Technical Consulting Services on

3D CAD Model Upgrade For OpenPlant Series

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한국전력기술주식회사
KEPCO ENGINEERING & CONSTRUCTION COMPANY, INC

1.0 PURPOSE

KEPCO E&C has designed nuclear power plants which are owned by Emirates Nuclear Energy Corporation(ENEC) and operated by Nawah Energy Company. KEPCO E&C performed this work in Bentley Plantspace Design Series (PSDS) and has been requested by KEPCO to upgrade to Bentley's latest Plant design suite of software OpenPlant, in order to create and modify intelligent 3D models. The next step is to expand the use of OpenPlant by upgrading from an older V8i system, PSDS, to the newest CONNECT version of OpenPlant for intelligent Piping and Equipment design. Unless otherwise specified, all deliverables related to this Contract shall be owned by ENEC and Nawah, the owner of Barakah Nuclear Power Plant.

2.0 TECHNICAL SCOPE OF WORK

Contractor shall provide technical services on conversion of 3D Model files from PSDS to OpenPlant.

1) Task 1 : 3D CAD Model Upgrade

   ❍ Contractor shall convert 3D Model files in the table below in order for them to be opened and edited in OpenPlant program.

   ■ Type and number of files subject to Migration is as follows :

Model Type	No. of Files
Equipment	267
Piping	292
Support	272
Electric Raceway	82

   ❍ Contractor shall submit Report on Upgrade progress containing KEPCO E&C, ENEC/Nawah's review and comment raised while performing the conversion.
   ❍ All 3D Model Upgraded Files shall be reviewed and approved by KEPCO E&C, ENEC/Nawah regarding model configuration, attribute information and editability.
   ❍ Final report on the 3D Model Upgraded Files shall be submitted containing KEPCO E&C, ENEC/Nawah's review.

2) Task 2 : Establish OpenPlant Conversion Environment

   ❍ Contractor shall put technical experts to establish OpenPlant Conversion Environment
   • Technical experts shall have extensive experience in establishing OpenPlant Conversion Environment
   • Contractor shall cause OpenPlant Conversion Environment to be able to convert a single or a number of 3D Model files simultaneously.
   • Contractor shall cause OpenPlant Conversion Environment to be operated in Windows 10 and later Windows Operation System.
   • Contractor shall cause OpenPlant Conversion Environment to be able to save converted 3D Model files to assigned folders and demonstrate the result of conversion.
   • Contractor shall cause OpenPlant Conversion Environment to be stopped and save Error Message as output when any problem occurs while converting a number of files simultaneously

- Contractor shall cause OpenPlant Conversion Environment to generate Error Description   and log files.

3.0   METHOD OF PERFORMANCE

1) Consulting Schedule

The work schedule shall be within 1 month from the Execution Date of the Contract, as follow:

Tasks	Schedule (Month from Execution Date of Contract)
	M+1
Task 1	▬▬▬▬▬▬▬▬▬▬▬▬▬▬
Task 2	▬▬▬▬▬▬▬▬▬▬▬▬▬▬

* The schedule can be adjusted by agreement between KEPCO E&C and Contractor

2) Method of Performance

○ KEPCO E&C will provide related 3D Model files within 3 days after Execution Date of Contract, and Contractor shall perform the tasks following the agreed schedule.

○ Contractor shall discuss technical issues raised in the course of conversion process with KEPCO E&C through technical meetings and submit a final report to incorporate KEPCO E&C's review and comments

○ Contractor shall maintain in confidence and not disclose all information and data provided by KEPCO E&C to any third parties.

3) Deliverables : Reports and Converted OPM files

No	Deliverables	Date of Submittal
1	Report on Upgrade Progress (including list of converted files / Converted OPM files / log files / technical issues)	Within 25 days after Execution Date of Contract
2	Final Report	Within 1 month after Execution Date of Contract

* If Report on Upgrade Progress satisfies all requirements of KEPCO E&C, the submitted Report on Upgrade Progress will be deemed as Final Report

4) Location : KEPCO E&C office in Gimcheon City, Gyeongbuk Province in South Korea

4.0   MISCELLANEOUS

This Contract shall be governed by the laws of the Republic of Korea. All matters not clearly stated in this Contract shall be addressed in accordance with the governing laws.