

ESP-001 -
2A Rev.00



PROJECT ENGINEERING & SYSTEMS DIVISION

Std. / Doc. Number

PY55306

Rev. No. 00

Sheet 1 of 13

COPYRIGHT AND CONFIDENTIAL

The information on this document is the property of **BIHARAT HEAVY ELECTRICALS LIMITED**,
It must not be used directly or indirectly in any way detrimental to the interest of the company.

TECHNICAL SPECIFICATION FOR SYNCHRONISATION CONTROL AND ANNUNCIATION PANEL (SCAP)

CPP PACKAGE FOR VRMP OF HPCL VIZAG TWBS-CPP

Revisions:

Refer to record of revisions

Prepared by :

T. Subrahmanyam
T.Subrahmanyam

Checked by :

B. Naveen Kumar
B.Naveen Kumar

Approved by :

J.K. Pattanaik
J.K.Pattanaik

Date :

17.07.2018

**PROJECT ENGINEERING & SYSTEMS DIVISION**

Std. / Doc. Number

PY55306

Rev. No.

00

Sheet 2 of 13

Sl. No	INDEX	Page No
1	SCOPE	1
2	CODES AND STANDARDS	1
3	POWER SYSTEM DESCRIPTION	4
4	FUNCTIONAL REQUIREMENTS	4
5	GENERAL REQUIREMENTS	7
6	ECS INTERFACE PANELS	7
7	BILL OF MATERIALS	8
8	SUB VENDORS	9
9	TESTING & COMMISSIONING	9
10	PACKING & DISPATCH	9
11	MANDATORY SPARES	9
12	GUARANTEE	9
13	DOCUMENTS TO BE SUBMITTED	10
14	PACKAGE EXECUTION MILESTONES/SCHEDULE	11
15	GUIDELINES TO VENDORS FOR PREPARATION OF QUALITY ASSURANCE PLAN	11
16	CHECKLIST FOR BID SUBMISSION	12
17	RECORD OF REVISIONS	13



PROJECT ENGINEERING & SYSTEMS DIVISION

Std. / Doc. Number

PY55306

Rev. No. 00

Sheet 3 of 13

1.0 SCOPE

This specification shall form the basis for design, engineering, manufacturing, testing, packing, dispatch and supervision of Erection, Testing & Commissioning at site for SCAP.

Material codes:

Var.No	Description	Material Code
1.	SCAP PACKAGE FOR HPCL	PY9755306005
2.	SUPERVISION OF E&C FOR SCAP-HPCL	PY9855306015

2.0 CODES AND STANDARDS

- 2.1 The equipment shall comply with the requirements of latest revision of codes & standards attached or referred with the tender document. In case of any conflict between the various documents, the most stringent one shall be followed and BHEL decision in this regard shall be final and binding. It is vendor's responsibility to bring the same to the notification of BHEL.
- 2.2 In case of imported equipment's, codes and standards of the country of origin may be followed, if these standards are equivalent or stringent than the applicable Indian standards.
- 2.3 In addition, the work shall also conform to the requirements of the following:
- 2.3.1 The Indian Electricity Act/ CEA guidelines and rules framed there under.
 - 2.3.2 The fire insurance Regulations.
 - 2.3.3 Indian Petroleum Rules.
 - 2.3.4 The regulations laid down by Electrical Inspectorate (CEA).
 - 2.3.5 The regulations laid down by the Factory Inspectorate.
 - 2.3.6 Any other regulations laid down by the Central, State or Local Authorities from time to time during the execution of this contract.
- 2.4 Bidder shall refer following Annexures as part of this Specification
- Annexure-1: KEY SLD
 - Annexure-2: 220KV GIS SLD
 - Annexure-3: 66KV GIS SLD
 - Annexure-4: 33KV GIS SLD
 - Annexure-5: 11KV SWITCHGEAR SLD
 - Annexure-6: Electrical control philosophy
 - Annexure-7: ECS I/O list
 - Annexure-8: Key Measuring and protection diagram of STG and GTG
 - Annexure-9: Control room layout
 - Annexure-10: Specification for Relay and control panel
 - Annexure-11: Specification for Annunciation panel
 - Annexure-12: ITP for Relay & control panels
 - Annexure-13: ITP for Annunciation panel
 - Annexure-14: QAP_GUIDELINES_BHEL_FORMAT
 - Annexure-15: Deviation Format
 - Annexure-16: Commissioning Spares List
 - Annexure-17: BOM of SCAP Package
 - Annexure-18: Sub vendor list



3.0 POWER SYSTEM DESCRIPTION

The CPP consists of a GTG rated 66.5MW and a STG rated 14.22MW provided with complete electrical system catering to power requirements of complex and CPP. Evacuation is done through 66kV Double bus bar GIS. 66kV GIS is fed from GTG-7 and STG-1 through 11/69 kV generator transformers GTR-7 and STR-1 respectively.

The CPP 66kV Double bus bar GIS is also hooked up with 220kV GIS through 220kV/66kV grid transformers.

Further 220kV grid power will be hooked up to existing complex loads through 220/33kV transformer & new 33kV GIS.

Emergency power of the new VRMP units including CPP package shall be catered through 2nos 11kV DG sets (each rated 50% of the total rating). 66kV GIS switchgear is feeding the power supply to refinery substations and 11kV utility and auxiliary switchboard. Further 11kV utility board is feeding the 11kV load requirements of refinery substations and the power requirements of CPP auxiliaries are met through the CPP Auxiliary switchboard at 11kV. The auxiliary power distribution network of CPP consisting 66/11kV transformers, 11kV switchgear, 11/0.415kV transformers and 415V LT switchgear is feeding various CPP auxiliary HT and LT loads.

4.0 FUNCTIONAL REQUIREMENTS

Hard wired control, metering and annunciation shall be provided on SCAP. SCAP shall be located in CPP control room. SCAP shall be simplex and mosaic panel type. For tentative spacing available for SCAP panel, please refer to the progressive copy of control room layout (Annexure – 10) provided along with this specification.

SCAP shall carry out the control, monitoring and annunciation functions for new CPP (GTG+STG), 220kV GIS, 66kV GIS, 33kV GIS, and hook up with 220KV grid power supply through 220/66kV & 220/33kV transformers.

Control, metering & annunciation functions mentioned below are minimum requirements and shall be provided on the SCAP. However, signals as required for synchronization, control, metering and annunciation of GTG, STG shall be provided. Same shall be subject to review based on detail engineering

4.1 Control Functions

- Tap changing control of 220/66kV & 220/33 KV grid transformers and 66/11.5kV power transformers.
- Voltage and frequency control of GTG, STG, DG sets
- Auto/Manual synchronization of all 66kV incomers, bus sectionalizers and bus couplers
- ON/OFF control of all incomers, bus couplers/ bus sectionalizers and outgoing feeders of 66kV GIS and 33kV GIS including spare feeders.
- Selector switches like auto/ manual selector switch for excitation, control ISO/droop selector switch for governors required to meet operating and monitoring functions from SCAP
- Automatic synchronizing device with inputs to governor and excitation control of selected generator(s) for automatic synchronization of the selected breaker.
- Manual Synchronization subsystem complete with running and incoming voltmeters, frequency meters, synchroscope, synchroscope ON/OFF switch, check synchronizing and guard relays, switches, lamps etc.
- All other controls, as required for control and operation of generators, namely, field breaker control, etc., shall also be located on SCAP.



- Temperature scanners & vibration monitoring devices shall be located either on generator relay panels or turbine control panel with alarm on SCAP.
- ON/OFF control & Manual Changeover (for Incomers & Bus coupler) of 11KV CPP auxiliary switchboard, 11kV utility switchboard and 11kV emergency switchboard
- ON/OFF control of 11kV DG set local isolating circuit breakers

4.2 Monitoring functions

- Voltage of incomers and buses of 220kV GIS, 66kV GIS, 33kV GIS, 11kV switchboards
- Current of each phase of 220kV GIS incomers & outgoing feeders, 66 KV GIS incomers, bus couplers / section breakers and outgoing feeders, 33 KV GIS incomers, bus couplers / section breakers and outgoing feeders, 11kV incomer & bus coupler of CPP.
- Line and field voltage of generator.
- Field current of Generator.
- Frequency of Generator
- Power factor of Generator incomer
- MW, MVAR & MVA of Generators, incomers and outgoing feeders of 66kV GIS, 33KV GIS.
- MWH, MVARH of Generators incomers
- Voltage and frequency recorder for each bus. Recorders shall be paperless
- Null voltmeter of Generator.
- Tariff meter for each generator.
- Any other function, which is not mentioned but is essential for operation and safety of equipment and personnel.

4.3 Audio-visual annunciation functions

Audio-visual annunciation shall be provided for monitoring the generator, generator transformers, 66kV GIS, 33kV GIS, 11kV switchboards and other electrical equipment as a minimum, but shall not be limited to the following:

- Annunciation of Fault status of incomers, bus couplers & outgoing feeders of 66kV GIS, 33kV GIS, 11kV switchboards
- Operating and fault status of all protective relays and trip alarm of Turbine Generators, etc.
- Complete trip and non-trip alarm annunciation including alarm of OLTC for all transformers i.e GTG transformer, STG transformer, 220/66KV & 220/33KV Grid transformers, 66/11.5kV CPP auxiliary transformers.
- Annunciation of all protective relays and trip alarms of new GTG & STG
- Hooter and clock.

4.4 Status on mimic diagram

- ON/OFF/TRIP indications through LED / semaphore indicators of breakers, isolators and earth switches of 220kV GIS, 66 kV GIS, 33kV GIS, 11kV switchboards, incomers & bus coupler and DG sets.
- SLDs of respective switchboards shall be replicated on mimic diagram including spare feeders.



4.5 Control and Operation Philosophy

- a. 66kV GIS, 33 kV GIS, 11kV switchboards shall have one local/remote control selector switch. When selector switch is selected in remote mode, control shall be transferred to hard wired synchronizing panel (SCAP).
- b. Hard wired synchronizing panel (SCAP) shall be provided with the following selector switches for operation and control:

SW-1 3-position selector switch (SCAP/ OFF/ECS)

SW-2 4 position selector switches for each breaker to be synchronized (OFF/Dead bus/Manual synchronizing/Auto synchronizing)

Generator selector switches shall be provided on SCAP for selecting the generator (s) to be controlled in case of synchronization.

Bidder, based on the requirements of synchronizing scheme finalized shall decide quantities of these selector switches.

Following operations shall be possible from SCAP:

- Closing of all incomer breakers (in service position) and bus couplers/section breakers (in service position) on dead bus condition (bus coupler/ section breakers dead bus closing to be checked on either side).
- Synchronizing and closing of selected incomer breakers (in service position) and bus couplers/ section breakers (in service position) through check synchronizing & auto synchroniser.

Required interlocks for safe operation shall be provided.

- c. In addition to synchronizing from SCAP/ECS, the Generators shall be synchronized from Mark-VI panel / turbine control panel also. If synchronization from Mark-VI panel / turbine control panel is selected then all other selections made either at SCAP and ECS shall be defeated. In other words, selection from turbine control panel is master mode. Synchronization shall be possible from turbine control panel of Generator manually as well as automatically. To achieve Auto/ Manual synchronizing, the following shall be provided as a minimum on each turbine control panel but not be limited to it:

- Auto/Manual selector switch
- Synchro check relay for manual synchronizing
- Auto synchronizer for auto synchronizing (standard feature)

Both Auto/Manual synchronizing should be possible from turbine control panel console (CRT) to be located in control room.

- d. SCAP shall also include manual synchronization check facility of CPP switchboard incomers & bus coupler.
- e. The control and operational philosophy shall be finalized during detailed engineering for integrated operation of GTG, STG & 220kV grid supply. All control, metering, indication, interlocks, annunciation, graphic display/mimic etc., as required for complete operation, shall be taken care by vendor without any cost and time implication to Owner. All signals, as required, shall be identified and all cabling up to CPP system, including transducers, data cards, as required, shall be included in vendor's scope for implementation in SCAP. The signals shall also include all breaker ON/OFF controls, synchronizing signals, close permissive signal, as required.
- f. Synchronization trolley shall be provided.

For more details, Vendor to refer Electrical control philosophy as attached in Annexure-6 of this specification. Functions of SCAP as defined in approved Electrical philosophy shall be duly considered & implemented in SCAP



5.0 GENERAL REQUIREMENTS

- All hardware related to SCAP shall be located in the CPP control room.
- The SCAP panel shall be of MOSAIC type. The mosaic grid tiles shall be made of heat and flame retardant, self-extinguishing and non-hygroscopic material with flat matt finish without glare and nonreflecting type. For mounting back up devices on mosaic grid, the size of all these devices/instruments shall be compatible to mosaic grid. The mosaic grid construction should be flexible enough to allow easy shifting at set off any to any other free location without any need of cutting or special equipment/tool.
- Mimic of the panel shall be as per the attached SLDs including spare feeders and the scope of SCAP.
- Paint shade of the panel shall be provided during detailed Engineering.
- Panel height shall not exceed 2400mm.
- One digital clock & one cumulative plant generation display is envisaged over the panels.
- Tariff meter for each generator shall be part of SCAP panel.

6.0 ECS INTERFACE PANELS:

ECS system for complete complex consisting of centralised HMIs, distributed RTUs is supplied by Others (**Not in** bidder scope) for base level monitoring of the complex and advance level control functions such as synchronisation, load shedding, active & reactive power control and maximum demand limit control. It is proposed to cover all feeders of all EHV GIS, HV GIS, HV switchboards of the project for centralised monitoring. It is also proposed to cover the incomers, bus couplers and the buses of all 415 V PCCs/ PMCCs/MCCs, Outgoing breakers of PCC, battery charger and UPS. Outgoing feeders of MCCs are generally excluded from the scope of ECS monitoring.

Bidders scope – Supply of fully wired & functional panels consisting of TB's , Interposing relays , power convertor units & transducers at two locations of the plant. i.e

- SS-93 Building – 1 No of Transducer panel , 1 no of Interposing relay panel , 1 No of dummy panel
- SS-94 Building – 2 No of Interposing panel , 2 No of dummy panel
- Components mounted in the panels supplied shall be suitable for the following number of signals

NO OF I/O SIGNALS AT EACH PANEL							
LOCATION	DUMMY Panel	Interposing relay Panel	Transducer Panel				
	Nos	Nos	V	I	F	MW	MVAR
SS-93 Building	500	100	15	50	5	20	20
SS-94 Building	750	450	0	0	0	0	0

- Transducer panel- One dual O/P Transducer for each signal (V/I/F/MW/MVAR) mentioned in the above table shall be considered. Necessary terminal blocks for CT , PT & signal O/p to be considered.
- Interposing relay panel- One IPR for each hardwired DO signals and necessary terminal blocks.
- Dummy panel – Terminal blocks for hardwired AI (4-20 mA), DI signals
- Power-supply convertor units – For interposing relay panels (110 to 24 V DC – 2 Nos for each panel)

Bidder shall size the ECS interface panels (transducer panels, interposing relay panels and dummy panels as required) for AI, DI, DO & AO on the basis of total number of I/Os mentioned above. Additionally all the panels should have space provision for the I/O hardware for 25% future spare capacity with respect to each type of feeder.



PROJECT ENGINEERING & SYSTEMS DIVISION

Std. / Doc. Number

PY55306

Rev. No. 00

Sheet 8 of 13

In all these panels all wires for external connection shall be connected to terminal blocks. A minimum of 25% spare terminals shall be provided in each terminal block.

a. INTERPOSING RELAY PANEL:

- The interposing relays shall be mounted in separate free-standing interposing relay panel.
- The coil voltage for the interposing relay shall be 24 V dc. The power supply shall be derived out of the 110 V dc power supply being brought for the interposing relay and dummy panels. All intervening equipment for converting the power supply from 110 V to 24 V shall be dual-redundant such that failure of one of the chains shall not disturb the performance of the interposing relays. The status of each power supply unit shall be available for display on the panel. Also, low priority alarm shall be generated during switchover in the power supply units.
- The interposing relays shall be with changeover type of contacts, preferably plug-in type with base. All NO, NC and common contacts of changeover relays for interposing relays, shall be wired up to the external terminal blocks.

b. DUMMY PANEL:

Supply of free standing dummy panel for hardwired AI, DI and AO signals coming to/from the 66kV GIS, 33kV GIS, 11kV & 415V switchgear, transformers, SCAP, DC system at sub-station and UPS.

c. TRANSDUCER PANEL:

- Supply of transducer and free standing transducer panel for signals coming to/from 66kV GIS, 33kV GIS, SCAP, wherever applicable.
 - All signal transducers, wherever provided, shall be of externally-powered type and have an accuracy of $\pm 0.5\%$.
 - All modules shall be firmly mounted to the chassis with front-access screws. The rear back-plane assembly shall be mounted from the back of the rack and connect the modules with the field wiring. A current-circuit interlock shall have shorting switches that are activated when the module is removed from the rack. This shall protect current transformer from getting open-circuited. High current diodes shall be provided for additional protection for shorting switch failure and also for open-circuit condition occurring during insertion and removal of modules.
- d. The transducer panel, interposing relay panel shall be provided with its own power supply unit consisting of at least two redundant hot-standby power-supply units.
- e. Inter-panel wiring shall be by 650/1100 V grade, copper conductor, 2.5 mm² size, PVC insulated wires.
- f. Suitable PVC engraved labels for module identification, non-insulated type lugs for wire termination and printed number ferrules shall be used for the assembly.
- g. All I/O cabling from field equipment (switchgear, control gear, transformers, etc) to interposing relay panel for DO signals, and from field equipment (switchgear, transformer, UPS, DC system, VFD etc) to dummy panel and transducer panel for AI, DI & AO signals is not in vendor scope.

7.0 BILL OF MATERIALS:

Bidder may refer the following annexures

- a. BILL OF MATERIAL - Annexure-17

BIDDER TO NOTE THAT THE BOM IS INDICATIVE ONLY. IT IS THE RESPONSIBILITY OF BIDDER TO CONSIDER SUITABLE BOM FOR MEETING THE FUNCTIONAL REQUIREMENT OF SCAP AS MENTIONED IN THIS SPECIFICATION.

**8.0 SUB-VENDORS:****Bidder may refer the Annexure-18**

The sub-vendors for the components should be in line with approved vendors of EIL projects and is subjected to approval by BHEL during detailed Engineering.

“Vendors should not be part of EIL holiday List. Package vendors will not source the items from sub-vendors who are part of EIL' holiday list”

9.0 TESTING & COMMISSIONING:

During fabrication, panel shall be subjected to inspection by BHEL or by an agency authorized by the BHEL to assess the progress of work, as well as to ascertain only quality of raw material is used. Manufacturer shall furnish all necessary information concerning the supply to BHEL's representative.

For testing requirements, refer Inspection & Test Plan Annexure-13. Prior notice of minimum 3 weeks shall be given to BHEL for witnessing the final testing of panel to ensure satisfactory operation of all components. Tests shall be carried out at manufacturer's works under his care and expense.

Supervision for Testing and commissioning of the equipment at site shall be in supplier scope and shall be to the satisfactory operation of end user.

10.0 PACKING & DISPATCH:

All equipment shall be divided into several sections for protection and ease of handling during transportation. The equipment shall be properly packed for transportation by selected mode i.e. by ship / rail or trailer. The equipment shall be wrapped in polythene sheets, before being placed in the crates / cases to prevent damage to finish. Crates / cases shall have skid bottom for handling. Special notations such as ‘Fragile’, ‘This side up’ ‘Centre of Gravity’, ‘Weight’, ‘Owner’s particulars’, PO nos. etc. shall be clearly marked on the package together with other details as per purchase order.

The equipment may be stored outdoors for long periods before erection. The packing shall be completely suitable for outdoor storage in areas with heavy rains / high ambient temperature, unless otherwise agreed. A set of instruction manuals for installation, testing and commissioning, a set of operation & maintenance manuals and a set of final drawing shall be enclosed in a waterproof cover along with the shipment.

Packing of loose items: Loose items sent by Vendors to sites shall be quantified/numbered/tagged and not merely mentioned as ONE lot of loose items

11.0 MANDATORY SPARES

BHEL shall operate unit rates for mandatory spares (if any) requirement to be identified later and the rates submitted are valid till the commissioning of SCAP in all respects. Mandatory spares (if any) should be supplied separately with green colour painted box.

12.0 GUARANTEE

All equipment covered in this specification shall be guaranteed for a period of 12 months from the date of commissioning against any defect in design, manufacturing of materials or workmanship.

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION		Std. / Doc. Number	
				PY55306	
				Rev. No.	00
				Sheet 10 of 13	

13.0 DOCUMENTS TO BE SUBMITTED:

13.1 During Tendering stage:

- No Deviation schedule
- Unprice price schedule
- Check list
- Electrical Load List (DC/UPS/Non -UPS)

13.2 Documents To Be Submitted After Award Of Contract

13.2.1. Documents to be submitted during detailed engineering:

Sl. No.	Description	Category	Initial Submis- sion	Revised Drawings Submis-sion	Final Submis- sion
1	Data Sheets	Approval	4 sets	4 sets	10 sets
2	General Arrangement, Foundation Plan & Loading Details Drawing	Approval	4 sets	4 sets	10 sets
3	Schematic & Wiring Diagrams	Approval	4 sets	4 sets	10 sets
4	Block Logic Diagrams	Approval	4 sets	4 sets	10 sets
5	Quality Plan	Approval	4 sets	4 sets	10 sets
6	Commissioning Spares List	Review	1 set	4 sets	Nil
7	List of Tools & Tackles	Review	1 set	4 sets	Nil
8	List of Cable Accessories (Glands & Lugs)	Review	1 set	4 sets	Nil
9	Packing List	Review	Nil	Nil	3 sets
10	SCAP control cable schedule cum Interconnection chart	Approval	4 sets	Nil	10 sets
11	Catalogues / Drawings for Recorders, Meters, Transducer, switches, Simaphors, Relays, Meters etc.	Info	1 set	Nil	10 sets
12	Type Test Certificates	Review	4 sets	Nil	10 sets
13	Inspection Test Reports	Review	Nil	Nil	10 sets
14	SCAP Erection & Commissioning Manual	Info	Nil	Nil	10 sets
15	Operation & Maintenance Manuals	Info	Nil	Nil	10 sets

13.2.2. Final Handing Over Documentation:

In addition to above, final handing over documentation in neatly bound volumes shall be made in 12 set of hard copies and three set of CDs for the End User. It shall include the following:

- O&M Manuals for SCAP.
- “As-Built” Drawings (incorporating site modifications.)
- Data Sheets
- Test Certificates
- Guarantee Certificates
- Component Catalogues with Makes and Contact Details.

13.2.3. Documentation along with the Consignment:

Two sets of Inspection Test Reports and Commissioning Manuals shall be dispatched along with the consignment. The same shall also be listed in the packing list.

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION		Std. / Doc. Number	
				PY55306	
				Rev. No.	00
				Sheet 11 of 13	

14.0 PACKAGE EXECUTION MILESTONES/SCHEDULE

Sl. No.	Event	Schedule for GA & BOM drawings	Schedule for Scheme Drawings
1	Kick Off Meeting / Furnishing revised inputs (if any)	Within 2 weeks of P.O. / L.O.I. date (Note-1)	Within 2 weeks of P.O. / L.O.I. date (Note-1)
2	Drawings submission	Within 4 weeks from P.O. date	Within 5 weeks from P.O. date
3	BHEL Comments (along with Final/Firm inputs and revisions)	Within 2 weeks from receipt of the "Drawings in line with Inputs" (Note-2)	Within 3 weeks from receipt of the "Drawings in line with Inputs" (Note-2)
4	Revised Drawings submission	Within 2 weeks from BHEL's comments date	Within 2 weeks from BHEL's comments date
5	BHEL Comments / Approval for Manufacture Clearance	Within 2 weeks from receipt of the revised Drawings	Within 2 weeks from receipt of the revised Drawings
6	Revised Drawings submission	Within 2 weeks from BHEL's comments / Manufacture Clearance date	Within 2 weeks from BHEL's comments / Manufacture Clearance date
7	BHEL Approval on Revised Drawings	Within 2 weeks from receipt of the revised Drawings	Within 2 weeks from receipt of the revised Drawings
8	Manufacturing cycle time	Within 14 weeks from Manufacture clearance date of GA & SLD Drawings (progressively)	Within 14 weeks from Manufacture clearance date of GA & SLD Drawings (progressively)
9	As-Manufactured Drawings + Commissioning Manuals	Note-3	Note-3

Notes:

- 1.0 Kick off Meeting will be held after order placement at BHEL-Hyderabad. It is Vendor's responsibility to call and fix up date for the meeting. It is intended to provide revised inputs (if any) and clarifications on the inputs during the Kick off meeting. It is vendor's responsibility to collect the above within 2 weeks from P.O. / L.O.I. beyond which delays will be to the vendor's account.
- 2.0 It is Vendor's responsibility to submit the Drawings in line with the latest inputs else the drawings will be rejected. Delays on account of this will be attributed to the Vendor.
- 3.0 Two sets of As-Manufactured drawings and Commissioning Manuals shall be dispatched along with the first consignment. For further submission, refer the section for "Documents to be submitted after award of contract".
- 4.0 The total delivery time from P.O. / L.O.I. date is 24 weeks progressively. For package execution schedule and accounting of delays, the schedule for GA & SLD drawings shall be taken as reference.

15.0 GUIDELINES TO VENDORS FOR PREPARATION OF QUALITY ASSURANCE PLAN:

Refer Annexure-14

ESP-001- 2A Rev.00		PROJECT ENGINEERING & SYSTEMS DIVISION		Std. / Doc. Number	
				PY55306	
				Rev. No.	00
				Sheet 12 of 13	

16.0 CHECKLIST FOR BID SUBMISSION
(TO BE FILLED BY BIDDER AND SUBMITTED ALONG WITH OFFER)

Sl. No.	Description	Bidder Confirmation	Comments/ Remarks
1	Technical offer is conforming to technical specification PY55306 & its associated Annexures (if any), pre-bid clarifications (if any) etc., Bidder to confirm (Yes / No).		
2	Bidder confirms that they have read the provisions of the Deviation Schedule and have included the deviation Schedule in the Offer after agreeing to the said Provisions (Yes/No).		
3	Bidder confirms that Prices for all items have been Quoted. Unpriced & Priced Schedules are included in the Techno-commercial Offer and Priced Offer respectively.(Yes/NO)		

Notes: Offer received without affirmative confirmation against any of the above points may not be considered for evaluation.

Signature and stamp of bidder with date



18.0 RECORD OF REVISIONS

[illegible]