

Invitation to Bid

(No.: ITB20-KCN-06)

Technical Support for APR1000 Standard Design

November, 2020



KEPCO ENGINEERING & CONSTRUCTION COMPANY, INC.

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CHAPTER I

GENERAL INFORMATION

A. GENERAL INFORMATION OF THE SERVICES

A. GENERAL INFORMATION OF THE SERVICES

KEPCO E&C has developed a new NPP design of APR1000 to comply with the safety requirements of recent IAEA, WENRA and EUR Rev. E to provide the most competitive NPP in the overseas market including Europe. KEPCO E&C is responsible for the design of the APR1000 which also applies for the EUR design assessment.

Although most of the design concepts of the APR1000 have already been completed, there are still several areas that need further development and/or independent peer review by a third party because those areas include new evolutionary design concepts or European region-specific design requirements.

The purpose of this framework contract is to assist KEPCO E&C to complete the APR1000 standard design which is planned to finish by Dec. 31, 2023.

CHAPTER II

INSTRUCTION TO BIDDER

A. GENERAL INSTRUCTIONS

B. SUBMISSION OF BID DOCUMENTS

C. DEADLINE FOR SUBMISSION AND VALIDITY OF BID DOCUMENTS

D. LATE SUBMISSION

E. CLARIFICATION

F. BID CURRENCIES

G. LANGUAGE OF BID

H. CONFIDENTIAL NATURE OF DOCUMENTS

I. OWNERSHIP OF BID AND COMPENSATION

J. MODIFICATION, REJECTION AND WITHDRAWAL OF BID

K. QUALIFICATION REQUIREMENT

L. COMPOSITION OF BID DOCUMENTS and BID EVALUATION

M. OTHERS

A. GENERAL INSTRUCTIONS

Bidders are requested to prepare and submit a technical proposal and a financial proposal (collectively, the “Bid Documents”) in accordance to all the requirements specified in this Invitation to Bid (ITB). ITB includes all chapters and appendixes indicated in the table of contents of this ITB.

B. SUBMISSION OF BID DOCUMENTS

1. Bidders shall submit Bid Documents to the following address **by e-mail**:

Attn. 1 : Mr. Yoon Donggyu
General Manager
Contract Team
KEPCO Engineering & Construction Co., Inc.
E-mail: dony.yoon@kepco-enc.com

Attn. 2 : Mr. Lee Seunghyun
Contract Team
KEPCO Engineering & Construction Co., Inc.
E-mail: sh.lee@kepco-enc.com

2. Documentations to be Submitted

(a) Commercial Proposal

- Price Bid Form (A. PRICE BID FORM in CHAPTER III - INFORMATION for COMMERCIAL PROPOSAL) shall be completed and submitted.
- Deviation request, if any, using Deviation Request Form (B. DEVIATION REQUEST FORM in CHAPTER III - INFORMATION for COMMERCIAL PROPOSAL) and marked-up General Terms & Conditions (GTC) of appendix A. Deviation requests shall include explanations why the Bidder requests those deviations. Request(s) marked-up in GTC and written in Deviation Request Form both shall only be considered as the Bidder's deviation request.
- Any relevant evidences and/or descriptions, comments and/or proposals in connection with this Bid.

(b) Technical Proposal

- Technical Proposal (Bidder's forms shall be used)

Technical Proposal and Commercial Proposal shall be submitted in separated files and named accordingly. Two separated files using Zip files for each can be an option.

C. DEADLINE FOR SUBMISSION AND VALIDITY OF BID DOCUMENTS

Bidder(s) submit its Bid Documents no later than **09:00 a.m. Korean Standard Time on November 25, 2020** and the Bid Documents shall remain firm valid for a period of **six (6) months** from the date of this deadline. Once submitted, proposals shall not be withdrawn until the validity of the Bid Documents.

D. LATE SUBMISSION

Bid Documents received after the deadline for submission of the Bid pursuant to Section C above may be rejected.

E. CLARIFICATION

Should the any Bidder find discrepancies or should any doubt or question exist as to the true meaning or intent of any portion of the contents of this ITB, the Bidder may make a written request to KEPCO Engineering & Construction Co., Inc. (hereinafter called "KEPCO E&C"). However, the clarification shall be submitted no later than seven (7) days prior to deadline for submission of this Bid.

The request for clarification and the response shall be given in writing via e-mail.

Clarification inquiries and answers may be disclosed to all Bidders who intend to participate the Bid.

Bidder's questionnaire must be submitted to the following address:

Attn. : Mr. Lee Seunghyun

E-mail: sh.lee@kepc0-enc.com

F. BID CURRENCIES

The Bidder shall submit its Bid Documents with amounts in **Euros (€)**.

G. LANGUAGE OF BID

The Bid Documents prepared by Bidder(s) and all correspondences and documents relating to the Bid exchanged between the Bidder and KEPCO E&C shall be written in English.

H. CONFIDENTIAL NATURE OF DOCUMENTS

The contents of this ITB shall only be used for the preparation of the Bid.

I. OWNERSHIP OF BID AND COMPENSATION

Bid Documents once submitted to KEPCO E&C shall not be returned to the Bidder regardless of whether it is accepted or rejected. The Bidder shall bear all costs associated with the preparation and submission of the Bid Documents, and in no case will KEPCO E&C be responsible or liable for those costs, regardless of the conduct or outcome of the Bid process.

J. MODIFICATION, REJECTION AND WITHDRAWAL OF BID

KEPCO E&C reserves the right to reject without any liability to the Bidder(s) any part of, or all Bids, to modify or withdraw this ITB at any time, and to enlarge or reduce the scope of Services to be included in the ITB.

K. QUALIFICATION REQUIREMENT

Only the Bidder(s) which meet all requirements described below shall be qualified for this Bid.

Bidder which has experience related to consulting service to establish education program in the framework of implementing the State Atomic Energy Corporation Rosatom programs

L. COMPOSITION OF BID DOCUMENTS and BID EVALUATION

Any procedure, method and decision to be taken by KEPCO E&C with regard to the evaluation shall be decisive and any claim by the Bidder will not be accepted.

During the evaluation of Bid, KEPCO E&C may ask Bidder(s) for clarification of its Bid Documents.

The Bidder(s) shall prepare and submit its Bid Documents to KEPCO E&C by two different files separating for Part I. Commercial Proposal and Part II. Technical Proposal as follows:

Part I. Commercial Proposal (30%)

Terms and conditions attached as Appendixes in this ITB will be the basic terms and conditions to be finalized through contract negotiation. Unless the Bidder(s) clearly states its deviation request and/or exceptions to the terms and conditions in its Commercial Proposal, the Bid Documents shall be construed as an offered in compliance with the terms and conditions as described in the ITB including Appendixes.

Bidder(s) shall submit its Commercial Proposals using forms indicated in Chapter III [Information for Commercial Proposal]

1. Bid price made in accordance with Price Bid Form in Chapter III.
 - The lowest bid price will receive the maximum score
2. Exceptions and/or deviations to GTC of Appendix A, using Deviation Request Form and GTC.
 - The Bidder with no exceptions and/or deviations against terms and conditions will receive the maximum score
 - Bidder(s) requesting any exceptions and/or deviations shall clearly fill the Deviation Request Form and markup on the GTC.

Commercial evaluation shall be made based on 80% bid price and 20% deviation request

Part II. Technical Proposal (70%)

The factors to be considered in selecting the first eligible Bidder include, without limitation, the following. Therefore, each bidder shall prepare its proposal to include below information:

1. Bidder's qualification, experience, and capabilities for the task listed on the ITB
 - Bidder's experiences of the similar project to the NPP System in Europe
 - Description on the practical work experience related with the work scope
2. Performance Plan
 - Understanding on requirements of work scope in the technical specification.
 - Consistency with technical service and consultant objectives
 - Adequacy of the project manpower and suitability of the proposed man hour
 - Completeness and effectiveness of work plan and performance method of the Services
3. Manpower
 - Project organization and qualification of the key personnel which the Bidder would propose for each task
 - Knowledge on regulations, requirements, systems, and design.
 - Similar project experience of designated personnel
4. Organization
 - Project organization and qualification of the key personnel which the Bidder would propose for each task
5. Requirements

Bidder(s) shall provide relevant evidences and/or descriptions that the Bidder meets requirements for this bid.

 - EUR Organization Members
 - Design Experience on Nuclear Power Plants
 - Participating experience in developing EUR Rev.E

For Bidder's information, please see below table which will be used for technical evaluation of this bid.

- Evaluation Table(Technical)

No	Evaluation Factors	Contents	Score	Details and score
1	Experience with similar projects	Performed in the last 10 years	30	- Similarity of contents (10) - Numbers of experiences in Engineering and/or Consulting services for Nuclear Power Plant(NPP) in foreign countries(20)*
2	Project Action Plan	Project Action Schedule and Appropriateness of Management	30	- Understanding of Purpose and Method of Service (25) - Appropriateness of Planned Schedule (5)
3	Available Technical Personnel	Similar Work Experience	30	- Consulting and Engineering Experience of the NPP Project (10) - Appropriateness of Manpower Plan (10) - Similar Work Experience of Manpower(10)
4	Organization	Status of Technical Manpower and Organization	10	- Available Manpower of Company (5) - Available Alternative Manpower (5)
Total			100	

* Over 10 performances : 10/ 5~10 performances : 9/ less than 5 performances : 8

** Only of the Bidders with technical score of 85% or more shall be considered to be qualified bidder for negotiation.

*** Bidder which do not meet requirement for bid shall be disqualified.

[Requirement]

- EUR Organization Members
- Design Experience on Nuclear Power Plants
- Participating experience in developing EUR Rev.E

M. OTHERS

1. KEPCO E&C will not authorize the expenses related to Bidder's visit to Korea for the discussion of this ITB or contract negotiation.
2. The purpose of this ITB is only to select preferred bidder. Accordingly, KEPCO E&C is not obligated to accept the terms and conditions of the Bid Documents. In the event KEPCO E&C and the preferred Bidder fail to reach an agreement on the contract,

KEPCO E&C shall have the right to select and negotiate with another Bidder without any liability or compensation to the selected Bidder. KEPCO E&C also reserves the right to reject any and all proposal received by reason of this ITB and to negotiate separately with any source whatsoever, in any manner deemed necessary, to serve the best interest of KEPCO E&C.

3. KEPCO E&C will not conclude a Contract with any bidder if the bidder will not accept the performance guarantee requirements described in CHAPTER III – INFORMATION for COMMERCIAL PROPOSAL. However, the guarantee may be provided with cash deposit into KEPCO E&C's account in case both parties agree.

CHAPTER III

INFORMATION for COMMERCIAL PROPOSAL

- A. PRICE BID FORM**
- B. DEVIATION REQUEST FORM**
- C. PERFORMANCE GUARANTEE REQUIREMENTS**

A. PRICE BID FORM

Budget for this contract is € 1,000,000 euros.

Sum of payments for all Task Orders shall not exceed Contract Price. However, budgets of each Task may be exceed unless the total sum amount of all Task Orders does not exceed the Contract Price.

Tasks	Position Assigned	Hourly Rate (EURO/Hour)	Man-Hour *	Amount (EURO)
Task 1 - Load following operation			383	
Task 2 - Low Temperature Overpressure Protection (LTOP) design			130	
Task 3 - Mid-loop operation			130	
Task 4 - Redundancy of Pressurizer Spray			130	
Task 5 - Inclined surge line			383	
Task 6 - Practical Elimination of ATWS			383	
Task 7 - Practical elimination of early or large radioactive releases			280	
Task 8 - Design for DEC without core melt			382	
Task 9 - Verification of structure design based on European code			1960	
Task 10 - Design to withstand rare and severe external hazards			1960	
Task 11 - Application of IEC 61660-1 for calculation of short circuit current for DC system			985	
Task 12 - Application of equipment qualification methods based on EUR Rev.E			382	
Task 13 - PSA methodology to comply with EUR			380	
Task 14 - Preparation of standard environmental impact assessment report			1960	
Total Bid Price (Contract Price)			9828	

*Man-Hour is estimate for each Task for information purpose only. Bidders may change each of the estimates in accordance with its own judgement after assessing the ITB.

B. DEVIATION REQUEST FORM

Article #	DESCRIPTION	JUSTIFICATION

C. PERFORMANCE GUARANTEE REQUIREMENTS

Contractor shall furnish KEPCO E&C with a Performance Guarantee which shall be of Bank Guarantee or Standby Letters of Credit (LC). Guarantee shall be issued by KEB Hana Bank KEPCO E&C(S) branch.

All costs, expenses, fees and charges levied by all banks party to the Performance Guarantee shall be prepaid/borne by the Contractor. The Performance Guarantee shall contain all requirements of payment to KEPCO E&C.

Requirements of the Performance Guarantee:

- Designated bank information:
 - KEB Hana Bank (KEPCO E&C(S) Branch)
 - Swift Code: KOEXKRSE or KOEXKRSEXXX
 - Bank Address: 269, Hyeoksin-Ro, Gimcheon-Si, Gyeongbuk-Do, 39660, Republic of Korea
 - Tel.: +82-54-437-9405
- Application Rules: UCP Latest Version
- Guarantee period: Guarantee period described in the Contract
- Guarantee Amount: 10% of the Contract Price
- Beneficiary: KEPCO Engineering & Construction Co., Inc.
269, Hyeoksin-Ro, Gimcheon-Si, Gyeongbuk-Do, 39660, Republic of Korea
- The Performance Guarantee shall be denominated in the currency used in the Contract.
- It shall be the responsibility of the Contractor to ensure that its Performance Guarantee is valid at all times during the period of contract validity and further is in the full amount as contracted.
- The performance guarantee shall be held against payment to KEPCO E&C for any loss resulting from the Contractor's failure to perform its contractual obligations fully and properly without any reference to the Contractor.
- The performance guarantee shall be irrevocable shall be provided in as a first-demand guarantee.
- Bank shall use the wordings of the Appendix for the guarantee.

[Appendix- Wordings for Guarantee]

1. Bank Guarantee by KEB Hana Bank

APPLICANT: [To be Included]

BENEFICIARY: KEPCO ENGINEERING AND CONSTRUCTION CO., INC.
269, HYEOKSIN-RO, GIMCHEON-SI
GYEONGSANBUK-DO 39660, REPUBLIC OF KOREA

WE HAVE BEEN INFORMED BY OUR PRINCIPAL, [To be Included], CONCLUDED A CONTRACT THAT YOU HAVE SIGNED WITH THEM THE CONTRACT FOR [To be Included] WITH KEPCO ENGINEERING AND CONSTRUCTION CO., INC. (HEREINAFTER REFFERRED TO AS THE BENEFICIARY) FOR [Contract amount to be Included] TO PROVIDE CONSULTING SERVICE.

WE HAVE ALSO BEEN INFORMED THAT ACCORDING TO THE ABOVE-MENTIONED CONTRACT, A PERFORMANCE GUARANTEE IS REQUIRED.

AT THE REQUEST OF THE PRINCIPAL, WE, KEB HANA BANK, 35 ULCHIRO, CHUNG-GU, SEOUL, REPUBLIC OF KOREA, HEREBY IRREVOCABLY UNDERTAKE TO PAY YOU ANY SUM OF SUMS NOT EXCEEDING IN TOTAL AN AMOUT OF [To be Included] UPON RECEIPT BY US OF YOUR FIRST DEMAND IN WRITING AND YOUR WRITTEN STATEMENT STATING THAT THE PRINCIPAL IS IN BREACH OF HIS OBLIGATIONS UNDER THE UNDERLYING CONTRACT AND THE RESPECT IN WHICH THE PRINCIPAL IS IN BREACH.

THIS GUARANTEE WILL EXPIRE ON [To be Included], AT THE LATEST. CONSEQUENTLY, ANY DEMAND FOR PAYMENT MUST BE RECEIVED BY US AT THIS OFFICE ON OR BEFORE THAT DATE.

THIS GUARNATEE IS SUBJECT TO THE UNIFORM RULES FOR DEMAND GUARANTEES, ICC PUBLICATION NO.758.

2. Counter Guarantee by other bank and guaranteed by KEB Hana Bank

TO: KEB HANA BANK (KEPCO E&C(S) Branch)
Swift Code: KOEXKRSE or KOEXKRSEXXX

Bank Address: 269, Hyeoksinsin-Ro, Gimcheon-Si, Gyeongbuk-Do, 39660, Republic of Korea

AT THE REQUEST OF PRINCIPAL, PLEASE ISSUE ON OUR RESPONSIBILITY IN FAVOR OF KEPCO ENGINEERING AND CONSTRUCTION CO., INC. YOUR GUARANTEE IN THE FOLLOWING WORDING:

QUOTE

APPLICANT: [To be Included]

BENEFICIARY: KEPCO ENGINEERING AND CONSTRUCTION CO., INC.
269, HYEOKSIN-RO, GIMCHEON-SI
GYEONGSANBUK-DO 39660, REPUBLIC OF KOREA

WE HAVE BEEN INFORMED BY OUR PRINCIPAL, [To be Included], CONCLUDED A CONTRACT THAT YOU HAVE SIGNED WITH THEM THE CONTRACT FOR [To be Included] WITH KEPCO ENGINEERING AND CONSTRUCTION CO., INC. (HEREINAFTER REFFERRED TO AS THE BENEFICIARY) FOR [Contract amount to be Included] TO PROVIDE CONSULTING SERVICE.

WE HAVE ALSO BEEN INFORMED THAT ACCORDING TO THE ABOVE-MENTIONED CONTRACT, A PERFORMANCE GUARANTEE IS REQUIRED.

AT THE REQUEST OF THE PRINCIPAL, WE, KEB HANA BANK, 35 ULCHIRO, CHUNG-GU, SEOUL, REPUBLIC OF KOREA, HEREBY IRREVOCABLY UNDERTAKE TO PAY YOU ANY SUM OF SUMS NOT EXCEEDING IN TOTAL AN AMOUT OF [To be Included] UPON RECEIPT BY US OF YOUR FIRST

DEMAND IN WRITING AND YOUR WRITTEN STATEMENT STATING THAT THE PRINCIPAL IS IN BREACH OF HIS OBLIGATIONS UNDER THE UNDERLYING CONTRACT AND THE RESPECT IN WHICH THE PRINCIPAL IS IN BREACH.

THIS GUARANTEE WILL EXPIRE ON [To be Included], AT THE LATEST. CONSEQUENTLY, ANY DEMAND FOR PAYMENT MUST BE RECEIVED BY US AT THIS OFFICE ON OR BEFORE THAT DATE.

THIS GUARANTEE IS SUBJECT TO THE UNIFORM RULES FOR DEMAND GUARANTEES, ICC PUBLICATION NO.758.

UNQUOTE

IN CONSIDERATION OF YOUR ISSUING YOUR GUARANTEE AS ABOVE, WE, [To be Included], HEREBY GIVE YOU OUR IRREVOCABLE COUNTER-GUARANTEE AND UNDERTAKE TO PAY YOU ANY SUM OR SUMS NOT EXCEEDING IN TOTAL AMOUNT OF [To be Included] UPON RECEIPT BY US AT THIS OFFICE NO LATER THAN [To be Included] OF YOUR FIRST WRITTEN DEMAND. SUCH A DEMAND SHALL BE SUPPORTED BY YOUR WRITTEN STATEMENT THAT YOU HAVE RECEIVED A DEMAND FOR PAYMENT UNDER YOUR GUARANTEE IN ACCORDANCE WITH ITS TERMS AND WITH ARTICLE 18 OF THE UNIFORM RULES FOR DEMAND GUARANTEES.

THIS COUNTER-GUARANTEE IS SUBJECT TO THE UNIFORM RULES FOR DEMAND GUARANTEES, ICC PUBLICATION NO. 758.

PLEASE CONFIRM TO US THE ISSUANCE OF YOUR GUARANTEE.

CHARGES: ALL BANKING CHARGES SHALL BE FOR THE ACCOUNT OF THE APPLICANT.

CHAPTER IV

INFORMATION for TECHNICAL PROPOSAL

- A. SCOPE OF THE SERVICES**
- B. METHOD OF PERFORMANCE**

A. SCOPE OF THE SERVICES

Contractor shall provide the following engineering services to KEPCO E&C as described in the following tasks:

Task 1: Load following operation

Contractor shall provide experiences (design modifications, licensing issues, etc.) on load following operation in Europe countries (Belgium, France, etc.)

- Daily load cycle
- Primary frequency control
- Secondary control
- Extended low power operation
- Island operation
- Reviews of load following operation for APR1000

Task 2: Low Temperature Overpressure Protection(LTOP) design

Contractor shall provide the following technical supports;

- Review on the design status for LTOP valve in Europe.
- Review on the safety analyses bases for LTOP protection in Europe
- Explain the licensing experiences for LTOP protection design in EUR.

Task 3: Mid-loop operation

Contractor shall provide the review and comments on the following items;

- design application to avoid mid-loop operation of European NPP
- design application of a RCS level control system during mid-loop operation in European NPP
- evaluation methodology for how to ensure the functionality of residual heat removal systems during mid-loop operation
- those licensing experiences.

Task 4: Redundancy of Pressurizer Spray

Contractor shall provide the review and comments on the following items:

- A requirement of spray system per EUR, Rev.D, Vol. 2.7, Sec. 2.8.2.2 is “The auxiliary spray system shall be totally separate from the spray system used in normal operation.” This requirement is deleted in the same section of EUR, Rev.E.
- But, redundancy shall be employed for improving the reliability and to meet the single failure criterion per EUR, Rev.E, Vol. 2.1, Sec. 6.3.1.1. Also, the spray system shall be designed to prevent or minimize thermal stratification per EUR, Rev.E, Vol. 2.8, Sec. 3.3.1.2.2.
- It will be supposed that two spray nozzles on the closure head of the pressurizer and two separated spray lines should be provided.
- Review on the following items:
 - 1) the present states or examples of separation of main spray line and auxiliary spray line of European NPP

- 2) design requirements of main spray line and auxiliary spray line in current European guidelines,
- 3) design recommendation to meet EU guidelines

Task 5: Inclined surge line

Contractor shall provide the following items;

- Review of the structural integrities of the inclined surge line including nozzle having a dissimilar weld
- Review of the design and layout of the inclined surge line
- Methodology to check the magnitude of thermal stratification

Task 6: Practical Elimination of ATWS

Contractor shall provide the following items;

- Technical Background for PE of ATWS (CEDM mechanical failure)
- Review and evaluation on CEDM mechanical failure of CE-type plant

Task 7: Practical elimination of early or large radioactive releases

Contractor shall provide the following items;

- Assist to select the severe accident conditions that have to be practically eliminated
- Provide methods to demonstrate PE using physical impossibility
- Provide methods to demonstrate PE using extremely unlikeliness
- Provide the methods for design of SSCs used for PE

Task 8: Design for DEC without core melt

Contractor shall provide the following items;

- Provide list of DEC without core melt events
- Select the list of events to be considered in the containment pressure and temperature analysis for DEC without core melt conditions
- Provide methods for safety analysis and radiological consequence analysis in the events of DEC without core melt
- Provide the methods for design of systems (fluid, electrical, I&C) used to mitigate DEC without core melt events
- Provide the methods of system design to ensure diversity

Task 9: Verification of structure design based on European code

Contractor shall provide the following items;

- Provide the containment structure design methods to comply with requirements of European Code & Standards
- Provide draft engineering calculations for design of exterior structure of containment building
- Provide draft engineering calculations for post-tensioning system

Task10: Design to withstand rare and severe external hazards

Contractor shall provide the following items;

- Provide design methodology of RSEH
- Provide the design criteria and methods for evaluation of biological hazards
- Provide design methods for cooling water system structures in potential NPP sites
- Provide responses to questions during the design process
- Provide the methods for evaluation of external natural hazards based on EUR Rev.E European practice
- Provide the procedures for site evaluation against external natural hazards
- Provide responses to questions on site evaluation that will be performed by the designer
- Provide the design criteria and procedures for safety systems and cooling systems that are to withstand RSEH conditions
- Provide the design methods for HVAC systems that are to be designed to withstand RSEH conditions
- Review of system design performed by the designer
- Provide responses to questions on site evaluation that will be performed by the designer

Task 11: Application of IEC 61660-1 for calculation of short circuit current for DC system

Contractor shall provide the following items;

- Provide the methods for calculation of short circuit current for DC system based on IEC 61660-1
- Provide responses to questions during the selection of short circuit current for DC system that will be performed by the designer
- Review of results of the selection of short circuit current for DC system that will be performed by the designer

Task 12: Application of equipment qualification methods based on EUR Rev.E

Contractor shall provide the following items;

- Provide the methods for seismic qualification to comply with IEC 60980
- Provide the methods for equipment qualification to comply with IEC 60780
- Review of seismic and equipment qualification program that will be prepared by the designer

Task 13: PSA methodology to comply with EUR

Contractor shall provide the following items;

- Provide the PSA methodology for evaluating software reliability and inter-system common cause failure based on European best practice
- Provide the PSA methodology for evaluating the fire, flooding and external hazards based on European best practice

Task 14: EIA methodology for EUR Rev.E

Contractor shall provide the following items;

- Provide standard or generic environmental conditions to be applied to the standard EIA
- Provide methodological guidance to assess the environmental impacts as well as the TOC (table of contents) for the standard EIA
- Provide responses to questions during the preparation of the standard EIA
- Review of the draft EIA that will be prepared by the designer

B. METHODS OF PERFORMANCE

Consulting Schedule

The consulting schedule for the basic tasks (Task 1 to 14) shall be until Dec. 31, 2023 from the Execution Date of the Contract, as follows:

Tasks	Weeks from the Contract Signing															
	2020				2021				2022				2023			
	3/4	4/4	1/4	2/4	3/4	4/4	1/4	2/4	3/4	4/4	1/4	2/4	3/4	4/4	1/4	2/4
Task 1 – Load following operation																
Task 2 – Low Temperature Overpressure Protection (LTOP) design																
Task 3 – Mid-loop operation																
Task 4 – Redundancy of Pressurizer Spray																
Task 5 – Inclined surge line																
Task 6 – Practical Elimination of ATWS																
Task 7 – Practical elimination of early or large radioactive releases																
Task 8 – Design for DEC without core melt																
Task 9 – Verification of structure design based on European code																
Task 10 – Design to withstand rare and severe external hazards																
Task 11 – Application of IEC 61660-1 for calculation of short circuit current for DC system																
Task 12 – Application of equipment qualification methods based on EUR Rev.E																
Task 13 – PSA methodology to comply with EUR																
Task 14 – EIA methodology for EUR Rev.E																

Detailed schedule of each TO shall be specified in each of the TOs.

Method of Performance

Contractor shall start the consulting service in accordance with each of the Task Orders(TOs) and perform the activities specified in the TOs. The methods to issue the TOs and to perform activities are described as follows:

A. Preparation and Issuance of Task Orders

KEPCO E&C is responsible for preparation of a draft TO. However, if it is considered more efficient, KEPCO E&C may request Contractor to prepare the draft TO on behalf of KEPCO E&C. It is recommended to use the template given in this Contract. The draft TO shall include the following information:

- (a) Title of the task order
- (b) Schedule
- (c) Scope of work
- (d) Methods of performance
- (e) Deliverables
- (f) Price information (including man-hours, indirect expenses, if any)
- (g) Others

The draft TO shall be reviewed, agreed and approved by the project managers of the both parties. Then, the signed (approved by the project managers of both parties) final TO is officially issued by the project manager of KEPCO E&C.

B. Task Orders

The Task Order forms are provided in Attachment 1.

Contractor shall keep confidential all the data and information from this Contract, and shall not divulge them to any third parties.

Deliverables

Deliverables issued by the TOs shall be provided in accordance with the above article (method of performance) mentioned.

Attachment 1. Task Order Form

TASK ORDER	No. TO-N-001	Rev.0
<p>To : <u>Name of Project Manager of Name of Contractor</u></p> <p>I, the undersigned, hereby authorize this Task Order (TO) under which Consultant shall provide the required Services described below in accordance with the terms and conditions of the Contract for Framework Contract for APR1000 between <u>Contractor</u> and KEPCO E&C, dated <u>mm/dd/yyyy</u>, which shall govern this Task Order.</p> <p>1. TITLE</p> <p><u>XXXXXXXX</u></p> <p>2. BRIEF DESCRIPTION</p> <p><u>XXXXXXXX</u></p> <p>3. START/END DATES AND DURARTION</p> <ul style="list-style-type: none"> • Assignment Start Date: <u>mm/dd/yyyy</u> • Assignment End Date: <u>mm/dd/yyyy</u> • Duration: <u>00 Months</u> <p>4. SCOPE OF WORK</p> <ul style="list-style-type: none"> • Contractor shall provide engineering services to KEPCO E&C for the following tasks: • <p>A. Task No.:</p> <p>The Contractor shall provide Technical Support for APR1000 Standard Design by performing the following tasks:</p> <p>(1.1) XXXXXXXX</p> <p>(1.2)</p> <p>(1.3)</p> <p><i>Describe scope of work and method of performance....</i></p>		

TASK ORDER		No. TO-N-001	Rev.0	
B. Task No.:				
(1.1) XXXXXXXX				
(1.2)				
(1.3)				
5. PRICE				
<ul style="list-style-type: none"> • Total Budget: € <u>000,000</u> <ul style="list-style-type: none"> – Engineering Fee: €000,000 (000 MH) – Travel Expenses: €00,000 				
Activity or Item	Position Assigned	Rate (€/hr)	Man-hours	Costs (€)
Fixed Price Portion				
(Task 1) ...	Senior Engineer			
	Junior Engineer			
(Task 2) ...	Senior Engineer			
	Junior Engineer			
...				
Fixed Price TOTAL				
Reimbursable Portion ^{1), 2)}				
Direct expenses				
...				
Reimbursable Price TOTAL				
GRAND TOTAL				
<p>Contractor shall not be required to continue to perform Services upon full expenditure of the cost estimate unless a written amendment to the Task Order is accepted in writing by Client and Contractor.</p>				
6. DORMAIN OF RESPONSIBILITY				

TASK ORDER	No. TO-N-001	Rev.0
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A. KEPCO E&C

- Provides sufficient design information so that the Contractor can perform the tasks.
- Reviews the reports and deliverables prepared by the Contractor
-

B. Contractor

- Provides the consulting services described in this Task Order.
- Provides the deliverables to KEPCO E&C as defined in this Task Order.
-

7. TIME SCHEDULE

•

Task No.	Activity	DOR	Schedule
	<ul style="list-style-type: none"> • (1.1) Sub-task • (1.2) Sub-task 	Contractor KEPCO E&C	
	<ul style="list-style-type: none"> • (1.1) Sub-task • (1.2) Sub-task 		
...	...		
...	...		

•

•

8. DELIVERABLES

•

No.	Deliverable	Schedule
1	Title of Deliverable 1	
2	Title of Deliverable 2	
...	...	
...	...	

•

•

•

TASK ORDER	No. TO-N-001	Rev.0
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9. NAME(S) AND POSITION OF PERSONNEL TO CARRY OUT THE WORK

-
- (1) Principal Nuclear Consulting Engineer: Name
- (2) Senior Nuclear Consulting Engineer: Name
- (3) ...

10. REFERENCES

- (1) Framework Contract No. XXX
- (2) ...

11. ISSUE OF TASK ORDER

-

Preparation/Review (KEPCO E&C)	Position	Name	Signature
Issued by	Nuclear EGS		
Reviewed by	PA-GS		
Approved by	APM		

-
-
-

Agreed by Contactor PM

- (Name) (Signature) (Date)
-
-

Authorized by KEPCO E&C PM

- (Name) (Signature) (Date)

APPENDIX

TERMS and CONDITIONS

- A. GENERAL TERMS AND CONDITIONS**
- B. NON-DISCLOSURE AGREEMENT**
- C. INTEGRITY PACT**
- D. PAYMENT TERMS**

A. GENERAL TERMS AND CONDITIONS

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PREAMBLE

This consulting services contract (the “Contract”) is made and entered into effective as of this ____ day of ____, 2020 (hereinafter called the “Execution Date”) by and between:

1. **KEPCO Engineering & Construction Co., Inc.** (“KEPCO E&C”), a company duly organized and existing under the laws of the Republic of Korea (“Korea”) and having its principal office of business at 269 Hyeoksin-ro, Gimcheon-si, Gyeongsangbuk-do, 39660, Korea; and
2. _____, a company duly organized and existing under the laws of _____ and having its principal office of business at _____ (the “Contractor”).

WITNESSETH:

WHEREAS, KEPCO E&C desires the Contractor to provide KEPCO E&C with certain services for _____;

WHEREAS, the Contractor offers to provide KEPCO E&C with such Services and to abide by the terms and conditions of this Contract;

WHEREAS, the Contractor has represented himself that it is technically qualified and experienced in the type of work as defined hereinafter and that it is professionally and financially capable of providing the Services for KEPCO E&C;

WHEREAS, KEPCO E&C and the Contractor (hereinafter referred to, individually, a “Party” and collectively, the “Parties”) desire to document their agreement to cover the conditions under which the Services shall be provided; and

WHEREAS, the representatives of the Parties possess proper and sufficient authority to agree.

NOW, THEREFORE, for and in consideration of the premises and the mutual covenants and agreements hereinafter set forth, the Parties agree as follows:

ARTICLE 1. [DEFINITIONS]

- “Contract” means this agreement entered into between KEPCO E&C and the Contractor for the supply of the Services.
- “Contractor” means [REDACTED] and its successors and assignees entering into this Contract with KEPCO E&C for the supply of Services in accordance with this Contract.
- “day” means calendar day unless expressly indicated as a working day.
- “KEPCO E&C” means KEPCO Engineering & Construction Company, Inc., having its headquarters in Gyeongsangbuk-do, Korea and its legal representatives, successors and assignees.
- “Korea” means the Republic of Korea.
- “Services” means all services to be performed by the Contractor in accordance with the terms and conditions of this Contract.

ARTICLE 2. [SCOPE OF THE SERVICES]

- 2.1 The Services to be performed by the Contractor under this Contract are described in Appendix A [Scope of Services and Method of Performance] attached hereto and made a part hereof.
- 2.2 Upon completion of all tasks in accordance with the schedule agreed between the Parties, the Contractor shall submit its work results including all deliverables to KEPCO E&C for its inspection and review. Upon acceptance in writing by KEPCO E&C of the work results, the Contractor shall be deemed to have completed the Services.

ARTICLE 3. [CONTRACT PRICE]

- 3.1 The maximum total amount to be paid by KEPCO E&C under the Contract and corresponding to the total contract price (the “Contract Price”) shall be €_____ inclusive of labor cost and other direct costs. The Contractor agrees that any amount exceeding the above Contract Price shall not be paid by KEPCO E&C.
- 3.2 In case any increase or decrease in accordance with Article 7, "Revisions" or Article 13, "Termination" is required, such portion of increase or decrease shall be calculated based on the cost detail specified in Appendix B [CONTRACT PRICE & PAYMENT].

ARTICLE 4. [TERMS OF PAYMENT]

- 4.1 The Contractor shall submit invoices to KEPCO E&C in accordance with the following payment schedule described in Appendix B [CONTRACT PRICE & PAYMENT].

- 4.2 KEPCO E&C shall pay the accepted amount to the Contractor within thirty (30) days after the receipt of the invoice by telegraphic transfer to the Contractor's bank account. For the avoidance of any doubt, no invoice shall be paid unless and until KEPCO E&C has received and accepted the result (including but not limited to deliverables such as technical consulting service report) of Services performed by the Contractor.

Should any adjustment be necessary as a result of questioned or disallowed items, such adjustment shall be added to or deducted from, as the case may be, any following invoice. If there remains a questioned item, KEPCO E&C reserves the right to withhold payment for the items in question.

- 4.3 Except for banking charges incurred by KEPCO E&C to pay Contractor in connection with Article 3 "Contract Price", all banking charges shall be for the Contractor's account.

ARTICLE 5. [TAXES]

Except as otherwise specifically provided in this Contract, the Contractor shall bear and pay the corporate tax, personal income tax, inhabitant tax and any other taxes assessed on the Contractor, if any, by all local, state or national government authorities outside of Korea in association with the Services. Taxes levied by government authorities of Korea shall be borne by KEPCO E&C.

ARTICLE 6. [FORCE MAJEURE]

No Party shall be in default or shall be liable for any loss or damage due to delay in, or prevention of the performance of its obligations under this Contract if such delay or prevention results from the causes beyond such Party's control ("Force Majeure"). Force Majeure shall include, but are not limited to, the following:

- (a) Acts of God such as storms, floods or earthquakes;
- (b) Civil disturbances such as riots, strikes, revolutions, rebellions or insurrections;
- (c) Accidents or disruptions such as fires or explosions;
- (d) Any acts, laws, decrees, priorities, orders or regulations of any governmental authorities (national or local) including embargoes, quarantines, prohibitions of trade (including delays or failure to act), and delays or failures to issue any necessary license, permit or export or import authorization; or
- (e) Hostilities, invasions, wars (declared or not), or nuclear incidents.

ARTICLE 7. [REVISIONS]

- 7.1 KEPCO E&C shall have the right to request and subsequently to order the Contractor from time to time during the performance of the Services to make any changes to the Services for the modification, addition or deletion of any part of the Services, provided that such changes fall within the general scope of the Services.

The Contractor shall promptly inform KEPCO E&C if the change result in changes to schedule and/or price and the Parties shall in good faith negotiate such schedule and/or price changes.

- 7.2 Notwithstanding Paragraph 7.1 above, any changes made necessary due to any default of the Contractor in the performance of its obligations under the Contract shall not be deemed to be the changes under Paragraph 7.1 above and such changes shall not result in any adjustment of the Contract Price.

ARTICLE 8. [INDEMNITY]

- 8.1 The Contractor shall indemnify, defend, and hold harmless KEPCO E&C and its successors and assigns, their directors, officers, agents and employees from and against any and all claims for loss or damages including bodily injury or death suffered by anyone whomsoever, or any property damage of third party, arising directly or indirectly or claimed to arise out of the Contractor's negligent conduct or negligent performance of the Services or resulting from the negligent performance by the Contractor's employees in the performance of the Services.
- 8.2 The Contractor, at its own expense, shall defend any suit or action brought against KEPCO E&C where the Contractor has agreed to indemnify and defend KEPCO E&C as provided in Paragraph 8.1 above, and shall pay all such judgments against each of them including reasonable attorney's fees and expenses arising and resulting therefrom. The Contractor shall keep KEPCO E&C fully informed of the progress of any such suits or actions, and shall agree to consult with KEPCO E&C at all reasonable times in regard to the progress of such suits or actions.

ARTICLE 9. [WARRANTY AND LIABILITY]

- 9.1 The Contractor warrants that it shall completely perform the Services for KEPCO E&C according to the provisions of this Contract, especially Appendix A [Scope of Services and Method of Performance].
- In the event the Contractor ceases the performance of the Services due to any other reasons than those permitted by provisions of the Contract, KEPCO E&C may claim damages arising out of or resulting from such nonfulfillment based on the provision of Paragraph 8.1. In such case, KEPCO E&C shall have right to reject the payment invoiced by the Contractor for the performance of the Services.
- 9.2 The Contractor warrants that it shall perform the Services for KEPCO E&C making commercially utmost use of its skill and experience in an efficient, economic and thorough manner within its areas of expertise, in accordance with sound and currently acceptable engineering and management standards, practices, procedures, applicable laws and regulations.

- 9.3 In the event any of the Contractor's Services do not conform to the standards set forth in Paragraphs 9.1 and 9.2 above, KEPCO E&C shall promptly notify the Contractor of any nonconformity. The Contractor shall, at its own expense, upon receipt of written notice from KEPCO E&C, perform any additional Services necessary to correct the nonconformity so that negligent errors or omissions therein are removed to the reasonable satisfaction of KEPCO E&C. Any claims by KEPCO E&C for re-performance of the Contractor's Services shall be made within one (1) year from completion of such Services.
- 9.4 The Contractor's aggregate limit of liability for the Services, arising from violation of its obligations under this Contract, shall not exceed the total Contract Price set forth in Article 3.

ARTICLE 10. [PERFORMANCE GUARANTEE]

As a security for satisfactory performance of its obligation under this Contract, the Contractor shall provide KEPCO E&C with an unconditional irrevocable performance guarantee in a form of a bank guarantee or standby L/C furnished by a bank designated by KEPCO E&C. The guaranteed amount shall be ten percent (10%) of the Contract Price, and the duration shall be at least from Execution Date of this Contract until thirty (30) days after the end of Contractor's Services period described in Article 17 [CONTRACT PERIOD].

ARTICLE 11. [OWNERSHIP OF DATA AND PROPRIETARY INFORMATION]

- 11.1 All the reports and technical documents developed for KEPCO E&C by the Contractor under this Contract shall become the property of KEPCO E&C.
- 11.2 The Contractor shall keep confidential all the data and information provided and designated by KEPCO E&C as confidential or proprietary and shall not divulge them to any third parties.
- 11.3 Contractor shall retain any pre-existing intellectual property ("IP") and hereby grants to KEPCO E&C and its affiliates an irrevocable, non-exclusive, fully paid license to use the Contractor's IP and/or any embedded IP to the extent necessary to utilize results of the Services under this Contract.

ARTICLE 12. [SUSPENSION AND EXTENSION]

- 12.1 KEPCO E&C shall have the right to suspend or extend the completion of the Services for any reason upon fifteen (15) days prior written notice to the Contractor.
- 12.2 The completion shall be suspended or extended by a period of time reflecting the effect of the suspension or extension.

- 12.3 The Contractor shall resume the suspended Services within the earliest reasonable date after receipt of KEPCO E&C's request to do so, but not later than thirty (30) days following receipt of such notice.

ARTICLE 13. [TERMINATION]

- 13.1 KEPCO E&C may at any time terminate the Contract, with or without cause by giving the Contractor a fifteen (15) days' notice in writing ("Termination Notice"). Upon receipt of KEPCO E&C's Termination Notice, the Contractor shall either immediately or upon the date specified in the Termination Notice cease all further Services.
- 13.2 The Contractor shall be paid compensation for the Services performed up to the date of termination except in case the termination is made due to the Contractor's default.
- 13.3 In the event termination as described in Paragraph 13.1 above is made due to the Contractor's default or breach of obligations hereunder, the Contractor shall be liable to KEPCO E&C for all loss, damages and expenses as a result of such termination. In such case, KEPCO E&C shall have the right to reject payment to the Contractor.

ARTICLE 14. [ASSIGNMENT AND SUBCONTRACT]

- 14.1 Neither this Contract nor the benefits or obligations under this Contract shall be sold, assigned or transferred by either Party to any third parties including subsidiary or affiliated companies without the prior written approval of the other Party, with such approval not to be unreasonably withheld by either. In the event the approval is given by either for assignment or transfer, such an approval shall not relieve either from any liability and/or responsibility under this Contract.
- 14.2 Any subcontract, modification or termination hereof relating to the performance of the Services by the Contractor shall not be made without the prior written approval of KEPCO E&C.

ARTICLE 15. [DISPUTES AND ARBITRATION]

- 15.1 All disputes, controversies or differences which may arise between the Parties, out of or in relation to or in connection with this Contract, or for the breach thereof, if not settled by mutual agreement, shall, at the option of the initiating Party and upon written notice to the other Party, be finally settled by arbitration in Seoul, Korea in accordance with the International Arbitration Rules of the Korea Commercial Arbitration Board and under the laws of the Republic of Korea.
- 15.2 The award rendered by the arbitrator(s) shall be final and binding upon both the Parties concerned.

ARTICLE 16. [GOVERNING LAW]

All discrepancies, controversies or differences, or the validity, construction and performance of the Contract shall be governed by and interpreted in accordance with the laws of the Republic of Korea, without regard to its conflict of laws principles.

ARTICLE 17. [CONTRACT PERIOD]

The period of the Contractor's Services shall be _____ from the Execution Date. However, notwithstanding the forgoing, the contract period shall be regarded as the period from the Execution Date of this Contract to the expiration date of all rights and responsibilities including the Contractor's warranty, liability, settlement of all tax obligations, and any other obligation under this Contract.

ARTICLE 18. [LIQUIDATED DAMAGES FOR DELAY]

In the event that, for reasons attributable to Contractor, the Services are delayed beyond the completion date specified in the Contract documents, the Contractor shall pay liquidated damages to KEPCO E&C, not as a penalty, in an amount of zero point one two five (0.125) percent of the amount of each delayed portion for each day of delay. The liquidated damages shall not exceed ten (10) percent of the total Contract Price.

KEPCO E&C is entitled to deduct such liquidated damages from any payment due to the Contractor.

ARTICLE 19. [SEVERABILITY]

In the event that any articles, provision, portion or application thereof is held to be unenforceable or invalid by any court of competent jurisdiction, the validity and enforceability of the remaining provisions, portions or applications thereof shall not be affected thereby.

ARTICLE 20. [NOTICE]

All notices, communications and approvals required or permitted to be given hereunder shall be given in writing in English and shall be made to the address of the parties concerned in one of the following means ;

- Personal delivery to the designated representative of each of the parties ;
- by registered post ; or
- by telefax or email

the specific designation of the parties as set forth below ;

If to KEPCO E&C :

KEPCO Engineering & Construction Co., Inc.
269, Hyeoksin-ro, Gimcheon-si,
Gyeongsangbuk-do, 39660, the Republic of Korea
Attention: Mr. _____
Tel: +82-54-421-_____
E-mail: _____@kepc0-enc.com

If to the Contractor :

Attention: _____
E-mail: _____
Fax No.: _____

Either Party hereto may change its address by a notice given to the other Party in the manner set forth immediately above. Notice given as herein provided shall be considered to have been given upon receipt.

ARTICLE 21. [INFRINGEMENT OF PATENTS]

In the event any suit, claim, action or proceeding against KEPCO E&C or their designee arises from allegations that any proprietary rights arising from the Services provided by the Contractor under this Contract, including without limitation the computer programs, or any portion thereof constitute infringement of any patent, copyright, trade secret, Know-How, or any other proprietary right of any third party, the Contractor shall defend KEPCO E&C's or their designee's right, title and interest to the same against such suit, claim, action, or proceeding at the Contractor's expense and shall hold KEPCO E&C and their designee harmless from any damages or losses of any kind including without limitation legal fees. If as a result of such suit or proceeding, the proprietary rights or any part thereof is held to constitute an infringement and the use of said proprietary rights, or any part thereof, is enjoined, the Contractor promptly shall, at his option and expense, either procure for KEPCO E&C the right to continue using said proprietary rights, or the part thereof, or replace the same with non-infringing proprietary rights acceptable to KEPCO E&C.

ARTICLE 22. [ACCEPTANCE OF THE SERVICES]

22.1 The Contractor shall give KEPCO E&C written notice as soon as it has completed the Services. Within fifteen (15) calendar days after receipt of such notice, KEPCO E&C shall notify in writing whether to accept those Services or request Contractor for correction of any unfinished work or deficiencies.

- 22.2 If the Contractor performs or corrects the unfinished work or deficiencies and notifies KEPCO E&C that all such items of unfinished work or deficiencies have been corrected, KEPCO E&C shall give the Contractor the written notice of acceptance (“Acceptance of Services”) within fifteen (15) calendar days thereafter.
- 22.3 If KEPCO E&C fails to give notice of acceptance in the manner and at the times provided above, the Services shall be deemed to have been accepted by KEPCO E&C for all purposes of this Contract. The Acceptance of Services by KEPCO E&C shall in no event be considered a release of the Contractor's responsibilities, within the warranty period specified in Article 9.

ARTICLE 23. [RESPONSIBILITIES OF THE PARTIES]

23.1 KEPCO E&C's Responsibilities

- 23.1.1 KEPCO E&C shall provide available, data, criteria and other necessary information to the Contractor in a reasonably expeditious manner for the Contractor to perform the Services.

23.2 The Contractor's Responsibilities

- 23.2.1 The Contractor shall obtain necessary customary local licenses, permits, authorizations, customs clearances and handling, and agreements required for the Contractor to do business in the jurisdiction in which the Services are performed. The costs related to this Paragraph shall be for the Contractor's account.
- 23.2.2 The Contractor, its employees and agents shall comply with all legal provisions, regulations and safety rules for work applying in the territories in which the Services are carried out.

ARTICLE 24. [LANGUAGE AND UNITS]

The text of this Contract, technical specification or documents shall be made in English. The metric system and units shall be used for all principal instruction, instrumentation and other operating parameters. However, the foot-pound system can also be used in addition for reference.

ARTICLE 25. [TIME ZONE/TIME PERIOD]

Any reference in this Contract to a specific time shall refer to Korea Standard Time (KST).

ARTICLE 26. [DRAFTING]

Each of the Parties hereto acknowledges that each Party was actively in the negotiation and drafting of this Contract and that no law or rule of construction shall be raised or used which the provisions of this Contract shall be construed in favor or against any Party hereto because one is deemed to the author thereof.

ARTICLE 27. [ENTIRE AGREEMENT]

This Contract constitutes the entire agreement and understanding between the Parties as to the subject matter of this Contract and merges and supersedes all previous discussions, agreements and understanding of any and every nature between them. This Contract shall not be amended except by written agreement of the Parties.

ARTICLE 28. [CONTRACTUAL INTEGRITY]

- 26.1 The Contractor shall not offer or grant any bribes or undue benefits, including money, other articles, or treats, either directly or indirectly to any officials concerned, in the process of bid, award of contract, execution or performance of contract.
- 26.2 The Contractor shall not engage in any unfair practices that unreasonably undermine fair competition in a bid, such as bid-rigging or collusion to render the award of contract to a particular participant.
- 26.3 In the event of violation of the above, KEPCO E&C shall be entitled to:
- 1) terminate any contract with the Contractor including this Contract; and/or
 - 2) prohibit the Contractor from participating in any bids invited by KEPCO E&C for the period of two (2) years, and the Contractor shall not raise any objections or file any civil or criminal claims against KEPCO E&C for any measures taken by KEPCO E&C.
- 26.4 The Contractor shall be deemed to have signed and accepted the Integrity Pact attached hereto by signing this Contract.

ARTICLE 29. [EFFECTIVENESS]

This Contract shall be entered into full force and effect upon the signing of this Contract by the parties hereto.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be executed in duplicate each of which is deemed an original, by their respective duly authorized representatives as of the date first above written in the Preamble.

KEPCO Engineering & Construction Co., Inc.

By: _____
Name: Yoon Donggyu
Title: General Manager

By: _____
Name: _____
Title: _____

B. NON-DISCLOSURE AGREEMENT

THIS NON-DISCLOSURE AGREEMENT (the "**Agreement**") is made and entered into as of this [Date, Month, and Year] (the "**Effective Date**"), by and between:

KEPCO Engineering & Construction Co., Inc., a company organized and existing under the laws of the Republic of Korea, having its principal place of business at 269, Hyeoksin-ro, Gimcheon-si, Gyeongsangbuk-do, 39660, Republic of Korea ("**KEPCO E&C**"),

and

[Company Full Name], a company organized and existing under the laws of [Country], having its principle place of business at [Address] ("**Company Abbreviated Name**").

KEPCO E&C and the [Company Abbreviated Name] are individually referred to as a "Party", and collectively as the "Parties".

RECITALS

WHEREAS, the Parties have signed Contract "_____"
("Purpose"); and

WHEREAS, the Parties anticipate that Contract will involve the disclosure of confidential or proprietary information owned or controlled by KEPCO E&C ("Disclosing Party") to the [Company Abbreviated Name] ("**Receiving Party**") and desire to undertake certain measures to protect any such information from unauthorized use or disclosure.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants provided herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. "Confidential Information" shall mean any information, ideas or materials now or hereafter owned by or otherwise in the possession or control of, or otherwise relating to, the Disclosing Party of a confidential nature, including but not limited to proprietary samples, designs, specifications, calculations, data, reports, drawings, process, formula, method, know-how, trade secret, business-related information, technical information, marketing information, engineering information, construction information, and other information relating to Purpose, which may be disclosed by the Disclosing Party to the Receiving Party in connection with the Purpose. Confidential Information shall also include all copies, summaries, analyses, or extracts of such information, ideas or materials disclosed by the Disclosing Party, based thereon or derived therefrom.
2. The Receiving Party shall:
 - (a) limit the dissemination of Confidential Information within its organization to only those employees having a need for access,
 - (b) protect Confidential Information from disclosure to third parties with at least the same degree of care (but no less than a reasonable degree of care) as it uses to protect its own Confidential Information of like kind from unauthorized use or disclosure,

- (c) use Confidential Information only for the Purpose expressly stated above, and
 - (d) not copy or reproduce the Confidential Information without the written consent of the Disclosing Party, except for such copies as may be required for the Purpose.
3. The obligations of Paragraph 2 above shall survive termination of this Agreement, provided that such obligations shall not apply to any information that the Receiving Party can prove by corroborated evidence:
- (a) was or is developed for the Receiving Party by persons who had not been exposed to Confidential Information;
 - (b) was publicly available at the time of disclosure or became publicly available through no fault of the Receiving Party and without breach of this Agreement by the Receiving Party or any affiliate, agent, consultant or employee of the Receiving Party; or
 - (c) was or is rightfully received by the Receiving Party from a third party without limitation or restriction on its disclosure at the time of disclosure by such third party and without breach of this Agreement.

The Receiving Party shall not use nor disclose Confidential Information in reliance on any of the foregoing exemptions without notifying the Disclosing Party in writing of its intended reliance at least fourteen (14) days in advance of use or disclosure. Confidential Information shall not be deemed to be within the foregoing exceptions merely because it may be embraced by more general information in the public domain or in the Receiving Party's possession. Confidential Information embodied within a combination of features available in the public domain or in the Receiving Party's possession shall not be deemed to be within the foregoing exceptions unless the combination of features itself is in the public domain or in the Receiving Party's possession.

4. No information proprietary to the Receiving Party shall be disclosed to the Disclosing Party under this Agreement. All information, supplies or equipment delivered to the Disclosing Party by the Receiving Party hereunder shall be available for unrestricted use or replication by the Disclosing Party without further compensation to the Receiving Party.
5. The Receiving Party shall not manufacture, reproduce, redesign, alter, modify, break-down, disassemble, reverse engineer, analyze or otherwise attempt to derive the material composition or the physical characteristics of the underlying information, structure or ideas of any tangible materials received as Confidential Information from the Disclosing Party. The Receiving Party may not use the Confidential Information to perform any services outside the scope of this Agreement. Upon request by the Disclosing Party, the Receiving Party shall promptly destroy or return all tangible Confidential Information remaining in its possession.
6. No warranty, license, right or immunity under any patent or other intellectual property is intended to be granted to the Receiving Party by this Agreement.
7. This Agreement shall be considered to have been entered into and construed in accordance with the laws of the Republic of Korea, without regard to conflict of laws principles.
8. This Agreement shall be effective from the Effective Date hereof, and continue in effect for 10 years from the completion and/or termination of the Contract, KCN04-20-XX, whichever is the later, provided that all obligations attaching to Confidential Information disclosed shall survive such termination.

9. The Receiving Party warrants that any subcontractor of the Receiving Party having access to or contact with any Confidential Information shall be subject to an agreement having obligations of confidentiality which are at least as restrictive as those contained herein. The Receiving Party warrants that such subcontractor shall have access only to such Confidential Information which is absolutely necessary to enable subcontractor to perform its duties in accordance with this Agreement.
10. All tangible information, including drawings, designs, specifications, calculations, blueprints, flowsheets, sketches, descriptions, data, samples and other tangible material pertaining to the Confidential Information shall remain the property of the Disclosing Party. At request of the Disclosing Party, the Receiving Party shall promptly return all such tangible information, and all copies thereof, to the Disclosing Party.
11. The Receiving Party agrees to comply, and do all things necessary for the other Party to comply, with all applicable laws, regulations and ordinances, including, but not limited to, any applicable export control laws and regulations, insofar as they relate to the activities to be performed under this Agreement. Each Party agrees to obtain any required government approvals prior to export of any technical data disclosed to it or the direct product related thereto.
12. This Agreement contains the entire agreement between the Parties as to the subject matter hereof and supersedes and replaces all previous written or oral understandings, agreements, negotiations, commitments, or representations, and any other writings or communications in respect to such subject matter. No amendment of this Agreement shall be effective unless in writing and signed by both of the Parties.
13. The Receiving Party agrees that money damages shall not be a sufficient remedy for any breach of this Agreement by it and that in addition to all other remedies which may be available, the Disclosing Party shall be entitled to specific performance and injunctive or other equitable relief, without bond, as a remedy for any such breach or threatened breach in accordance with the procedures set out in Paragraph 14 of this Agreement.
14. Any dispute or claim, whether based on contract, tort, statute or other legal or equitable theory arising out of or in connection with this Agreement, if not settled by mutual agreement, shall be finally settled by arbitration in Seoul, Korea in accordance with the International Arbitration Rules of the Korean Commercial Arbitration Board by one or more arbitrators appointed in accordance with the said Rules, provided that a Party may seek appropriate interim injunctive relief pending the formation of the arbitration panel. In the event of any legal action to enforce this Agreement or to recover damages or other relief on account of any breach of this Agreement, the prevailing party will be entitled (in addition to any and all other remedies) to recover any and all costs and expenses (including, without limitation, reasonable attorneys' fees) that it may incur in connection with such action.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the date first above written.

KEPCO Engineering & Construction Co., Inc. ABC

By_____

By_____

Name:

Name:

Title:

Title:

C. INTEGRITY PACT

Integrity Pact

In connection with conducting any business transactions with KEPCO Engineering & Construction Co., Inc. (KEPCO E&C), the undersigned hereby covenants the following:

1. We shall not offer or grant any bribes or undue benefits, including money, other articles, or treats, either directly or indirectly to any officials concerned, in the process of bid, award of contract, execution or performance of contract.
2. We shall not engage in any unfair practices that unreasonably undermine fair competition in a bid, such as bid-rigging or collusion to render the award of contract to a particular participant.

We acknowledge that, in case of breach of the above covenants, any of our contract with KEPCO E&C may be terminated and we may not be allowed to participate in any bidding invited by KEPCO E&C.

We will fully comply with this Integrity Pact, and will not raise any objections or file any civil or criminal claims against KEPCO E&C for the measures taken by KEPCO E&C.

By: _____

Name: _____

Title: _____

C. PAYMENT TERMS

The payment plan is determined in the TOs depending on the total budget and the duration of the work. However, the following general payment plant will be typically used:

- a. If the total duration of the TO is 3 months or shorter, the Contractor shall submit the invoice to KEPCO E&C after the completion of all activities of the TO.
- b. If the total duration of the TO is longer than 3 months, the Contractor shall submit the invoice to KEPCO E&C on the basis of every 3 months. It is recommended to determine the dates of invoice considering the submission of the deliverables.

KEPCO E&C shall pay the accepted amount of the invoice to the Contractor within thirty (30) days after the receipt of the contractor's invoice