

Clarification No-2 (Part-B) dated 02/04/2026 to Volume-II of the Bidding Documents for 765kV Reactor Package 7RT-29-BULK for procurement of 14 x 80 MVAR, 765kV 1-Ph Reactors under Bulk procurement of 765kV & 400kV class Transformers and Reactors of various capacities (Lot-7); Spec. No.: CC/NT/W-RT/DOM/A02/26/02845

Sr.No.	Ref Section	Provision in bidding document	Bidders Queries	POWERGRID's Reply/Clarification										
1	Cl. No 1.3 of Technical Specification, 765kV Shunt Reactor , C/ENGG/MODEL-SPEC/765kV SR Rev. 08	Any material and equipment not specifically stated in this specification but which are necessary for satisfactory operation of the equipment shall be deemed to be included unless specifically excluded and shall be supplied without any extra cost.	Our offer shall be with fittings & accessories as per technical specification, which is suitable for satisfactory operation of reactor. Any additional material and equipment if required shall be provided with cost implication. Kindly accept.	In this regard, the provisions of Bidding Documents shall remain unchanged.										
2	Cl. No 3.5 of Technical Specification, 765kV Shunt Reactor , C/ENGG/MODEL-SPEC/765kV SR Rev. 08	The Contractor shall despatch the Reactor filled with dry air at positive pressure. The necessary arrangement shall be ensured by the contractor to take care of pressure drop of dry air during transit and storage till completion of oil filling during erection. A dry air pressure testing valve with necessary pressure gauge and adaptor valve shall be provided. The dry air cylinder(s) provided to maintain positive pressure can be taken back by the contractor after oil filling.	Reactor can be stored with dry air filled condition upto 6 months after dispatch from factory. For longer storage, reactor need to be filled with oil as per OEM manual.	In this regard, the provisions of Bidding Documents shall remain unchanged.										
3	Cl. No 7.1.2 of Technical Specification, 765kV Shunt Reactor , C/ENGG/MODEL-SPEC/765kV SR Rev. 08	The requirement of post weld heat treatment of tank/stress relieving shall be based on recommendation of IS 10801.	IS 10801 is applicable to Pressurize Piping and Pressure vessel. As inside pressure of transformer tank is approx. 1 kg/cm ² and hence not come to Pressure vessel category. Hence, Not applicable.	In this regard, the provisions of Bidding Documents shall remain unchanged.										
4	Cl. No 7.1.6 of Technical Specification, 765kV Shunt Reactor , C/ENGG/MODEL-SPEC/765kV SR Rev. 08	The base of each tank shall be so designed that it shall be possible to move the complete transformer unit by skidding in any direction without damage when using plates or rails and the base plate shall have following minimum thickness: <table border="1" data-bbox="493 646 934 717"> <thead> <tr> <th>Length of tank (m)</th> <th>Minimum plate thickness (mm)</th> </tr> </thead> <tbody> <tr> <td>Flat bases</td> <td></td> </tr> <tr> <td>over 2.5m but less than 5m</td> <td>20</td> </tr> <tr> <td>over 5m but less than 7.5m</td> <td>26</td> </tr> <tr> <td>exceed 7.5m</td> <td>32</td> </tr> </tbody> </table>	Length of tank (m)	Minimum plate thickness (mm)	Flat bases		over 2.5m but less than 5m	20	over 5m but less than 7.5m	26	exceed 7.5m	32	MS Plate IS 2062:2011 refer IS 1730:1989 for dimension of steel plate. 26mm thk Plate is not in IS standard, alternate solution is 25mm thk plate. Hence requesting for length of tank over 5m but less than 7.5m plate thickness shall be 25 mm thk. Kindly accept.	In this regard, the provisions of Bidding Documents shall remain unchanged.
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5	Cl. No 7.1.8 of Technical Specification, 765kV Shunt Reactor , C/ENGG/MODEL-SPEC/765kV SR Rev. 08	Tank, tank cover and associated structure should be adequately designed to withstand, without damage or permanent deflection / deformation, the forces arising out of normal oil pressure, test pressures, vacuum, seismic conditions and short circuit forces specified.	There is contradiction in the requirement. We understand the permanent deflection will be acceptable up to the values specified in clause no. 17 (ii) of DOC. No.: POWERGRID/STD/TEST PROCEDURE/TR-RT/REV02. Page No. 52 of 69. Kindly confirm.	In this regard, the provisions of Bidding Documents shall remain unchanged.										
6	Cl. No. 7.2.7 & 14.7.1.7 of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8 S. No. R - 3 of Specific Requirement (Section - Project) Rev. No. 10	S. No. R (Section-765kV Shunt Reactor, Rev. 08) - 3 of Specific Requirement (Section - Project) Rev. No. 10 says that the Reactor shall be provided with a 150 mm nominal diameter butterfly valve and bolted blanking plate, gasket and shall be fitted at the highest point of the Reactor for maintaining vacuum in the tank. Clause No.14.7.1.7: Valve for vacuum application on Tank : Type Gate Clause no 7.2.7 (As per Annexure - 10 - Specific Requirement) The Reactor shall be provided with a 150 mm nominal diameter Gate valve and bolted blanking plate, gasket and shall be fitted at the highest point of the Reactor for maintaining vacuum in the tank.	Since there is contradictory requirement in the specification in three different clauses. Our preference is 100 mm Gate valve as per our all previous supplies to PGCIL. Customer acceptance required.	Gate type valve shall be provided for vacuum application.										
7	Cl. No. 7.4 of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	7.4 Foundation, Roller Assembly & Anti Earthquake Clamping Device The Reactor shall be placed directly on concrete plinth foundation. To facilitate the movement of reactor to its foundation over rail track, bi-directional flanged rollers shall be provided. It shall be suitable for fixing to the under carriage of Reactor. The rail track gauge shall be 1676 mm. Two rails shall be provided as per the drawing mentioned at Annexure-C.	Rails shall not be in bidder scope. Also, drawing referred in Annexure C is not available with the given specification Rev08. Kindly provide the drawing.	It is confirmed that rails are not in bidder scope. Further, standard foundation drawing shall be shared with successful bidder during detailed engineering										
8	Cl. No. 7.8, 7.9, 7.10 & 22.1 (i) of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	7.8 Pressure Relief Device suitable canopy shall be provided to prevent ingress of rain water. 7.9 Sudden Pressure Relay suitable canopy shall be provided to prevent ingress of rain water. 7.10 Buchholz Relay suitable canopy shall be provided to prevent ingress of rain water. 22.1 (i) Magnetic oil level gauge	Canopy shall be provided as per bidder standard practice. If any specify requirement, kindly share the drawing of canopy to consider in our scope of supply.	In this regard, the provisions of Bidding Documents shall remain unchanged.										

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9	Cl. No. 7.19.14 of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	Winding paper moisture shall be less than 0.5%	Noted, However testing shall be done with Karl fischer method. Kindly confirm.	In this regard, the provisions of Bidding Documents shall remain unchanged.
10	Cl. No. 14.1 of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	All valves upto and including 100 mm shall be of gun metal or of cast steel/cast iron. Larger valves may be of gun metal or may have cast iron bodies with gun metal fittings. They shall be of full way type with internal screw and shall open when turned counter clock wise when facing the hand wheel.	As all Butterfly valve above 100mm are of Cast Iron bodies and brass fittings. For 100mm and 80mm Butterfly valve used at radiator also need to supply as Cast Iron bodies and brass fitting which is superseding the technical specification requirement of Cast Iron valve(i.e cast iron bodies and mild steel fittings). As we are superseding the technical specification requirement. Customer acceptance required.	In this regard, the provisions of Bidding Documents shall remain unchanged.
11	Cl. No. 14.6 of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	Gland packing/gasket material shall be of "O" ring of nitrile rubber for all the valve's flanges. All the flanges shall be machined.	All "O" ring used for Valve mounting flange are as per technical specification and of "NBR" material. Valve Gland Packing is of "PTFE" (Teflon) material suitable to transformer oil and atmospheric air. PTFE required for better Oil sealing purpose compared to NBR as per Approved valve supplier. Customer acceptance required.	In this regard, the provisions of Bidding Documents shall remain unchanged.
12	Cl. No. 14.7.2 of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	All valves shall be painted with a shade (preferably red or yellow) distinct and different from of main tank surface and as per the painting system and procedure specified.	There is no such painting system and procedure specified in technical specification and in Annexure- E. Painting specification shall be followed as per PGCIL approved supplier recommendation. Customer acceptance required.	Bidder understanding is in order
13	Cl. No.17.1.1 & 17.1.2 of Technical Specification, 765kV Shunt Reactor , C/ENGG/MODEL-SPEC/765kV SR Rev. 08	17.1.1. All required power & control cables including optical cable, patch chord (if any) upto Common MB shall be in the scope of contractor. Further, any special cable between CMB to switchyard panel room/control room shall be under the present scope. 17.1.2. Fiber optic cable, power cable, control cables, as applicable, between CMB to switchyard panel room/control room and power supply (AC & DC) to MB and integration of above said IEC-61850 compliant equipment with Substation Automation System shall be under the scope of EPC contractor.	17.1.1. We will supply all required power & control cables including optical cable, patch chord (if any) upto Common MB. Further, for any special cable between CMB to switchyard panel room/control room We will follow BPS. We will supply only thosed cables mentioned in BPS. 17.1.2. We will supply fiber optic cable - 100 m per 1-phase 765KV class Reactor unit as mentioned in Section - Project	Bidder understanding is in order
14	Cl. No. 22.(xxix) of Technical Specification, SECTION- 765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	xxix) All Cables (Power, control and shielded / twisted pair for 4-20mA cable from Reactor MB, etc. (as applicable) to CMB and CMB to employer's C&R panell shall be under the present scope. Any special cable if required to be included upto employer's C&R panel.	We will supply cables as mentioned in Bid Price Schedule.	In this regard, the provisions of Bidding Documents shall remain unchanged.
15	GTR Rev 15, Annexure B	SEISMIC WITHSTAND TEST PROCEDURE	Seismic withstand test is not applicable on offered reactors. Kindly confirm.	Seismic withstand test is not applicable on offered reactors. However Reactors shall be designed for Seismic Level of Zone-V (as per IS 1893)
16	Section Project Clause No. 2.2 e	One No. CMB shall be supplied for 2 x 1-Ph or 3 x 1-Ph 765KV Class Reactor unit at one location.	Our offer is for 14 Nos. shunt reactors and we are considering only 4 No. CMB against 14 Nos. Shunt reactors. Based on 3 x 1 Phase 765 kV class reactor.	In this regard, the provisions of Bidding Documents shall remain unchanged.
17	Section Project Clause No. 9.2 i	Buchholz Relay (including GCD), Pressure Relief Device, Sudden Pressure Relay, Magnetic Oil Level Gauge, Aircell rupture relay, Oil Temperature Indicator and Winding Temperature Indicator shall comply with requirement of IEC 60076-22-1 and shall be suitable for 220V DC application.	We are complying this clause for WTI & OIL. Our vendor for Buchholz Relay (including GCD), Pressure Relief Device, Sudden Pressure Relay, Magnetic Oil Level Gauge, Aircell rupture relay have done type test of switches as per IEC standard. Type test of the same will be submitted to you shortly	In this regard, the provisions of Bidding Documents shall remain unchanged.
18	Section Project Clause No. 9.2 iii (b)	Double compression type metallic cable gland to be provided	PRD, SPR, B/R, MOLG's comes with plug-in socket type arrangement instead of double compression gland at device end and enclosure side conduit connector shall be used as per PGCIL specification. For aircell rupture relay both end double compression type gland are used.	Double compression type metallic gland are to be ensured at device end (PRD, SPR, Buchholz Relay, Aircell rupture relay and MOLG)

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Sr.No.	Ref Section	Provision in bidding document	Bidders Queries	POWERGRID's Reply/Clarification
19	Section Project Clause No. 9.2 iv (d)	Double compression type metallic cable gland to be provided.	This is not applicable for WTI & OTI	In this regard, the provisions of Bidding Documents shall remain unchanged.
20	Section--Project, Rev.00; Clause 9.2	Additional requirements for PRD, SPR, Buchholz Relay, Aircell rupture relay and MOLG a) Limit switch shall be placed inside the metallic enclosure to avoid ingress of water b) Double compression type metallic cable gland to be provided.	Bidder understands that requirement of Double compression type metallic gland is about the terminal end of Control cabinet side, Kindly Confirm.	Double compression type metallic gland are to be ensured at device end (PRD, SPR, Buchholz Relay, Aircell rupture relay and MOLG)
21	Section--Project, Rev.00; 2.0 Scope	2.1 (iii) 145kV Air core NGR (Dry Type), along with support structure & terminal connectors: as per BPS	With reference to the requirement of dry type NGR kindly note followings: - There are only 4 approved vendors available as per Powergrid Vendor Compendium for 145 kV Dry type NGR. Being two vendors of foreign origin/ china, effectively there are only two Indian vendors remain i.e. M/s Quality Power & M/s Shrihans. Swallowed order booking & meager compositeness may resulted in late delivery or increased prices. In view of above, it is suggested to incorporate 145 kV class Oil filled NGRs as an alternate option to 145 kV dry type NGRs. Oil filled NGRs are already being used in 420 kV shunt reactors since many years and technical specification of the same may be followed for 765 kV shunt reactors. Benefits - a)Help in meeting project timelines b)Some manufacturers have inhouse facility, ensuring timely delivery c)Smaller foot print being oil filled d)There is no requirement of huge magnetic clearance unlike air core NGRs (e.g. 2.75m radially) Kindly accept and confirm	In this regard, the provisions of Bidding Documents shall remain unchanged.
22	Section--Project, Rev.00; 2.0 Scope	(iii) 145kV Air core NGR (Dry Type), along with support structure & terminal connectors: as per BPS (iv) 132kV Surge Arrestors for 765kV Class Line Reactors, along with support structure & terminal connectors: as per BPS	With reference to scope of terminal connector for NGR and Line arrester with the package, it may kindly note that due to small nos. requirement supplier of Terminal connector refrain to supply to NGR and LA suppliers , this leads to the delay in procurement of NGR and LA, further due the terminal connector supply of NGR and LA get delayed, consequently payment is also delayed for the NGR and LA due to this. With reference to the above kindly exclude the terminal connector scope of supply with NGR and LA and may be kept to s/s supplier. Kindly accept and confirm	In this regard, the provisions of Bidding Documents shall remain unchanged.
23	Section--Project, Rev.00; 7.2.7. & 14.07.1	The Reactor shall be provided with a 150 mm nominal diameter butterfly valve and bolted blanking plate, gasket and shall be fitted at the highest point of the Reactor for maintaining vacuum in the tank 7. Valve for vacuum application on Tank-- Gate	With reference to the requirement of 150 mm nominal dia valve requirement for maintaining vacuuming, customer may kindly note that this is regular practice to use vacuum pump having hose pipe of 50 mm nominal dia. which is connected to already provided 50 NB valve available at top and same is provided for filtration, further note that there is less volume of around 30 kL in the 765 kV Single phase shunt Reactor and for this rating shiunt reactor of volume, 50 NB Valve for evacuation of air is sufficient. In view of above it is understood that there is no use of 150 NB Valve required. Therefore, Powergrid may review the requirement and delete the same. Kindly accept and confirm.	Gate type valve shall be provided for vacuum application.

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24	Section-Project, Rev.00; Annexure-b , Test Plan	16. Vibration & stress measurement at Um/√3 level Cold and Hot state for the unit on which temperature rise test is performed & in Cold state for all other units. (Measurement shall also be carried out at 1.05Um/√3 level for reference purpose)--- Routine	<p>Test requirement plan of Power Grid Model Technical Specification for Shunt Reactor specifies: "stress measurement on tank at Um/√3 level Cold and Hot state for the unit on which temperature rise test is performed & in Cold state for all other units. (Measurement shall also be carried out at 1.05Um/√3 level for reference purpose)". In this regard, following facts may be noted: •IEC: 60076-6 does not call for stress measurement on reactor tank. •Stress measurement is carried out by strain gauges, which are pasted on tank wall after paint removal at 16 locations. Paint removal and again touching up is a very tedious task and affects the quality and aesthetics of Reactors at many locations. •Guaranteed stress value is 20 N/mm2 against which tests results remain in range of 0-6 N/mm2). •No reactor tank of the bidder has yet failed in stress measurement, also no related issue has been observed on test bed and hope same for other reactor manufacturers. In view of above, we request Powergrid to delete "Stress measurement on reactor tank" or at least to make the same as a Type Test in model technical specification. This will help in better aesthetics, good paint quality of reactors and reduction in test time. Kindly accept and confirm</p>	In this regard, the provisions of Bidding Documents shall remain unchanged.
25	Section-Project, Rev.00; Annexure-b , Test Plan	2. Reactance and loss measurement (Measured in Cold and Hot state for the unit on which temperature rise test is performed & in Cold state for all other units)-- Routine	<p>Test requirement plan of Power Grid Model Technical Specification for Shunt Reactor specifies following tests in hot and cold conditions : •Reactance and loss measurement •Vibration & stress measurement •Measurement of acoustic noise level •Knee point voltage measurement of reactor As IEC: 60076-6 does not call for these tests in hot and cold conditions and carrying out these tests in hot & cold condition does make major changes in results. Further we understand that these results don't contribute any fruitful outcome. Powergrid may review and may delete the same. This will further save type test charges and time. Being a leader in procurement of 400 & 765 kV class reactors in India, other utilities follow/ get inspiration from Powergrid technical specification for their major / occasional reactor procurement. Hence such positive changes in model technical specification will bring good vibes in transmission industry. Kindly accept and confirm</p>	In this regard, the provisions of Bidding Documents shall remain unchanged.
26	Cl. No.7.2.7 & 14.7.1.17 of Technical Specification,SECTION-765 KV SHUNT REACTOR, C/ENGG/MODEL-SPEC/765kV SR Rev. 8	<p>Clause No.7.2.7: The Reactor shall be provided with a 150 mm nominal diameter butterfly valve and bolted blanking plate, gasket and shall be fitted at the highest point of the Reactor for maintaining vacuum in the tank.</p> <p>Clause No.14.7.1.7: Valve for vacuum application on Tank: Type Gate</p>	<p>Since there is contradictory requirement in the specification in two different clauses. Our preference is 1no x 80/100 mm Gate valve. Kindly accept.</p>	Gate type valve shall be provided for vacuum application.
27	Section-Project, Rev.00	Cable length	<p>We understand that the cable distance mentioned in Clause 2(e) of the Project Section and the BPS covers the complete cabling requirement between the IMB and the CMB, including all associated cabling works for the spare reactor unit. Hence, we have not considered any further cabling in our offer.</p>	Bidder understanding is in order
28	Section-Project, Rev.00	<p>SPECIFIC EXCLUSION (e)Nitrogen Injection type Fire Prevention & Extinguishing System. However, Provisions of valves (for future use) for Online Dissolved Gas (Multi-gas) and Moisture Measuring Equipment and Nitrogen Injection type Fire Prevention & Extinguishing System shall be considered included in the scope & shall be deemed to be included in the price of each Reactor.</p>	<p>We would like to clarify that suitable valve and sensor mounting provisions for the NIFPS will be provided. However, different NIFPS manufacturers use varying sensing elements, which require different mounting arrangements. Therefore, we request that the final make of the NIFPS be communicated immediately after award of contract so that the appropriate valve and sensor mounting provisions can be incorporated in our initial drawing submission.</p>	In this regard, the provisions of Bidding Documents shall remain unchanged.

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29	Section-Project, Rev.00	Seismic Zone Reactor to be designed as per Zone-V (IS 1893) however, Bushing shall be suitable for Zone-III (min.).	We would like to highlight that the reactor is designed for Seismic Zone-V (with Peak Ground Acceleration(PGA): 0.36g). However, we are presently offering bushings suitable for Seismic Zone-III. This is for your information. Please let us know in case bushings suitable for a higher seismic zone are required.	In this regard, the provisions of Bidding Documents shall remain unchanged.
30	Price schedule-3 (BPS)	1.1kV grade control cables (PVC insulated) along with lugs, glands, straight joints & accessories etc.	We understand that the installation of cables mentioned in this clause refers only to the complete cabling requirement between the IMB and the CMB, including all associated cabling works for the spare reactor unit. This is because, as per Section-Project, Clause 3(v), the cables from the Reactor CMB to the Owner's/Employer's control room or bay control room are excluded from the transformer OEM's scope. Kindly confirm our understanding. Cables along with lugs, glands etc from CMB to control room are not in our scope.	Bidder understanding is in order
		1.1kV grade power cables (PVC insulated) along with lugs, glands, straight joints & accessories etc.		