

Our Ref: KE-KETRACO-413024-CW-RFB

14 July 2025

Notice to all Bidders

RE: CLARIFICATION NO. 4

Contract Title: Design, supply, installation and commissioning of STATCOMs and shunt devices on the KETRACO Network at Suswa and Rabai Substations (Lot 1 - Suswa 400/220 kV Substation & Lot 2 - Rabai 220/132 kV Substation)

Contract No.: KE-KETRACO-413024-CW-RFB

In accordance with the Instructions to Bidders ITB 7 [Clarification of Bidding Document, Site Visit, Pre-Bid Meeting], the Employer, *Kenya Electricity Transmission Company Ltd. (KETRACO)* is providing responses to the clarifications requested by bidders in fourteen (14) pages.



SENIOR MANAGER, SUPPLY CHAIN

Clarifications		Responses
1.	We request your esteemed office to please postpone the date of submission of bids from the present due date of 27th June 2025 by at least three weeks.	Refer to Addendum No. 2
2.	We have noted that several addendum have been recently uploaded on the KETRACO tender portal, which have a significant impact on the scope, design considerations, and proposal preparation. Given the technical complexity and the extent of these changes, we respectfully request a two-month extension to the current submission deadline of June 27th, 2025. This additional time will allow us to thoroughly review the modifications and prepare a comprehensive, fully compliant proposal that aligns with KETRACO's requirements.	Refer to Addendum No. 2
	We would like to request an extension of both clarification submission deadline and the bid submission deadline.	Refer to Addendum No. 2
	Despite our earlier submissions (listed below), we are still awaiting your responses to our Pre-Bid Queries No. 2, 3, and 4, which were submitted on 28th April 2025, 15th May 2025, and 28th May 2025, respectively.	<p>The responses to your pre-bid queries have been provided as follows:</p> <ul style="list-style-type: none"> • Pre-Bid Queries No. 2 (28 April 2025) – Refer to Clarification No. 2, Items No. 22-56 • Pre-Bid Queries No. 3 (15 May 2025) – Refer to Clarification No. 3, Items No. 14-19 as well as Addendum No. 2, Item No. 3. • Pre-Bid Queries No. 4 (28 May 2025) – Refer to Addendum No. 2, Items No. 1-2.
3.	We would like to highlight the following correspondence for your reference: Letter dated 11th April 2025 – Request for geotechnical investigation (Ref: 001)	
	Email from KETRACO dated 22nd April 2025 Letter dated 16th April 2025 – Pre-Bid Clarification No. 1 & Bid Deadline Extension Request (Ref: 002) Letter dated 24th April 2025 – Request for geotechnical investigation (Ref: 003) Letter dated 28th April 2025 – Pre-Bid Clarification No. 2 & Bid Deadline Extension Request (Ref: 004)	
		References to the correspondence with KETRACO are noted.

	Clarifications	Responses
	<p>KETRACO's Addendum & Clarification No. 1 issued on 12th May 2025</p> <p>Letter dated 15th May 2025 – Pre-Bid Clarification No. 3 (Ref: 005)</p> <p>Letter dated 28th May 2025 – Pre-Bid Clarification No. 4 (Ref: 006)</p> <p>Clarification No. 1 from KETRACO dated 9th June 2025</p>	
4.	We kindly request the bid submission date be extended by six (6) weeks from the current tender submission date of 27 th June 2025, which will enable us to submit our most competitive techno-commercial bid.	Refer to Addendum No. 2
5.	Do transformers in STATCOM projects need to consider harmonic design? Currently, we moderately consider harmonics in accordance with Chinese standards (GB1094.1-2013), but this does not meet actual harmonic requirements. If we were to meet these requirements, the product price would be very high, and few transformer manufacturers are able to fully respond to harmonic requirements.	Yes, the transformer needs to be specified to withstand the system harmonics including harmonics from STATCOM.
6.	Kindly please consider our request for 45 days extension of the bid submission deadline.	Refer to Addendum No. 2
7.	<p>On page 47 and 58 of STATCOMS_Part 1 to 3:</p> <p>Reactor: Experience of manufacturing and/or supplying shunt reactors with a voltage level of 220 kV or above to at least two (2) projects in the last ten (10) years that have been operational for at least five (5) years supported by end-user certificates/letters from the utilities/clients/EPC contractors with comprehensive contact details.</p> <p>As per the scope of work, there is no provision need of 220kV reactor in the LOT 2 Rabai substation. Therefore, we understand that no reactor manufacturer documents need to be provided, and the bidder shall fill NA in this item. We kindly request confirmation of this understanding.</p>	Correct, there is no requirement to install a 220 kV shunt reactor under Lot 2 therefore this requirement is not applicable.
8.	Referencing pages 60-61 of STATCOMS_Part 1 to 3 Subcontractor and Electromechanical works subcontractor:	In accordance with the laws of Kenya, foreign contractors are required to seek registration with the National Construction Authority for class one (NCA 1) after issuance of an award letter and before signing the contract.

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<p>We understand that the proposal of local subcontractors for the civil and electrical works is not mandatory. The bidder could propose itself as a subcontractor as long as it provides the evidence that proves the bidder meets the requirements of NCA2. Please kindly confirm it.</p>	<p>This registration is sufficient to undertake all works if there is no intention of subcontracting. However, bidders are advised to conduct their own due diligence to inform their bid</p>
<p>Part 2-A_Scope_Supply_Specification, 1.5.2 Design verification / Page No.94:</p> <p>According to our understanding, the scope involved with the power system study and analysis in Chapter 1.5 only includes the tendered whole 220kV substation and the STATCOM itself, and the power grid and equipment such as HVDC, facts, transmission lines and others that's out of this tendered 220kV substation scope will be executed as an equivalent power source provided by your side. Please confirm it.</p>	<p>KETRACO will provide the applicable model for the existing network to the successful Bidder to carry out their studies.</p>
<p>9.</p> <p>Based on BS 9999:2017, the valve house is classified as fire risk profile A1 with fire-retardant equipment. Therefore, active fire suppression systems are not necessary to require, only external hydrants and portable fire extinguishers are specified. Please kindly confirm. If active fire suppression must be included, provide specific requirements.</p>	<p>The STATCOM valve housing shall be equipped with a fire detection system. This detection system shall automatically initiate shutdown of the unit in the event of a fire. In addition, the Contractor shall provide suitable active and passive fire suppression measures for the valve housing based on a detailed fire risk assessment of the building. The contractor shall consider the fire risk of the valve cooling liquid and provide suitable active fire suppression in the event of a fire. A suitable active fire suppression system for the valve housing is considered to be included in the Contractor's offer. The building shall comply with BS 9999:2017 – Fire safety in the design, management, and use of buildings code of practice.</p>
<p>10.</p> <p>In reference to STATCOMS arrangements: The Drawing shown containerized solution: Two STATCOM of 60MVAR in parallel, each one in its own container.</p>	<p>The drawing provided with the bid are concept drawings the bidder shall optimize is solution to meet the technical requirements.</p>
<p>11.</p>	<p>We propose only one STATCOM converter of 120MVAR in one building. This single-unit approach brings the following advantages: - Reduce the line current at transformer secondary winding side (since the STATCOM output will be at higher voltage) reducing the transformer losses. -</p>

	Clarifications	Responses
	reduces total system losses by avoiding duplicated auxiliary equipment and decreases overall footprint and civil works. - allows for a simplified protection scheme. - eliminates inter-unit potential communication failures	
12.	<p>Clause 3.2.1 of Part 2- A_Scope_Supply_Specification - Overload Capability: "STATCOM overload capability of 300% for a minimum of three (3) seconds":</p> <p>Overload Mechanism: For the STATCOM, Semiconductor junction has temperature limits. With no thermal mass, it leads to instant heating. This exceeding current destroys device in microseconds. This gives Zero tolerance for overcurrent. IEEE 1031: No overload provisions. IEC 62927: Rated for continuous current with Safety margins already included. Design Parameter: For 300 % overload the IGBT Current Rating must be 3 times, requiring 3x parallel IGBTs, DC Bus Capacitors would require 9 times ripple current (I²) necessitating 3x capacitor bank, DC voltage bus Would collapse under 3x load. It would require 3x capacitance. This would mean 3X Sizing Proposal: This cannot be achieved unless oversize the VSC of a factor 3 with a huge impact on cost and footprint. Normally the requirement of STATCOM for Grid application is to comply with given capability curve in term of V/Q without specific current overload which would lead to VSC oversizing in respect of nominal rating.</p>	The overload capability of 300% for a minimum of three (3) seconds is required.
13.	<p>Voltage Source Converter Redundancy Clause 2.8 of Part 2- A_Scope_Supply_Specification - Voltage Source Converter Redundance requirement: "The number and rating of IGBTs/IGCTs used to form the IGBT/IGCT Modules and converter assembly shall meet the overall performance requirements. The valves shall have sufficient margin to enable rated output to be maintained continuously with the higher of:</p> <ul style="list-style-type: none"> • 15% of the total number of series IGBT/IGCT levels in the converter short-circuited • One (1) IGBT/IGCT per power module defective" 	The redundancy requirement as per the specification is required.

Clarifications	Responses
<p>Mathematical Calculation: According to our design, the STATCOM converter for this application will have 35 levels per phase. The 15% requirement of the 35 levels = 5.25 levels, which Rounded up = 6 levels</p> <p>Functional Requirement: Short circuited while maintaining rated output" means these 6 levels must be completely bypassed.</p> <p>The System must deliver 100% power with 6 levels failed on the same phase of the converter which is extremely rare and practically impossible to occur. This translates to N-6 redundancy requirement. Industry Standard: Typical TSO requirements are N-1 or N-2. The N-6 is unprecedented in STATCOM applications Proposal: Any standard design offer can foresee maximum N-2 redundancy level criteria which is normally in the highest requirement from TSO. Design Impact:</p> <p>The requirement for N-6 PM level redundancy will increases cost and footprint due to the additional 4x3 power modules and relevant supporting structures and control system without bringing any appreciable benefit on the overall availability of the system.</p>	
<p>14. According to Item No. 24 of Clarification No.1, Dated 9th June, the software such as ETAP requires 2 numbers license and 5 concurrent users, according to the software provider, one license is only applicable for one user, kindly confirm two licenses or ten licenses is required</p>	<p>The requirement for ETAP license is not for standalone licenses but for 2 network licenses each with 5 concurrent users</p>
<p>15. We kindly request to modify the Experience of Power Transformer to Experience of manufacturing and/or supplying STATCOM/SVC transformers for STATCOMs/SVC with a voltage level of 400 kV or above to at least two (2) projects in the last ten (10) years that have been operational for at least five (5) years supported by end user certificates/letters from the utilities/clients/EPC contractors with comprehensive contact details for LOT 1.</p>	<p>Not acceptable.</p>
<p>16. We kindly request to modify the Experience of Power Transformer to Experience of manufacturing and/or supplying STATCOM/SVC transformers for STATCOMs/SVC with a voltage level of 220 kV or above to at least two (2) projects in the last ten (10) years that have been</p>	<p>Not acceptable.</p>

	Clarifications	Responses
	operational for at least five (5) years supported by end user certificates/letters from the utilities/clients/EPC contractors with comprehensive contact details LOT 2.	
17.	With reference to PART 3 – Conditions of Contract and Contract Forms, Section IX. Particular Conditions of Contract (PCC), PCC No. 14 – Taxes & Duties, Clause PC 14(d), kindly confirm whether the exemption for Value added tax (VAT) will be provided for complete project including Main Contractors, Sub-contractors & Sub-Suppliers.	Refer to Clarification No. 01, Item No. 28
18.	With reference to PART 3 - Conditions of Contract and Contract Forms, Section X - Contract Forms, Appendix 1. Terms and Procedures of Payment, Sub clause for Schedule No. 1. Plant and Equipment Supplied from Abroad – for Supply, we request KETRACO for releasing the 15% Supply payment of Schedule-1 upon Invoice submission along with Shipping documents as against submission of a Bank Guarantee (BG). This BG can be returned to the Contractor upon successful completion of the Project i.e., 24 Months from effective date. In such condition, the severe negative cashflow for the Project, working capital cost and cashflow burden to the Contractor may be avoided for successful timely completion of the Project. Kindly confirm on the above.	Not acceptable.
19.	With respect to Clarification 1, SI No 74, HVDC generator control and FACTS device models details and BDS/ITB 11.2(i)(7)(b-4), STATCOM Study Report. The Bidder requested high-voltage direct current (HVDC) controls, generator controls, and controls for other flexible AC transmission system (FACTS) device models to develop the proposed STATCOM studies. This is as requested by KETRACO in the BDS Clause ITB 11.2(i)(7)(b-4). However, KETRACO replied through Pre-bid clarification response as "This is not available at this stage."	Notwithstanding the unavailability of the HVDC and other control related information at this stage, the Bidder shall provide a detailed outline of the methodology and data requirements to be followed for such a study. Bidders are encouraged to provide technical reports of similar or related type studies on other projects for STATCOM control interaction and application studies. Bidders are however advised that the STATCOM will operate in stand alone mode and the studies in relation to HVDC controls, generator controls and controls for other flexible AC transmission system (FACTS)

Clarifications	Responses
<p>Please note that without providing this information by KETRACO at this stage, the Bidder will not be able to develop the “Studies to evaluate the interaction of the STATCOM controls with the other nearby control systems, including high-voltage direct current (HVDC) controls, generator controls, and controls of other flexible ac transmission systems (FACTS) device” for which KETRACO has allocated technical weightage.</p> <p>We understand that KETRACO will waive this requirement of submission of mentioned study and ensure that no technical score is deducted for the non-submission of the study report, as developing the study is entirely dependent on providing the requested inputs of HVDC Controls/Generator Controls/Controls of other FACTS devices from KETRACO.</p> <p>Please confirm on the same.</p>	<p>devices are meant to ensure that the STATCOM are well coordinated with these devices and their controls and other grid control measures.</p>
<p>With respect to Clarification 1, SI No 74, HVDC generator control and FACTS device models details and BDS/ITB 11.2(i)(7)(b-4), STATCOM Study Report. The Bidder requested high-voltage direct current (HVDC) controls, generator controls, and controls for other flexible AC transmission system (FACTS) device models to develop the proposed STATCOM studies. This is as requested by KETRACO in the BDS Clause ITB 11.2(i)(7)(b-4).</p> <p>20.</p> <p>However, KETRACO replied through Pre-bid clarification response as "This is not available at this stage."</p> <p>Please note that without providing this information by KETRACO at this stage, the Bidder will not be able to develop a suitable STATCOM design. Any changes to the current considerations based on KETRACO's input regarding the data provided at the project implementation stage will have</p>	<p>Refer to Item No. 3 above.</p> <p>The STATCOM Control system design shall take into account co-ordination and interaction with other FACTS controllers such as HVDC (in the case of Suswa) and other plant control e.g. reactor and capacitor banks. The Bidder shall make a suitable provision for this in their bid, however no variations to the contract shall be acceptable during implementation with regards to this part of the scope of works.</p>

	Clarifications	Responses
	<p>a significant impact on the STATCOM design, which will be compensated suitably by KETRACO.</p> <p>Therefore, we once again request that KETRACO provide the requested information during bidding stage.</p> <p>If this requested data is not provided/not available with KETRACO during bidding stage, we request KETRACO to confirm that, in the event that any changes to the technical parameters/Study impact on considered STATCOM design are impacted with the inputs provided in project implementation stage, the Contractor shall be suitably compensated by KETRACO with additional time and cost for the same.</p> <p>Kindly confirm on the same.</p>	
21.	<p>With reference to PART 3 – Conditions of Contract and Contract Forms, Section IX. Particular Conditions of Contract (PCC), PCC 13. Securities, we request KETRACO to reduce the Performance Security from Ten (10%) to Five (5%) upon issuance of Operation Acceptance certificate.</p> <p>Kindly confirm on the same.</p>	Not acceptable.
22.	<p>With reference to PART 3 - Conditions of Contract and Contract Forms, Section IX – Particular Conditions, PCC 26. Completion Time Guarantee, as per referred Clause PCC 26.2, it is mentioned that, "Applicable rate for liquidated damages: Five tenths percent (0.5%) of the Contract Price per week". We request KETRACO to confirm that the above rate applies to the price of the part of the Facilities, as quoted in the Price Schedule, for that part for which the Contractor fails to achieve Completion within the particular time for Completion.</p> <p>Kindly confirm on the same.</p>	The liquidated damages of 0.5% per week shall apply to the full Contract Price if the Project is not completed regardless of whether there are certain parts of the Project that have been completed.

	Clarifications	Responses
23.	<p>With reference to Part-2A EMPLOYER'S REQUIREMENTS, 38 – Operation and Maintenance Obligations of the Contractor, As per referred Clause, "The Contractor shall provide engineering and technical support and maintenance for at least three (3) years after energization of the Facilities. The personnel to be based on site from the Contractor needs to be approved by the Employer. The Contractor will submit the personnel's C.V at least 3 months prior to Energisation date for approval by the Employer. The Tenderer / Bidder shall submit with its tender an operation and maintenance methodology that meets the minimum obligations / criteria indicated above and provide the associated cost per year in the price schedules.</p> <p>We request KETRACO to confirm</p> <ol style="list-style-type: none"> 1. Number of personnel required to be provided for support during the O&M duration of 36 Months 2. To provide qualification requirements of this Key personnel to be based at site during O&M period. <p>In the absence of above information, Bidder shall be considering only one (1) personnel to be based at each site in Lot-1 & Lot-2 for coordination of these O&M activities with KETRACO and bidder shall not consider any other additional labour requirement during the O&M duration.</p> <p>Please confirm on the same.</p>	<p>The Bidder shall be responsible for identifying all the key O&M personnel that are required for the adequate and proper operation phase of the Project so that it complies with the Employer's Requirements.</p>
24.	<p>With reference to Part-2A EMPLOYER'S REQUIREMENTS, 3 Power transformers, 3.26.4 Type Tests, as per referred clause, we understand that Bidder shall propose the equipment having previously type tested. All the Type test reports and Short circuit test reports from accredited laboratory performed on such similar equipment shall be provided along with the bid. Further, short circuit capability can be verified with the calculations as per IEC 60076-5.</p>	<p>The Bidder must offer equipment that has been type tested or provide Type test reports and short circuit test reports from accredited laboratory based on similar equipment in terms of size and application.</p> <p>Type tests for the transformers must be conducted in line with the Part-2A EMPLOYER'S REQUIREMENTS, Part D, Clause 3.26.4 Type Tests</p>

	Clarifications	Responses
	<p>We don't envisage the requirement of conducting any type tests and short circuit tests on offered equipment during project implementation stage as this would have huge impact on the project completion timelines.</p> <p>Kindly request KETRACO to confirm on the above.</p> <p>PART 1 – Bidding Procedures, Section IV - Bidding Forms, Contractor's Representative and Key Personnel, As per the Employer's Requirement, we understand that the Bidder shall require to provide the PER-1 & PER-2 forms of below mentioned 13 positions.</p> <ol style="list-style-type: none"> 1. Project Manager / Contractor's Representative 2. Resident Site / Construction Manager(s) 3. Substation Electrical Engineer(s) 4. Control and Protection Engineer 5. Civil/Structural Engineer 6. Safety Engineer (2) 7. Quality Engineer 8. Social Safeguards Specialist 9. Environmental, Health and Safety (EHS) Specialist 10. Project Planner 11. Telecommunications Engineer 12. Commissioning Engineer 13. SCADA Systems Engineer <p>However, as per the applicable project scope, we don't envisage any requirements for Telecommunication Engineer & SCADA Systems Engineer since the work will be executed under OEM supervision only.</p> <p>We request the Employer to confirm that the Bidder doesn't need to submit any key personnel documentation for these two positions.</p>	<p>Not confirmed. The scope of work involves both SCADA and telecommunication works, and the Bidder shall ensure they have suitably experienced personnel to carry out/supervise the scope even if it's subcontracted to the OEM.</p> <p>Notwithstanding the list of experts provided by KETRACO in the Bidding Documents, The Bidder shall be responsible for identifying all the key experts that are required for the implementation of the Project so that it complies with the Employer's Requirements.</p>
25.		

	Clarifications	Responses
26.	<p>With reference to PART 2-A – EMPLOYER'S REQUIREMENTS, General – HVAC system, the shared technical documents do not specify the outdoor design conditions for both Lot-1 SUSWA & Lot-2 RABAI Sites.</p> <p>We request KETRACO to provide the required outdoor design conditions (Latitude, Longitude, Elevation, Dry bulb temperature, wet bulb temperature, daily range, and relative humidity parameters.</p>	<p>Refer to Part-2A, EMPLOYER'S REQUIREMENTS, Part A, clause 2, Part B, clause 2</p> <p>Bidder is encouraged to visit the site to get additional data as may be required.</p>
27.	<p>With reference to PART 2-A – EMPLOYER'S REQUIREMENTS, General – HVAC System, the shared technical documents do not specify the indoor design conditions for the STATCOM building rooms for both Lot-1 & Lot-2 Sites.</p> <p>We request KETRACO to provide the required indoor design conditions room wise (Dry bulb temperature and relative humidity parameters) for the following areas such as "valve rooms, control room, auxiliary room, cooling room, and pump room etc."</p>	<p>The Contractor is responsible for delivering a compliant and optimized system design based on sound engineering principles and applicable standards. The final design will be subject to Employer's review and approval during the detailed design stage</p>
28.	<p>With reference to PART 2-A – EMPLOYER'S REQUIREMENTS, General – HVAC System, the Bidder is considering the roof top packaged air conditioning units with 100% redundancy for the valve room in both Lot-1 & Lot-2 Sites.</p>	<p>The responsibility lies with the Bidder to propose, size, and specify the necessary components to ensure that the entire HVAC system meets the functional and operational requirements outlined in the Employer's Requirements. The final design shall be subject to approval by the Employer.</p>
29.	<p>Kindly confirm the Bidder's understanding is correct.</p> <p>With reference to PART 2-A – EMPLOYER'S REQUIREMENTS, General – HVAC System, the Bidder is considering the smoke purging fans without any standby units for all the gas suppression system protected rooms (valve rooms, control room, auxiliary room, cooling room) both Lot-1 & Lot-2 Sites.</p>	<p>The responsibility lies with the Bidder to propose, size, and specify the necessary components to ensure that the entire HVAC system meets the functional and operational requirements outlined in the Employer's Requirements. The final design shall be subject to approval by the Employer.</p>
30.	<p>Kindly confirm the Bidder's understanding is correct.</p> <p>With reference to PART 2-A – EMPLOYER'S REQUIREMENTS,</p>	<p>Please refer to Clarification 1, Items No 66, 67, 68, 69 and 70.</p>

	Clarifications	Responses
	<p>General Fire Protection, as per Clarification-1 responses from KETRACO, it is mentioned that the valve room should be protected with an active fire suppression system.</p> <p>In line with this comment, the Bidder may propose portable fire extinguishers as an active fire suppression measure. Kindly confirm whether any specific gas-based suppression system is required in the STATCOM area.</p>	
31.	<p>With reference to PART 2-A – EMPLOYER’S REQUIREMENTS, General Fire Protection, Bidder shall consider portable fire extinguishers as the active fire suppression system for the control room, and other critical rooms.</p> <p>However, please confirm whether any additional gas-based suppression system is specifically required for critical areas such as the control and protection rooms of STATCOM areas.</p>	Please refer to Clarification 1, Items No 66, 67, 68, 69 and 70 and the requirements as indicated in Part Part-2A, EMPLOYER’S REQUIREMENTS
32.	<p>With reference to PART 2-A – EMPLOYER’S REQUIREMENTS, General Fire Protection, Bidder shall consider portable fire extinguishers as the active fire suppression system for the HVAC related equipment rooms like as HVAC pump rooms & AHU Rooms in STATCOM areas.</p> <p>Kindly confirm the Bidder’s understanding is correct.</p>	Please refer to Clarification 1, Items No 66, 67, 68, 69 and 70 and the requirements as indicated in Part Part-2A, EMPLOYER’S REQUIREMENTS
33.	<p>With reference to PART 2-A – EMPLOYER’S REQUIREMENTS, General Fire Protection, Bidder shall consider the addressable smoke and heat detection system for the valve room.</p> <p>In addition, please confirm whether a Very Early Warning Fire Detection (VEWFD) system is required as a secondary reliable fire detection method, or if the addressable smoke and heat detection system alone is sufficient.</p>	Please refer to Clarification 1, Items No 66, 67, 68, 69 and 70 and the requirements as indicated in Part Part-2A, EMPLOYER’S REQUIREMENTS
34.	<p>With reference to PART 2-A – EMPLOYER’S REQUIREMENTS, General Fire Protection, Bidder shall consider an addressable smoke detection system for the control room and other rooms.</p>	Please refer to Clarification 1, Items No 66, 67, 68, 69 and 70 and the requirements as indicated in Part Part-2A, EMPLOYER’S REQUIREMENTS

Clarifications		Responses
	Kindly confirm the bidder's understanding is correct.	
	With reference to PART 2-A – EMPLOYER'S REQUIREMENTS, 4- Busbar Reactor, 4.5 Tank, as per referred Clause in note "When an integral fire protection system is specified, or to provide for at a later date, the reactor manufacturer shall ensure there is no conflict in operation between the fire protection system and the pressure relief device"	Please refer to Clarification 1, Item No 68.
35.	Based on the above-mentioned clause, the Bidder understands that the reactor shall also require fire protection, such as a nitrogen injection system.	
	Kindly confirm the Bidder's understanding is correct.	
36.	With reference to PART 2-A – EMPLOYER'S REQUIREMENTS, General Fire Protection, as per Clarification-1 responses from KETRACO, it is stated that no water-based fire protection system and no fire pump house are required for both Suswa and Rabai substations. Accordingly, as per Clause 1.6 (Indoor Hose Reels) and Clause 2.11 (Hydrants), these systems are also not provided in the two substations.	Confirmed
	Kindly confirm the Bidder's understanding is correct.	
37.	With reference to Part 2-C_Schedules of Technical Information, 2.32 DC Switchgear and Auxiliary Supplies, it requires 2*50% for Number of battery units of 110 V Battery Units in the Technical Data Sheets. Please confirm 2 x 50% rated duty battery units means one set of batteries capacity is for 50% of the whole substation DC load.	Yes, this is correct.
38.	In Part 2-A_Scope_Supply_Specification, 15.4 110V DC Service Equipment, please confirm the draw-out type cubicle is only needed for AC Main and distribution panels not for 110Vdc Main and distribution panels.	This is required for both the AC and DC panels.

	Clarifications	Responses
39.	In Part 1-Section IV-Bidding Forms-Price Schedules_Rabai, please specify the detailed work scope of BOQ item 9.2 Modification works at existing Rabai substation; Telecommunication and Teleprotection Signaling System.	BOQ item 9.2 is for any modification work required as a result of the telecommunication link upgrade required under BOQ item 9.1.

