for its execution, performance, quality and results, and the development of the engineering designs and the feasibility study for the Project, and,
b) Local partner company(-ies) (the “Local Partner(s)”) specialized in development and delivery of the TEO (including the environmental impact assessment) and amending it further upon necessity and UHE’s reasonable request to support it in the obtention of the TEO’s approval/endorsement.

The consultancy assignment shall be based on several key milestones and paid against the evidence of deliverables.

Awardee’s works will be conducted with the support of the end Customer (UHE) in the required areas and, in consultation and under the supervision of the Project’s team in the Employer (USAID ESP program).

For the development of the TEO, the end Customer (UHE) shall provide the awardee directly, or through the Employer, with the input data for designing, including:

[9] Link to PAD: http://documents.worldbank.org/curated/en/803731625364161631/Ukraine-Improving-Power-System-Resilience-for-European-Power-Grid-Integration-Project
[10] Link to ESRS: http://documents.worldbank.org/curated/en/823591623242271686/Appraisal-Environmental-and-Social-Review-Summary-ESRS-Improving-Power-System-Resilience-for-European-Power-Grid-Integration-P176114
[11] Link to ESCP: http://documents.worldbank.org/curated/en/626121623242200417/Environmental-and-Social-Commitment-Plan-ESCP-Improving-Power-System-Resilience-for-European-Power-Grid-Integration-P176114
[12] Link to SEP: http://documents.worldbank.org/curated/en/524001623242238557/Stakeholder-Engagement-Plan-SEP-Improving-Power-System-Resilience-for-European-Power-Grid-Integration-P176114
[13] The Resolution of the Cabinet of Ministers of Ukraine No. 550 dated June 2, 2021, “Certain Issues of Implementation of Joint Investment Project with the International Bank for Reconstruction and Development and the Clean Technology Fund “Ukraine – Improving Power System Resilience for European Power Grid Integration Project (Installation of Hybrid Systems for Electricity Production at PrJSC Ukrhydroenergo)”.

- city planning conditions and restrictions,

- technical specifications, and relevant schematics and drawings,

- the design assignment, or the task for designing (the "Design Assignment").

The draft Design Assignment is an integral part of the present SoW (see **Attachment A Annex 2**). The Design Assignment shall be finalised in coordination with both the Employer and the awardee and approved by the end Customer (UHE) before the start of the designing works.

The end Customer (UHE) will ensure, directly or through the Employer, that the shortlisted bidders are provided on the equal basis with access to the studies, reports and other documents referenced in this SoW and, upon request, with any other relevant documents already issued or approved by the Project's lenders, UHE, the Cabinet of Ministers of Ukraine, or other key stakeholders.

These studies, reports and documents are to be used further by the awardee as a reference and shall adhere to the Project's concept, key metrics, composition, design, operations, construction, and environmental documents to be developed under the TEO formal requirements. The Project's team in the Employer will also be able facilitate the contacts with UHE.

The awardee's staff will be provided with admission to perform works on the end Customer's (UHE's) sites and "construction objects" (facilities) relevant to the Project. The awardee shall be liable for compliance with safety rules, labor protection measures, the internal regime of the end Customer (UHE) during the execution of works on the site.

IMPLEMENTATION PHASES

A proposed tentative schedule of the processes is provided below. Estimated overall duration is provided above in section "**Period of Performance**".

Phase	Duration (calendar Months)								
	1	2	3	4	5	6	7 *)	8 *)	9 *)
Inception & Mobilization	1								
Feasibility Study / Design Draft		3							
BoQ/BoM & BoP				2					
TEO			4						
OVNS / OVD (if required) **) & public consultations/hearings				3					
Expert Examination of TEO							2		
Approval / Endorsement of TEO									1

*) These tentative calendar days (months) and effective working days are contingent to responses from concerned Government of Ukraine bodies and/or entities, therefore those response days are not included within the effective working days, whereas the total number of calendar days (months) and effective working days is an estimate.

**) In case if the execution of OVD will be required, the schedule may be adjusted accordingly, to reasonable extent, taking into account the requirements of current legislation of Ukraine.

In any case, the total period of performance will be considered completed once the TEO approval / endorsement has been formally obtained.

SCHEDULE OF DELIVERABLES.

Along the phases of the project, listed above, the following deliverables and deadlines are expected, even these will be aligned with the effective development of the assignment's timeline.

These deliverables will also be tied to the payment schedule (provided in **Table 2 "Payment schedule" of Attachment B "Detailed Budget"**).

		End of Assignment, Months								
Stage	**Deliverable**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Mobilization	Inception report	X								
Feasibility Study & Design Draft	Feasibility study accepted by Employer (Tetra Tech / ESP) and the World Bank.				X					
BoQ/BoM/BoP	BoQ/BoM accepted by Employer (Tetra Tech / ESP) and end Customer (UHE).					X				
TEO	TEO delivered to Employer (Tetra Tech / ESP) & end Customer (UHE) with No Objections						X			
OVNS / OVD (if required)	OVNS / OVD (if required) prepared and ready for public consultations/hearings ***)						X			
Expert Examination	TEO, including OVNS, and OVD results (if required) passed expert examination (positive conclusion obtained)								X	
Endorsement/ Approval	TEO officially approved/endorsed, final acceptance or handover certificate signed									X

***) In case if the execution of OVD will be required, the schedule may be adjusted accordingly, to reasonable extent, taking into account the requirements of current legislation of Ukraine.

SUBMISSION AND HANDOVER OF DELIVERABLES.

Along the implementation of the design and survey works, and in accordance with the "Schedule of Deliverables", the awardee shall submit to both the Employer and the end Customer (UHE) the corresponding deliverable and supporting materials. For those deliverables, which do not require signing an acceptance or handover certificate or, if required, any other equivalent document as described below, the Employer and the end Customer (UHE), subject to their respective no-objection, shall eventually provide a letter of no-objection or acceptance, or any other equivalent acknowledgement.

As soon as the design and survey works are complete, or at any other stage as deemed appropriate by the end Customer (UHE), and subject to the Employer's no-objection and the eventual readiness of corresponding deliverables, the awardee shall provide the Employer with the bankable feasibility study, and the end Customer (UHE) with all project design documentation, including the bankable feasibility study and the TEO, as well as all corresponding documents, materials, models, calculations,

surveys and analyses as elaborated, collected and acquired in the course of execution of this consultancy assignment, which are not proprietary to the awardee, nor to any third party other than the awardee, including the right of ownership and intellectual property rights (copyright).

The Employer and the end Customer (UHE) respectively, provided that they have no essential objections, shall take over from the awardee the appropriate project design documentation and other documents and materials with the evidence of that to be fixed in a corresponding handover certificate and/or equivalent document.

Once the TEO formal approval / endorsement has been obtained, this consultancy assignment shall be deemed successfully completed, and, as the evidence of that, the Employer and the end Customer (UHE) must immediately, within not more that 5 (five) working days, sign with the awardee the final acceptance or handover certificate and/or equivalent document.

In case of any concerns or complaints of the end Customer (UHE) and/or the Employer with regard to the project design documentation still remaining before the handover, these shall be indicated in a list of deficiencies. The end Customer (UHE) and the awardee, with the involvement of the Employer, shall endeavour to agree upon the ways and terms of their resolving, which will not exceed 30 days.

In case of early termination of the consultancy assignment, or the Employer's objection, the awardee shall immediately provide the end Customer (UHE) and the Employer respectively with all drafts related to the project design documentation as well as all corresponding documents, materials, models, calculations, surveys and analyses as elaborated, collected and acquired in the course of execution of this consultancy assignment. At that, the Employer shall acquire from the awardee the exclusive intellectual property rights (copyright) for the deliverables of the consultancy services handed over by the time of termination of the Agreement. The Employer shall decide on whether these exclusive proprietary copyrights should be transferred further to the end Customer (UHE).

ABOUT THE BIDDER.

The Bidder is expected to be a consortium or partnership of the International Partner(s) and the Local Partner(s) bringing together the adequate balance of knowledge and capacity between the international experience in the design and engineering of the utility-scale technologies and functionalities to be applied in the Project (primarily, utility-scale hybrid BESS facility including EMS used for frequency regulation, i.e. providing FCR, aFRR, and connected to the TSO's control systems), and the local Ukrainian expertise and experience for the adequate and timely preparation, delivery, and effective expert support up to approval/endorsement according to local regulations and procedures, of the project design documents (stages TEO and/or Project) for alike-size and similar technologies and/or other relevant projects in the power sector, such as construction and/or rehabilitation of hydro power plants, pump storage power plants, thermal cycle power plants, high-voltage power substations and transmission lines, in addition to the specific type of technologies and project to be developed under this assignment.

The technology experience for the Local Partner(s), specialized on the TEO preparation and approval/endorsement, shall cover the itemized cost breakdown, design, permitting and engineering of any or some of the following elements:

- The construction, upgrade (technical re-equipment, modernization), and/or rehabilitation of large-scale hydro power plants, pump storage power plants, thermal cycle power plants, inclusive of open switchyard, other type switchgears, and connection to the grid,

- The construction, upgrade (technical re-equipment, modernization), expansion, and/or rehabilitation of high-voltage transmission level substations inclusive of open switchyard,
- The design or integration of custom EMS systems for integration with the existing SCADA System,
- The construction of utility-scale solar photovoltaic plants and their interconnection to the transmission level grids (voltage from 110 kV and above),
- Associated sites preparation, constructability and logistics management, environmental and social impact assessment (assessing risks, addressing hazards), site and labor's health, human safety and welfare.

The Local Partner(s) must have designated a legally recognized and certified by the Certification Architectural and Construction Commission, and permanently employed "Chief Architect of the Project ("GAP" in Ukrainian abbreviation)" and/or a "Chief Engineer of the Project ("GIP" in Ukrainian abbreviation)", who will be in charge of managing the development of the TEO and whose employment and certifications must remain valid during the whole assignment until the TEO approval/endorsement is finally obtained.

SCOPE.

The awardee shall properly examine the studies, reports and documents referenced herein (see above, the "**Assignment**"), and develop a bankable grade techno-financial feasibility study, together with a non-component-prescriptive BoM/BoQ (Bill of Materials / Bill of Quantities) and BoP (Balance of Plant) to serve a basis for the international procurement according to the World Bank's (WB) procedures and other Project implementation purposes.

Based on the feasibility study and associated engineering designs, in alignment with the precedent studies, reports and documents referenced herein (see the paragraph above) and following the Ukrainian requirements as to the TEO composition and contents and, the environmental impact assessment, the awardee shall develop the TEO, including a set of technical and pre-construction design drawings, and the environmental and social impact assessment – OVNS and / or OVD [14], whichever of these may be required (details are provided in **Attachment A Annex 1 "Overall Scope of the TEO"**. The set of documents to be prepared and deliverables to be provided include, but are not limited to, those listed in **Attachment A** for general reference.

Even though the Project comprehends 5 separate construction sites to be addressed within the TEO as individual "construction objects" (sub-projects and/or "construction phases"), the TEO will be consolidated into a single binder under the following single title: ***"Construction*. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP" ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)"**, with "volumes" (folders) for each individual "construction object" (sub-project and/or "construction phase") and "sub-volumes" (subfolders) addressing the TEO components for each of the 5 construction phases to be further implemented all at once. This enables the end Customer (UHE) to consolidate appropriate processes for all the 5 construction phases under

[14] OVNS is a Ukrainian term abbreviation meaning the environmental impacts assessment executed according to the national construction regulations (DBNs). OVD is the Ukrainian term abbreviation meaning the environmental impact assessment, including social impact (approximate equivalent to standard environmental and social impact assessment – ESIA) executed according to the Law of Ukraine "On Environmental Impact Assessment" of December 18, 2017.

the Project framework, both those covered by the TEO support services under this consultancy assignment (primarily those during OVNS / OVD -related public consultations, the expert examination, approval / endorsement of the TEO) and those related to the project implementation phase (planning, procurement, subsequent designing stages, construction, supervision, reporting etc.).

The resulting TEO must be fully compliant with Ukrainian regulations and standards on the project design documentation for construction, including the state building norms DBN A.2.2-3: 2014 "Composition and Content of Project Design Documentation for Construction" and the Guidelines for Determining the Cost of Construction adopted by the Minregion's Order No. 281[15] "On Adoption of Cost Estimate Norms of Ukraine for Construction". The preparation and approval/endorsement of the TEO will be in accordance with the Procedure for Approval of Construction Projects and Their Expert Examination adopted by the CMU Resolution No. 560[16], and the Procedure for Development of Project Design Documentation for Construction Facilities adopted by the Minregion's Order No. 45[17], with amendments that are valid as of the moment of handover of the project design documentation to the end Customer (UHE), to ensure its final and formal approval/endorsement.

The scope of the TEO and recommended allocation of tasks and leadership within the awardee's team is provided for in **Attachment A - Annex 1 "Overall Scope of the TEO"**.

For this assignment, the awardee will remain available to assist UHE during OVNS / OVD -related public consultations, the expert examination of the TEO and up to its final and formal approval / endorsement, according to the way of endorsement to be chosen by the end Customer (UHE), and to prepare any clarifications and/or amendments to the TEO as they may be reasonably required by the end Customer (UHE), until the TEO approval / endorsement is obtained.

The OVD, if and where required, will be executed in accordance with the Law on Environmental Impact Assessment[18] and corresponding secondary regulations[19].

The end Customer (UHE), being also the construction customer under the Project, shall determine the expert organization to conduct the expert examination (so-called "expertise") of the TEO.

The expert examination shall be executed based on a contract with the expert organization to be concluded by the end Customer (UHE) on its own accord and expense.

PROJECT'S MAIN COMPONENTS.

The four proposed sites are:

• Kyivska HPP / PSP (46 MW BESS and 10.6 MWp solar PV).

[15] Cost Estimate Norms of Ukraine for Construction, including Guidelines for Determining the Cost of Construction, adopted by the Order of the Ministry for Communities and Territories Development of Ukraine No. 281 of November 1, 2021.
[16] Procedure for Approval of Construction Projects and Their Expert Examination adopted by the Resolution of the Cabinet of Ministers of Ukraine No. 560 of May 11, 2011
[17] Procedure for Development of Project Design Documentation for Construction Facilities adopted by the Order of the Ministry of Regional Development, Construction and Housing and Utilities Sector of Ukraine No. 45 of May 16, 2011
[18] The Law of Ukraine "On environmental Impact Assessment" № 2059-VIII dated May 23, 2017 as amended.
[19] The Resolution of the Cabinet of Ministers of Ukraine No. 1010 of December 13, 2017 on Adoption of Criteria for Determining the Intended Activities that are not Subject to Environmental Impact Assessment, and the Criteria for Determining the Expansion and Change of Activities and Facilities that are not Subject to Environmental Impact Assessment The Resolution of the Cabinet of Ministers of Ukraine No. 1026 of December 13, 2017, on Adoption of the Procedure for Submission of Documentation for Issuing the Opinion After the Environmental Impact Assessment and Financing the Environmental Impact Assessment.

- Kanivska HPP (66 MW BESS and 13.5 MWp solar PV).
- Kremenchutska HPP (60 MW BESS and 6.5 MWp solar PV).
- Seredniodniprovska HPP (25 MW BESS and 5.3 MWp solar PV).

The total capacity of installed BESS is 197 MW and the total capacity of solar PV arrays is 35.9 MWp.

In addition, the fifth site at Dnistrovska HPP is designated as part of the Project with the corporate social responsibility sub-project (CSR project); it includes 15 MW BESS and 28 MWp solar PV for the internal needs within the HPP.

With the total Project's capacity being 212 MW BESS and 63.9 MWp solar, across the 5 sites.

In addition to the main components, BESS, EMS, and Solar PV, each site will have his own LV, MV and HV equipment, such as switchgears, protections, reclosers, cablings, transformers, and other auxiliary elements, as well as BoP (Balance of Plant) components to allow for interconnections at the various voltage levels required and between components.

Regarding EMS, and for bidder's clarity, in this Project the HPP/PSP hosting SCADA is "Ovation 3.3.2" (with upgrade to 3.5 pending); while a detailed EMS integration study is not required at this point (the feasibility study and the TEO), a high-level logic and functional integration description is required as part of the Project Design Draft, especially on BESS and Hydro coordinated participation in Frequency Containment Reserve / Automated Frequency Restoration Reserve (FCR/aFRR), operating in coordination with the TSO's dispatch and control systems is required, for which the awardee will be supported by UHE personnel.

For avoidance of doubts, the requirements for this functional integration (including data fields exchange and control actuations) of the new EMS with the local SCADA of the HPP / PSP, as well as the requirements for the communication (data exchange and control) between the local integrated control system of the HPP / PSP, the UHE's central SCADA, and the TSO's dispatch and control systems shall be defined by the awardee in the Project Design Draft as part of this assignment.

PROJECT'S SCOPE CONCEPT SCHEMATICS

The below high-level schematics shows the described functional and operational integration and the scope range.

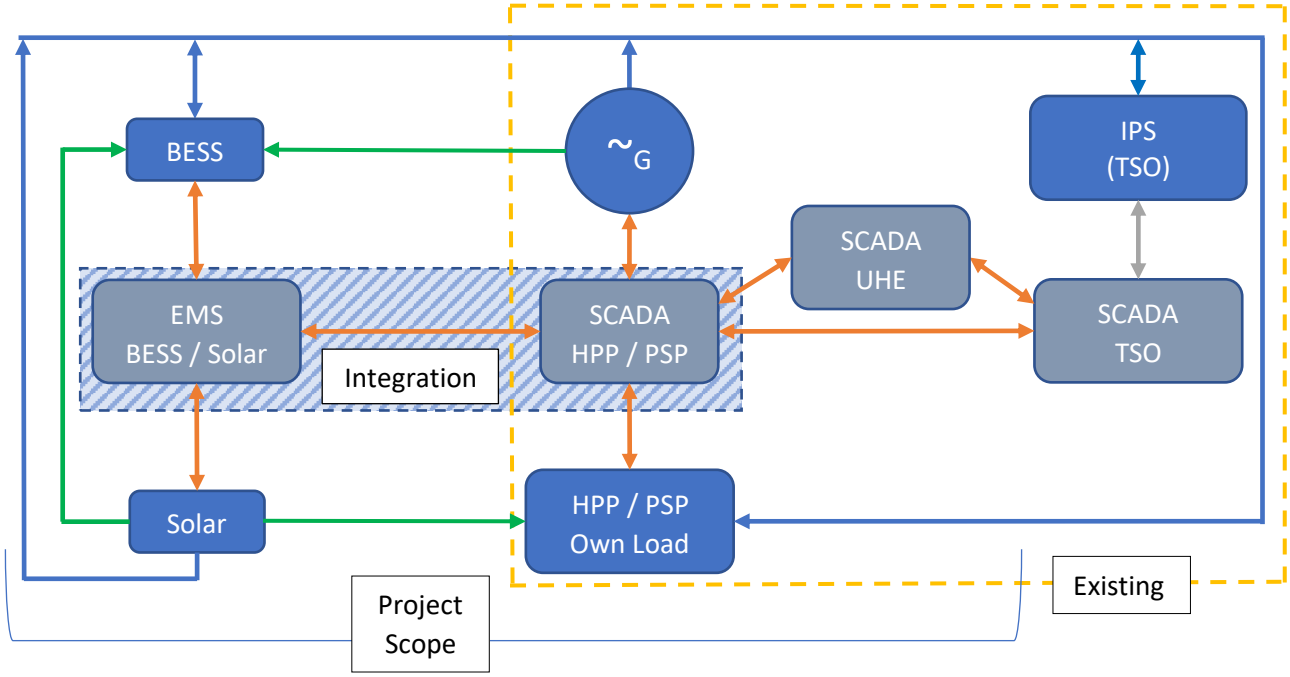
Blue lines – external (IPS through HV switchyard's busbar) connections / electricity flows.

Green lines – internal (through plant's MV busbar) connections / electricity flows.

Orange lines – new or upgraded data exchange and control & communication channels of UHE.

Grey line – existing data exchange and control & communication channel of TSO.

The scope of the Project is shown as the left-to-central areas, and the existing systems with which the Project has to be integrated are grouped within the yellow dotted line.


BESS
~G
IPS
(TSO)
SCADA
UHE
EMS
BESS / Solar
SCADA
HPP / PSP
SCADA
TSO
Integration
Solar
HPP / PSP
Own Load
Existing
Project
Scope

Attachment A
Annex 1

OVERALL SCOPE OF THE TEO

Area of TEO	*Topic*	*Main Content*	*Deliverable*	*Lead by*	*Support by*	*Reference to*
Feasibility Study						
	Project Rationale	General overview and specifics	Part I. Project overview	International consultant		Project' Study
	Financial data	CAPEX, OPEX, overheads, BS, IS, CFS	Part I. Feasibility Study	International consultant		Project' Study
	Financial indices	NPV, IRR, sensitivity models	Part I. Feasibility Study	International consultant		Project' Study
	Sources of Financing	Participant IFIs, their profiles, loans/grants	Part I. Feasibility Study	International consultant		ESP Consultation
Project Budget						
	Construction budget	CAPEX, OPEX, ovhds	TEO Budget according to Ukrainian by-laws	Ukrainian consultant	International consultant	ESP Consultation
	Investment project rationale (Ukrainian)	Forecasts, projections	Project investment attractiveness according to Ukrainian by-laws	Ukrainian consultant	International consultant	Project Study
Selection of Authorized Representatives						
	Appointment of the Licensed Ukrainian GP (designer), GAP (architect) and / or GIP (engineer)	Mandatory requirement for Ukrainian TEO	Orders appointing individuals formally responsible for development and getting approved TEO	Ukrainian consultant	International consultant	ESP Consultation
Technical Design						
	Project Installed Capacities	Storage and PV capacities by sites, annual output, role in the national power system	Part II. Technical Specifications and Designs	International consultant	Ukrainian consultant	Project' Study
	Project Timeline and Key Stages	Schedule, critical path, stages, milestones	Part II. Technical Specifications and Designs	International consultant	Ukrainian consultant	ESP Consultation
	Sites General Layout and Plant Location Schemes	General layout schemes, coordinate systems, GIS, for example, Google maps	Part II. Technical Specifications and Designs	International consultant	Ukrainian consultant	Project' Study
	Project Operational Cycle	Hybrid BESS/HPP turbines' operation	Part III. Innovation Component	International consultant		Project' Study
	Combined mode/CSR	PV Component	Part III. Innovation Component	International consultant		Project' Study
	Improvement of Ukrainian grid resilience	Management Hardware and Software Systems. Description of EMS and its connection and coordination with UHE and TSO software	Part III. Innovation Component	International consultant		ESP Consultation
	Connections to the National Power Grid	Existing UHE facilities/Direct connection to TSO grid	Part IV. Technical and Engineering Solutions	International consultant	Ukrainian consultant	ESP Consultation

Area of TEO	*Topic*	*Main Content*	*Deliverable*	*Lead by*	*Support by*	*Reference to*
	Connection to UHE/TSO Grid	New connectors, switches, transformers, etc.	Part IV. Technical and Engineering Solutions	International consultant	Ukrainian consultant	ESP Consultation
	Geo-Data and Topography of Sites	Maps, soils, potential obstacles	Part IV. Technical and Engineering Solutions	Ukrainian consultant	International consultant	ESP Consultation
	Topography maps (Ukrainian standard)	General layout design 1:10,000, topography 1:1,000 and 1:500	Part IV. Technical and Engineering Solutions	Ukrainian consultant	International consultant	Openly available
	Facilities' Layout, Logistics and Communications	Plans, drawings, schemes, charts	Part IV. Technical and Engineering Solutions	International consultant	Ukrainian consultant	ESP Consultation
	Construction Norms and Standards Compliance	International best practice	Part V. Organization of Construction Process	International consultant		ESP Consultation
	Adaptation to Ukrainian Norms and Standards	Ukrainian DBNs	Part V. Organization of Construction Process	Ukrainian consultant	International consultant	ESP Consultation
	Security and Assets Safeguarding	Assess controls, video surveillance, sensors, other security measures	Part VI. Operations	International consultant	Ukrainian consultant	ESP Consultation
	IT and Cybersecurity	International best practice	Part VI. Operations	International consultant		ESP Consultation
	HS and OHS	International best practice	Part VI. Operations	International consultant		ESP Consultation
	Emergency Situations	Fire and explosion safety of batteries, waste disposal issues, other	Part VI. Operations	Ukrainian consultant	International consultant	ESP Consultation
	Maintenance, Repairs and Replacement of BESS and PV Components	Intervals, operational reserve, potential innovations	Part VI. Operations	International consultant		ESP Consultation
Coordination of EPC general contractor's and subcontractors' activities						
	Responsibilities of EPC parties	Contractual requirements to coordination of activities, changing draft documents, obtaining permits and assessments, work with stakeholders	Part VII. Construction Process	International consultant	Ukrainian consultant	ESP Consultation
	Permits and expert assessments stage	Ukrainian legal requirements (See. Order # 45)	Permits, expert assessments obtained	Ukrainian consultant	International consultant	ESP Consultation
	Project closing and Acceptance Procedures	General contractor and UHE	Acceptance of services, final payments	International consultant	Ukrainian consultant	ESP Consultation
OVD (Ukrainian abbreviation of an 'Environmental Impact Assessment') according to the Law of Ukraine "On Environmental Impact Assessment" of December 18, 2017, if the project is subject to regulation by this Law. – In cases, where the Project components are subject to OVD, the Consultant shall ensure that the TEO and the Project OVD include or fully reflect the requirements of the Environmental and Social Management Plan (ESMP) prepared in compliance with the World Banks Environmental and Social Framework (ESF, 2018), which will be published on the Project information webpage at the World Bank's website or provided by the Employer.						
	Screening – identifying the need to conduct OVD	Identifying by the lists of types of planned activities and facilities that may have significant impact on the environment, and are subject to OVD	Report on results of screening for the need of conducting OVD according to the Law of Ukraine "On Environmental Impact Assessment"	Ukrainian consultant / specialized organization	International consultant	Project' Study

Area of TEO	*Topic*	*Main Content*	*Deliverable*	*Lead by*	*Support by*	*Reference to*
	Scoping – development of the Notice on planned activities	Identifying problems and areas of impact of planned activities, assessment of alternative options, formation of the Notice according to the form identified by the CMU Resolution No. 1026 of December 13, 2017	Notice on planned activities	Ukrainian consultant / specialized organization	International consultant	Project' Study
	Publicizing the Notice on planned activities	Proper informing of the public on planned activities according to part 3, Article 4 of the Law "On Environmental Impact Assessment"	Publication of the Notice in media and announcement boards of local governments	Ukrainian consultant / specialized organization	International consultant	Project' Study
	Preparation of OVD report with incorporation of public comments and proposals on planned activities, scope of survey and level of detailing for information subject to inclusion in OVD report	Development of OVD report according to the requirements of Article 6 of the Law of Ukraine "On Environmental Impact Assessment" and with incorporation of Methodological Recommendations on development of OVD reports	OVD report is prepared for submission to public hearings	Ukrainian consultant / specialized organization	International consultant	Project' Study
	Preparation and publicizing of the Announcement on the beginning of public consultations regarding OVD report	Formation of the Announcement according to the form identified by the CMU Resolution No. 1026 of December 13, 2017. Proper informing of the public on planned activities according to part 3, Article 4 of the Law "On Environmental Impact Assessment"	Publication of the announcement on the beginning of public consultations regarding OVD report in media and announcement boards of local governments	Ukrainian consultant / specialized organization	International consultant	Project' Study
	Public consultations and public hearings on assement of impact of planned activities	Participation in public hearings and holding public consultations	Report on results of public consultations	Ukrainian consultant / specialized organization	International consultant	Project' Study
	Obtaining an OVD Conclusion	OVD Conclusion is provided maximum in 25 working days after the end of public hearings	OVD Conclusion on acceptability of planned activities	Ukrainian consultant / specialized organization	International consultant	Project' Study
	Publicizing OVD Conclusion	Proper informing of the public on obtaining of the Conclusion according to part 4, Article 4 of the Law "On Environmental Impact Assessment"	Publication of information on obtaining of the Conclusion in media and announcement boards of local governments	Ukrainian consultant / specialized organization	International consultant	Project' Study

Area of TEO	*Topic*	*Main Content*	*Deliverable*	*Lead by*	*Support by*	*Reference to*
OVNS ('Ukrainian abbreviation of an 'Environmental Impacts Assessment'): according to the Ukrainian national construction regulation (DBNs) – in cases, where the Project components are subject only to OVNS (and not to OVD). The Consultant shall ensure that the TEO and the Project OVNS include or fully reflect the requirements of the Environmental and Social Management Plan (ESMP) / Environmental Management and Monitoring Plan (EMMP), which will be published on the Project information webpage at the World Bank's website or provided by the Employer.						
	1. Geographical features of the area and site for construction.	Physical and geographical conditions, biodiversity data. Cartographic materials and situational schemes	UA OVNS format report	Ukrainian consultant / specialized organization	International consultant	ESP Consultation
	2. General description of the project activity.	General characteristics of the planned activity and its alternatives; compliance of the planned activity with the urban planning documentation; positive environmental, sanitary-epidemiological, social and economic aspects of the planned activities; consideration of options for the location of the planned activity as well as options for technological processes, etc. Sources of environmental impacts are to be indicated in the general layout plan and situational schemes. (According to DBN A.2.2.1-2003)	UA OVNS format report	Ukrainian consultant / specialized organization	International consultant	ESP Consultation
	3. *OVNS* (*Assessment of impacts on climate and microclimate*)	Climatic conditions favorable for the planned activities; assessment of positive impacts of the project as the project leveraging "green" hydropower maneuverability to address system flexibility needs resulting from "green" RE penetration, "green for green" project enables to avoid "RES-to-coal paradox" that keeps threatening the climate otherwise if any other option is applied for technical incorporation of energy storages into the Ukraine's Integrated Power System); air and water environment (sources of surface and groundwater pollution, air and noise pollution; justification of measures to prevent the pollution); geological environment and soils (measures of anti-erosion steps to protect the slopes of the operating earth dams);	UA OVNS format report	Ukrainian consultant / specialized organization	International consultant	Project' Study

Area of TEO	Topic	Main Content	Deliverable	Lead by	Support by	Reference to
		biodiversity and protected areas (biodiversity assessment with respect to very close Emerald areas, special status migrating or breeding bird; dendroplan of landscaping, which includes information about landscaping and the balance of demolished and compensatory plantations according to current urban planning regulation				
	4. *Assessment of the impact on the social environment*	Proximity to residential, commercial, industrial, public buildings and sports, health, and recreational facilities, inclusive of historical and underground structures. Impact of construction stage. Assessment of positive and negative effects, inclusive of compensations if required.	UA OVNS format report	Ukrainian consultant / specialized organization	International consultant	Project' Study
	5. Measures to ensure the regulatory state of environment and its safety	Project solutions and environmental measures; calculations to determine the economic efficiency of environmental measures; assessment of restrictions from construction over planned activities in terms of the environmental, social, technogenic environment and preparations required to comply with environmental safety conditions. Risk assessment of the impacts of the project activity on the environment.	UA OVNS format report	Ukrainian consultant / specialized organization	International consultant	Project' Study
	6. *OVNS during construction*	Protection measures related to noise, air and water (surface and groundwater pollution), soils, biodiversity, human living conditions, historical and cultural monuments, objects of technogenic environment. Analysis of the construction site.	UA OVNS format report	Ukrainian consultant / specialized organization	International consultant	Project' Study

Area of TEO	*Topic*	*Main Content*	*Deliverable*	*Lead by*	*Support by*	*Reference to*
	Environmental impact statement	*Public consultations at the stage of "Environmental impact statement"* for discussion of the consequences of the planned activities and possible alternatives to project decisions.	UA OVNS format report	Ukrainian consultant / specialized organization	International consultant	Project' Study

Attachment A
Annex 2

DRAFT DESIGN ASSIGNMENT ("TASK FOR DESIGNING")

Design Assignment
for the "Technical and Economical Substantiation" (TEO)

for the project:
"Construction. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP" ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)"

#	Section of the design task	Data and expected measures
1	Project Sites ("Facilities") names and locations	Project[20] - "Construction. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP" ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)". 1. Branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, Vyshgorod, Vyshgorodskyi district, Kyivska oblast; 2. Branch "Kaniv HPP", Kaniv, Cherkaska oblast; 3. Branch "Kremenchuk HPP", Svitlovodskyi district, Kirovohradska oblast; 4. Branch "Middle Dnieper HPP", Kamianske, Dnipropetrovska oblast; 5. Branch "Dniester HPP", Novodnistrovsk, Chernivetska oblast.
2	Justification for design	To increase power system resilience for European power grid integration
3	Construction type	New construction
4	Data on the Investor	International Bank for Reconstruction and Development (IBRD), Clean Technology Fund (CTF), and own funds of PrJSC UkrHydroEnergo
5	Data on the Customer[21]	Vyshgorod, Vyshgorodskyi district, Kyivska oblast, Ukraine, 07300 tel/fax (04596) 22007 USREOU code 20588716; Individual tax number 205887110081; Account 26005306451 at PrJSC State Savings Bank of Ukraine, MFO 300465.
6	Financing source	IBRD and CTF loans, CTF grant, own funds of PrJSC UkrHydroEnergo
7	Necessity of investment efficiency calculations	To make calculations of economic efficiency of investments based on the specified technical and economic indicators of the project with justification of the payback period for construction of hybrid units for electricity generation at PrJSC UkrHydroEnergo based on:

[20] The title for the purposes of the TEO.
[21] "Customer" refers to the eventual Customer or Client (UHE)

#	Section of the design task	Data and expected measures
		energy storage systems (ESS) and photovoltaic (PV) systems: with the use of the energy storage system (hereinafter – ESS) (at least two); - with the use of solar photovoltaic cells produced according to modern technologies (at least two); - with the use of different inverters (at least two)
8	Data on HPP General Designer [22]	According to the procurement procedure
9	Designing phases	Three-phase designing (Phases "TEO", "P", RD"): Phase TEO
10	Engineering surveys	Performed by the Designer: Site layout plan M1:10 000; Topographic plan M1:1 000; Topographic plan M1:500; Development of the program and task for engineering and geological, hydrological survey: Geological survey; Hydrogeological survey; Engineering and hydrometeorological survey. Persons performing engineering survey shall be liable for quality of performed works according to the effective legislation and terms of the contract.
11	Data regarding specific construction conditions (seismicity, aqueous soils, undermining and flooded areas, etc.)	1) To identify seismicity of the facility according to DBN V.1.1-12:2014. 2) Existence of flooded territories. 3) Specific construction conditions according to the report on engineering survey. 4) The works to be performed on the functioning facilities, therefore it is necessary to take into account the following: - additional loads from the foundations and installed equipment on existing hydraulic structures. The design of the foundations should not interfere with a permanent filtration flow. - provide access to the existing infrastructure of buildings, including access to control and measuring equipment sites
12	Main architectural and planning requirements and characteristics of the designed facility	To be identified based on TEO results.
13	Phases of construction, the necessity of separation of start-up facilities	The design to be performed in 5 (five)construction phases to be further implemented all at once, namely: **<u>First c</u>onstruction phase**: "Construction. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo. Within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP". ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)". **Phase I**. Branch "Kyiv HPP and PSP Cascade" – Kyiv HPP.

[22] "Designer" refers to the awardee's Local Partner(s) in the context of the Design Assignment (or Task for Designing) and to the awardee as single entity, inclusive of all his team members (both the International Partner(s) and the Local Partner(s)) in the context of this RfP/SoW and subsequent assignment.

#	Section of the design task	Data and expected measures
		<u>Second</u> construction phase: "Construction. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP" ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)". **Phase II**. Branch "Kaniv HPP". **<u>Third</u> construction phase**: "Construction. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP" ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)". **Phase III**. Branch "Kremenchuk HPP". **<u>Fourth</u> construction phase**: "Construction. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP" ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)". **Phase IV**. Branch "Middle Dnieper HPP". **<u>Fifth</u> construction phase**: "Construction. Installation of Hybrid Systems for Electricity Production in PrJSC Ukrhydroenergo within the territories of: branch "Kyiv HPP and PSP Cascade" – Kyiv HPP, branch "Kaniv HPP", branch "Kremenchuk HPP", branch "Middle Dnieper HPP", branch "Dniester HPP" ("Ukraine – Improving Power System Resilience for European Power Grid Integration" – P176114)". **Phase V**. Branch "Dniester HPP".
14	Determining the class (consequences) of responsibility, difficulty category, and established period of operation	Class of (consequences) responsibility – CC3. Preliminarily specified by the project
15	Guidelines on the necessity of:	
15.1	Development of individual technical requirements	To provide for in TEO - analysis of the available land management documentation on the location of BESS and solar photovoltaic panels within the territory of selected branches of PrJSC Ukrhydroenergo. - analysis of the available city-planning documentation for the territory of sites for BESS and solar photovoltaic panels within the territory of the branches of PrJSC UkrHydroEnergo. - preparation of materials for obtaining city-planning conditions and restrictions for development of land plots for construction and installation of BESS and solar photovoltaic panels within the territory of the branches of PrJSC UkrHydroEnergo. - In case of the need to adjust the input data, the Contractor participates, together with the Customer, in supporting the documentation in all organizations and institutions involved in

#	Section of the design task	Data and expected measures
		the preparation of city-planning conditions and restrictions of land plot development for construction and installation of BESS and solar photovoltaic panels within the territory of the branches of PrJSC UkrHydroEnergo - In case of the need to adjust the terms of reference, the Designer participates, together with the Customer, in supporting the documentation in all organizations and institutions involved in the Preparation в усіх організаціях і установах, які приймають участь у підготовці. - analysis of legal aspects of the energy market in Ukraine, assessment, and forecast of legislation; - analysis of the justification for the location of facilities; - analysis of substantiation of the capacity of facilities; - basic construction and architectural-and-planning solutions; - consider the possibility of flooding of SEE and solar photovoltaic panels when passing 0.01% sufficiency calibration floods through existing hydraulic structures; - scheme of the general plan and transport (options); - cable networks and switching power boards; - transformers and switchgear; - supporting metal structures; - analysis of possible connection points to the nearest 10/35/110/330 kV distribution networks; - analysis of technical conditions for connection to external power networks; - scheme of power supply of ESS, solar photovoltaic panels, and connection to power networks; - volumes of network construction and reconstruction of existing power networks for the implementation power distribution scheme of the developed options; - basic solutions on engineering support of the construction facility; - basic decisions on ASCME (Automated System for Commercial Metering of Electricity); - key solutions on identifying the class of lightning protection and solutions on lightning protection, relay protection, emergency automation, and organization of communication; - basic design solutions for fire and security measures; - justification of the number of staff; - basic provisions for the organization of construction; - technical and economic indicators of the facility; - substantiation of investment efficiency, also with taking into account the disposal of replaced panels/batteries; - Consolidated calculation of capital and operating costs for construction; - annexes: passports for basic technological equipment - setting the necessary technical conditions for engineering support of the construction facility.
15.2	Requirements for developing section “Environmental Impacts Assessment” (OVNS).	To develop according to the requirements of DBN A.2.2.1-2003; to envisage measures for preventing the negative environmental impact.

#	Section of the design task	Data and expected measures
	When it is necessary to develop the report on environmental impact assessment (OVD), materials (section) on environmental impact assessment as a component of design documentation shall be developed only with respect to the measures not included in the report on environmental impact assessment (according to Resolution 752 of August 26, 2020).	- Development of the report on environmental impact assessment is performed according to requirements of Art. 6 of the Law of Ukraine "On Environmental Impact Assessment"
15.3	Development of separate design solutions in several alternative versions	Key construction and technological solutions (to be performed on the basis of technical and economic calculations): - to justify the distance between the rows of solar panels, the angle of their inclination (taking into account the illumination at different times of the year) with technical and economic calculations, taking into account the maximum energy production; - with the use of solar photovoltaic panels – at least 2 types of technology; - with the use of BESS – at least 2 types of technology; - inverters – at least 2 types of technology; - to envisage a separate design solution for possible increase in installation of additional separateBESS, but not exceeding 50% of designed capacity.
15.4	Preparation of demonstration materials	To perform 3D visualization
15.5	Conducting scientific research and experimental works in the process of design and construction, scientific and technical support	To determine in the process of execution of TEO
15.6	To develop the connection scheme and power distribution scheme	The Designer develops the connection scheme and power distribution scheme according to the requirements of effective legislation
16	Capacity or characteristics of the facility, production program	To be identified based on TEO results
17	Requirements regarding site improvement	According to the requirements of DBN B.2.2-5:2011 and SNiP II-89-80
18	Requirements on energy saving and energy efficiency	To provide for modern energy-saving technologies in accordance with the requirements of effective regulations on energy saving and energy efficiency
19	Data on technologies and (or) scientific and research works proposed by the Customer	To be determined if necessary
20	Requirements regarding safety standards and labor safety	In accordance with the requirements of effective legislation, codes, rules, instructions on labor protection, safety, and fire safety rules, taking into account Order of the Ministry of Social Policy # 1050 of June 23, 2017, taking into account the version valid on the time of designing with incorporation of the current version as of the moment of design.

#	Section of the design task	Data and expected measures
21	Requirements to develop the “Engineering and Technical Civil Protection Measures (Civil Defense)” section	In accordance with the requirements of DBN V.1.2-4:2006 and the task to develop the “Engineering and Technical Civil Protection Measures (Civil Defense)” section
22	Requirements for the site’s fire protection system	To develop basic solutions for explosion and fire safety of facilities in accordance with the requirements of effective regulations.
23	Requirements for development of special measures	To develop sections on labor protection and engineering and technical measures
24	Approval of preliminary TEO design solutions	To obtain approval of TEO design solutions at the technical council of PrJSC UkrHydroEnergo.
25	Additional input data for the design process	Provided by the Customer at the request of the Designer
26	Development of ToR for connection and power distribution	The Designer develops ToR for connection and power distribution according to the requirements of effective legislation
27	Number of copies of the design documentation	The Designer provides the Customer with the documentation in full, in accordance with DBN A.2.2-3: 2014, in 4 (four) copies in paper form and 1 copy in electronic form.
28	Passing expert examination	The Designer participates, together with the Customer, in supporting the expert examination of the TEO by the expert organization. In case of received comments from expert organization, the Designer eliminates (corrects) or defends the corresponding design solutions. The expert examination should be executed in accordance with DSTU 8907:2019 “Instructions for Organizing the Expert Examination of Project Design Documentation for Construction”
29	Approvals	The Designer undertakes to take a direct part in the protection of design solutions during the approval of the developed TEO in all relevant institutions and organizations, which are indicated in the requirements of effective legislation of Ukraine and, if necessary, to adjust and finalize them.
30	Notes:	To formalize design documentation in accordance with DBN A.2.4-4: 2009 "Basic Requirements for Design and Construction Documentation". Estimate documentation is determined in accordance with the Guidelines for Determining the Cost of Construction adopted by the Minregion’s Order No. 281 “On Adoption of Cost Estimate Norms of Ukraine for Construction”. The composition of the TEO – according to Annex B of DBN A.2.2-3: 2014 "Composition and Content of Design Documentation for Construction".
31	Deadline	TBD

ATTACHMENT B – DETAILED BUDGET

PROPOSED DETAILED BUDGET

TABLE 1 – Overall Subcontract Detailed Budget

Cost element	unit cost	Total units		cost
Total Direct Labor				
LABOR (rate; level of effort; total)				
Title,Labor Category - Name, Last Name (Full time / Short Term)	$0.00		days	$ -
Title,Labor Category - Name, Last Name (Full time / Short Term)	$0.00		days	$ -
Title,Labor Category - Name, Last Name (Full time / Short Term)	$0.00		days	$ -
Title,Labor Category - Name, Last Name (Full time / Short Term)	$0.00		days	$ -
Subtotal Direct Labor				**$ -**
Travel, Transportation & Per Diem				
Airfare	$0	0	trips	$ -
Per Diem Meal	$0	0	days	$ -
Per Diem Lodging	$0	0	days	$ -
Travel Miscellaneous	$0	0	trips	$ -
Insurance	$0	0	people	$ -
Local Ground Transportation	$0	0	days	$ -
Communications	$0	0	trips	$ -
Subtotal Travel, Transportation & Per Diem				**$ -**
Other Direct Costs				
Subtotal Other Direct Costs				**$ -**
TOTAL ESTIMATED COST				$ -

**LOE = Level of Efforts, budgeted number of days assigned for the work*

Rate = fully loaded daily rate

Prices quoted must be valid for **60** days, and account for ALL remuneration, per diem, travel, communications, report reproduction and other out-of-pocket expenses, taxes and other costs, but excluding the VAT tax that may be originated in **Ukraine**.

On this basis Tetra Tech will issue a **Fixed Price Subcontract**, and payment shall be based upon acceptance of services and deliverables described in the Table 2.

TABLE 2 – Payment schedule

Bidder Deliverable	Expected Due Date	Fixed Price Payment Amount
1. Inception report	End of Month 1	[10 %]
2. Feasibility study accepted by Employer (Tetra Tech / ESP) and the World Bank.	End of Month 4	[10 %]
3. BoQ/BoM accepted by Employer (Tetra Tech / ESP) and end Customer (UHE).	End of Month 5	[25 %]
4. TEO delivered to Employer (Tetra Tech / ESP) & end Customer (UHE) with No Objections	End of Month 6	[10 %]
5. OVNS / OVD (if required) prepared and ready for public consultations/hearings	End of Month 6	[10 %]
6. TEO, including OVNS, and OVDresults (if required) passed expert examination (positive conclusion obtained)	End of Month 8	[10 %]
7. TEO officially approved/endorsed, final acceptance or handover certificate signed	End of Month 9	[25 %]

ATTACHMENT C – REPRESENTATIONS AND CERTIFICATIONS

Bidder Representations and Certifications

1. Organizational Conflict of Interest Representation

The Bidder represents, to the best of its knowledge and belief, that this award

does [ ] or does not [ ] involve an organizational conflict of interest.

Please see FAR 52.209-8 for further explanation.

2. Data Universal Numbering System (DUNS) Number *(required if cost proposal is more than USD $30,000)*

(please use one box per number or dash)

3. Source and Nationality of Goods and Commodities

(i) This is to certify that the Bidder is:

a. an individual who is a citizen or legal resident of _____.

b. a corporation of partnership organized under the laws of _____.

c. a controlled foreign corporation of which more than 50% of the total combined voting power of all classes of stock is owned by United States shareholders; or

d. a joint venture or incorporated association consisting entirely of individuals, partnerships or corporations. If so, please describe separately the citizenship or legal status of the individuals, the legal status of the partnership or corporations, and the percentage (%) of voting power of the corporations.

(ii) This is to certify that the **Source** (the country from which a commodity is to be shipped from) of the Equipment to be supplied under this Order is:

name of country or countries

4. 52.204-24 Representation Regarding Certain Telecommunications and Video Surveillance Services or Equipment (Aug 2020).

The Bidder shall not complete the representation at paragraph (d)(1) of this provision if the Bidder has represented that it "does not provide covered telecommunications equipment or services as a part of its offered products or services to the Government in the performance of any contract, subcontract, or other contractual instrument" in the provision at 52.204-26, Covered Telecommunications Equipment or Services—Representation, or in paragraph (v) of the provision at 52.212-3, Bidder Representations and Certifications-Commercial Items.

(a) *Definitions.* As used in this provision—

Backhaul, covered telecommunications equipment or services, critical technology, interconnection arrangements, reasonable inquiry, roaming, and substantial or essential component have the meanings provided in the clause 52.204-25, Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment.

(b) *Prohibition*.

(1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract or extending or renewing a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(c) *Procedures.* The Bidder shall review the list of excluded parties in the System for Award Management (SAM) (https://www.sam.gov) for entities excluded from receiving federal awards for "covered telecommunications equipment or services".

(d) *Representation.* The Bidder represents that—

(1) It □ will, □ will not provide covered telecommunications equipment or services to the Government in the performance of any contract, subcontract or other contractual instrument resulting from this solicitation. The Bidder shall provide the additional disclosure information required at paragraph (e)(1) of this section if the Bidder responds "will" in paragraph (d)(1) of this section; and

(2) After conducting a reasonable inquiry, for purposes of this representation, the Bidder represents that—

It □ does, □ does not use covered telecommunications equipment or services, or use any equipment, system, or service that uses covered telecommunications equipment or services. The Bidder shall provide the additional disclosure information required at paragraph (e)(2) of this section if the Bidder responds "does" in paragraph (d)(2) of this section.

(e) *Disclosures.*

(1) Disclosure for the representation in paragraph (d)(1) of this provision. If the Bidder has responded "will" in the representation in paragraph (d)(1) of this provision, the Bidder shall provide the following information as part of the offer:

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the original equipment manufacturer (OEM) or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the Product Service Code (PSC) of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(2) Disclosure for the representation in paragraph (d)(2) of this provision. If the Bidder has responded "does" in the representation in paragraph (d)(2) of this provision, the Bidder shall provide the following information as part of the offer:

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the PSC of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

By signing below, the Bidder certifies that the representations and certifications made, and information provided herein, are accurate, current and complete.

Signature: _____ Date: _____

Name of and title of authorized signature: _____

ATTACHMENT D – CERTIFICATE OF CURRENT COST OR PRICING DATA

This is to certify that, to the best of my knowledge and belief, the cost or pricing data (as defined in section 2.101 of the Federal Acquisition Regulation (FAR) and required under FAR subsection 15.403-4) submitted, either actually or by specific identification in writing, to Tetra Tech in support of [**Firm/Organization**] are accurate, complete, and current as of [**DATE**].

This certification includes the cost or pricing data supporting any advance agreements and forward pricing rate agreements between the Bidder and the Government that are part of the proposal.

Firm: _____

Signature: _____