

PROJECT: Nabinagar STPP (3x660MW)	
CUSTOMER: NPGC	
Technical Specification of 400 kV & 33kV Transmission Line	TB-350-316-369-031TL
Section-1: Scope, Specific Technical Requirements & Quantities	REV.00

SECTION - 1

SCOPE, SPECIFIC TECHNICAL REQUIREMENTS & QUANTITIES

1.1.0 SCOPE & GENERAL INFORMATION

The scope of work under this specification is as follows:

Supply, civil works, erection testing and commissioning of 400kV D/C (Double Circuit) lines from Nabinagar STPP to existing Nabinagar TPP substation at BRBCL. The approximate distance between two substation is 10.5 km. (gantry to gantry) i.e. total route length of the double circuit line to be constructed by the bidder.

Design, supply, civil works, erection testing and commissioning 33 kV D/C (Double Circuit, with one circuit in future) and Single Circuit (S/C) lines from Nabinagar Main Plant to Make Up water Pump house. The approximate route length of each line is 3.0 km. i.e. total route length of the each double circuit/single circuit line to be constructed by the bidder.

Name of customer	Nabinagar Power Generation Co. Pvt. Ltd. JV between NTPC and Bihar State electricity Board)
Name of the project	Nabinagar STPP (3x660MW)

1.2 Design

The works shall general include, *but not limited to*, following:

1.2.1 Design - General

- (i) Submission of drawings, test reports & quality plans of supply items
- (ii) Getting approval from customer/BHEL for all design drawings and documents required for the successful completion of job prior to the execution of work.
- (iii) Submission of drawings / documents, Quality Plans, inspection reports in soft copies and hard copies at each stage for customer / BHEL use.
- (iv) Route survey will be done by other agency

1.2.2 Design for 400 kV –

BHEL shall provide following drawings/documents - Structural drawing of normal towers for 2 towers (DA & DD type) with 3 m, 6 m , 9 m & 18 m extension for shop drawings and bill of material (BOM) for 2 towers including extension, drawing of foundation for 2 normal towers including extension (max. 8 nos. per tower i.e. for soil type – Dry, Wet, partially submerged, fully submerged ,

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dry fissured rock, wet fissured rock, wet black cotton & submerged Fissured rock) and foundation loads, stub setting templates, sag tension calculation, sag templates drawing, tower spotting data.

1.2.3 Design For 33 kV -

- (i) Design basis report of 33 kV line is enclosed for design of 33 kV Transmission line tower and foundation.
- (ii) Submission of design and drawings of type tested 33kV transmission line lattice type towers supplied to reputed utilities like POWERGRID / state utilities etc as acceptable to NTPC/ BHEL. Type test (destructive test etc) reports shall be submitted for approval.
If type tested tower design drawings meeting the customer/project requirement are not available, then bidder has to design the towers, do type test on proto type tower under customer/BHEL witness at certified labs.
- (iii) Type tested tower design shall include Structural drawings of tower along with extensions, Shop drawings, Bill of material (BOM), Drawing of foundation including extensions for all soil types, Foundation loads, Stub setting templates, Sag tension calculation, Sag template drawing, Tower spotting data.
- (iv) Preparation of fabrication drawings (structure assembly drawing) and detailed BOQ for 33 kV tower structures.

1.2.4 Supply –

- (v) Make of items should have NTPC/BHEL approval before supply. Bidder should consider NTPC approved make of all supply items. In case the offered make is not approved by BHEL/ NTPC, bidder has to submit required documents for getting the sub-vendor approval of alternate make components without any commercial/ time of delivery implication to BHEL/ NTPC.
- (vi) The materials shall conform to all the type tests as per relevant standards and NTPC specification. The acceptance, routine tests and tests during manufacture shall be carried out on the line material as per relevant standards & customer technical specification.
- (vii) Source of structure material shall be from **SAIL/Tata/Jindal/RINL**. (NTPC & BHEL approved sources)
- (viii) BHEL / customer / third party shall inspect equipment / material before despatch. Stage inspection during manufacturing may also be carried out. Material shall be dispatched only after getting despatch Clearance from BHEL. Supplier shall send inspection call on prescribed format (web site) only, with an advance notice of 15 days.
- (ix) Fabrication of 400kV & 33kV towers, stub, stub setting template as per approved drawings and proto type testing.
- (x) Supply of 400kV & 33kV Transmission Line towers including extensions, bolts and nuts, stub setting template including all tower accessories (phase plate, caution plate, number plate, circuit plate, anti-climbing device, bird guard, aviation signal etc.
- (xi) Earthing materials includes electrodes and counterpoise type earthing for all type of towers.

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1.2.5 Services – Civil works & Erection

- (i) Providing FQP for erection and other details as required for civil works, erection including stringing of all lines.
- (ii) Technical support and revision of documents including **recheck survey** as and when required during the execution of the transmission line contract till completion of work.
- (iii) Civil work for 400kV & 33kV transmission line tower foundation including excavation including dewatering, shoring, strutting, and filling under and around structures, backfilling with suitable available excavated earth around completed structures, disposal of surplus soil, backfilling , formwork, providing necessary steel embedment and other setting of template, stub fixing including supply of all material, labor etc. complete as per approved drawing.
- (iv) Erection of 400kV & 33kV Transmission Line towers including extensions, bolts and nuts, stub setting template including all tower accessories (phase plate, caution plate, number plate, circuit plate, anti-climbing device, bird guard, aviation signal etc) .
- (v) Complete erection of 400kV double circuit transmission line, 33kV double circuit transmission line (one circuit in future), 33 kV single circuit transmission line including erection of tower, stringing of conductor, ground wire and their accessories, earthing of tower, insulator hoisting, String hardware, OPGW etc. for successful commissioning of line.
- (vi) Tack welding of bolts & nuts along with supply & subsequent application of zinc coating on the welded portion as required.
- (vii) Tree cutting (if any) is in the scope of bidder.
- (viii) Bidder may note that (NTPC /BHEL) shall not pay any compensation for any damage or loss of material including the free issue items during storage, transportation & erection work. Further, any other loss or damage to the properties during work of execution of transmission line job or for tree cutting due to bidder's work shall not be compensated by NTPC/BHEL.
- (ix) All equipment, tools-tackles shall be organized by contractor.
- (x) Obtaining clearance from electrical inspector & submitting any relevant drawing/ document shall be responsibility of bidder.
- (xii) OPGW and its accessories shall be installed under supervision of OPGW supplier. Accessories of OPGW includes Suspension Clamps, Tension, Flexible Copper Bond, Vibration Dampers, Armor rods for, x Way joint box.
- (xiii) Accessories of conductor includes Vibration dampers, Clamps (tension, suspension, cleat), Preformed amour rod, mid span compression joint, Repair sleeves, rigid & flexible spacers etc to complete.
- (xiv) Accessories of earthwire includes Vibrations dampers, Clamps (Tension Clamps, suspension clamp, cleat clamp, PG clamp etc), flexible copper bond, mid span compression joint, Repair sleeves etc to complete.

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1.2.6 Exclusion –

- (i) **Free issue items-** The following items shall be free issued to the successful bidder. Bidder shall estimate the quantity required for successful completion of the full scope of works and furnish the breakup of quantity of all these items. BHEL shall handover these free issue items to bidder at Nabinagar site. Thereafter their storage, handling, loading, unloading, transportation from storage yard upto required locations & local storage shall be in the scope of the bidder.
- **Insulators with stringing hardware for 400kV & 33kV lines.**
 - **ACSR Moose Conductor for 400kV and AAAC conductor for 33kV.**
 - **7/9 SWG Shield wire for 33 & 400kV.**
 - **OPGW and its accessories for 400kV lines.**
 - **Line conductor Accessories**
 - **Earthwire accessories**
- (ii) 400kV tower and foundation design as per cl. No. 1.2.2.
- (iii) Route survey report of 400kV line , 33kV S/C line, 33kV D/C line and design basis report for 400 kV line, 33 kV line shall be provided during execution by BHEL.
- (iv) Right of way is not in Bidder's scope.

Notes:-

- (i) Any other work/ supply required for the successful commissioning of Transmission Line is in the scope of bidder.

1.3 SPECIFIC TECHNICAL REQUIREMENT

The specific technical requirements for the execution of transmission line works shall be as per NTPC/BHEL Specifications and the relevant standard IS/IEC/CBIP Manual/IEEE.

Refer Section 2 for NTPC specification of 400kV & 33kV Transmission Line & BHEL specification for lattice structure supply

Refer Section 3 for Project Details and general specification.

1.4 BILL OF QUANTITY

BOQ for transmission line is enclosed in Annexure-I. The bidder has to provide price against each item of BOQ. However, payment will be done on actual executed quantity. Quantity of any item may vary upto any extent but the overall contract value may vary by $\pm 30\%$.

Any item(s)/ work(s) not covered specifically in the BOQ but is(are) required for successful completion of transmission line shall be deemed to be included in the package.

1.5 METHOD OF MEASUREMENT :

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Excavation shall be measured in cubic meters. The lateral dimensions to be considered for working out excavation quantity shall be the PCC dimension below the footing as per approved drawing. Nothing extra shall be paid for slope cutting, etc. Backfilling & disposal qtys shall be worked out based on the above dimensions only.

For other items, unless otherwise described the method of measurement as described in 'Method of Measurement of Building and Civil Engineering Works'-IS 1200 (Part I to XXV) latest edition of BIS shall be followed.

1.6 Sub-Suppliers

Bidder should consider NTPC approved make of all supply items. In case the offered make is not approved by BHEL/ NTPC, bidder has to submit required documents for getting the sub-vendor approval of alternate make components without any commercial/ time of delivery implication to BHEL/ NTPC.

1.7 QUALIFYING REQUIREMENTS for transmission line towers

The bidder should have designed, fabricated and successfully type tested, erected and commissioned transmission line towers of 400 kV rating or above voltage class.

1.8 TESTS FOR TRANSMISSION LINE MATERIAL

The materials shall conform to all the type tests as per relevant standards and NTPC specification. The acceptance, routine tests and tests during manufacture shall be carried out on the line material as per relevant standards & customer technical specification.

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A.ELECTRICAL ITEMS										
1	Circuit Breaker upto 400kV (Item subject to Sub QR approval)	I	010			ALSTOM T&D ABB	KANCHIPURAM VADODARA	A A		
						SIEMENS	AURANGABAD	A		For 132kV
						SIEMENS	AURANGABAD	DR		
						CGL	NASIK	A		
2	ISOLATOR UPTO 400KV (HCB / TANDEM) (Item subject to Sub QR approval)	I	020			GR POWER HIVELM	HYDERABAD CHENNAI	A A		
						SIEMENS	HYDERABAD	A		
						SWITCHGEAR & STRUCTURALS	HYDERABAD	DR		
						S & S	PONDICHERY	A		
						BIMCO ISOLATORS	HYDERABAD	DR		
3	CT UPTO 400KV (Item subject to Sub QR approval)	I	030			ALSTOM T&D BHEL	HOSUR BHOPAL	A A		Refer Note 4
						MEHRU	BHIWADI	A		UPTO 132KV
						BHEL	JHANSI	A		UPTO 132KV
						ABB	VADODARA	A		UPTO 132KV
						CGL	NASIK	A		
4	CVT UPTO 400KV (Item subject to Sub QR approval)	I	040			ALSTOM T&D ABB	HOSUR VADODARA	A A		
						BHEL	BHOPAL	A		
						CGL	NASIK	A		
5	SURGE ARRESTOR UPTO 400KV RATING (Item subject to Sub QR approval)	I	050			LAMCO OBLUM	HYDERABAD HYDERABAD	A A		
						ELEKTROLITES	JAIPUR	A		UPTO 132KV
						CGL	NASIK	A		
6	WAVE TRAP 400KV	I	060			ALSTOM T&D BPL	HOSUR PALGHAT	A A		
7	POST INSULATOR UPTO 400KV	I	070			MODERN INSULATOR CJI	ABU ROAD KHURJA	A DR		UPTO 132KV
						IEC	BHOPAL	A		
						ADITYA BIRLA	HALOL	A		
						WSI	CHENNAI	A		
8	CLAMPS & CONNECTORS & WELDING SLEEVES UPTO 400KV	II	080			KLEMMEN ENGG MILIND	CHENNAI MUMBAI	A A		
						EMI	MUMBAI	A		
						NOOTAN ENGG	MUMBAI	A		
						DECCAN	BANGALORE	DR		
						UTSAV	VADODARA	DR		
						ITPL	MUMBAI	A		

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						RASHTRAUDYOG	KOLKATA	A		
						PEE VEE ENGG	BANGALORE	A		
						MEGHA ENGG	CHENNAI	A		
9	ACDB / DCDB	II	090			C & S	NOIDA	A		
						PYROTECH	UDAIPUR	A		
						SCHNEIDER	NASIK	A		
						KMG A TO Z	NOIDA	DR		
						SPACEAGE SWITCHGEAR	GURGAON	DR		
						ADVANCE PANELS AND SWITCHGEARS	DELHI	A		
						TENCO SYSTEM AND SWITCHGEARS	INDORE	DR		
						UNILEC ENGG	GURGAON	A		
						JAKSON	GREATER NOIDA	A		
10	BMK'S/ JB'S (ALL TYPES)	II	100			C & S	NOIDA	A		
	/ LIGHTING PANELS/					PYROTECH	UDAIPUR	A		
						SCHNEIDER	NASIK	A		
						KMG A TO Z	NOIDA	DR		
						SPACEAGE SWITCHGEAR	GURGAON	DR		
						ADVANCE PANELS AND	DELHI	A		
						TENCO SYSTEM AND SWITCHGEARS	INDORE	DR		
						UNILEC ENGG	GURGAON	A		
						JAKSON	GREATER NOIDA	A		
11	INSULATOR HARDWARE,	II	110			RASHTRA UDYOG	KOLKATA	A		
	CONDUCTOR ACCESSORIES &					IAC ELECTRICAL	KOLKATA	A		
	EARTHWIRE ACCESSORIES					ITPL	MUMBAI	A		
						NUTAN ENGG	MUMBAI	A		
						TAG CORPORATION	CHENNAI	A		
						KLEMMEN ENGG	CHENNAI	A		
						EMI TRANSMISSION	MUMBAI	A		
12	DISC INSULATOR/ PIN INSULATOR	I	120			IEC	BHOPAL	A		
						ADITYA BIRLA	RISHRA (W.B.)	A		
						IMPERIAL CERAMICS	BIKAMER	A		UPTO 90KN
						BHEL	BANGALORE	A		
						WSI	CHENNAI	A		
13	GS FLAT/ 40MM DIA M.S.ROD/ M.S EARTH RODS /U CLAMP/ GI EARTH PIPE / GI PIPE / GI CONDUIT (INCLUDING BENDS) / PVC PIPES	III				BHEL APPROVED SOURCES				
14	CABLE TRAY, BENDS,	I	125			ADVANCE STEEL TUBES	GHAZIABAD	DR		

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	COUPLER PLATES					RABI ENGINEERING	KOLKATA	DR		
						INDIANA	MUMBAI	A		GALVANISING AT M/S KARAMTARA GALVANISER
						PATNY SYSTEMS	HYDERABAD	DR		
						INDL. PERFORATION	KOLKATA	A		GALVANISING AT M/S UNISTAR
						JAMUNA METAL	DELHI	A		GALVANISING AT VISAKHA STEEL
15	ACSR CONDUCTOR	I	130			SMITA	GHAZIABAD	A		
						GUPTA POWER INFRA	BHUBANESWAR	A		
						SARAVATHY	BANGALORE	A		
						GALAXY	SANGLI	A		
						HINDUSTAN VIDYUT PRODUCTS	FARIDABAD	A		
						APAR INDUSTRIES	VADODARA / SILVASSA	A		
						JSK	SILVASA	A		
16	GS EARTHWIRE / LIGHTING WIRE	III				BHEL APPROVED SOURCES				
17	1.1KV GRADE POWER, CONTROL CABLES	I	140			POLYCAB	DAMAN	A		
						KEI	BHIWADI	A		
						UNIVERSAL CABLES	SATNA	A		
						RAVIN CABLES	PUNE	A		
						PARAMOUNT CABLES	ALWAR	A		
						RALLISON	BHIWADI	A		
						HVPL	FARIDABAD	A		
						DELTON CABLES	NEW DELHI	A		FOR POWER CABLE-CONDITIONS APPLY
						CORDS CABLE	BHIWADI	A		
						HAVELLS	ALWAR	A		
18	CABLE GLANDS	III				COMET (COSMOS)	MUMBAI	A		
						SUNIL & CO	KOLKATA	A		
						SMI	MUMBAI	DR		
19	CABLE LUGS	III				DOWELS	MUMBAI/SILVASSA/	A		
						3D	UMBERGAON	A		
						CHETNA	NASIK	A		
20	LIGHTING FIXTURES & LUMINARIES	III				CGL	MUMBAI	A		
						PHILIPS	PUNE	A		
						WIPRO	MUMBAI	A		
						BAJAJ	DAMAN	A		
21	LIGHTING POLE	III				BIS approved Vendors as per IS-2713				Vendor should have valid BIS licence.
22	INDUSTRIAL RECEPTACLES	III				SCHNEIDER	NASIK	A		
						BCH	FARIDABAD	A		

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						LEGRAND	MUMBAI	A		
						BEST & CROMPTON	CHENNAI	A		
						CONTROL DEVICE	KOLKATA	A		
23	SUB STATION AUTOMATION	I	150			ALSTOM T&D	CHENNAI	A		
	SYSTEM					ABB	PEENYA	A		
	(Item subject to Sub QR approval)					SCHNEIDER	NOIDA	A		EXCEPT GRP
	BCU, GRP,					BHEL	BHOPAL	A		
	SWITCHYARD PROTECTION					SIEMENS	KALWA	A		
						SCHNEIDER	NOIDA	DR		FOR GRP
24	COMPONENTS FOR CONTROL & RELAY PANELS, PROTECTION PANELS, ISLANDING SCHEME & BAY CONTROL UNIT :		*							* 1.Control measure of item covered in quality plan of main item. 2. Mandatory spares/ items not covered in the Quality Plan shall be treated as Cat-III
a	ENERGY METER	*				SEMS	UDAIPUR	A		
						WALLABY	BANGALORE	DR		
						CONZERV	BANGALORE	DR		
						L&T	MYSORE	DR		
		*				SEMS	UDAIPUR	A		
b	FIBRE OPTIC CABLE	*				BIRLA ERICSSON	REWA	A		
		*				FINOLEX	PUNE	A		
		*				AKSH OPTIFIBRE	BHIWARI	A		
c	EVENT LOGGER	*				ALSTOM T&D	UK / FRANCE	A		
		*				HATHWAY	UK	A		
d	GPS TIME	*				ARBITER	USA	A		
	SYNCHRONISATION EQUIPMENT	*				HOPF	GERMANY	A		
		*				HATHWAY	UK / USA	A		
		*				SERTEL	CHENNAI	A		
e	RELAY TEST KIT	*				OMICRON	USA/AUSTRALIA	A		
		*				SCOPE T & M	PUNE	A		
f	DISTURBANCE RECORDER	*				ALSTOM T&D	USA	A		
						SIEMENS	GERMANY	A		
g	LARGE VIDEO SCREEN (LVS)	*				DELTA	CHINA	A		
		*				BARCO	NOIDA	A		
		*				PLANNAR	USA	A		
h	RELAYS	*				ABB	SWEDEN/ BANGALORE	A		
	(Item subject to Sub QR approval)	*				ALSTOM T&D	UK/CHENNAI	A		
	(NUMERICAL AND AUXILLARY)					BHEL EDN	BANGALORE	DR		
						SCHNEIDER	UK/FRANCE	DR		
						SIEMENS	GERMANY	A		
25	SF6 GAS FILLING AND	III				ENERVAC	CANADA	NOTED		
	EVACUATING PLANT, GAS					DILO	GERMANY	NOTED		
	RECYCLING & PURIFYING					VACCUUM PLANT INDUSTRIES	PUNE	NOTED		

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	PLANT, GAS LEAKAGE DETECTOR					AI QUALITEK	USA	NOTED		
26	OPERATIONAL ANALYSER WITH DCRM KIT	III				SCOPE T & M	PUNE	NOTED		
						MEGGER	UK	DR+		DR'+: Detail to be submitted for NTPC review and acceptance
						HATHWAY	USA	DR+		
						TECH. IMP SYSTEMS	ITALY	DR+		
27	AIR CONDITIONED BAY KIOSK	I	160			JINDAL MECTEC	GURGAON	DR		
						AVAIDS	GURGAON	DR		
						U-FOAM PVT LTD	HYDERABAD	A		
						TECHNICO	GHAZIABAD	DR		
28	ALUMINIUM TUBE	I	170			HINDALCO	RENUKUT	A		
						INDALCO	ALUPURAM	A		
						ALOM EXTRUSION	KOLKATA	A		
						JINDAL	BANGALORE	A		
						SUDAL	NASIK	A		
29	LEAKAGE CURRENT ANALYSER	III				SCOPE T & M	PUNE	A		
	FOR SURGE ARRESTOR					TRANSINOR	NORWAY	A		
						DOBLE ENGG	USA	A		
						ISA	ITALY	A		
30	SAG COMPRESSION SPRINGS	III				PIPE SUPPORTS PVT. LTD	CHENNAI	A		
						NATIONAL REFRACTORIES	MORVI	DR		
31	INSTRUMENTATION CABLE	I	180			KEI	BHIWADI	A		
						POLYCAB	DAMAN	A		
						PARAMOUNT	BHIWADI	A		
						THERMO CABLES	HYDERABAD	A		
						DELTON	FARIDABAD	A		
						CORDS CABLE	BHIWADI	A		
						ELKEY TELE LINKS	FARIDABAD	A		
32	MCC (FIXED TYPE)	II	190			MAKTEL	VADODARA	A		
						C&S	NOIDA	A		
						JAKSON	G NOIDA	A		
						UNILEC	GURGAON	A		
						SIEMENS	MUMBAI	A		
						GEPC	BANGALORE	A		
33	LT MOTOR	III				CGL	AHMEDNAGAR	A		
						MARATHON	KOLKATA	A		
						BBL	MUMBAI	A		
						SIEMENS	MUMBAI	A		
						ABB	FARIDABAD	A		
34	LIGHTING MAST	II	200			BAJAJ	PUNE	A		
	(TUBULAR)					PHILIPS	KOLKATA	A		
						AVAIDS TECHNOVATORS	GURGAON	DR		
						CGL	MUMBAI	DR		

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S.N.	Item Description	QP/ Insp. Cat.	QP # 0370-572- QVE- Q-	QP Sub. Schedul e	QP Approval Schedule	Proposed sub-supplier	Place	Sub- Supplier approval status/ category	Sub-supplier Details submission schedule	Remark
						SURYA ROSHNI	GWALIOR	DR		
35	OPGW CABLE	I	210			LS CABLE	DELHI/SOUTH KOREA	DR		
						PRYSMIAN	GERMANY	DR		
						JAINGSU TONGGUANG	CHINA	A		
						SUZHAO FURUKAWA	JAPAN	A		
						ZTT	CHINA	A		
36	CABLE TERMINATION KIT	II	220			3M	PUNE	A		
						RAYCHEM	THANE	A		
						HARI CONSOLIDATED	DELHI	A		
						G&W SHANGHAI	SHANGHAI	A		
37	HOLLOW & SUPPORT INSULATORS	*				MODERN INSULATOR	ABU ROAD	A		FOR CT, CVT, CB & LA
						WSI	CHENNAI	A		
						BHEL	BANGALORE	A		
						IEC	BHOPAL	A		
						ADITYA BIRLA	HALOL	A		
						CJI	KHURJA	DR		
38	FQP Switchyard Equipments	I	0370-572- QVE-G-010			BHEL				

Note:

1. SYSTEM SUPPLIERS/SUB-SUPPLIERS APPROVAL STATUS CATEGORY(SHALL BE FILLED BY NTPC)

A-For this items proposed vendor is acceptable to NTPC.To be indicated with letter "A" in the list along with condition of approval,if any

DR-For these items "Detailed required for NTPC review.To be identified with letter "DR" in the list.

NOTED- For these items vendors are approved by Main Supplier & accepted by NTPC without specific vendor approval from NTPC.To be identified with "NOTED".

2. QP / INSPN CATEGORY

CAT-I :For these items the Quality Plans approved by NTPC & final acceptance will be on physical inspection witness by NTPC

CAT-II :For these items the Quality Plans approved by NTPC.However no physical inspection shall be done by NTPC.The final acceptance by NTPC shall be on basis of documents as per approved QP

CAT-III :For these items Main supplier approves the Quality Plans.The final acceptance by NTPC shall be on basis of certificate of conformance by the main supplier.

3. UNITS/WORKS : Place of manufacturing Place of Main Supplier of multi units/works.

4. Clearance for ordering as vendor for supply of CT's will be given during MQP approval stage based on review of performance of CT's supplied at various NTPC sites.

Drawing List for Transmission Line package

Project	400/33 kV Transmission lines at Nabinagar
Customer	NABINAGAR POWER GENERATION CO. LTD.

Doc No	Doc title
0370-572-PVC-C-286	Structure design for 33 kV Transmission line Tower Type - 3SA
0370-572-PVC-C-288	Structure design for 33 kV Transmission line Tower Type - 3SC
0370-572-PVC-C-290	Structure design for 33 kV Transmission line Tower Type - 3DA
0370-572-PVC-C-292	Structure design for 33 kV Transmission line Tower Type - 3DC
0370-572-PVC-C-298	Structure drawing for 33 kV Transmission line Tower Type - 3SA
0370-572-PVC-C-300	Structure drawing for 33 kV Transmission line Tower Type - 3SC
0370-572-PVC-C-302	Structure drawing for 33 kV Transmission line Tower Type - 3DA
0370-572-PVC-C-304	Structure drawing for 33 kV Transmission line Tower Type - 3DC
0370-572-PVC-C-310	Foundation design for 33 kV (S/C) Transmission line Tower Type -3SA
0370-572-PVC-C-312	Foundation design for 33 kV (S/C) Transmission line Tower Type -3SC
0370-572-PVC-C-314	Foundation design for 33 kV (D/C) Transmission line Tower Type -3DA
0370-572-PVC-C-316	Foundation design for 33 kV (D/C) Transmission line Tower Type -3DC
0370-572-PVC-C-322	Foundation drawing for 33 kV (S/C) Transmission line Tower Type -3SA
0370-572-PVC-C-324	Foundation drawing for 33 kV (S/C) Transmission line Tower Type -3SC
0370-572-PVC-C-326	Foundation drawing for 33 kV (D/C) Transmission line Tower Type -3DA
0370-572-PVC-C-328	Foundation drawing for 33 kV (D/C) Transmission line Tower Type -3DC
0370-572-PVC-U-506	BOQ and EKD for Transmission line hardware etc.