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The list of Clarifications, Additions and Corrections to HVVP Tender, June 2023

20 June 2023

Instruction to the tenderers

This document contains clarifications, additions and corrections to HVVP Tender and has priority over the tender material.

The document will not be included as separate appendix to the final contractual documents as the described clarifications, additions and corrections will be incorporated in the contractual documents before signing the contract.

Appendix	2. Employer's Technical Requirement
Section	3.9 Interfaces
Correction:	
District heating p	ipes counterflange: PN 6 shall be corrected to PN 16.
Section	4.1 General Layout Criteria
Correction:	
//	
"The building wide	th shall be limited to max 45 m."
will be replaced w	vith:
"The building wide	th shall be limited to 47,5 m."
Addition:	
"Seawater valves shall be inside heat pump compartment."	
Section	4.8 Noise requirements internal/external

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Clarification:

To avoid any doubts: Emergency ventilation - noise from each noise source must not exceed 90 dB(A) measured 1 m from the source.

Section	4.9.7 Seawater supply and discharge for heat pump evaporators
The sentence	
"The new seawater piping connection from the pressure chamber and to the heatpump building will have an inside diameter of 2,5 m."	
will be replaced with	
"The new seawater piping connection from the pressure chamber and to the heatpump building will have an inside diameter of 2,8 m."	
Section	4 10 District heating connection
beetion	
	4.10.1 Design Criteria
New addition	
"Dimension of DH connection's: DN 700"	
4.10.1 District heat connection, design criteria and 7.5 District heat circuit	
Clarification:	
DH system piping shall be designed for 10 bar. Components in DH system (pumps, valves, Strainers, heat exchangers etc.) and flanges shall be designed for 16 bar.	
4.10.2 Pumps	
The sentence	
"The pump lift shall be -0,2 to 1 bar plus internal pressure loss within the heat pump unit/line. The static pressure will be 2-4 bar and is controlled by the water level in the heat accumulator tanks"	
neat accumulator tanks.	

will be replaced with		
"The pump lift shall be -0,2 to 2 bar plus internal pressure loss within the heat pump unit/line. The static pressure will be 2-4 bar and is controlled by the water level in the heat accumulator tanks."		
Addition:		
If central DH distri pcs 33% pumps, i.e	bution pumps are installed, the installation shall be 3 pcs. 50% or 4 e., one of the pump acts as a reserve.	
Clarification:		
Each Compressor motor shall be equipped with a Reactive power system Capacitor and Detuned Reactor if the starting method is soft starters.		
Potential Harmonic distortion from the Reactive power system shall be part of calculation in the total limiting harmonic distortion according to demand 4.11.5.		
Section	4.11.7 Reactive power requirements	
Low total level of Harmonic distortion according 4.11.5 does not remove the demand for detuned reactors.		
Section	7.2.3 Compressor motor	
Clarification:		
Motors, frequency converters, VFD Transformers (separate Transformer or build into the frequency converters) shall be refrigerant or water cooled where applicable. The supplier can as an option supply an excess heat recovery system, utilizing the excess heat to increase the plant output or reduce the plants electrical consumption. If the heat is not utilized in the heat pump plant, the supplier shall supply a system removing the accumulated heat by supplying components airchillers or similar.		
Section	7.2.5 Evaporator	

The water filled end covers shall be corrosion protected by means of rubber lining (3 mm thickness as a minimum) or titanium grade 2 plating. **If other materials are proposed as corrosion protection, the supplier shall give a 10 years warranty for corrosion of the protected areas.**

Clarification:

To avoid any doubts: Coppertubes in DH heatexchanger will be accepted provided they are designed for 25 year life time.

Section	7 3 Refrigerant evacuation and storage vessel
Section	is Kenigerunt evacuation and storage vessel

Clarification:

A refrigeration evacuation and storage system shall be installed for evacuation. The capacity of the storage shall be sufficient to allow 1 heatpump line emptied for service and allow evacuation on 1 heatpump line and operation of the rest of the heatpump lines.

To avoid any doubts: The storage shall be used for emergency evacuation of one evaporator in the case of one evaporator leaks to the seawater side and for service and repair. A manual interchangeable pipe system between refrigerant circuits is not accepted.

To avoid any doubts: Storage tanks for HFO and ammonia shall be equipped with double walls.

Section	7.4 Seawater system

The sentence

"Contractor <u>shall</u> design seawater systems to accommodate the maximum head of sea water pumps (fig. 410) including design safety factor, not less than 3 bar, static load, dynamic loads from water hammering, vacuum, structural stability, load from earth/soil pressure and at least to a pressure rating of PN10."

will be replaced with

"Contractor <u>shall</u> design seawater systems to accommodate the maximum head of sea water pumps (fig. 410) including design safety factor, not less than 3 bar, static load, dynamic loads from water hammering, vacuum, structural stability, load from earth/soil pressure and at least to a pressure rating of PN6."

Section	7.7 Valves	
Clarification:		
For the DH common pump system, Ball valves shall be used for isolation. Ball valves shall be fully welded steel ball valves with full bore with welding connection for full welding.		
Section	8.10 Control and Instrumentation	
Addition:		
Remote connection. In general, direct access form outside into IT structure on Aalborg Forsyning are not allowed. Due to the complexity and service possibilities of the Heat Plant, Employer will accept remote access to Heat plant on a certain level of hardware/software platform.		
Addition	Additional Demands Regarding DC Rule	
Addition:		
The power grid responsible demands that power can be reduced in steps 150 msek. Further detail of the requirement is found in attached Appendix 2.8 Additional Demands Regarding DC Rules.		
Appendix	3. Employer's General Requirement	
Section	Chapter 4 Service Agreement and Chapter 5 spares	
Clarification:		
The Employer has developed enclosed Appendix HVVP Service matrix clarifying		
Contractors scope regarding service Agreement and delivery of spares.		
Section	Section 14. Documentation and Appendix 3.5 General Technical	
Addition:	ארכוווינמנטווא וטר עטכעוווכוונמנטוו	
3D Modelling. The Contractor shall perform a complete 3D modelling of the plant, incorporating design information given by building contractor and interface connection information given by the Employer, and make collision checks. The 3D		

model shall be updated continuously during the engineering phase, and shall regular be forwarded to the Employer, forming basis for the Employers coordination of design between the lots.

The supplier's 3D model shall be compatible with the 3D models in other lots.

The format for 3D models must be compatible with IFC format, as this is expected to be the chosen solution by other supporters.

Addition:

Documentation. The documentation shall be submitted electronically in the original editable format as well as in PDF format. The Employer accepts that drawings are only supplied in PDF version.

The documentation shall be delivered in an electronic format that can be used in the Employer's computer systems. It is the Contractor's responsibility to secure that the format and way of exchange has been arranged with the Employer.

The Employer accepts that Suppliers documentation system could cause restriction in supply of editable format of documentation, that can be used in Employers computers system, and that the above demands is only fulfilled in the final documentation.

Section	14.1 Documentation	

The sentence

"The system used for numbering of plant components (Technical Locations) and drawings shall be RDS. The Contractor can use other system beside RDS, but component identification shall be by RDS."

will be replaced with

"The system used for numbering of plant components (Technical Locations) and drawings shall follow RDS guide for Aalborg Forsyning (enclosed). The Contractor can use other system beside RDS, but component identification shall be according to RDS guide for Aalborg Forsyning."

New enclosure: Appendix 3.8 RDS guide for Aalborg Forsyning

Appendix 0.7 1)	Appendix VII Performance Guarantee (template) (Version
Revision of Performance Guarantee template enclosed tender material. Error in seawater outlet temperature is corrected and Contractor shall inform of total amount of Refrigerant in the system.	
Appendix 3.1	Main Time Schedule
Revision of main time schedule 3.1 is enclosed.	
Optio	n for additional MW (Option 2)
Addition:	
The pricing in the Tender List for the option "Option 2. Sub-criterion "Option for additional MW between 25-45 MW" (5 %)" shall reflect that this option cannot be ordered by Alborg Forsyning later than 12 months after the signing of the Contract.	
A wording regarding the signing.	is limitation will be added to the contractual documents before
Role of the Employer and the FIDIC Engineer	
The project is of gre Forsyning intends to Engineer's role in regar by the Employer.	at importance to Aalborg Forsyning which is why Aalborg take a more active part in the project limiting part of the od to day-to-day tasks and coordination which will be performed
Hence, Aalborg Forsyn Forsyning in the project when consulting with t	ning intends to engage numerous professionals from Aalborg ct, and thus to contribute with great experience and knowledge the Engineer and the Contractor respectively about the project.
Further, Aalborg Forsy will be responsible for	ning intends to take active part in all project meetings etc. and taking minutes of these meetings.
Aalborg Forsyning emp the project will not im Engineer in the Contra	phasizes that Aalborg Forsyning's intention to take active part in pose constraints on the duties and authority assigned to the ct and that the Engineer will still be independent 3. party.