

INSTITUTE FOR PLASMA RESEARCH
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GUJARAT STATE

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TENDER NOTICE DATED 24-11-2010

Sealed tenders are invited from reputed and eligible parties for the following.

Sr. No	Tender Notice No.	Item	Qty.	Due Date & Time for		Tender Fee	EMD (Rs.)
				Submission of tender	Opening of tender		
1.	IPR/TN/PUR / 021/10-11	Supply of Helium Gas of purity 99.999% by volume for 3 years on Rate Contract basis	10000 M ³	30-12-2010 by 1.00 p.m.	30-12-2010 2.30 p.m.	1000.00	60000.00
2.	IPR/TN/PUR /022/10-11 (TWO PART TENDER)	Design, fabrication, testing, installation and commissioning of Integrated Power Supply	1 No.	5-1-2011 by 1.00 p.m.	5-1-2011 2.30 p.m.	1000.00	80000.00

Tender document is available on IPR Website : www.ipr.res.in/purchasetenders.html. Tenderers meeting the eligibility criteria mentioned in the tender documents may, at their option, download the tender documents from the website and submit their offer along with prescribed **Tender Fee (non refundable) and EMD** in the form of Demand Draft from any nationalized/scheduled bank drawn in favour of **Institute for Plasma Research** and payable at **Ahmedabad** as per the details given in the tender documents. In case party desires to collect the tender documents by post, they may contact the Purchase Officer along with prescribed tender fee. Tender documents will be issued upto **24th December, 2010**. Representative who is going to attend the tender opening should carry an authorization letter from the organization for participation in the tender opening failing which he will not be allowed to attend the tender opening.

TENDER NOTICE No.IPR/TN/PUR/022/10-11 DATED 24-11-2010
(TWO PART)

For Design, Fabrication, Factory testing, Packing, Forwarding, Unloading, Handling, Installation, Commissioning & Testing at site of one Integrated Power Supply on turnkey basis. The Integrated Power Supply (IPS) will be constituted with four individual power supplies namely - HVDC Power Supply (HVPS), CG Power Supply (CGPS), SG Power Supply (SGPS) and FL Power Supply (FLPS) with typical output ratings as mentioned below.

S.No.	POWER SUPPLY	RATING	QUANTITY
1.	HVDC Power Supply (HVPS)	15kV DC, 24Amp (360KW)	1Unit
2.	CG Power Supply (CGPS)	700V DC, 2Amp (1.4KW)	1Unit
3.	SG Power Supply (SGPS)	1200V DC, 2Amp (2.4KW)	1Unit
4.	FL Power Supply (FLPS)	16V DC, 350Amp (5.6KW)	1Unit

NOTE: THIS IS A TWO PART TENDER. KINDLY SUBMIT TECHNO-COMMERCIAL BID (PART-A) AND PRICE BID (PART-B) SEPARATELY IN TWO DIFFERENT ENVELOPES SUPERSCRIBING TECHNICAL BID AND PRICE BID IN ONE SINGLE ENVELOPE

NOTE:

1. Full details and specifications of the items and general instructions to be followed regarding submission of tenders are indicated in the tender documents.
2. **Proof for fulfillment of eligibility criteria mentioned hereunder should be submitted along with the tender. If the tender is submitted without valid documents, we shall not consider your offer. Tenders received without proof of eligibility criteria will be rejected.**
3. Tender documents can also be obtained by submitting a written request to the Purchase Officer together with prescribed tender fee, provided that the eligibility criteria is fulfilled. Last date for issue of Tender documents is 24-12-2010.
4. While requesting for Tender Documents, such request shall indicate **the "REQUEST FOR TENDER DOCUMENTS AGAINST TENDER NOTICE NO.IPR/TN/PUR/022/10-11 DATED 24-11-2010"**.
5. The tender fee of Rs.1000/- (non refundable) should be made in the form of **DEMAND DRAFT from any nationalized/scheduled bank drawn in favour of Institute for Plasma Research and payable at Ahmedabad.**

Vendor's name and tender number shall be indicated on the reverse side of the Demand Draft.

6. **DD should not be prior dated to the date of advertisement. Separate request letter and separate Demand Draft shall be sent for each tender.**
7. Those who use the downloaded tender documents from IPR Website may submit the prescribed Tender Fee keeping in a separate envelope along with the tender.
8. **Tenders received without the prescribed tender fee will be rejected.**
9. No request for the extension of due date will be considered.
10. Late/Delayed offers will not be accepted.
11. **Tender in a sealed envelope (Techno-commercial Bid along with Tender Fee and EMD [Part-A] in one envelope and Price Bid [Part-B] in another envelope) superscribing the envelope with the above tender no., date, due date and brief description of tendered item should be submitted to the *Purchase Officer* at the above address by 1.00 p.m. on 5th January, 2011. Part-A (Techno-commercial bid along with Tender Fee of Rs.1000/- and EMD for Rs.80,000/-) will be opened on the same day at 2.30 p.m. in the presence of attending tenderers.**
12. In the event of any date indicated above is a declared Holiday, the next working day shall become operative for the respective purpose mentioned herein.
13. IPR will not be responsible for any delay/loss of documents in transit.
14. Tenders received without the details asked for including proof of eligibility for participating in the tender may not be considered.
15. Tenderers should furnish/enclose full technical details/literature, delivery period and confirm the terms and conditions attached with the tender.
16. **Those who do not meet with the eligibility criteria need not submit Tender.**
17. **Those who are quoting on behalf of their foreign Principals should submit a Proforma Invoice of Foreign Principals in foreign currency.**
18. The Director, IPR reserves the right to accept or reject any offer in full or part thereof without assigning any reason thereof.
19. **Quotations received without EMD will not be considered.**

20. The representative who is going to attend the tender opening should carry an authorization letter from the organization for participation in the tender opening failing which he will not be allowed to participate in the tender opening.

21. **AUTHORITY LETTER**

21.1 The representative who is going to attend the tender opening should carry an authorization letter from the organization for participation in the tender opening failing which he will not be allowed to participate in the tender opening.

21.2 The tenderers representative, who reaches the venue of the tender opening late, i.e. after the starting time specified for opening of the tenders, may not be allowed to take part in the tender opening. It should be noted that only one representative of each tenderer will be permitted to participate in the tender opening.

ELIGIBILITY CRITERIA:

1. The bidder must have supplied a regulated power supply or drives of output rating 6kV or higher.
2. The bidder must have supplied a regulated power supply of output rating 200A DC or higher.
3. The bidder must have proven experience in supplying Programmable Logic Controllers (PLC) based automated control power supply or any other systems.
4. The bidder must have supplied any power supply of cost Rs.30,00,000/- or higher with single order in the last 3 years.
5. Proof and customer details for all the above (Sr.No.1 to 4) must be attached with the tender. Visit for the same must be made available to the IPR representative before the Purchase Order is placed.

NOTE: Issue of tender documents does not mean that a vendor is qualified to submit tenders. IPR's decision to consider as to whether a vendor has met with the eligibility criteria is final.

DETAILS OF INTEGRATED POWER SUPPLY

1. GENERAL

A. INTRODUCTION

Design, Fabrication, Factory testing, Packing, Forwarding, Unloading, Handling, Installation, Commissioning & Testing at site of one Integrated Power Supply on turnkey basis. The Integrated Power Supply (IPS) will be constituted with four individual power supplies namely - HVDC Power Supply (HVPS), CG Power Supply (CGPS), SG Power Supply (SGPS) and FL Power Supply (FLPS) with typical output ratings as mentioned below.

S.No.	POWER SUPPLY	RATING	QUANTITY
1.	HVDC Power Supply (HVPS)	15kV DC, 24Amp (360KW)	1Unit
2.	CG Power Supply (CGPS)	700V DC, 2Amp (1.4KW)	1Unit
3.	SG Power Supply (SGPS)	1200V DC, 2Amp (2.4KW)	1Unit
4.	FL Power Supply (FLPS)	16V DC, 350Amp (5.6KW)	1Unit

Four individual power supplies will have independent transformers, rectifiers and filters. These are ultimately PLC controlled and interconnected in a specific configuration for operation. All outputs of the four individual power supplies shall be floating at specified voltages. One of the individual power supplies will be grounded at the load end. The load will be placed within 10meters of the integrated power supply. A typical block diagram of the Integrated Power Supply (IPS) is shown in Figure 1. The details of integrated and individual power supplies are provided in the general specifications.

B. SCOPE OF BIDDER

- (1) Design, Fabrication, Factory testing, Packing, Forwarding, Unloading, Handling, Installation, Commissioning & Testing at site of one Integrated Power Supply on turnkey basis.
- (2) All works are in bidder's scope except civil works.
- (3) Quote for additional cable per meter in case of main input at IPR is available farther than 50m.
- (4) Quote separately for Wire Burn Test Setup as shown in Figure 3.

C. SCOPE OF PURCHASER (IPR)

- (1) Civil works as per detailed drawings that shall be supplied by the bidder.
- (2) Mains input (3 ϕ , Neutral & Power Earth) within IPR available at or more than 50m of the Integrated Power Supply.
- (3) Dummy / Actual load for all the individual power supplies within 10m of the Integrated Power Supply at IPR.

(4) Load end ground point shall be provided by a ground pit within 5m of the load end.

NOTE: Please fill offered values in the following specification tables and attach with the quotation. The quotations without filled in offered values into the specification tables may summarily be rejected.

2. SPECIFICATIONS

A. GENERAL SPECIFICATIONS

INTEGRATED POWER SUPPLY (IPS) DESCRIPTION			
S.NO	DESCRIPTION	VALUE REQUIRED	VALUE OFFERED
1.	Mains Input Voltage	415V±10%; 3φ; 50Hz; N, PE;	
2.	Input Power	Less than 500kVA (Preferably)	
3.	Mains to IPS Distance	Provide cable for 50m distance	
4.	IPS Installation	Indoor Installation with forced or natural air-cooling for 45°C maximum ambient temperature. All transformers and rectifiers of dry type only. Use of oil is not recommended anywhere.	
5.	IPS to Load Distance	Provide copper conductor, flexible, shielded (if applicable) all cables for 10m distance	
6.	Performance Output	At load end terminals of the output cables	
7.	Insulation sheet to Install/Keep IPS Housing	~10mm thick Glass Fiber for sufficient mechanical strength.	
8.	UPS Power for PLC Controls and two Air Blowers of 1.5HP each.	3.5kVA suitable operation for 3minutes minimum duration after AC mains failure.	
9.	UPS Sockets	230V, 5 & 15A (2 Nos. each)	
10.	Spare Utility Sockets	230V, 5 & 15A (2 Nos. each)	
11.	Arc Fault Energy of Individual Power Supply	≤ 50Joules to pass the wire-burn test	
12.	Total Preferred Space	W4000 x D1200 x H2400mm (Change in width is possible)	
13.	Rectifier Arrays with suitable Compensation Techniques	Least possible number of elements in series, with sufficient current rating to accommodate crowbar current.	
14.	Control, Monitor, Limit Set Voltages etc.	0-10Volts corresponding to 0-1.2 times Vmax or Imax	
		Analogue dials corresponding to 0-1.2 times Vmax or Imax	
15.	Analog Dial for Filament Current	About 2.0 times Imax, as in rush is 1.5 times Imax	
16.	Individual Power Supply Terminations	Suitable epoxy bushing. Else feed through capacitors that will be supplied by IPR.	
17.	All Input/Output and Digital/Analog Control Signals	All signals should be suitably routed to terminal blocks as per four distinct sets AI, AO, DI, DO.	

S.NO	DESCRIPTION/ SPECIFICATION	VALUE OFFERED
18.	<p>Grounding Scheme: Grounding must be bifurcated into Safety Ground or Utility Ground and Load End Ground.</p> <p>(1) Safety Ground or Utility Ground connection available from the input mains must be connected with the IPS housing at two distinct locations. All enclosures, cable shields, cable armors and power transformer cores etc. of the IPS must be connected to the Safety Ground only.</p> <p>(2) Load End Ground provided by a ground pit within 5m from load end must be connected with the load structure and the related experiment at the load end only. There would be eight output terminals i.e. two for each of the four power supplies. Shields of these eight cables would be connected to the Safety Ground at the supply end and no connection to the Load End Ground. One of the cores out of these eight output cables would be connected to Load End Ground.</p>	
19.	<p>IPS Housing: Generally conforming to standard IS: 12063-1987 and grade IP-41. Pest proof, SS housing with removable skins and/or doors, Necessary cooling fans, Dust filters at all air entries, Panel lighting, Suitable power and control cable entries, Capacitor discharge device like Idiot Stick etc.</p>	
20.	<p>Enclosures: All the four supplies may be installed adjacent to each other but kept in different enclosures, separated by common SS sheets. The separating SS sheets of 1mm thick may have ~50% of its area covered by punched holes of ~4mm diameter for air ventilation.</p>	
21.	All Bolts of Brass or SS only.	

B. PROGRAMMABLE LOGIC CONTROLLER (PLC) FUNCTIONS

S.NO	DESCRIPTION/ SPECIFICATION	VALUE OFFERED
1.	<p>All internal, external and input signals to PLC should be optically isolated for $\geq 10\text{KV}$. Output signals of the PLC may be optically isolated as and when found necessary for proper operation of the system.</p>	

2.	Switching On sequence of individual power supplies to be programmed using PLC as following, (i) All of the air & water-cooling circuits for the load. (ii) Wait for 2 minutes before next step. (iii) FLPS voltage progressively over settable 2-3minutes. (iv) Settable delay of 1-2min after full FLPS voltage applied. (v) CGPS bias voltage. (vi) Threshold HVPS voltage required for SGPS interlock. (vii) SGPS bias voltage. (viii) Operating HVPS voltage to be raised above threshold.	
3.	Switching Off sequence of individual power supplies would also be programmed using PLC as following, (i) SGPS voltage must be switched Off first. (ii) HVPS voltage to be lowered and switched off. (iii) CGPS bias voltage. (iv) FLPS voltage progressively over settable 2-3minutes. (v) Wait for 5minutes before next step. (v) All cooling circuits of the load may be removed.	
4.	SGPS voltage is required to be applied or removed in less than 1ms. Thyristor based fast series switch may be used to open circuit the output terminal and the shunt switch may divert the source energy to a series resistance. An isolated TTL interface to control the same should be provided. The TTL pulse may be supplied by an external source so that SGPS voltage pulse of desired width and height is available.	
5.	SGPS voltage must be removed first and faster within 1ms in case of any fault/failure within IPS or the load.	
6.	With or without PLC, TTL low signal must be provided to switch off the external experiment at load, within few microseconds in case of a fault before any of the supply is tripped or lowered below threshold level. TTL high should be provided otherwise.	
7.	Tripping of one supply need to act on other individual supplies. It should also generate signal for load & external experiment with or without the help of PLC.	
8.	Reputed brand (Siemens, ABB etc) of the PLC should be used.	
9.	(a) CPU of response time of $\leq 1\text{msec}$	
	(b) Digital Input Module of input delay $\leq 1\text{msec}$	
	(c) Digital Output Module	
	(d) Analog Input Modules of more than 12bit resolution & 200Hz per channel sampling rate	
	(e) Analog Output Modules of more than 12bit resolution & 50Hz per channel sampling rate.	

C. SPECIFICATIONS FOR THE INDIVIDUAL POWER SUPPLIES

1. HVDC POWER SUPPLY (HVPS) Quantity One			
S.No.	DESCRIPTION	VALUE REQUIRED	VALUE OFFERED
1	Power Input	415V±10%; 3φ; 50Hz	
2.	Output Cables	Co-axial type for both HV and Return.	
3.	Output Voltage (Variable)	0 to 15kV DC continuous	
4.	HV Setting Precision	200V	
5.	Output Current (Exclude bleeder current)	0 to 24A continuous at any output voltage	
6.	Short Duration Output Current	240A for 10ms at 0 to 15kV DC (1% Duty Cycle)	
7.	HVDC Return Path	Insulation level for floating at ≥10kV DC	
8.	Ripple (Peak to Peak)	≤ ±0.2% at 15kV DC and ≤ ±1% at 5kV DC	
9.	Load Regulation	≤ ±1% (for 100% load change)	
10.	Line Regulation	≤ ± 0.5% (for ±10% line voltage variation)	
11.	Dynamic Response	When sudden load is applied in typically 1ms.	
	(i) Over / Under shoot	±1% Maximum	
	(ii) Settling time	≤ 3ms to settle within ±0.2%	
	(iii) Current rise time	~1 ms	
12.	Stability (Design Value)		
	(i) Output Drift	≤ 0.2 % per Hour.	
	(ii) Temp. Sensitivity	≤ 0.01 % per °C	
13.	Metering	Analog Meters	
	(i) Input (Selector Switch)	Voltage (415V; 3φ) and Current (R, Y, B)	
	(ii) Output	HVDC V & I Analog Meters	
14.	Indications	LED Based Lamps	
	(i) Input	Voltage R,Y, B	
	(ii) Status	Auto/Manual, Supply On/Off, Ready, External Trip, Emergency Off, Filament Delay ON (External), Doors Open, Over Voltage, Over Current, Fault Output, Load Cooling, Supply Cooling etc.	

15.	Feedback	(a) Closed loop feedback control system to maintain the set output DC voltage within specified limit. (b) Necessary protections to be provided for failure of feedback signal.	
16.	Controls	Manual Selector Switch	
	(i) Auto	By using 0-10V external signal for corresponding 0-16.5kV HVDC at 200V settable precision	
	(ii) Manual	By a front panel 10 turn readable potentiometer	
17.	Manual Limits Setting (10 turn accessible potentiometer)	(a) Over Voltage Limit (16.5kV) (b) Over Current Limit (26.4A)	
18.	Analog Input (AI) signals (0-10V)	(a) Voltage Set (Auto Mode)	
19.	Analog Output (AO) Signal (0-10V)	(a) DC Output Voltage (b) DC Output Current (c) Bleeder current	
20.	Band Width	500Hz at least	
	Sampling Rate	1KHz at least	
21.	Digital Input (DI) Signals (TTL/PFC)	(a) Fast Trip - TTL (Crowbar in 10 μ s) (b) Slow Trip - PFC (without crowbar in 100ms) (c) Start / Stop - PFC (Normal Start or Stop)	
22.	Digital Output (DO) Signals (TTL/PFC)	(a) Supply Trip - TTL (b) Supply ON - TTL (c) Ready for SGPS - TTL (d) Supply OFF - TTL (e) Over Voltage Fault - TTL (f) Over Current Fault - TTL (g) Supply Fault - PFC (h) Crowbar Fired -	

		TTL (i) Interlock Open - TTL	
23.	Protections	All active high or as suitable for fool proof operation	
	(i) Series Resistance	20Ω (2X10) Non Inductive Non Capacitive	
	(ii) Shunt Resistance	Suitable Bleeder ≥500W for Stable Operation	
	(iii) Arc Protection (light activated)	To be provided for HVDC chamber	
	(iv) DC Over Voltage	Settable from 3 to 16.5kV	
	(v) DC Over Current	Settable from 20 to 110% of rating measured on HT,	
	(vi) High di/dt (Load Arc)	Rate of current rise sensed by a pulse CT	
	(vii) Crowbar Trigger for Fault Energy ≤50Joules (Wire burn test)	Within 10μs including detection by Over Voltage, Over Current, High di/dt, External Trip, Additional Inputs etc.	
	(viii) Others	Interlocks according to switching on/off sequence, Doors open, HV On, Danger markings etc.	
24.	Interlock		
	(i) Self	Power Supply Open/Close for OFF/ON -PFC Power Supply Cooling OK - PFC Load Water Cooling OK - PFC Bleeder over Current - PFC Air Cooling OK - PFC	
	(ii) Other Supplies	Trip SGPS and then HVPS if (1) HVPS faults (2) CGPS faults e.g. Under Voltage, Over Current and (3) FLPS faults.	
25.	Possible Topology (Any other more suitable may be quoted)	Single or Multiple Modules including Bridge rectifier, Filter, Controlled PWM at primary of HF transformer, HF rectifier, filter, crowbar, feedback and monitoring etc. PWM at DC output is not preferred.	

2. CG POWER SUPPLY (CGPS) Quantity One			
S.No.	DESCRIPTION	VALUE REQUIRED	VALUE OFFERED
1.	Power Input	415V±10%; 3φ; 50Hz	
2.	AC Mains Filter	Suitable EMI/EMC modular filter	
3.	Output Cables	Co-axial type for both Supply and Return.	
4.	Output Voltage (Variable)	200 to 700V DC continuous	
5.	Voltage Setting Precision	2V DC	
6.	Output Current (Exclude bleeder current)	0 to 2A continuous at any output voltage	
7.	HVDC Return Path	Insulation level for floating at $\geq 10\text{kV DC}$	
8.	Ripple (Peak to Peak)	$\leq \pm 0.1\%$ of full scale (at any voltage)	
9.	Load Regulation	$\leq \pm 1\%$ (for 100% load change)	
10.	Line Regulation	$\leq \pm 0.5\%$ (for $\pm 10\%$ line voltage variation)	
11.	Dynamic Response	When sudden load is applied in typically 1ms.	
	(i) Over / Under shoot	$\pm 1\%$ Maximum	
	(ii) Settling time	$\leq 3\text{ms}$ to settle within $\pm 0.2\%$	
	(iii) Current rise time	$\sim 1\text{ ms}$	
12.	Stability (Design Value)		
	(i) Output Drift	$\leq 0.2\%$ per Hour.	
	(ii) Temp. Sensitivity	$\leq 0.01\%$ per $^{\circ}\text{C}$	
13.	Metering at Output	V & I Analog Meters	
14.	Indications	LED Based Lamps	
	(i) Input	Voltage R, Y, B as applicable	
	(ii) Status	Auto/Manual, CGPS On/Off, Ready to Start, Trip Status, Over Voltage, Over Current, Under Voltage, Fault Output, etc.	
15.	Feedback	(a) Closed loop feedback control system to maintain the set output DC voltage within specified limit. (b) Necessary protections to be provided for failure of feedback signal.	

16.	Controls	Manual Selector Switch	
	(i) Auto	By using 0-10V external signal for corresponding 200-800V DC at 2V settable precision	
	(ii) Manual	By a front panel 10 turn readable potentiometer	
17.	Manual Limits Setting (10 turn accessible potentiometer)	(a) Over Voltage Limit (b) Over Current Limit (c) Under Voltage Limit	
18.	Analog Input (AI) signals (0-10V)	(a) Voltage Set (Auto Mode)	
19.	Analog Output (AO) Signal (0-10V)	(a) DC Output Voltage (b) DC Output Current (c) Bleeder Current	
20.	Band Width	500Hz at least	
	Sampling Rate	1KHz at least	
21.	Digital Input (DI) Signals (TTL/PFC)	(a) Normal Start or Stop – PFC	
22.	Digital Output (DO) Signals (TTL/PFC)	(a) Supply Trip - TTL (b) Supply ON - TTL (c) Supply Ready - TTL (d) Supply OFF - TTL (e) Over Voltage Fault - TTL (f) Over Current Fault - TTL (g) Supply Fault - PFC (h) Interlock Open - TTL	
23.	Protections	All active high or as suitable for fool proof operation	
	(i) Series Resistance	50Ω Non Inductive Non Capacitive	
	(ii) Shunt Resistance	Suitable Bleeder $\geq 25W$ for Stable Operation	
	(iii) DC Over Voltage	Settable from 300 to 800V	
	(iv) DC Over Current	Settable from 20 to 110% of rating.	
	(v) DC Under Voltage	Settable from 100 to 300V	

	(vi) Others	Interlocks to coordinate switch on/off sequence, Doors open, Danger markings etc.	
24.	Interlock	Power Supply Open/Close for OFF/ON -PFC Bleeder over Current - PFC External Interlock - PFC	
25.	Possible Topology (Any other more suitable may be quoted)	Single Module including Bridge rectifier, Filter, Controlled PWM at primary of HF transformer, HF rectifier, filter, crowbar, feedback and monitoring etc. PWM at DC output is not preferred.	

3. SG POWER SUPPLY (SGPS) Quantity One			
S.No.	DESCRIPTION	VALUE REQUIRED	VALUE OFFERED
1.	Power Input	415V±10%; 3φ; 50Hz	
2.	AC Mains Filter	Suitable EMI/EMC modular filter	
3.	Output Cables	Co-axial type for both HV and Return.	
4.	Output Voltage (Variable)	0 to 1.2kV DC continuous	
5.	Voltage Setting Precision	50V DC	
6.	Output Current (Exclude bleeder current)	0 to 2A continuous at any output voltage	
7.	Reverse Current	0 to 0.5Amp (To be absorbed before the output voltage is increased)	
8.	HVDC Return Path	Insulation level for floating at ≥10kV DC	
9.	Ripple (Peak to Peak)	≤ ±0.1% of full scale (at any voltage)	
10.	Load Regulation	≤ ±1% (for 100% load change)	
11.	Line Regulation	≤ ± 0.5% (for ±10% line voltage variation)	
12.	Dynamic Response	When load is applied in typically 200μs.	
	(i) Over / Under shoot	±1% Maximum	

	(ii) Settling time	$\leq 200\mu\text{s}$ to settle within $\pm 0.2\%$	
	(iii) Current rise time	$\sim 200\mu\text{s}$	
	(iv) Fault Turn Off Time	$200\mu\text{s}$	
13.	Stability (Design Value)		
	(i) Output Drift	$\leq 0.2\%$ per Hour.	
	(ii) Temp. Sensitivity	$\leq 0.01\%$ per $^{\circ}\text{C}$	
14.	Metering at Output	V & I Analog Meters	
15.	Indications	LED Based Lamps	
	(i) Input	Voltage R, Y, B as applicable	
	(ii) Status	Auto/Manual, SGPS On/Off, Ready to Start, Trip Status, Over Voltage, Over Current, Fault Output, etc.	
16.	Feedback	(a) Closed loop feedback control system to maintain the set output DC voltage within specified limit. (b) Necessary protections to be provided for failure of feedback signal.	
17.	Controls	Manual Selector Switch	
	(i) Auto	By using 0-10V external signal for corresponding 0-1.32kV DC at 50V settable precision	
	(ii) Manual	By a front panel 10 turn readable potentiometer	
18.	Manual Limits Setting (10 turn accessible potentiometer)	(a) Over Voltage Limit (b) Over Current Limit (c) Reverse Current Limit	
19.	Analog Input (AI) signals (0-10V)	(a) Voltage Set (Auto Mode)	
20.	Analog Output (AO) Signal (0-10V)	(a) DC Output Voltage (b) DC Output Current (c) DC Reverse Current (d) Bleeder Current	
21.	Band Width	500Hz at least	
	Sampling Rate	1KHz at least	
22.	Digital Input (DI) Signals (TTL/PFC)	(a) Fast Trip - TTL (Crowbar in $10\mu\text{s}$) (b) Slow Trip - PFC (without crowbar in 1ms) (c) Start / Stop - PFC (Normal Start or Stop)	

23.	Digital Output (DO) Signals (TTL/PFC)	(a) Supply Trip - TTL (b) Supply ON - TTL (c) Supply Ready - TTL (d) Supply OFF - TTL (e) Over Voltage Fault - TTL (f) Over Current Fault - TTL (g) Supply Fault - PFC (h) SGPS Crowbar Fired - TTL (i) Interlock Open - TTL (j) Reverse current Fault - TTL	
24.	Protections (i) Series Resistance (ii) Shunt Resistance (iii) DC Over Voltage (iv) DC Over Current (v) Reverse Current (vi) HVPS Voltage (vii) Fast Switching (viii) Others	All active high or as suitable for fool proof operation 10Ω Non Inductive Non Capacitive Suitable Bleeder $\geq 50W$ for Stable Operation Settable from 500 to 1320V Settable from 20 to 110% of rating. Settable from 20 to 110% of rating. SGPS can be switched ON only if HVPS Voltage is more than 3 to 8kV (Settable) Thyristor based series switch may be used to open circuit the output terminal and the shunt switch may divert the source energy to a series resistance before the power controller is pulsed blocked or supply is tripped by other means. Spark-gap (1.2kV), Interlocks to coordinate switch on/off sequence, Door open, Danger marking etc.	

25.	Interlock	Power Supply Open/Close for OFF/ON -PFC HVPS Voltage $\geq 5\text{kV}$ - TTL (Trip SGPS if HVPS Voltage $< 5\text{kV}$) Bleeder over Current - PFC External Interlock - PFC	
26.	Possible Topology (Any other more suitable may be quoted)	Single Module including Bridge rectifier, Filter, Controlled PWM at primary of HF transformer, HF rectifier, filter, crowbar, feedback and monitoring etc. PWM at DC output is not preferred.	

4. FL POWER SUPPLY (FLPS) Quantity One

S.No.	DESCRIPTION	VALUE REQUIRED	VALUE OFFERED
1.	Power Input	415V \pm 10%; 3 ϕ ; 50Hz	
2.	AC Mains Filter	Suitable EMI/EMC modular filter	
3.	Output Cables	Suitable flexible cable for both Supply and Return.	
4.	Output Voltage (Variable)	0 to 16V DC Continuous	
5.	Voltage Setting Precision	0.1 V	
6.	Output Current (Exclude bleeder current)	0 to 350A continuous at any output voltage	
7.	Max. Surge Current	$\leq 600\text{A}$	
8.	Standby operation Mode	Soft Reduce/ Increase by settable 3 to 5V in 1min.	
9.	FLPS/ HVPS Return Path	Insulation level for floating at $\geq 10\text{kV DC}$	
10.	Ripple (Peak to Peak)	$\leq \pm 1\%$ of full scale (at any voltage)	
11.	Load Regulation	$\leq \pm 1\%$ (for 100% load change)	
12.	Line Regulation	$\leq \pm 0.5\%$ (for $\pm 10\%$ line voltage variation)	

13.	Dynamic Response	When load is applied in typically 1ms.	
	(i) Over / Under shoot	±2% Maximum	
	(ii) Settling time	≤ 20ms to settle within ±0.5%	
	(iii) Voltage rise time	Soft Start (0 to 16V) in 2 to 3min. (Settable)	
	(iv) Fault Turn Off Time	2ms	
14.	Stability (Design Value)		
	(i) Output Drift	≤ 0.2 % per Hour.	
	(ii) Temp. Sensitivity	≤ 0.01 % per °C	
15.	Metering at Output	V & I Analog Meters	
16.	Indications	LED Based Lamps	
	(i) Input	Voltage R, Y, B	
	(ii) Status	Auto/Manual, FLPS Delay ON, FLPS On/Off, Ready to Start, Trip Status, Over Voltage, Over Current, Fault Output etc.	
17.	Feedback	(a) Closed loop system to control & maintain the set output DC voltage within specified limit. (b) Necessary protections to be provided for failure of feedback signal.	
18.	Controls	Manual Selector Switch	
	(i) Auto	By using 0-10V external signal for corresponding 0-17.6V DC at 0.1V settable precision	
	(ii) Manual	By a front panel 10 turn readable potentiometer	
19.	Manual Limits Setting (10 turn accessible potentiometer)	(a) Over Voltage Limit (b) Over Current Limit	

20.	Analog Input (AI) signals (0-10V)	(a) Voltage Set (Auto Mode)	
21.	Analog Output (AO) Signal (0-10V)	(a) DC Output Voltage (b) DC Output Current (c) Floating Voltage (d) Bleeder Current	
22.	Band Width	500Hz at least	
	Sampling Rate	1KHz at least	
23.	Digital Input (DI) Signals (TTL/PFC)	(a) Normal Start or Stop - PFC	
24.	Digital Output (DO) Signals (TTL/PFC)	(a) Supply Delay ON - TTL (b) Supply ON - TTL (c) Supply Ready - TTL (d) Supply OFF - TTL (e) Over Voltage Fault - TTL (f) Over Current Fault - TTL (g) Supply Fault - PFC (h) Cooling Interlock Open - TTL	
25.	Protections	All active high /as suitable for fool proof operation	
	(i) Shunt Resistance	Suitable Bleeder $\geq 100W$ for Stable Operation	
	(ii) DC Over Voltage	Settable from 12 to 17.6V	
	(iii) DC Over Current	Settable from 20 to 110% of rating.	
	(iv) Others	Interlocks to coordinate switch on/off sequence, Doors open, Danger markings etc.	
26.	Interlock	Power Supply Open/Close for OFF/ON -PFC Air Blower Fault - PFC Water Cooling Fault - PFC Bleeder over Current - PFC External Interlock -	

		PFC Zero Start (Limit Switch) - PFC	
27.	Possible Topology (Any other more suitable may be quoted)	Single Module including Bridge rectifier, Filter, Controlled PWM at primary of HF transformer, HF rectifier, filter, crowbar, feedback and monitoring etc. PWM at DC output is not preferred.	

D. ACCEPTANCE TESTS PROCEDURE

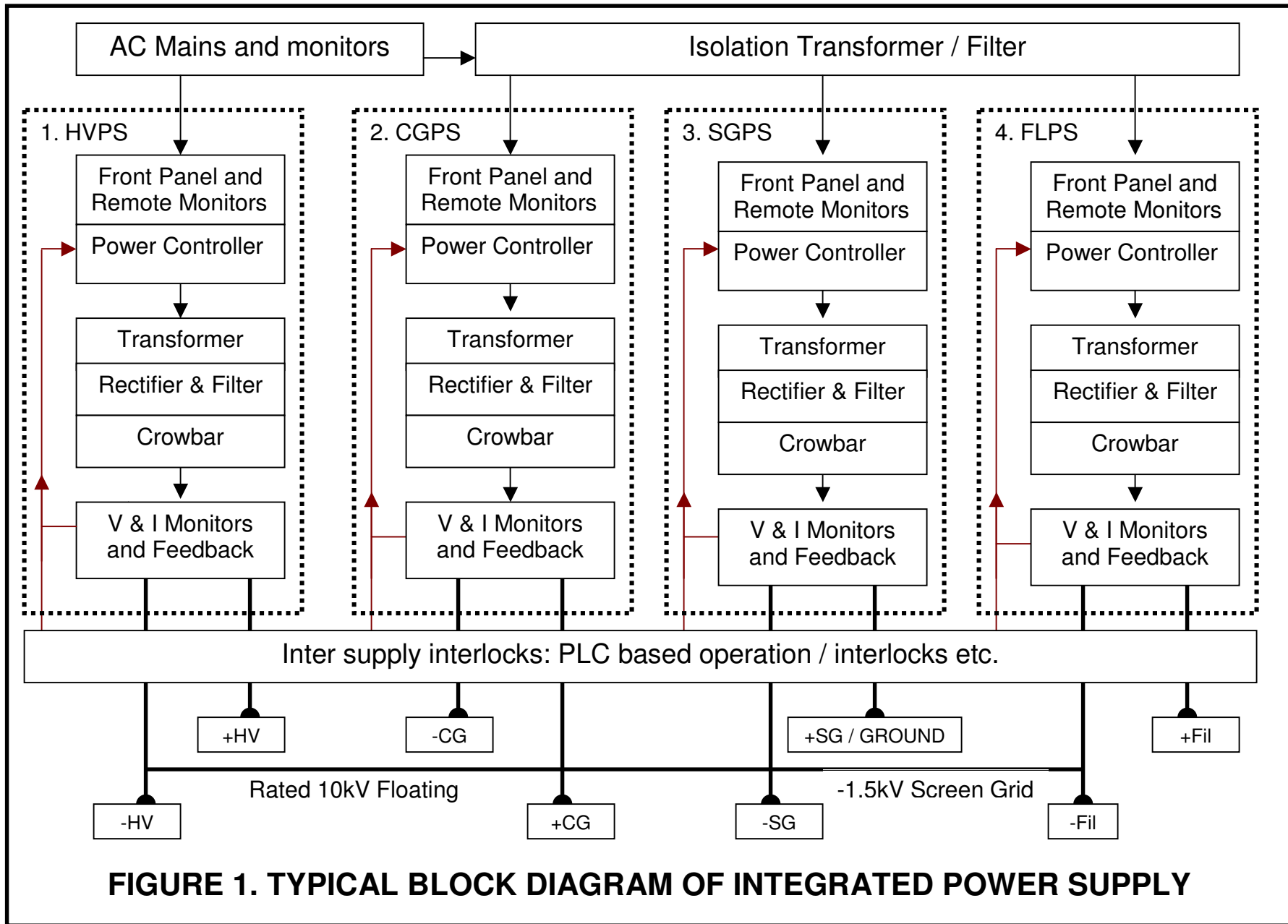
TESTS TO BE PERFORMED		
S.NO	DESCRIPTION / VALUE REQUIRED	VALUE OFFERED
1.	General	
	(i) All the specified tests will be carried out at the factory or any reputed laboratory before dispatch to ensure that the integrated power supply meets all mentioned specifications	
	(ii) The tests will also be carried out at the Institute for Plasma Research during commissioning	
	(iii) The tests specified are the minimum required and will be elaborated within three months of placing the order with mutual discussions and understanding.	
	(iv) Use components of reputed brand only. Brand names of most of the major components to be used should be submitted with the quotation or within one month of placing the order.	
	(v) Sufficient margins should be kept to ensure smooth operation and longer life of the Integrated Power Supply.	
	(vi) Specifications and Tests Reports of every individual component that is used in fabrication of the Integrated Power Supply should be submitted.	
	(vii) Submit technical data sheet of the components where such tests are not possible to be conducted.	
2.	Stage Wise Progress	
	(i) IPR representatives would monitor stage wise progress, in order to ensure quality and optimized progress.	
	(ii) The stage wise progress to be made in the given time duration will be elaborated within one month of placing the order with mutual discussions and understanding.	
3.	Tests to be performed on Individual Power Supplies namely HVPS, CGPS, SGPS and FLPS	
	(i) No-load test: Rise time, Fall time, Voltage setting resolution, Minimum and Maximum DC output Voltage etc.	
	(ii) Load Test: Rise time, Fall time, Voltage setting resolution, Minimum DC output Voltage, Maximum DC output Voltage, Load Regulation, Line regulation, Dynamic Response, Ripple, Stability etc.	
	(iii) Monitoring: Resolution, Accuracy, Calibration etc.	
	(iv) Control: Auto, Manual Mode of Operation.	
	(v) Settings: Settable Parameters are Over Voltage, Over Current etc.	

	(vi) Floating: HVPS return floated to 10kV with respect to ground (With observation of effect on monitoring signals).	
	(vii) Indications: Proper operation of monitors, indicators and signals like AI, AO, DI, DO etc.	
	(viii) Protections: Proper operation of all protections and Interlocks.	
	(ix) Shielding: Effectiveness in terms of EMI/EMC within and outside the Individual and Integrated Power Supply.	
	(x) Wire-burn test: With 30AWG (Diameter 0.225mm), 6" long soft copper wire for fault energy <50Joules as per attached details.	
	(xi) Others: Remaining of the specifications.	
4.	Tests to be performed on Overall Integrated Power Supply	
	(i) Systematic switching On /Off of each of the Power Supplies as per given sequence, specified and settable delays. Performance of various inter-supply interlocks.	
	(ii) Full load operation of the integrated power supply for more than 8Hours without performance degradation.	
	(iii) Temperature within the Power Supply should not be raised 10°C above ambient while in equilibrium during continuous operation.	
	(iv) Performance of each of the above mentioned parameters of the power supplies while operating simultaneously with the remaining power supplies in a particular configuration.	
	(v) Remote operation of the integrated power supply.	
5.	Other tests proposed (if any) for HVPS, CGPS, SGPS and FLPS by bidder	
6.	Tests (if any) for HVPS, CGPS, SGPS and FLPS that cannot be performed	

E. WIRE BURN TEST PROCEDURE

TESTS TO BE PERFORMED		
S.NO	DESCRIPTION / VALUE REQUIRED	VALUE OFFERED
1.	General: The fault sensing element for Over Voltage, Over Current and other protections etc must sense a fault condition. The fault signals i.e. signal above threshold will trigger the crowbar. The crowbar is a fault energy-diverting element such as thyatron, ignitron, SCR etc. Typical fault energy diverting element fires within few μ s of the fault detection and remove all voltages and currents from the load within 10 μ s. The individual power supplies namely- HVPS, CGPS, SGPS and FLPS should be short circuited through 6 inch long soft copper wire of diameter 0.255mm i.e. 30AWG. The wire should remain intact. This ensures that total energy delivered after fault is less than 50 Joules. The fault energy includes energy from the storage devices and the follow on current from the power supply before tripping.	
2.	Wire Burn Test Setup (Figure 3): The set up is to be mounted in a moveable separate enclosure. The test switch is of high voltage air or vacuum or construction like ignitron NL8900 etc.	
3.	HVDC Power Supply: The resistance R1 (Figure 2) is used to limit the peak current into the fault energy diverting element and load on the transformer & rectifier. R2 should be large enough to keep sufficient voltage across fault energy diverting element required for proper firing. R1 and R2 should be such as to damp the circuit ringing sufficiently for preventing current reversal into the fault energy-diverting element. This may cause the fault energy-diverting element to open before the fault conditions are cleared.	
4.	SG Power Supply: A series resistance is used to limit the peak current into the load. A series thyristor based switch that is included for fast pulsing of the power supply may be used to open circuit the output terminal in case of fault. Another shunt thyristor based switch may divert the fault energy to a series resistance in the return path before the power controller is pulse blocked or supply is tripped by other means.	

5.	CG and FL Power Supplies: A series resistance is used to limit the peak current into the load. The pulse block feature of the power controller will trip the power supply and therefore restricting the fault energy. Stored energy should be least and the pulse block after fault should be fast enough to ensure that total energy delivered after fault is less than 50 Joules.	
6.	The fault-sensing element other than Over Voltage, Over Current and other protections must sense a fault condition. The fault signal will trigger the crowbar.	
	(i) Proposed fault sensing element for HVPS	
	(ii) Proposed fault sensing element for CGPS	
	(iii) Proposed fault sensing element for SGPS	
	(iv) Proposed fault sensing element for FLPS	
7.	Fault energy diverting element fires within few μ s of the fault detection and remove all voltages and currents from the load in few μ s.	
	(i) Proposed fault energy diverting element for HVPS	
	(ii) Proposed fault energy diverting element for CGPS	
	(iii) Proposed fault energy diverting element for SGPS	
	(iv) Proposed fault energy diverting element for FLPS	



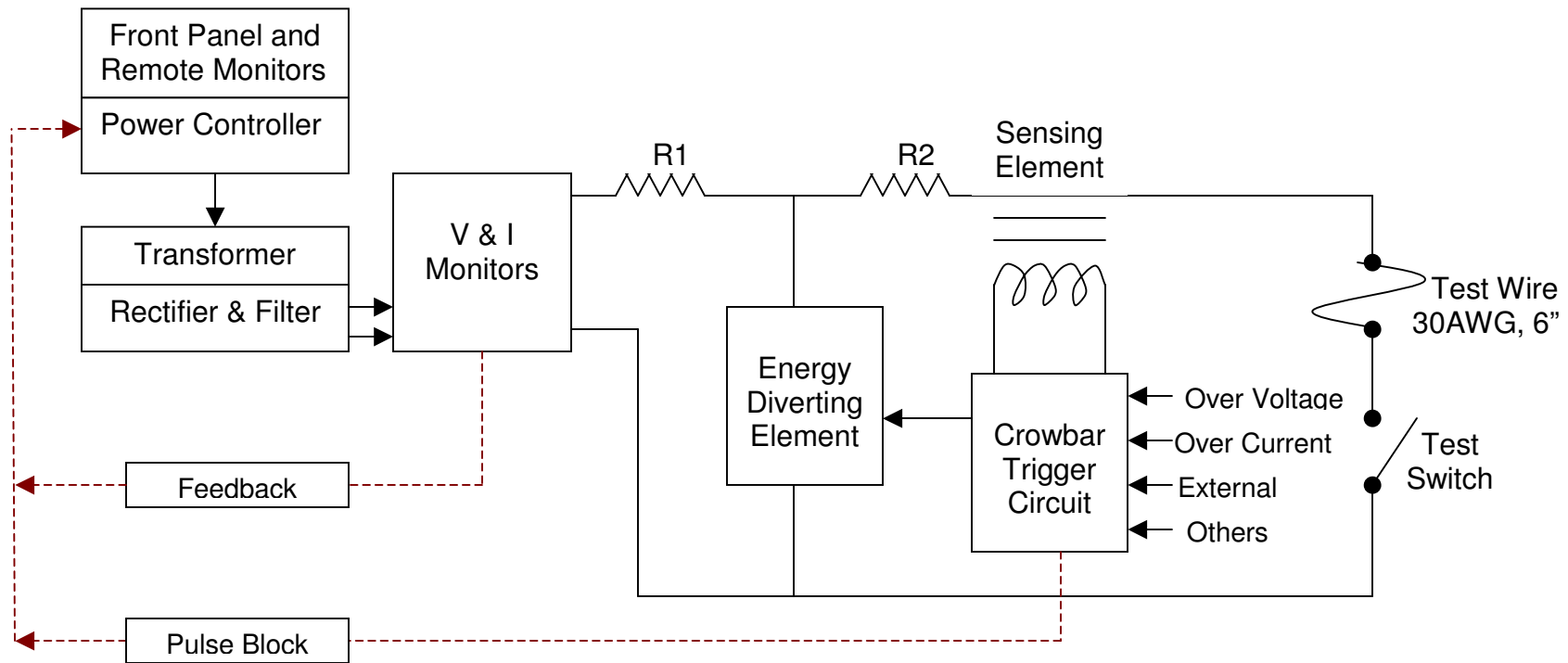


FIGURE 2. HVPS: CROWBAR / WIRE BURN TEST CONCEPT

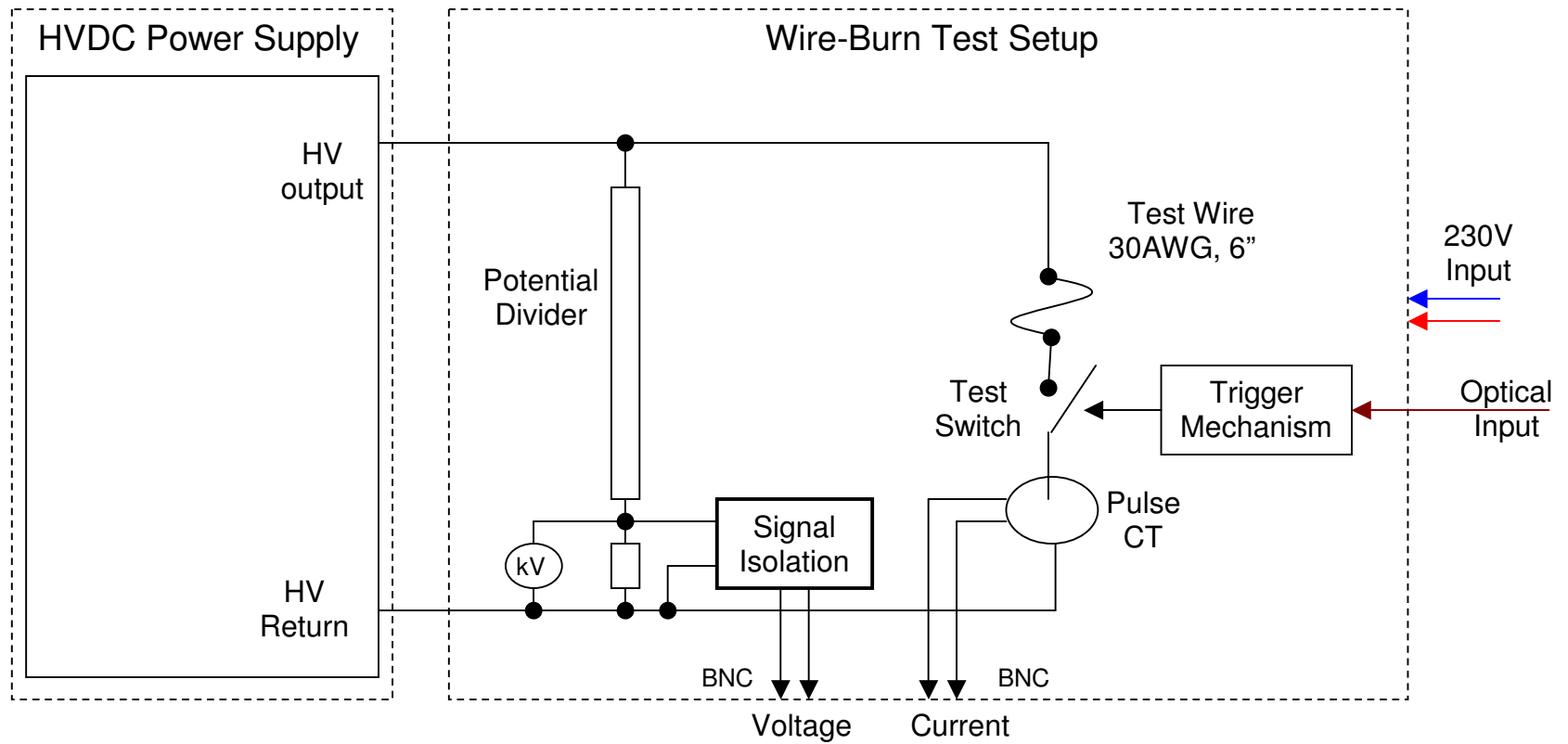


FIGURE 3. HVDC POWER SUPPLY: WIRE BURN TEST SETUP

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INSTRUCTIONS TO BIDDERS AND TERMS AND CONDITIONS

1. The quotation and any order resulting from this tender/enquiry shall be governed by the terms and conditions mentioned hereunder and supplier quoting this tender shall be deemed to have read and understood the same in toto.
2. Where counter terms and conditions have been offered by the supplier, the same shall not be deemed to have been accepted by us, unless our specific written acceptance thereof is obtained.
3. **Tender Fee: Tenders received without the prescribed Tender Fee will be rejected.**
4. **Clarifications:**
 - 4.1 Any technical and commercial questions, information, clarifications etc. that may be required pertaining to this tender may be obtained from the Purchase officer. Bidder will send the request for such clarifications to the Purchase Officer minimum 10 working days prior to the due date to submit the bid.
 - 4.2 Bids shall be complete in all respects and shall include properly filled in prices, other specifications, schedules, relevant drawings and catalogues as necessary alongwith the bid covering letter, all in duplicate.

5 MANNER AND METHOD FOR SUBMISSION OF TENDERS

- 5.1 All tenders in response to this invitation shall be submitted in TWO PARTS as under and in the different envelopes.
 - 5.1.1 **PART-A (TECHNO-COMMERCIAL):** This part of the tender shall include/contain all technical details, technical specifications, drawings and also the commercial terms and conditions of contract for the supplies to be made and the services to be rendered **EXCLUDING ANY PRICE DETAILS THEREOF.**
 - 5.1.2 **PART-B (PRICE):** This part should contain only the prices of the stores offered for the services to be rendered.
- 5.2 **Part-A (Techo-commercial)** should contain/include only technical specifications, technical details, literature, reference to earlier supplies of similar equipment, drawings, quantity, time required for submission and approval of drawings, manufacturing and delivery schedule, inspection/testing procedure, itemized list of spares and quantity (without price) recommended by the tenderer for purchase, term of price, mode and terms of payment, mode of dispatch, the quantum/percentage of statutory levies payable by the purchaser as extra and all related commercial terms and conditions for the supplies and for the services like erection and commissioning to be rendered by the tenderers. This part of the tender, i.e. Part-A (Techno-commercial) shall be enclosed separately in an envelope duly sealed and superscribed with the purchaser's tender number and the last date and time specified for receipt and opening indicated in the

instruction sheet of this tender document. The tenderer shall take special care NOT TO MIX UP the price of the stores in this part of the tender.

- 5.3 **Part-B (Price)** shall include/contain only price, price break-up, freight/safe delivery charges, charges for training of the Purchaser's engineers wherever applicable, lumpsum charges for erection and commissioning work or per diem charges for the supervision of erection and commissioning work as is envisaged in the Purchaser's tender document, testing charges, third party inspection charges, etc. This part of the tender, i.e. Part-B (Price) shall be enclosed separately in an envelope duly sealed and superscribed with the Purchaser's tender number and the last date and time specified for receipt and opening of the tenders as in the tender document.
- 5.4 If tenderer includes prices of any nature in Part-A (Techno-commercial) of the tender such offers are liable for rejection without any notice to the tenderers.
6. **Specifications:** Material should be offered strictly conforming to our specifications/drawings. Deviation, if any, should be clearly indicated by the supplier in their quotation. The supplier should also indicate the Make/Type number of the materials offered and catalogues, technical literature and samples, wherever necessary should accompany the quotation.
7. **Terms of prices:** Quotation should be submitted on door delivery basis without extra charge wherever possible. For quotations on Ex-Works, Ex-godown basis the approximate packing and forwarding charges should be indicated by the supplier. In the case of local suppliers, the material is to be delivered at our stores free of charge. Unit rate/s should be valid throughout the validity of purchase order/contract period for addition/deletion purposes. Break-up of price should be furnished. The quoted price should not be subject to price escalation for whatsoever reasons. The quoted price shall be firm, fixed and non-revisable during the validity/extended validity of purchase order/contract.
- 7.1 The prices quoted must be FIRM and preference will be given to such tenders. In exceptional cases (e.g. items involving substantial use of raw materials susceptible to sharp fluctuations in prices) if prices quoted subject to variation it shall be on the basis of a standard 'Price Variation Formula'. The basis for calculation shall be very clearly stated. Here again preference will be given to the tenders with a specific ceiling on escalation. Price escalations occurring during the extended delivery period are not allowed. However, PVC is considered only if the delivery period is more than 18 months.
- 7.2 Prices are required to be quoted according to the units indicated in the tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
- 7.3 Wherever options are specified in the tender documents, IPR reserves the right to accept any option/s irrespective of whether all the vendors have quoted for all the options or not. The decision of IPR in this regard will be final.

- 7.4 The purchaser reserves the right to accept tenders for any quantity of his choice and the tenderer shall be bound to accept a contract for any quantity. The Purchaser also reserves the right to accept or reject lowest or any tender in full or in part without assigning any reasons. If tenderer wishes, they can offer price for different quantity slabs.
- 7.5 **TDS/Work Contract Tax/OR any other leviable taxes or duties** : If applicable, the same shall be recovered from the contractors bill and necessary certificate will be issued to the contractor.
8. Tender should be free from Correction and Erasures. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
9. IPR shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
10. **Sales Tax etc.:** We have no "C" or "D" form. The percentage of Sales Tax/VAT, surcharge, if applicable, and other levies legally leviable and intended to be claimed should be clearly indicated in the tender. Where this is not done, no claim on these accounts would be admissible later.
- 10.1 **VAT Registration:** You may submit a copy of VAT Registration certificate along with your quotation (if applicable).
- 10.2. **Service Tax:** Wherever Service tax is applicable, it should be mentioned clearly. You may indicate percentage of Service Tax in your quotation.
- 10.3 **Excise Duty:** As per Notification No.10/97-CE (Central Excise) dated 1-3-1997, the Purchaser is entitled for availing Excise Duty exemption at present. Excise Duty Exemption Certificate, wherever applicable, and as per rules will be issued at the appropriate time. Hence Excise Duty should not be included in the BID. However, prevailing percentage of Excise Duty may be indicated.
- 10.4 **Customs Duty:** The purchaser is entitled for Customs Duty exemption under Notification No.51/96-Custom dated 23-7-1996, in respect of purchases made for the Research Institutions under the Department of Atomic Energy. Necessary Customs Duty Exemption Certificate, wherever applicable, and as per the rules will be issued at appropriate time. Hence, Customs Duty should not be included in the BID. However, prevailing percentage of Customs Duty may be indicated.

In case an Indian supplier/agent submits an offer for supply of out rightly imported stores in Indian Rupees, they should quote the price for sale on High-Seas, i.e. CIF Port of Destination (like CIF Ahmedabad etc.). However, the transit insurance for the same should be taken from an Indian Insurance company nominated by the purchaser, so as to provide insurance coverage from anywhere in the world to anywhere in India. The Custom clearance of the consignment in such cases will be arranged by the purchaser.

Wherever, against a requirement, both indigenous as well as imported offers are received, the offers for imported stores will be evaluated on the basis of the total landed cost after loading the custom duty and other levies as may be applicable from time to time for taking purchase decision.

Offers from Indian Agents on behalf of foreign suppliers: In case the tender is submitted by an Indian supplier/Indian agent on behalf of their foreign supplier/principals, following documents should be submitted with the tender, failing which, their offer is liable to be ignored.

- a) Photocopy of the Agency Agreement between the Principals and the Indian Agent showing the percentage or the quantum of agency commission payable and a Letter of Authority from the Principals authorizing the Indian Agents to submit the tender on their behalf.
- b) The type and nature of after sales services to be rendered by the Indian Agent

The Indian Agents are allowed to quote on behalf of only one foreign Principal/Supplier against this tender.

10.5. **Packing, forwarding and insurance:**

The contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air, to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of the packages shall be done by and at the expense of the contractor. The purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the contractor and the purchaser shall pay only for such as are actually received in good conditions, in accordance with the contract.

10.6. **Octroi:** Octroi is not applicable in our case.

11. **Delivery Date:** Bidders must indicate the firm delivery date by which the materials will be despatched/delivered by them from the date of our order/contract.

The time for and the date of delivery stipulated in the Purchase Order/Contract shall be deemed to be the essence of the contract. Delivery must be completed within the dates specified in Delivery Schedule.

12. **Despatches:** The contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods dispatched. The consignment should be dispatched with clear Lorry Receipt. If sent in any other mode, it is at the risk of the contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on 'said to contain' basis. Purchaser shall pay for only such stores as are actually received by them in accordance with the contract.

13. **Acceptance of Stores:**
(a) The contractor shall tender the stores for inspection at such places as may be specified by the purchaser at the contractor's own risk, expenses and cost.
(b) It is expressly agreed that the acceptance of the stores contracted for is subject to final approval by the Purchaser, whose decision shall be final.
14. **Inspection:** Materials on its arrival at IPR will be inspected by Stores In-charge, and his decision in the matter will be final.
15. **Earnest Money Deposit (EMD):**
- 15.1 The Bidder shall submit interest free Earnest Money Deposit (EMD) for Rs.80,000/- (Rupees Eighty thousand only) by way of Demand Draft from a nationalized/scheduled bank issued in favour of "**Institute for Plasma Research**" and payable at **Ahmedabad**. **Tender received without EMD will be rejected at the discretion of IPR.**
- 15.2 **EMD of unsuccessful Bidder will be returned after finalizing the Contract/placing Purchase order.**
- 15.3 **The EMD shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the purchase order/contract.**
- 15.4 **Exemption from payment of EMD:** Firms who are registered with DGS&D and NSIC are exempted from payment of EMD subject to submission of valid registration certificate with the bid. **Tenders received without the valid registration certificate will be rejected.**
16. **Payment:**
- 16.1 10% advance against submission of Bank Guarantee for an equivalent amount from a nationalized/scheduled Bank. This payment will be made only after signing the contract/Purchase order and submission of Security Deposit.
- 16.2 10% after approval of major drawings by IPR and on receipt of Bank Guarantee for an equivalent amount from a nationalized/scheduled bank.
- 16.3 60% against delivery of material at IPR site, its verification by IPR representative and on receipt of Proforma Invoice in triplicate.
- 16.4. 20% within 30 days from the date of final acceptance and on receipt of Performance Bank guarantee for 10% of the contract value from a nationalized/scheduled bank.
- 16.5 **Advance payments other than mentioned above will be loaded with interest @ 12% p.a. upto the delivery period quoted, for the purpose of comparison of price amongst the bidders.**

Wherever, advance payment is involved, it will be paid only against submission of Bank Guarantee from a Nationalised/scheduled Bank. Bank Guarantees should be furnished as per IPR format.

- 16.6 **Bank Charges:** All bank charges to be borne by the Contractor/Supplier.
- 16.7 No correspondence will be entertained within 30 days from the date of receipt of material and bills, whichever is later.
- 17.1 **Scope of Work/Supply and Specifications:**
- 17.1.1 Scope of work/supply, specifications and drawings under this tender notice are given in **Part-A(i)**. Materials should be offered strictly conforming to the specifications within acceptable tolerance level given in specifications / drawings given in tender document. Deviations, if any, should be clearly indicated by the bidder in their bid. The supplier should also indicate the Make/Type number of the materials offered and catalogues, technical literature and samples, wherever necessary should accompany the quotation.
- 17.1.2 Any fittings or accessories which may not be specifically mentioned in the Specifications or Particulars but which are usual or necessary for proper and efficient functioning of the Stores as per the specifications of the tender shall be supplied by the Contractor without extra charge to the Purchaser, the Stores supplied shall be complete in all respects.
- 17.2 **Alteration of specifications, Patterns and Drawings:**
- 17.2.1 The Purchaser reserves the right to alter, whenever necessary, specifications, patterns and drawings. As from the date, the Stores shall be in accordance with the specifications, patterns and drawings so altered, which the contractor is bound to comply with.
- 17.2.2 In the event of such alteration involving a revision in the cost, or in the delivery period, the same shall be discussed and mutually agreed to, taking into account the unit rates of similar items in the Contract. In case of disagreement, the decision of the Purchaser, in the cost or the delivery period, shall be final and conclusive.
- 17.3 **Mistakes in Drawings:**
The Contractor shall be responsible to make all necessary alterations of the Stores which are occasioned due to any discrepancies, errors or omission in the drawings or particulars submitted by the Contractor irrespective of whether these have been approved by the Purchaser or not. If the Contractor fails to make such alterations, the Purchaser may do so at the risk and cost of Contractor.
- 17.4 **Minor modifications / Additional Scope of Work:** Minor modifications / additional scope of work to the tune of 2% of the total contract value will be carried out by the contractor without any extra cost to IPR.
- 17.5 **Subletting or Assignment of Contract:**
- 17.5.1 The Contractor shall not sublet, transfer or assign the Contract or any part thereof or bills or any other benefits, accruing therefrom or under the contract without the prior written consent of the Purchaser (All Sub-contractors are

required to be appraised and approved by the Purchaser before placement of orders by the Contractor/Supplier). However, such consent shall not be unreasonably withheld by the Purchaser, if such stores are not normally manufactured by the Contractor, such assignment or subletting shall not relieve the Contractor from any contractual obligation or responsibility under the Contract.

17.5.2 Any breach of this condition shall entitle the Purchaser to cancel the Contract or any part thereof and to purchase from other sources at the risk and cost of the Contractor and shall recover from the Contractor damages arising from such cancellations.

17.5.3 In case the Contractor sublets, transfers or assigns any part of the Contract with the prior written consent of the Purchaser, all payments to the Sub-Contractor shall be the responsibility of the Contractor and any requests from such sub-Contractor shall not be entertained by the Purchaser.

18. **Replacement:**

If the Stores/Goods or any portion thereof is damaged or lost during transit, the purchaser shall give notice to the Contractor setting forth particulars of such stores damaged or lost during transit. The replacement of such Stores shall be effected by the Contractor within a reasonable time to avoid unnecessary delay in the intended usage of the stores.

19. **Rejection:**

In the event that any of the Stores/Goods supplied by the Contractor is found defective in material or workmanship otherwise not in conformity with the requirements of the Contract specification, the purchaser shall either reject the Stores/Goods or request the Contractor, in writing to rectify the same. The Contractor, on receipt of such notification shall either rectify or replace the defective Stores/Goods free of cost to the Purchaser.

If the Contractor fails to do so, the purchaser may at his option either:

- (a) replace or rectify such defective Stores/Goods and recover the extra cost so involved from the Contractor or
- (b) terminate the Contract for default as provided under Clause 31 and its sub clauses mentioned herein below.
- (c) acquire the defective Stores/Goods at a reduced price considered equitable under the circumstances. The provision of this article shall not prejudice the purchaser's rights under Clause 23.

20. **Extension of time:**

If the completion of supply of Stores/Goods is delayed due to reasons of Force Majeure such as acts of God, acts of public enemy, acts of Government, fires floods, epidemics, quarantine, restrictions, strikes and freight embargoes, the Contractor shall give notice within 5 days to the purchaser in writing of his claim for an extension of time. The purchaser on receipt of such notice after verification, if necessary, may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the

contract.

21. Delay in completion/Liquidated Damages:

21.1 If the contractor fails to deliver the Stores/Goods within the time specified in the Contract or any extension thereof, the purchaser shall recover from the Contractor as liquidated damages sum of half percent (0.5 percent) of the total Contract price (Basic price) for each calendar week of delay. The total liquidated damages shall not exceed five percent (5 %) of the contract price. Stores/Goods will be deemed to have been delivered only when all its component parts are also delivered. If certain components are not delivered in time, the Stores/Goods will be considered as delayed until such time as the missing parts are delivered.

21.2 Where the Contract entered into is a composite one with supply cum erection and installation/commissioning activities and the completion of erection and installation/commissioning is delayed irrespective of the fact that whether supply of material has been made within the original delivery period, the contract is to be considered as a whole and Liquidated Damages will be recovered on the total contract value.

22. Recovery of Sums Due:

22.1 Wherever any claim for the payment of Liquidated Damages or loss suffered by the Purchaser arises in terms of money out of the contract against the Contractor, the Purchaser shall be entitled to recover such sums from any due payment under the Contract. In the event of this amount being insufficient, then the amount of damages or loss shall be recoverable from the payment that may become due to the contractor from this Contract or any other Contract with the Purchaser. Should this sum be not sufficient to cover the amount of damages or loss that may be recoverable, the Contractor shall pay to the Purchaser on demand, amount due. Similarly if the Purchaser had made any claim against the contractor under this contract or any other contract with the Purchaser, the payment of all sums payable under the Contract to the Contractor shall be withheld to the extent of claims due according to the Purchaser till such claims of the Purchaser are finally paid by the Contractor, pending which the same will be adjusted. Notwithstanding the provision for recovery through adjustment the Purchaser shall be free to recover his claims from the contractor as per the terms of this contract.

22.2 All demurrage, wharfage and allied expenses incurred by the Purchaser, if any, due to delayed clearance of Stores in view of non receipt, incomplete or delayed receipt of documents by the Purchaser, shall be recovered from the payment due to the Contractor.

23. Guarantee/Warranty & Replacement:

- (a) The Contractor shall guarantee the stores/goods supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- (b) The Stores/material/goods/equipment offered by the bidder should be guaranteed for a minimum period of twelve months from the date of acceptance, against defective materials, design, workmanship, operation

or manufacture. If any defects are discovered therein or any defects therein are found to have developed under proper use arising from faulty materials, design or workmanship, contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 12 months from the date of acceptance thereof.

- (c) Should Contractor fails to rectify, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective Stores.
- (d) The decision of the purchaser, notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the Stores supplied by the Contractor are defective or any defect has developed within the said period of twelve months after the acceptance of the stores or as to whether the nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- (e) To fulfill guarantee/warranty conditions outlined in Clause 23 (a) to (c) above, the Contractor shall furnish a Bank Guarantee as per IPR format from a nationalized/scheduled Bank for an amount equivalent to 10% of the value of the Contract. The Bank Guarantee shall be valid throughout the guarantee/warranty period. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
- (f) All the replacement Stores/Goods shall also be guaranteed for a period of 12 months from the date of arrival of Stores/Goods at Purchaser's site.

24. Contractor's Liability for Defective Stores:

24.1 The Purchaser may accept the Stores, if it is complete in all respects or alternatively accept the same on such terms as may be considered appropriate. If the Stores, after the acceptance thereof is discovered to have defects, latent or otherwise, notwithstanding that such defects could have been discovered at the time of inspection, or any defects therein are found to have developed during the Guarantee Period while under proper use of subsequently it is found that Stores failed to fulfill the requirements or Particulars of the Contract or developed defects after erection / put into use within a period of 12 (twelve) months from the date of acceptance, the Purchaser shall be entitled to give a notice to the Contractor within 12 months from the date of acceptance of stores setting forth details of such defects or failure and Contractor shall forthwith make the defective Stores good or alter the same to make it comply with the requirements of the Contract at his own cost. Further, if in the opinion of the Purchaser, defects are of such a nature that the same cannot be made good or repaired without impairing the efficiency or workability of the Stores or if in the opinion of the Purchaser, such opinion being final, the Stores cannot be repaired or altered to make it comply with the requirements of the Contract, the Contractor shall remove and replace the same with a Stores confirming in all respects to the stipulated specifications at the Contractor's own cost. If the Contractor fails to make the desired repairs/ replacement within reasonable time then such repairs/replacement at the cost of the Contractor shall be carried out by the Purchaser, with Stores of the same Particulars or when the stores conforming to the stipulated particulars are not in opinion of the Purchaser readily procurable, such opinion being final, then the nearest available substitute thereof.

- 24.2 Should the Contractor fails to comply within a reasonable time of issue of notice, the Purchaser may reject at the cost of the Contractor, the whole or any part of the Stores as the case may be, which is defective or fails to fulfill the requirements of the Contract and make the desired repairs/replacement as stipulated in cause no 24.1 above.
- 24.3 In the event of such rejection the Purchaser shall be entitled to use the Stores in a reasonable and proper manner for such time as sufficient to enable the Purchaser to obtain replacement, as hereinbefore provided.
25. **Security Deposit:** The successful Bidder will have to furnish to the Purchaser an interest free security deposit for 10% (Ten percent) of the order value in the form of Bank Guarantee of an equivalent amount from a nationalised/scheduled Bank on the requisite Non-judicial Stamp Paper as per purchaser's format, within 15 days from the date of LOI/Purchase order and the said Guarantee should be valid till the goods are accepted by IPR. The Security deposit shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the purchase order/contract.

In case the tenderer is registered with DGS&D, NSIC, they can be considered for exemption from Security Deposit to the extent of the monetary limit of such registration, provided the past performance of the Contractor is satisfactory.

26. **Performance Bank Guarantee:** The Contractor/Supplier will have to furnish to the Purchaser an interest free performance bank guarantee, as per IPR format, for 10% (Ten percent) of the total order value/contract value by way of providing a Bank Guarantee from a Nationalized Bank/Scheduled Bank on a non-judicial stamp paper for the satisfactory performance of the plant/machinery/instruments/goods supplied against the Contractor. The Performance Bank Guarantee (PBG) will be effective from the date of final acceptance and shall remain in force two months beyond the guarantee/warranty period mentioned in the Contract. In the event that the Bank Guarantee needs extension, the Contractor shall extend the validity of PBG for suitable period at his expenses. On the performance and completion of all contractual obligations, the original PBG shall be returned to the Contractor without any interest on receipt of a request from the Contractor.
- a. The Contractor/Supplier shall at all times indemnify the purchaser against all claims which may be made in respect of the stores/material/goods/equipment for infringement of any right protected by Patent Registration of design or Trade Mark and shall take all risk of accidents or damage, which may cause failure of supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfillment of the contract.
27. **Conditional Discount:** In case the tenderer offers any conditional discount with regard to acceptance of their offer within a specific payment terms, delivery,

quantity etc. the purchaser will not take into consideration such conditional discount while evaluating their offer.

28. **Confidentiality:** The drawings, specifications, prototypes, samples or any other correspondence/details/information provided by the Purchaser relating to the tender or the contract shall be kept confidential by the Contractor and should not be disclosed or passed on to any other person/firm without the prior written consent of the Purchaser. This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by the contractor.

29. **BAR/PERT Charts:**
To be provided as per the requirement of Purchaser.

30. **Compliance with the Security Requirements of the Purchaser:** The Contractor shall strictly comply with the Security Rules and Regulations of the Purchaser in force and shall complete the required formalities including verification from Police and any other authority and obtain necessary prior permission for entry into the Purchasers premises, wherever authorized by the Purchaser.

31. **Cancellation/Termination of Contract for default**

The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, terminate the contract whole or in part:

- (a) if the supplier fails to deliver any or all of the stores within the time period(s) specified in the contract, or any extension thereof granted by the Purchaser; or
- (b) if the supplier fails to perform any other obligation under the contract within the period specified in the contract or any extension thereof granted by the Purchaser.

In the event the Purchaser terminates the contract in whole or in part; the Purchaser may take recourse to anyone or more of the following actions. The termination will not relieve the Contractor from submitting the Performance Bank Guarantee for the portion not terminated.

- (a) the Security Deposit is to be forfeited
- (b) the Purchaser may procure, upon such terms and in such manner as it deems appropriate, stores similar to those undelivered, and the supplier shall be liable for all available actions against it in terms of the contract.
- (c) however, the supplier shall continue to perform the contract to the extent not terminated.
- (d) recovery of Liquidated Damages as per the Contract.

31.1 **Termination of contract for insolvency:**

If the supplier becomes bankrupt or otherwise insolvent or goes into liquidation, the Purchaser may, at any time, terminate the contract, by giving written notice to the supplier, without compensation to the supplier provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will

accrue thereafter to the Purchaser.

31.2 **Termination of Contract for convenience:**

After placement of contract, there may be some unforeseen situation compelling the Purchaser to cancel the contract. In such case, the Purchaser is to send a suitable notice to the supplier for cancellation of the contract, in whole or in part, for its (Purchaser's) convenience, *inter alia*, indicating the date with effect from which the termination is to become effective. Depending on the merits of the case, the Purchaser suitably compensate the Supplier on mutually agreed terms for terminating the Contract.

32 **Amendments:**

Any amendment to the Contract which may be necessary will be a result of a mutual agreement between the Parties. It will be established within a reasonable time in the form of an amendment to the Contract, to be signed by both the Parties.

33 **Force Majeure:**

Force Majeure is herein defined as any cause which is beyond the control of the Contractor or the Purchaser, as the case may be which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affects the performance of the Contract, such as:-

- (i) Natural Phenomena, including but not limited to floods, droughts, earthquakes, and epidemics.
- (ii) Acts of any Government, domestic or foreign including but not limited to war-declared or undeclared, priorities, quarantines, embargoes.
- (iii) Other Phenomena including but not limited to hostilities riots, civil commotion and declared lock-out in Contractor's works.
- (iv) Provided that Parties shall not be liable for delays in performing its obligations resulting from any Force Majeure causes as referred to/or defined above. The date of completion will subject to hereinafter provided, be extended by reasonable time even though such cause may occur after contractors performance of his obligations has been delayed for other cause. However, the Contractor is not entitled to increase in statutory levies that has come into force during the extended delivery period.

34 **Language and Measurement:**

All documents pertaining to the contract including specifications schedule notices, correspondence operating and maintenance instructions drawing or any other writing shall be written only in English language. The metric system of measurement shall be used exclusively in this contract.

34.1 **Exercising the Rights and Powers of the Purchaser:**

All the rights, discretion and powers of the Purchaser under the Contract shall be exercised by the Purchaser through written communications which shall be given by the Director or other officers authorized by him for and on behalf of the Purchaser.

- 34.2 **Jurisdiction:** The contract/Purchase order shall be governed by the Laws of India for the time being in force. The Courts of Ahmedabad only shall have jurisdiction to deal with and decide any legal or dispute arising out of this contract.
- 34.3 **Settlement of disputes:** Any disputes or difference arising out of or in connection with the Contract/Purchase order shall be to the extent possible settled amicably between the parties.
- If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration.
35. **Arbitration:** In the event of any dispute or difference arising under this Contract, the matter shall be referred to the Arbitrators one each nominated by the Purchaser and Contractor from their respective organisations. In case the said Arbitrators are not able to settle the dispute by themselves, the matter shall be referred to the Arbitrator mutually nominated by the Purchaser and the Contractor and whose decision will be final and binding on both the parties. The venue of arbitration will be IPR. Subject to as aforesaid the Arbitration Act, 1996 and the rules thereunder and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings under this Contract.
36. **Permits and Licences:** The Contractor shall secure and pay for all permits and licence which he may require to comply with in respect of all laws, ordinances and regulations of the Government or Public Authorities in connection with the performance of his obligations under the Contract. The successful contractor shall be responsible for all damages and shall indemnify and save the Purchaser harmless from and against all claims for damages and liability which may arise due to his failure to comply with what is stated above.
37. **Training:** The successful tenderer shall, if required by the Purchaser, provide facilities for the practical training of Purchaser's engineering or technical personnel for their active association on the manufacturing process throughout the manufacturing period of the Contract/stores, number of such personnel to be mutually agreed upon. If demanded by the Purchaser, such training shall be conducted at Purchaser's site by the Contractor free of charge. The duration of training shall be mutually decided upon by the Purchaser and the Contractor
38. **Operation/Instruction Manual:** Where operation/instruction manual is essential to enable the Purchaser to put the Stores to proper use, the Contractor shall furnish soft and hard copies of operation/instruction manual along with the Stores in duplicate or the quantity required by the Purchaser.
39. **Test Certificate:** Wherever required, test certificates should be sent along with the despatch documents.
40. **Secrecy:** All information, drawings, designs and specifications imparted to the bidder/successful contractor shall, at all times, remain the absolute property of the Purchaser, the bidder/successful contractor shall not use them for purposes

other than for which they are provided for and shall treat all these documents as confidential. These shall not be reproduced in whole or in part for any other purpose.

41. The contractor shall use his best endeavours to ensure that such information are not divulged to third parties except where needed for the performance of the contract by the successful bidder with the prior consent of the Purchaser. In such cases, the successful contractor shall ensure and obtain similar obligation of confidence, from third parties in question.
42. **Indemnity:** The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any Patent, copy right or trade mark and shall at all times indemnify the Purchaser against all claims which may be made in respect of the stores for infringement of any right protected by patent. Registration of design or Trade Mark and shall all risk of accidents of damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfilment of the contract.
43. **Counter terms and conditions of Suppliers:** Where counter terms and conditions printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser unless specific written acceptance thereof is obtained.
44. **Erection of plant & Machinery:** Whether erection of a plant or machinery is the responsibility of the contractor as per the terms of the contract and in case the contractor fails to carry out the erection as and when called upon to do so within the period specified by the purchaser, the purchaser shall have the right to get the erection done through any source of his choice. In such an event, the contractor shall be liable to bear any additional expenditure that the purchaser is liable to incur towards erection. The contractor shall, however, not be entitled to any gain due to such an action by the Purchaser.
45. **Free Issue Material (FIM) (If specified in the tender documents):** Wherever contracts envisage supply of Free Issue Material (FIM) by the Purchaser to the contractor, such Free Issue Material shall be safeguarded by an insurance policy to be provided by the Contractor at his own cost for the full value of such materials and the insurance policy shall cover, the following risks specifically and shall be valid for six months beyond the contractual delivery date.
 - **Risk to be covered:** Any loss or damage to the Purchaser's material due to fire, theft, riot, burglary, strike, civil commotion, terrorist act, natural calamities etc. and any loss or damage arising out of any other causes such as other materials falling on purchaser's materials.
 - **Insured by:** (Name of the Contractor)
 - **Beneficiary:** Institute for Plasma Research, Near Indira Bridge, Bhat, Gandhinagar-382428.

- **Amount for which insurance policy to be furnished:** The amount will be indicated in the respective contract.

Free Issue Material (FIM) will be issued to the Contractor only after receipt of the Insurance Policy from the Contractor. The contractor shall arrange collection of the FIM from the Purchaser's premises and safe transportation of the same to his premises at his risk and cost.

In addition to insurance of the FIM, Contractor shall also submit Bank Guarantee from a nationalised/scheduled bank for the value of the FIM, as per IPR format.

Notwithstanding the insurance cover taken out by the Contractor as above, the contractor shall indemnify the purchaser and keep the Purchaser indemnified to the extent of the value of free issue materials to be issued till such time the entire contract is executed and proper account for the FIM is rendered and the left over/surplus and scrap items are returned to the Purchaser. The contractor shall not utilize the Purchaser's free issue materials for any job other than the one contracted out in this case and also not indulge in any act, commission or negligence which will cause/result in any loss/damage to the Purchaser and in which case, the Contractor shall be liable to the Purchaser to pay compensation to the full extent of damage/loss. The Contractor, shall be responsible for the safety of the free issue materials after these are received by them and all through the period during which the materials remain in their possession/control/custody. The free issue materials on receipt at the Contractor's works shall be inspected by them for ensuring safe and correct receipt of the material. The Contractor shall report the discrepancies, if any, to the Purchaser within 5 days from the date of receipt of the material. The Contractor shall take all necessary precautions against any loss, deterioration, damage or destruction of the FIM from whatever cause arising whilst the said materials remain in their possession/custody or control. The FIM shall be inspected periodically at regular intervals by the Purchaser for ensuring safe preservation and storage. The contractor shall also not mix up the FIM with any other goods and shall render true and proper account of the materials actually used and return balance remaining unused material on hand and scrap along with final product and if it is not possible within a period of one month from the date of delivery of the final product covered by this purchase order. The Contractor shall also indemnify the Purchaser to compensate the difference in cost between the actual cost of the FIM lost/damaged and the claim settled to the Purchaser by the insurance company. The decision of the Director, Institute for Plasma Research, as to whether the Contractor has caused any loss, destruction, damage or deterioration of the FIM while in his possession, custody or control from whatever cause arising and also on the quantum of damage suffered by the government, shall be final and binding upon the Contractor.

46. Late/delayed tenders will not be accepted. Incomplete tenders may be rejected at the discretion of IPR.
47. **IPR is not bound to accept the lowest tender. IPR reserves the right to select any vendor at its sole discretion.**

48. **Result of the tenders:** Unsuccessful tenderers will not be informed of the result of their tenders.
- a. The Director, IPR reserves the right to accept or reject any quotation/tenders fully or partly without assigning any reason.
 - b. IPR reserves the right to place order on a single party or to split the order at its sole discretion.

CONFIRMATION LETTER FROM BIDDER:

Bidder will attach a confirmation letter (draft given below) with Part-A of the bid.

“This is to confirm that we have studied all documents and specifications of Tender notice for " _____ " (Tender No. _____ dated _____). We also hereby confirm that our Price Bid is in-line with the terms and conditions, management specifications and technical specifications given in this tender.”

Place:

ture

Date:

bidder:

Signa

Name:

Name of the

Official Seal:

PART-B

PRICE BID FORMAT

(Bidders are requested to offer their price bid in the following format)

S.No	Description	Quantity	Unit cost (Rs.)	Total price (Rs.)
1	Design, fabrication, factory testing and testing at IPR site of Integrated Power Supply System on turn key basis, as mentioned in the tender specifications	1 No.		
2.	Cost of additional cable per Mtr. In case of main input at IPR is available farther than 50m.			
3.	Wire Burn Test Set up charges			
4.	Installation and commissioning charges (including unloading, shifting, handling with accessories) (Quote Lumpsum charge)	Lumpsum		
5.	Other charges, if any.			
Total Rs.				

	<u>Indicate percentage except Freight</u>		
	Percentage	Included	Excluded
Packing and forwarding			
Excise Duty			
Sales Tax/VAT			
Insurance			
Service Tax on Sr.No.4 above			
Freight	Rs.		

Place:

Signature of Bidder with seal

Date :