

Power Finance Corporation SCADA/DMS,
System under RDSS - Govt. of India
Model Technical specification

3.1.7	Loss minimization via load balancing (LBFR)	At least 2 simultaneous scenario and prescribed solution in auto and manual modes both	auto and manual modes both on availability for load balancing	Solution prescribed in 15 sec
3.2	Outage Management System (OMS)	As per spec Notification to crew	As per spec On fault / maintenance	Update time and time skew of devices fro data acquisition of SCADA

Table 4 : Maintenance activities

Action	Performance
Complete database regeneration	2 hours
Complete system software build, including operating system, applications, and	6 hours
Software build of all applications and databases	3 hours
Software build of a single applications and	10 minutes
Installation of a single, new display including distribution to all consoles	60 seconds
Reinstallation of all displays	60 minutes
Perform an on-line update of a database parameter and propagation of the change to the source data	60 seconds

Table -5 : DESIGN PARAMETERS FOR USER INTERFACE

Chapter 4	Description	Minimum
	Windows	16
	Rooms	16
	Layers	8
	Variable per trend	8
	Alarm levels	8

TABLE 6 - CONFIGURATION CHARACTERSTICS & AVAILABILITY FUNCTIONS

Chapter 6	Description	Max time in sec
	Processor error detection	5
	Other devices error detection	5
	Processor switchover	30
	Functional availability after switchover	10

	ISR availability after switchover	120
	Processor – Hot startup	Limited to switching time
	Processor – Warm startup	600(10 min)
	Processor- Cold startup except ISR /with ISR	900(15 min) / 1800(30min) ISR

TABLE 7- POWER SYSTEM SIZE

POWER DISTRIBUTION SYSTEM SIZING

AS PER ATTACHED NETWORK DIAGRAMS

Note Control system hardware & software shall be equipped & sized for for double the size of the above

Control centre wise

S.no	System	Present (Nos)	Ultimate (DOUBLE OF PRESENT)
1.	Primary S/S		
2.	RMU		
3.	sectionizer		
4.	FPI		
5.	Power transformer		
6.	Distribution transformer		
7.	Feeders		
8.	Bus bars		
9.	Capbanks		
10.	OLTCs		
11.	Switchable breakers		
12.	Switchable isolators/switches		
13.	MFTs		
14.	IEDs		
15.	DOUBLE STATUS POINTS		
16.	SINGLE STATUS POINTS		
17.	CONTROL POINTS		
18.	ANALOG STATUS		
19.	Any other network parameter		

Table 8- PERFORMANCE REQ

(a) USER INTERFACE REQUIREMENTS

At no time the SCADA/DMS system shall delay the acceptance of User request or lockout console operations due to the processing of application functions

User interface requirements	Response time (Peak loading)
Requests for call-up of displays shall be acknowledged indication of request is being processed	Within 2 sec
Any real time display and application display (except DB displays) on workstation console, Complete display & values shall appear on screen	Within 3 sec after acknowledgement of request
Manual Data entry of the new value shall appear on screen	Within 2 sec
Display update rate	Every 2 sec for at least
Panning of a world display from one end of screen to other of screen in a continuous manner	Within 2sec
Supervisory control action shall be completed with displayed on the screen	Within (2sec + scan time + communication delay time +field device operation time)
Alarm and event response time	display within 1 sec of receipt in SCADA/DMS system
Alarm and event acknowledgement	With in 2 sec
Requests for printing of displays shall be acknowledged an indication of request is being processed	Within 2 sec
Requests for generation of reports shall be acknowledged an indication of request is being processed	Within 2 sec

(b) UTILISATION

(Considering double the present power system size)

Name	Average Utilization	Comments
PROCESSOR Servers	30% 50%	Normal loading Peak loading
LOCAL AREA NETWORKS		
	15% 40%	Normal loading Peak loading
Main memory utilisation (avg)	50%	Normal loading
	67%	Peak loading
Auxiliary memory utilisation	50%	

Table 8c- ACTIVITIES FOR NORMAL AND PEAK LEVEL OF LOADING

(Considering double the present power system size)

(1) NORMAL LEVEL OF ACTIVITY

The normal level of activity shall simulate system activities spread over one hour period. During the testing, the response times and the average utilizations shall not exceed the specified values. The following conditions define normal level of system activity to generate the normal loading scenario. Test simulation shall be done using software tool to generate this loading within 1 hr . Staggering of loads during the test duration of 1 hour is permitted.

- (a) All RTU/FRTU/FPI data shall be scanned and processed
- (b) All data exchange with other systems shall occur as specified in the Specification.
- (c) All periodic functions shall be executed at the rates defined in tables
- (d) The following SCADA/DMS functions shall be executed on-demand:

Function	Number of demand executions
Substation topology processor	50 state changes
Sequence-of-Events data	50 SOE points reported
All DMS/ OMS applications	4 on-demand per DMS/OMS application

- (e) Alarms (2 X no. of RTUs +FRTU+FPI) per hour shall be generated. Each alarm shall be acknowledged individually within 5 seconds.
- (f) Events (2 X no. of RTUs +FRTU+FPI) per hour shall be generated.
- (g) 1% analog of total analog/ 5sec measurements of total analog point count changes as per IEEE C37.1
- (h) One complete run of on-line diagnostics shall be performed on all computers
- (i) Communications channel monitoring shall be performed

Display Selection	30 per operator workstation & VPS
Supervisory control actions	2 per RTU & 1 per 50 FRTUs
Display Updates	Each operator workstation shall display 3 updating and 1 non-updating display window per monitor. This also includes VPS. Updating displays: - alarm summary list - world display containing a S/S SLD - Network display Non-updating displays: - SCADA/DMS System Display
Data Entry	5 data entry actions from any single display
Display Trending	8 display trends, each trending 4 variables
Reports	Prepare and printing of 5 reports

Display Selection	30 per operator workstation & VPS
Supervisory control actions	2 per RTU & 1 per 50 FRTUs
Display Updates	Each operator workstation shall display 3 updating and 1 non-updating display window per monitor. This also includes VPS. Updating displays: - alarm summary list - world display containing a S/S SLD - Network display Non-updating displays: - SCADA/DMS System Display
Data Entry	5 data entry actions from any single display
Display Trending	8 display trends, each trending 4 variables
Reports	Prepare and printing of 5 reports

(k) The following maintenance activities shall be performed:

Function	Task
On-Line Database Editing	Modify 20 data points in each of the 5 RTUs/5FRTUs
Display Generator and Management	Modify one single-line diagram one tabular display

2) PEAK LEVEL OF ACTIVITY

The peak level of activity is an addition to the average level of activity described in (A) NORMAL LEVEL OF ACTIVITY above. The peak level of activity shall be applied for a five minute period. During the next ten minutes, only the normal level of system activity shall be applied. This test shall be repeated for four consecutive fifteen minute periods, for a total peak level test time of one hour. The five-minute peak loading period shall coincide with SCADA/ DMS system period where all periodic software is scheduled for execution and at least one five minute period shall span an hour boundary to consider the scheduled hourly periodic activities. There shall be no restrictions on the period when the five-minute peak can occur.

The software execution rates and response times defined in tables of this chapter, shall not be degraded and the utilization defined in tables of this chapter shall not exceed during the peak loading conditions. The following conditions shall define the additional peak level of system activity:

- (a) As per IEEE C37.1
 - a. 15 % of status of total status points/ 5sec measurements
 - b. 40% analog of total analog measurements /5sec50% of the alarms shall be acknowledged within the five-minute period
(automatic acknowledgement is unacceptable).
- (c) Display Requests
6 display requests per minute per console
- (d) Supervisory Control
Total 1 per RTU & 1 per 10 FRTUs in 5 Minute period of peak loading cycles
- (e) DMS/OMS applications
3 Network Connectivity Analysis & Reporting of crew of all feeders
- (f) Reports
Prepare 5 reports.

The above are indicative, utility align with their Standard operating procedure

End of SCADA/DMS PERFORMANCE TABLES

Table 9

The BOQ shall be composite along with separate for break up for each Control center (I.E. SCADA /DMS & SCADA District Control center

A1) BILL OF QUANTITY

A/U TYPE TOWNS - SCADA/DMS control center (BoQ) SDCC

In U TOWNS , only items with end of life/ spares /faulty can be proposed for refresh or replaced and field equipment due to growth and OMS

S.No.	Equipment	Unit	Quantity	Remarks
C1	Server/ workstation Hardware			
	SCADA Server	No.	2	
	DMS Server	No.	2	
	OMS Server	No.	2	
	FEP server with interface switches	No.	2	
	ISR server	No.	2	
	NMS server	No.	2	
	DTS server	No.	1	
	Other Active Devices	no		
	Developmental server	No.	1	
	Commnuication Server	No.	2	
	Web/Directory server	No.	2	
	SMS gaterway	No.	2	
	Workstation with dual TFT Monitors (S/S monitoring)	No.	Ref Remarks	*2minimum and 1 per each 20s/s and maximum upto 5 workstations
	Workstation with dual TFT Monitors (Network monitoring)	No.	Ref Remarks	1minimum *and 1 per each per 100 FRTUs and maximum upto 3 workstations
	Remote VDUs with one TFT Monitors	No.	Ref Remarks	1 per Circle/ div/Sub div

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Developmental console with one TFT	No.	2	
	DTS/Workstation Console with dual TFTs	No.	2	
	DLP based Video Projection system with 3x4 Module configuration with each module at least 70" diagonal with projector	No.	1	
	<u>Storage & Backup Devices</u>			
	External RAID Mass storage device (for 24 months online backup)	No.	1	
	External DAT drive	No.	1	
	<u>Switches</u>			
	Layer II switch (SCADA/DMS LAN)	No.	2	
	Layer II switch (Planning & Development system LAN)	No.	2	
	<u>Routers</u>			
	Router for interfacing IT system & SCADA/DMS DR centre	No.	2	
	Router at remote VDU	No.	0	
	<u>Security system (DMZ)</u>			
	Web server with load balancing	No.	2	
	Mail server	No.	2	
	Router	No.	2	
	Firewall & network IDS/IPS	No.	2	
	Layer II switch	No.	2	
	<u>Other Active Devices</u>			
	GPS Time synchronisation system	Set	2	
	Time, day & date digital displays	Set	1	
	<u>Printers</u>			
	Color inkjet printer	Set	2	
	B/W Laser printer	Set	2	
	Any other items required to meet functional /Performance requirement as per MTS	Lot	1	
	Sub-Total C1 (Hardware)			
C2	Software for Control Centre			
	SCADA software	Lot	1	
	ISR Software	Lot	1	
	DMS software	Lot	1	
	OMS Software	Lot	1	

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	DTS software	Lot	1	
	Developmental software	Lot	1	
	Network Management Software	Lot	1	
	WEB /Network security software (INCL IN WEBSERVER)	Lot	1	
	RDBMS package	Lot	1	
	GIS Adaptor/Engine for importing data from GIS system under IT system	Lot	1	
	Any other software to meet functional /performance requirement of MTS	Lot	1	
	Sub-Total -B2 (Software)			
C3	Mandatory spares Max 5% of C1			
	Mandatory spares	L/S	1	
	Sub -Total C3 spares			
	Grand Total C			

**Estimated Bill of Quantity for
SCADA/DMS DRR (Disaster
Recovery control centre**

S.No.	Equipment	Unit	Quantity	Remarks
D1	Server/ workstation Hardware			
	SCADA Server	No.	2	
	DMS Server	No.	2	
	OMS Server	No.	2	
	FEP server with interface switches	No.	2	
	ISR server	No.	2	
	NMS server	No.	2	
	DTS server	No.	1	
	Other Active Devices			
	Developmental server	No.	1	
	Commnuication Server	No.	2	
	Web/Directory server	No.	2	
	SMS gaterway	No.	2	

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Workstation with dual TFT Monitors (S/S monitoring)	No.	2	
	Workstation with dual TFT Monitors (Network monitoring)	No.	1	
	Remote VDUs with one TFT Monitors	No.	0	
	Developmental console with one TFT	No.	2	
	DTS/Workstation Console with dual TFTs	No.	2	
	DLP based Video Projection system with 3x4 Module configuration with each module at least 70" diagonal with projector	No.	0	
	<u>Storage & Backup Devices</u>			
	External RAID Mass storage device (for24 months online backup)	No.	1	
	Exteranal DAT drive	No.	1	
	<u>Switches</u>			
	Layer II switch (SCADA/DMS LAN)	No.	2	
	Layer II switch (Planning & Development system LAN)	No.	2	
	<u>Routers</u>			
	Router for interfacing IT system & SCADA/DMS DR centre	No.	2	
	Router at remote VDU	No.	0	
	<u>Security system (DMZ)</u>			
	Web server with load balancing	No.	2	
	Mail server	No.	2	
	Router	No.	2	
	Firewall & network IDS/IPS	No.	2	
	Layer II switch	No.	2	
	<u>Other Active Devices</u>			
	GPS Time synchronisation system	Set	2	
	Time, day & date digital displays	Set	1	
	<u>Printers</u>			
	Color inkjet printer	Set	2	
	B/W Laser printer	Set	2	

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Any other items required to meet functional /Performance requirement as per MTS	Lot	1	
	Sub-Total D1 (Hardware)			
D2	Software for DR Centre			
	SCADA software	Lot	1	
	ISR Software	Lot	1	
	DMS software	Lot	1	
	OMS Software	Lot	1	
	DTS software	Lot	1	
	Developmental software	Lot	1	
	Network Management Software	Lot	1	
	WEB /Network security software	Lot	1	
	RDBMS package	Lot	1	
	GIS Adaptor/Engine for importing data from GIS system under IT system	Lot	1	
	Any other software to meet functional /performance requirement of MTS	Lot	1	
	Sub-Total D2 (Software)			
D3	Mandatory spares Max 5% of D1			
	Mandatory spares	L/S	1	
	Sub -Total D3 spares			
	Grand TotalD			

S.No.	Equipment	Unit	Quantity	Remarks
E1	RTUs			
	RTU base equipment comprising panels, racks, sub-racks, Power Supply modules, CPU, interfacing equipment, required converters & all other required items/accessories including complete wiring for all modules for locations mentioned at Vol Vi	Set	Ref remarks	Per S/S
	Multifunctions transducers	No.	Do	As per point count

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Contact Multiplying Relays (CMRs)	No.	Do	As per point count
	Heavy duty relays for Control	No.	Do	As per point count
	Dummy Breaker Latching Relays	No.	Do	Per S/S
	Transformer Transducers	No.	Do	Per PXF
	Single TFT PC for LDMS	No	Do	Per S/S
	Any other hardware to meet functional /performance requirement of MTS	Lot	Do	
	Sub - Total (Hardware) -E1			
E2	Software for LDMS			
	LDMS software	No.	Ref remarks	Per S/S
	Any other software to meet functional /performance requirement of MTS	Lot		
	Sub - Total (test equipment) -E2			
E3	TEST EQUIPMENTS for RTU			
	RTU Database Configuration & Maintenance Software tool	No.	Ref remarks	Per 20s/s , min 1
	Master Station cum RTU Simulator & Protocol analyser software tool	No.	Ref remarks	Per 20s/s , min 1
	Laptop PC for above software tools along with interfacing hardware including Hub	No.	Ref remarks	Per 20s/s , min 1
	Sub - Total (test equipment) -E3			
E4	MANDATORY SPARES FOR RTU			
	5% of E1			
	Sub - Total (mandatory spare) -D4			
	Grand total E			

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

S.No.	Equipment	Unit	Quantity	Remarks
				Rs.
F1	FRTUs			
	Mini pole mounted FRTU base equipment along with enclosure suitable to work in open environment (Adequate protection from water & dust) , racks, sub-racks, Power Supply modules with power backup , I/o modules, CPU, interfacing equipment, required converters & all other required items/accessories including complete wiring for all modules for locations mentioned at Vol Vi	No.	Ref remarks	Per RMU/SECT
	Contact Multiplying Relays (CMRs)	No.	Ref remarks	Point count
	Heavy duty relays for Control	No.	Ref remarks	Point count
	Multifunction transducer	No.	Ref remarks	Point count
	Any other hardware to meet functional /performance requirement of MTS	Lot	-	
	Sub-Total (Hardware) F1			
F2	Test Equipments for FRTU			
	FRTU Database Configuration & Maintenance Software tool	No.	Ref remarks	Per 100 FRTU
	Master Station cum FRTU Simulator & Protocol analyser software tool	No.	Ref remarks	Per 100 FRTU
	Laptop PC for above software tools along with interfacing hardware including Hub	No.	Ref remarks	Per 100 FRTU
	Sub-Total (Test equipment) F2			
F3	MANDATORY SPARES FOR FRTU			
	5% of E1			
	Sub-Total (Spares) F3			
	Grand Total F			

G1 - Communication system

S.No	Equipment	Unit	Quantity	Remarks
	MPLS			
	Annual charges for 100MBps Links	No.	0	Per RTU/CC/OTH LOCATIONS
	MPLS Router	No.	0	DO
	Any other hardware to meet functional /performance requirement of MTS			
	Sub - Total g1			
	GPRS/MPLS-4G			
	Annual charges for 2MBps Links with FRTUs /FPI	No.	0	FRTU ,FPI
	Modems	No.	0	FRTU ,FPI
	Any other hardware to meet functional /performance requirement of MTS			
	Sub - Total g2			
	Mandatory spares 5% of g1,g2			
	Grand Total G			

AUX POWER SUPPLY

S.No.	Survey	Type	Unit	Quantity	Remarks
H1	Main Equipments - Control centre				
	UPS with suitable rating running in parallel redundant mode*		Set		Per CC
	VRLA type Battery banks for above UPS for minimum 30 min. backup duration	incl above	Set		

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Sub- Total H1				
H2	Main Equipments - DR Centre				
	Main Equipments				
	UPS with suitable rating running in parallel redundant mode*				Per DR
	VRLA type Battery banks for above UPS for minimum 30 min. backup duration	incl above			
	Sub-Total H2				
H3	II For RTU / Data Concentrator / Communication Eqpts.				
	DC Power Supply (DCPS) system based on SMPS			-	PER RTU
	Battery bank for above DCPS (VRLA Type) for minimum 4 hrs backup	incl above		-	
	Sub-Total H3				
H4	For FRTU				
	48V DC Power Supply (DCPS) system based on SMPS			-	PER FRTU
	Battery bank for above DCPS (VRLA Type) for minimum 4 hrs backup	incl above		-	
	Sub-Total H4				
H5	Remote VDU location				
	UPS (2 kVA)			-	PER RVDU
	Sub-Total H5				
H6	Mandatory Spares for UPS				
	5% of above H1TO H5			-	
	Sub-Total H6				
	Grand Total (H)				

SCADA ENABLERS

S.No.	ITEM	Type	Unit	Quantity
J1	RMU (WAY requirement)	No of WAYS		

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	RMU		No	-
	Sub- Total J1			
J2	SECTIONLIZER /RECLOSER			
	Sectionlizer		No	-
	Recloser		No	
	Sub-Total J2			
J3	FPI			
	Commnuicable		No	-
	Sub-Total J3			
J4	RECONDUTORING (Specify type of each conductor existing & reconductoring in other modernisation WORKS if any)			
			Km	-
			Km	-
	Sub-Total J4			
J5	Control/power cable for RTUs from outdoor switchgear,if any at S/S and numerical relays			
	control /power cable		Km	-
	Numerical relay /BCPU		Nos	-
	Sub-Total J5			
J6	Mandatory Spares			
	5% of above J1 TO J5			-
	Sub-Total J6			
	Grand Total (J)			

ZSCC FOR B,C TYPE TOWNS -

S.No.	Equipment	Unit	Quantity	Remarks
C1	Server/ workstation Hardware			
	SCADA server	No.	2	
	FEP server with interface switches	No.	2	
	ISR server	No.	2	
	NMS server	No.	2	
	DTS server	No.	1	
	Developmental server	No.	1	
	Communcation Server	No.	2	
	Web/Directory server	No.	2	
	SMS gateway	No.	2	
	Workstation with dual TFT Monitors (S/S monitoring)		Ref Remarks	*2minimum and 1 per each 20s/s and maximum upto 5 workstations
	Workstation with dual TFT Monitors (FPI monitoring)	No.	Ref Remarks	1minimum *and 1 per each per 100 FRTUs and maximum upto 3 workstations
	Workstation with dual TFT Monitors (S/S monitoring) -RTDAS		Ref Remarks	*2minimum and 1 per each 20s/s and maximum upto 5 workstations
	Workstation with dual TFT Monitors (FPI monitoring)-RTDAS	No.	Ref Remarks	1minimum *and 1 per each per 100 FRTUs and maximum upto 3 workstations
	Remote VDUs with one TFT Monitors	No.	Ref Remarks	1 per Circle/ div/Sub div
	Developmental console with one TFT	No.	2	
	DTS/Workstation Console with dual TFTs	No.	2	
	DLP based Video Projection system with 3x4 Module configuration with each module at least 70" diagonal with projector	No.	1	
	<u>Storage & Backup Devices</u>			
	External RAID Mass storage device (for 24 months online backup)	No.	1	

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Exteranl DAT drive	No.	1	
	<u>Switches</u>			
	Layer II switch (SCADA/DMS LAN)	No.	2	
	Layer II switch (Planning & Development system LAN)	No.	2	
	<u>Routers</u>			
	Router for interfacing IT system & SCADA/DMS DR centre	No.	2	
	Router at remote VDU	No.	0	
	<u>Security system (DMZ)</u>			
	Web server with load balancing	No.	2	
	Mail server	No.	2	
	Router	No.	2	
	Firewall & network IDS/IPS	No.	2	
	Layer II switch	No.	2	
	<u>Other Active Devices</u>			
	GPS Time synchronisation system	Set	2	
	Time, day & date digital displays	Set	1	
	<u>Printers</u>			
	Color inkjet printer	Set	2	
	B/W Laser printer	Set	2	
	Any other items required to meet functional /Performance requirement as per UMTS	Lot	1	
	Sub-Total C1 (Hardware)			
C2	Software for Control Centre			
	SCADA software	Lot	1	
	ISR Software	Lot	1	
	DMS software	Lot	1	
	DTS software	Lot	1	
	Developmental software	Lot	1	
	Network Management Software	Lot	1	

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	WEB /Network security software (Incl in webserver)	Lot	1	
	RDBMS package	Lot	1	
	GIS Adaptor/Engine for importing data from GIS system under IT system	Lot	1	
	Any other software to meet functional /performance requirement of UMTS	Lot	1	
	Sub-Total -B2 (Software)			
C3	Mandatory spares Max 5% of C1			
	Mandatory spares	L/S	1	
	Sub -Total C3 spares			
	Grand Total C			

DR

S.No.	Equipment	Unit	Quantity	Remarks
D1	Server/ workstation Hardware			
	DR server	No.	2	
	Commnuication Server	No.	2	
	Workstation with one TFT Monitors	No.	2	
	<u>Storage & Backup Devices</u>			
	External storage device	No.	1	
	Exteranl DAT drive	No.	1	
	<u>Switches</u>			
	Layer II switch (DR LAN)	No.	2	
	<u>Routers</u>			
	Router for interfacing at SCADA DMS centre	No.	2	
	<u>Printers</u>			
	Color inkjet printer	Set	1	
	B/w Laser printer	Set	1	

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Any other items required to meet functional/Performance requirement as per UMTS	Lot	1	
	Sub-Total D1 Hardware			
D2	Software for Control Centre			
	RDBMS package	Lot	1	
	Any other items required to meet functional/Performance requirement as per UMTS	Lot	1	
	Sub-Total D1 Software			
D3	Mandatory spares Max 5% of D1			
	Mandatory spares	L/S	1	
	Sub -Total d3 spares			
	Grand Total D			

S.No.	Equipment	Unit	Quantity	Remarks
E1	RTUs			
	RTU base equipment comprising panels, racks, sub-racks, Power Supply modules, CPU, interfacing equipment, required converters & all other required items/accessories including complete wiring for all modules for locations mentioned at Vol Vi	Set	Ref remarks	Per S/S
	Multifunctions transducers	No.	Do	As per point count
	Contact Multiplying Relays (CMRs)	No.	Do	As per point count
	Heavy duty relays for Control	No.	Do	As per point count
	Dummy Breaker Latching Relays	No.	Do	Per S/S
	Transformer Transducers	No.	Do	Per PXF
	Single TFT PC for LDMS	No	Do	Per S/S
	Any other hardware to meet functional /performance requirement of MTS	Lot	Do	
	Sub - Total (Hardware) -E1			
E2	Software for LDMS			
	LDMS software	No.	Ref remarks	Per S/S

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

	Any other software to meet functional /performance requirement of MTS	Lot		
	Sub - Total (test equipment) -E2			
E3	TEST EQUIPMENTS for RTU			
	RTU Database Configuration & Maintenance Software tool	No.	Ref remarks	Per 20s/s , min 1
	Master Station cum RTU Simulator & Protocol analyser software tool	No.	Ref remarks	Per 20s/s , min 1
	Laptop PC for above software tools along with interfacing hardware including Hub	No.	Ref remarks	Per 20s/s , min 1
	Sub - Total (test equipment) -E3			
E4	MANDATORY SPARES FOR RTU			
	5% of E1			
	Sub - Total (mandatory spare) -D4			
	Grand total E			

G1 - Communication system

S.No	Equipment	Unit	Quantity	Remarks
	MPLS			
	Annual charges for 100MBps Links	No.	0	Per RTU/CC/OTH LOCATIONS
	MPLS Router	No.	0	DO
	Any other hardware to meet functional /performance requirement of MTS			
	Sub - Total g1			
	GPRS/MPLS-4G			
	Annual charges for 2MBps Links with FRTUs /FPI	No.	0	FPI
	Modems	No.	0	, FPI
	Any other hardware to meet functional /performance requirement of MTS			
	Sub - Total g2			
	Mandatory spares 5% of g1,g2			
	Grand Total G			

AUX POWER SUPPLY

S.No.	Survey	Type	Unit	Quantity	Remarks
H1	Main Equipments - Control centre				
	UPS with suitable rating running in parallel redundant mode*		Set		Per CC
	VRLA type Battery banks for above UPS for minimum 30 min. backup duration	incl above	Set		
	Sub- Total H1				
H2	Main Equipments - DR Centre				
	Main Equipments				
	UPS with suitable rating running in parallel redundant mode*				Per DR
	VRLA type Battery banks for above UPS for minimum 30 min. backup duration	incl above			
	Sub-Total H2				
H3	II For RTU / Data Concentrator / Communication Eqpts.				
	DC Power Supply (DCPS) system based on SMPS			-	PER RTU
	Battery bank for above DCPS (VRLA Type) for minimum 4 hrs backup	incl above		-	
	Sub-Total H3				
H5	Remote VDU location				
	UPS (2 kVA)			-	PER RVDU
	Sub-Total H5				
H6	Mandatory Spares for UPS				
	5% of above H1 TO H5			-	
	Sub-Total H6				
	Grand Total (H)				

SCADA ENABLERS

S.No.	ITEM	Type	Unit	Quantity
J3	FPI			
	Communicable		No	-
	Sub-Total J3			
J5	Control/power cable for RTUs from outdoor switchgear,if any at S/S and numerical relays			
	control /power cable		Km	-
	Sub-Total J5			
J6	Mandatory Spares			
	5% of above J1 TO J5			-
	Sub-Total J6			
	Grand Total (J)			

5 % MANDATORY SPARE MAY BE CONSIDERED

Power Finance Corporation
 SCADA/DMS, system under Part A –RDSS
 Model Technical specification

UTILITY SHALL ATTACH RTU & FRTUCONNECTIVITY DIAGRAM

STATION	SS	DS	DC	CMR	HDR	MFT	Com module	DI module	DO modul e	AI mod ule
TOTAL										

RTU I/O COUNT

Note: - SS : Single status input, DS : Double status input for CBs, DC : Digital Control Output (Trip & Close)/Raise /lower CMR : Contact Multiplying Relay, HDR : Heavy Duty Relay, METER : Energy meter, CM: Communication Module , DI : Digital input ,DO : Digital Output AI: Analog module

- Note:**
6. MFT provide data that is to be acquired by RTU on Modbus/or IEC protocol for Voltage (phase to phase and phase to neutral), Current (phase and neutral), Active Power, Reactive Power, Apparent Power, Power Factor, Frequency, active energy (import & export), reactive energy (import & export) etc.
 7. CMRs shall be mounted in the existing C&R panels. Wherever the space is not available in the existing panels the same shall be mounted in the RTU panels. Heavy Duty Relays shall be provided for Digital outputs for CBs and shall be mounted in the RTU panels itself.
 8. The RTU shall be equipped for the above specified I/O (analog input (meter), digital input & digital output) point points, which includes 20 % spare for future use (except for CMRs & HDRs). These 20 % spare points shall be terminated on terminal blocks in
 9. All protection relay/Alarm points & CBs shall be considered for SOE.
 10. Point counts include three alarms per station for auxiliary system and fire, which shall be interfaced to RTU.

- Note:**
1. MFT provide data that is to be acquired by RTU on Modbus/or IEC protocol for Voltage (phase to phase and phase to neutral), Current (phase and neutral), Active Power, Reactive Power, Apparent Power, Power Factor, Frequency, active energy
 2. CMRs shall be mounted in the existing C&R panels. Wherever the space is not available in the existing panels the same shall be mounted in the RTU panels. Heavy Duty Relays shall be provided for Digital outputs for CBs and shall be mounted in the RTU panels itself.
 3. The RTU shall be equipped for the above specified I/O (analog input MFT), digital input & digital output) point points, which includes 20 % spare for future use . These 20 % spare points shall be terminated on terminal blocks in RTU panel.
 4. All protection relay/Alarm points & CBs shall be considered for SOE.

D BILL OF QUANTITY

FRTU

UTILITY SHALL ATTACH RTU & FRTU CONNECTIVITY DIAGRAM

FRTU I/O COUNT

SNO	STATION	SS	DS	DC	CMR	HDR	MFT	Com module	DI module	DO module	AI module
	TOTAL										

Note: - SS : Single status input, DS : Double status input for CBs, DC : Digital Control Output (Trip & Close) CMR : Contact Multiplying Relay, HDR : Heavy Duty Relay, METER : Energy meter, CM:Communication Module , DI : Digital input , DO : Digital Output: AI: Analog input

Provide Equipment break-up at each location

UTILITY SHALL ATTACH COMMUNICATION NETWORK DIAGRAM FOR ALL PROPOSED MODES

H) Training including refresher course after Operational Acceptance

S.No.	Description	Duration in days	No. Of Trainees
A.	Operator's Training		
1.	Operator for SCADA/DMS Control Centre	5	1 Per workstation console/ shift at control center
2.	Instructor for DTS	10	2 Per Control center

Power Finance Corporation
SCADA/DMS, system under Part A –RDSS
Model Technical specification

B.	Maintenance Training		
1	Computer Hardware & System Software	10	2 Per Control center
2.	Application Software (SCADA/DMS/OMS)	10	2 Per Control center
3.	RTU & FRTU	5	2 Per Town
4.	Database & display development	5	2 Per Control center
6.	Auxiliary Power Supply	3	2 Per Control center
7.	NMS/ Communication	5	2 Per Control center
8.	SCADA enablers(RMU/SECTIONLIZER/FPIetc.)		2 Per Town

I) FMS

SI No.	Description	Duration
1a	FMS charges for SCADA/DMS system (maintaining overall system availability as per TS)	Two Years
1b	FMS charges for SCADA/DMS system (maintaining overall system availability as per TS)	<i>3 additional years</i>
2	Total FMS charges	<i>Five Year</i>

The cost of shall not be less than 25 % of total contract value . The cost per year for all 5 year shall be same

- The necessary spares required for maintenance of the system during FMS shall be provided by the contractor. However, the consumables shall be provided by the owner.
- FMS shall include all the supplied hardware & software under the project.
 - FMS for 2 years after operational acceptance or up to Sunset of scheme is provisioned under GOI sanction (whichever is earlier) and remaining period totaling to 5 years after operational acceptance will be borne by utility. However, the cost of all 5 years shall be same and will form part of financial evaluation .

Bidder can define quantity of servers , router, switches as per system configuration in the bid subject to adherence to functional , performance , redundancy , cyber security and all technical & SLA requirements

Unit price is inclusive of taxes , freight and insurance, However , GST % to be indicated by bidder for items

Power Finance Corporation
SCADA/DMS, system under Part Revamped Reforms-Linked Results-based
Distribution Sector Scheme - Govt. of India
Model Technical specification

J) IMPLEMENTATION SCHEDULE

S. No.	Items	Completion Schedule from the Award of Contract
1	SCADA/DMS/OMS System (Group A, U)	30 months from award
2	SCADA system (Group B,C)	24 months from award

BIDDER SHALL PROVIDE IMPLEMENTATION SCHEDULE INDICATING MILESTONES

Power Finance Corporation
 SCADA/DMS, system under Part Revamped Reforms-Linked Results-based
 Distribution Sector Scheme - Govt. of India
 Model Technical specification

Annex 1 - List of locations under Group A & U

SNO	A/U	NAME OF TOWN	Disaster recovery at	Ambient Temperature deg C	Rel Humidity in RH%	Altitude from MSL < 2000 M (Y/N)

Annex 2 - List of locations under Group B

SNO	B/ B*	NAME OF TOWN	ZSCC name	Ambient Temperature deg C	Rel Humidity in RH%	Altitude from MSL < 2000 M (Y/N)

Power Finance Corporation
 SCADA/DMS, system under Part Revamped Reforms-Linked Results-based
 Distribution Sector Scheme - Govt. of India
 Model Technical specification

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B* if existing RT-DAS and upgrading for SCADA

Annex 3 - List of locations under Group C

SNO	C / C*	NAME OF TOWN	ZSCC name	Ambient Temperature deg C	Rel Humidity in RH%	Altitude from MSL < 2000 M (Y/N)

C* if existing RT-DAS and upgrading for FPI

Annex 4 - List of locations under Group A & U

SNO	A/U	NAME OF TOWN	RTU Count	FRTU count	FPI Count	RMU Count	Sectionlizer count

Annex 5- List of locations under Group B

SNO	B / B*	NAME OF TOWN	RTU COUNT	FPI Count

Power Finance Corporation
 SCADA/DMS, system under Part Revamped Reforms-Linked Results-based
 Distribution Sector Scheme - Govt. of India
 Model Technical specification

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B* if existing RT-DAS and upgrading for SCADA

Annex 6 - List of locations under Group C

SNO	C / C*	NAME OF TOWN	RTU Count	FPT Count

C* if existing RT-DAS and upgrading for FPI

Section VII.
General Conditions of Contract

A. Contract and Interpretation

1	Definitions	The following words and expressions shall have the meanings hereby assigned to them:
		(a) “Contract” means the Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
		(b) “Contract Documents” shall mean the following documents listed, including any amendments thereto be read and construed as part of this Agreement, viz.: i. the Detailed award of contract; ii. the Service level agreement; iii. the Special Conditions of Contract; iv. the General Conditions of Contract; v. the Scope of Work; vi. the Model Technical Specification (MTS) vii. the Instructions to bidders; viii. the Purchaser’s Notification to the Supplier for Award of Contract; ix. Supplier’s response (proposal) to the RFP, including the Bid Submission Sheet and the Price Proposal submitted by the Supplier; x. Appendix C; xi. Acceptance of Utility notification xii. RFQ document (as mentioned in IFB) along with all corrigendum, clarifications and related documents issued by the Nodal Agency.
		(c) “Contract Price” means the price payable to the Supplier as specified in the Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.
		(d) “Day” means calendar day.
		(e) “Delivery” means the transfer of the Goods and services from the Supplier to the Purchaser in accordance with the terms and conditions set forth in the Contract.
		(f) “Completion” shall mean the completion of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
		(g) “GCC” mean the General Conditions of Contract.
		(h) “Goods” means all hardware, software, networking equipment and/or other equipment accessories and materials that the Supplier is required to supply to the Purchaser under the Contract.

	(i) “Intellectual Property Rights” means any patent, copyright, trademark, trade name, service marks, brands, propriety information, whether arising before or after the execution of this Contract and the right to ownership and registration of these rights.
	(j) “Purchaser’s Country” shall mean India.
	(k) “Purchaser or Employer or Utility” means the entities purchasing the Goods and Related Services.
	(l) “Project Manager” means the person appointed by the Utility to perform the duties delegated by the Utility.
	(m) “Related Services” means the services to be provided as per the requirements / conditions specified in the Contract. In addition to this, the definition would also include other related/ancillary services that may be required to execute this Contract.
	(n) “SCC” means the Special Conditions of Contract.
	(o) “Service Level Agreement” (SLA) shall mean the Service Level Agreement entered into between the Purchaser and the Supplier.
	(p) “Subcontractor” means any natural person, private or government entity, or a combination of the above, including its legal successors or permitted assigns, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier, as per the provisions of Clauses 18 of the GCC.
	(q) “Supplier or Bidder” means the eligible Implementation Agency (IA) whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Agreement, and includes the legal successors or permitted assigns of the Supplier.
	(r) “Contractor’s Representative” means any person nominated by the Contractor and approved by the Utility hereof to perform the duties delegated by the Contractor.
	(s) “The MoP” is the Ministry of Power, Government of India.
	(t) “The Site,” shall mean all identified locations within the State of <Utility to Define>, where the Supplier carries out any installation of Goods or is required to provide any Related Services.
	(u) “OEM” means the Original Equipment Manufacturer of any equipment / system / software / product that are providing such goods to the Purchaser under the scope of this Tender / Contract.
	(v) “Kick Off Meeting” means a meeting convened by the Purchaser to discuss and finalize the work execution plan and procedures with the Supplier.
	(w) the term “in writing” means communicated in written form with <u>proof of receipt</u>
2	Contract Documents

	2.1 Subject to the order of precedence set forth in the Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The contract shall be read as a whole.
3	Interpretation
	3.1 Language
	(a) All Contract Documents, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be written in English, and the Contract shall be construed and interpreted in accordance with that language.
	(b) If any of the Contract Documents, correspondence or communications are prepared in any language other than the governing language under GCC Sub-Clause 3.1 above, the English translation of such documents, correspondence or communications shall prevail in matters of interpretation.
	(c) The English Translation of the documents shall be carried out by professional translators and the translator shall certify that he is proficient in both languages in order to translate the document and that the translation is complete and accurate. Further, translation shall be authenticated by the Indian Consulate located in the Country where the documents have been issued or the Embassy of that Country in India.
	3.2
	(a) In case of any conflict with any provision relating to the MTS document and the RFP document, the provisions of the RFP document shall prevail for all intents and purposes.
	(b) unless otherwise specified a reference to a clause number is a reference to all of its sub-clauses;
	3.3 Singular and Plural
	(a) The singular shall include the plural and the plural the singular, except where the context otherwise requires.
	3.4 Headings
	(a) The headings and marginal notes in the General Conditions of Contract are included for ease of reference, and shall neither constitute a part of the Contract nor affect its interpretation.
	3.5 Persons
	(a) Words importing persons or parties shall include firms, corporations and government entities.
	3.6 Incoterms
	(a) Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by Incoterms. Incoterms means international rules for interpreting trade terms published by the International Chamber of Commerce (latest edition), 38 Cours Albert 1er, 75008 Paris, France.
	3.7 Entire Agreement
	(a) The Contract constitutes the entire agreement between the Employer and Contractor with respect to the subject matter of Contract and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract.
	3.8 Amendment
	(a) No amendment or other variation of the Contract shall be effective unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party hereto.

3.9 Independent Contractor

- (a) The Contractor shall be an independent contractor performing the Contract. The Contract does not create any agency, partnership, joint venture or other joint relationship between the parties hereto.

Subject to the provisions of the Contract, the Contractor shall be solely responsible for the manner in which the Contract is performed. All employees, representatives or Subcontractors engaged by the Contractor in connection with the performance of the Contract shall be under the complete control of the Contractor and shall not be deemed to be employees of the Utility, and nothing contained in the Contract or in any subcontract awarded by the Contractor shall be construed to create any contractual relationship between any such employees, representatives or Subcontractors and the Utility.

3.10 Non-Waiver

- (a) Subject to GCC Sub-Clause 3.10(b) below, no relaxation, forbearance, delay or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect or restrict the rights of that party under the Contract, nor shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.
- (b) Any waiver of a party's rights, powers or remedies under the Contract must be in writing, must be dated and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

3.11 Severability

- (a) If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

3.12 Joint Venture or Consortium

- (a) If the Contractor is a joint venture or consortium of two or more firms, all such firms shall be jointly and severally bound to the Utility for the fulfilment of the provisions of the Contract and shall designate one of such firms to act as a leader with authority to bind the joint venture or consortium. The composition or the constitution of the joint venture or consortium shall not be altered without the prior consent of the Utility.

<p>4 Notices</p>	<p>4.1 Unless otherwise stated in the Contract, all notices to be given under the Contract shall be in writing, and shall be sent by personal delivery, airmail post, special courier, or e-mail to the address of the relevant party set out in the Contract Coordination Procedure to be finalised pursuant to GCC Sub-Clause 17.2, with the following provisions.</p> <ul style="list-style-type: none"> (a) Any notice sent by airmail post or special courier shall be deemed (in the absence of evidence of earlier receipt) to have been delivered ten (10) days after dispatch. In proving the fact of dispatch, it shall be sufficient to show that the envelope containing such notice was properly addressed, stamped and conveyed to the postal authorities or courier service for transmission by airmail or special courier. (b) Any notice delivered personally or sent by e-mail shall be deemed to have been delivered on date of its dispatch. (c) Either party may change its postal or e-mail address or addressee for receipt of such notices by ten (10) days' notice to the other party in writing. <p>4.2 Notices shall be deemed to include any approvals, consents, instructions, orders and certificates to be given under the Contract.</p>
<p>5 Governing Law</p>	<p>5.1 The Contract shall be governed by and interpreted in accordance with the laws of the India. The High Court of Judicature at Utility Head Quarters and Courts subordinate to such High Courts shall have exclusive jurisdiction in respect of any disputes relating to the tendering process, award of Contract and execution of the Contract.</p>
<p>6 Settlement of Disputes</p>	<p>6.1 The Utility and the Contractor shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p> <p>6.2 If the parties fail to resolve such a dispute (The date of commencement of the dispute shall be taken from the date when this clause reference is quoted by either party in a formal communication clearly mentioning existence of dispute or as mutually agreed) or difference by mutual consultation within twenty-eight (28) days from the commencement of such consultation, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the SCC.</p> <p>6.3 In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract (s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Departments/ Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such disputes or difference shall be taken up by either party for resolution through Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD) as mentioned in DPE Office Memorandum No. 4(1)/2013- DPE(GM)/FTS-1835 dated 22.05.2018 or any amendments thereof.</p>

B Subject Matter of Contract

7 Scope of Work	<p>7.1 The Goods and Related Services to be supplied are specified in Appendix-C3. At the time of awarding the contract, the Utility shall specify any change in the Scope of Work. Such changes may be due for instance, if the quantities of goods and related services are increased or decreased at the time of award.</p> <p>7.2 Unless otherwise stipulated in the Contract, the Scope of Work shall include all such items not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Delivery and Completion of the Goods and Related Services as if such items were expressly mentioned in the Contract.</p>
8 Delivery	<p>8.1 Subject to GCC Sub-Clause 33, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Implementation chapter 19 Table 9 . The details of shipping and other documents to be furnished by the Contractor are specified in the SCC.</p>
9 Contractor's Responsibilities	<p>9.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Work and Appendix-C3 in accordance with GCC Clause 7, and the Implementation Schedule, as per GCC Clause 8.</p> <p>9.2 The Contractor confirms that it has entered into this Contract on the basis of a proper examination of the data relating to the Facilities provided by the Utility and on the basis of information that the Contractor could have obtained from a visual inspection of the Site (if access thereto was available) and of other data readily available to it relating to the Facilities as at the date fifteen (15) days prior to deadline set for price bid submission. The Contractor acknowledges that any failure to acquaint itself with all such data and information shall not relieve its responsibility for properly estimating the difficulty or cost of successfully performing the Facilities.</p> <p>9.3 The Contractor shall acquire in its name all permits, approvals and/or licenses from all local, state or national government authorities or public service undertakings in the country where the Site is located that are necessary for the performance of the Contract, including, without limitation, visas for the Contractor's and Subcontractor's personnel and entry permits for all imported Contractor's Equipment. The Contractor shall acquire all other permits, approvals and/or licenses that are not the responsibility of the Employer under GCC Sub-Clause 10 hereof and that are necessary for the performance of the Contract.</p> <p>9.4 The Contractor shall comply with all laws in force in the country where the Facilities are installed and where the Installation Services are carried out. The laws will include all national, provincial, municipal or other laws that affect the performance of the Contract and bind upon the Contractor. The Contractor shall indemnify and hold harmless the Employer from and against any and all liabilities, damages, claims, fines, penalties and expenses of whatever nature arising or resulting from the violation of such laws by the Contractor or its personnel, including the Subcontractors and their personnel, but without prejudice to GCC Clause 9 hereof.</p>
10 Utility's Responsibilities	<p>10.1 Whenever the supply of Goods and Related Services requires that the Supplier obtain permits, approvals, and import and other licenses from local public authorities, the Utility shall, if so required by the Supplier, make its best effort to assist the Supplier in complying with such requirements in a timely and expeditious manner.</p> <p>10.2 The Purchaser shall bear all costs involved in the performance of its responsibilities, in accordance with GCC Sub-Clause 14.1.</p>

	<p>10.3 The Project Manager or any other person designated by the utility, as defined in SCC, shall act as the nodal point for implementation of the contract and for issuing necessary instructions, approvals, commissioning, acceptance certificates, payments etc. to the Supplier.</p> <p>10.4 The Project Manager or any other person designated by the utility shall approve all such documents within 15 working days.</p> <p>10.5 Purchaser may provide on Supplier's request, particulars/ information / or documentation that may be required by the Supplier for proper planning and execution of Scope of Work under this contract.</p> <p>10.6 Purchaser shall provide to the Supplier sitting space and infrastructure and utilities, in the Purchaser's offices at such location as may be mutually decided by the Parties.</p>
<u>C. Payment</u>	
11 Contract Price	11.1 The Contract Price shall be as specified in the Agreement subject to any additions and adjustments thereto, or deductions there from, as may be made pursuant to the Contract as also subject to provisions of Clause 14.5.
	11.2 Prices charged by the Supplier for the Goods delivered and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid, with the exception of any price adjustments authorized in the SCC.
	11.3 In the event any approval required for imports and/ or use of imported equipment is denied in accordance with all applicable laws including those in relation to testing issued by Ministry of Power (Order No No.12/34/2020-T&R dated 08 June 2021, as amended and/ or modified from time to time), the same shall neither entitle revision of Contract Price nor shall result in revision of the Project Implementation Plan.
12 Terms of Payment	12.1 The Contract Price shall be paid in the manner specified in the SCC. No invoice for extra work/change order on account of change order will be submitted by the Supplier unless the said extra work /change order has been authorized/approved by the Utility in writing.
	12.2 The Contractor's request for payment shall be made to the Utility in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, accompanied by the documents submitted.
	12.3 Payments shall be made promptly by the Utility, no later than forty five (45) days after submission of an invoice or request for payment by the Contractor, and the Utility has accepted it.
	12.4 If any excess payment has been made by the Purchaser due to difference in quoted price in proposal and Supplier's invoice, the purchaser may without prejudice to its rights recover such amounts by other means after notifying the Supplier or deduct such excess payment from any payment subsequently falling due to the Supplier.
	12.5 The currency in which payment shall be made to the supplier under this contract is Indian Rupees (INR).
13 Securities	<p>13.1 Issuance of Securities</p> <p>The Contractor shall provide the securities specified below in favor of the Employer at the times, and in the amount, manner and form specified below.</p>

13.2 Advance Payment Security

- (a) The Contractor shall, within twenty-eight (28) days of the Notification of Award of Contract, provide a security in an amount equal to the advance payment calculated in accordance with Terms and Procedures of Payment to the Contract Agreement, and in the currency or currencies of the Contract, with an initial validity of up to ninety (90) days beyond the schedule date of Completion of the last facility covered under the package. However, in case of delay in completion of the facilities under the package, the validity of this security shall be extended by the period of such delay. The advance payment security shall also cover the amount of GST as applicable on the advance payment to be paid to the contractor.
- (b) The security shall be in the form of an unconditional bank guarantee as per the proforma provided as Form of Advance Payment Security. The Advance payment Security shall be reduced pro-rata every three (03) months after First Running Account Bill/Stage Payment under the Contract based on the value of the respective equipment/facilities received and applicable GST. The cumulative amount of reduction at any point of time shall not exceed ninety (90%) of the advance and the amount of GST paid on the advance amount corresponding to cumulative value of the respective equipment/Facilities supplied and received as per certificate issued by the Project Manager. The balance shall be released upon release of respective milestone linked payments as identified in Terms of payments of Contract Agreement. In case milestone payment is not envisaged in the package, the balance shall be released after Completion of those Facilities on certification by the Project Manager. It should be clearly understood that reduction in the value of security for advance shall not in any way dilute the Contractor's responsibility and liabilities under the Contract including in respect of the Facilities for which the reduction in the value of security is allowed

	<p>13.3 Performance Security</p> <p>(a) The Contractor shall, within twenty-eight (28) days of the Notification of Award, provide securities for the due performance of the Contract for ten percent (10%) of the Contract Price of all the Contracts, with an initial validity up to ninety (90) days beyond the end of scheduled Defect Liability Period of the last equipment covered under the Contract. However, in case of delay in completion of the defect liability period, the validity of all the contract performance securities shall be extended by the period of such delay.</p> <p>(b) The performance security shall be denominated in the currency or currencies of the Contract, or in a freely convertible currency acceptable to the Utility, and shall be in the form of unconditional bank guarantee provided as Form of Performance Security of the bidding documents.</p> <p>(c) Unless otherwise stipulated in SCC, the security shall be reduced pro rata to the Contract Price of a part of the Facilities for which a separate time for Completion is provided, twenty one (21) months after Completion of the Facilities or where relevant part thereof, or fifteen (15) months after Operational Acceptance of the Facilities (or the relevant part thereof), whichever occurs first; provided, however, that if the Defects Liability Period has been extended on any part of the Facilities pursuant to GCC Sub- Clause 33 hereof, the Contractor shall issue an additional security in an amount proportionate to the Contract Price of that part. The security shall be returned to the Contractor immediately after its expiration, provided, however, that if the Contractor, pursuant to GCC Sub-Clause 33, is liable for an extended warranty obligation, the performance security shall be extended for the period and up to the amount agreed upon or as specified in the SCC.</p> <p>(d) The Purchaser shall at its sole discretion invoke the Performance Security and appropriate the amount secured there under, in the event that the Supplier commits any delay or default in Delivery of the Goods or Related Services during the contract period (including FMS period) or commits any other breach of the terms and conditions of the Contract.</p>
<p>14 Taxes and Duties</p>	<p>14.1 The prices quoted by the supplier shall be inclusive of all duties/taxes/levies . Responsibility for including all applicable taxes/duties/levies in the proposal lie with the supplier and the utility shall not be responsible for any error/omission on the part of the bidder. Payment of taxes/duties/levies except GST shall not be made separately.</p> <p>14.2 For goods supplied from outside the Purchaser’s country, the Supplier shall be entirely responsible for all taxes, duties, stamp duties, license fees, and other such levies imposed outside the Purchaser’s country.</p> <p>14.3 For goods supplied from within the Purchaser’s country, the Supplier shall be entirely responsible for all taxes, duties, entry tax, license fees, other levies etc, incurred until delivery of the Goods and Related service to the Purchaser.</p>

	<p>14.4 The cost of Entry Tax as applicable will be the liability of the Supplier i.e. the price quoted will be inclusive of Entry Tax. The amount of Entry Tax will be deducted from the Supplier's invoice and remittance to tax dept. will be made by the Purchaser under the TIN number of Purchaser. If any liability is raised by the commercial tax department, Govt. of <STATE> on account of Entry Tax at a later date, the same shall be to the Supplier's account and accordingly recovery shall be made from the supplier's pending bills/security deposit as available with the Purchaser.</p> <p>14.5 For the purpose of the Contract, it is agreed that the Contract Price specified in (Contract Price and Terms of Payment) of the Contract Agreement is based on the taxes, duties, levies and charges prevailing on seven (7) days prior to the deadline set for price bid submission in the country where the Site is located (hereinafter called "Tax" in this GCC Sub-Clause 14.4). If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the performance of Contract, which was or will be assessed on the Contractor in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction therefrom, as the case may be, in accordance with GCC Clause 30 (Change in Laws and Regulations) hereof. However, these adjustments shall not be applicable on procurement of raw materials, intermediary components and intermediary services etc. by the Contractor.</p>
<p><u>D. Intellectual Property</u></p>	
<p>15 Copyright</p>	<p>15.1 Purchaser shall own and have a right in perpetuity to use all newly created Intellectual Property Rights which have been developed solely during execution of this Contract, including but not limited to all Source code, Object code, records, reports, designs, application configurations, data and written material, products, specifications, reports, drawings and other documents which have been newly created and developed by the Supplier solely during the performance of Related Services and for the purposes of inter-alia use or sub-license of such Services under this Contract. The Supplier undertakes to disclose all such Intellectual Property Rights arising in performance of the Related Services to the Purchaser and execute all such agreements/documents and file all relevant applications, effect transfers and obtain all permits and approvals that may be necessary in this regard to effectively transfer and conserve the Intellectual Property Rights of the Purchaser. To the extent that Intellectual Property Rights are unable by law to so vest, the Supplier assigns those Intellectual Property Rights to Purchaser on creation.</p> <p>15.2 The Supplier shall be obliged to ensure that all approvals, registrations, licenses, permits and rights etc. which are inter-alia necessary for use of the goods supplied / installed by the Supplier, the same shall be acquired in the name of the Purchaser, and the same may be assigned by the Purchaser to the Supplier solely for the purpose of execution of any of its obligations under the terms of this Contract. However, subsequent to the term of this Contract, such approvals, registrations, licenses, permits and rights etc. shall endure to the exclusive benefit of the purchaser.</p>

	<p>15.3 The Supplier shall ensure that while it uses any software, hardware, processes, document or material in the course of performing the Services, it does not infringe the Intellectual Property Rights of any person and the Supplier shall keep the Purchaser indemnified against all costs, expenses and liabilities howsoever, arising out any illegal or unauthorized use (piracy) or in connection with any claim or proceedings relating to any breach or violation of any permission/license terms or infringement of any Intellectual Property Rights by the Supplier or its personnel during the course of performance of the Related Services. In case of any infringement by the Supplier, the Supplier shall have sole control of the defense and all related settlement negotiations.</p>
	<p>15.4 Subject to sub-clauses 16.1 to 16.3, the Supplier shall retain exclusive ownership of all methods, concepts, algorithms, trade secrets, software documentation, other intellectual property or other information belonging to the Supplier that existed before the effective date of the contract.</p>
<p>16 Confidential Information</p>	<p>16.1 Both parties undertake to each other to keep confidential all information (written as well as oral) concerning the business and affairs of the other, which has been obtained or received as a result of the discussions leading upto or the entering of the contract</p>
	<p>16.2 After the entering of the contract the Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents,data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under this Clause.</p>
	<p>16.3 The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the Contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the design, procurement, or other work and services required for the performance of the Contract.</p>
	<p>16.4 The obligation of a party under GCC Sub-Clauses 16.1 and 16.2 above, however, shall not apply to information that:</p> <ol style="list-style-type: none"> a. the Purchaser or Supplier need to share with the institutions participating in the financing of the Contract; b. now or hereafter enters the public domain through no fault of that party; c. can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or d. Otherwise lawfully becomes available to that party from athird party that has no obligation of confidentiality.
	<p>16.5 The above provisions of GCC Clause 16 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.</p>

	<p>16.6 Each of the parties to this contract, undertakes to the other to take all such steps as shall from time to time be necessary to ensure compliance with the provisions of the above clauses by it's employees, agents and sub-contractors.</p> <p>16.7 The provisions of GCC Clause 17 shall survive completion or termination, for whatever reason, of the Contract.</p>
<p><u>E. Work Execution</u></p>	
17 Representatives	<p>17.1 Project Manager</p> <p>If the Project Manager is not named in the Contract, then within fourteen (14) days of the Effective Date, the Employer shall appoint and notify the Contractor in writing of the name of the Project Manager. The Employer may from time to time appoint some other person as the Project Manager in place of the person previously so appointed, and shall give a notice of the name of such other person to the Contractor without delay. The Employer shall take reasonable care to see that no such appointment is made at such a time or in such a manner as to impede the progress of work on the Facilities. The Project Manager shall represent and act for the Employer at all times during the currency of the Contract. All notices, instructions, orders, certificates, approvals and all other communications under the Contract shall be given by the Project Manager, except as herein otherwise provided.</p> <p>All notices, instructions, information and other communications given by the Contractor to the Employer under the Contract shall be given to the Project Manager, except as herein otherwise provided.</p>
	<p>17.2 Contractor's Representative</p> <p>(a) The Contractor shall appoint the Contractor's Representative within fourteen (14) days of the Effective Date or before start of work whichever is earlier and shall request the Employer in writing to approve the person so appointed.</p> <p>i. The Contractor's representative shall be a regular Employee/ Partner/ Director only and the Contractor shall be required to submit a Power of Attorney in original in favour of its representative.</p> <p>ii. In case, the Contractor's representative is also doing some other Contract(s)/ Work(s) as nominee of the same contractor, the Contractor shall give a declaration citing list of all works where the Contractor's representative is the nominee.</p> <p>iii. If the Employer objects to the appointment giving the reason therefore, then the Contractor shall appoint a replacement within</p>
18 Subcontracting	<p>18.1 The Implementation Agency shall not be permitted to sub-contract its obligations under the Contract with the utilities. However, scope of work related to auxiliary power supply ,communication (i.e. only in case of new infrastructure like FO/Radio etc. is being set up by utility) and SCADA Enabler Works may be subcontracted after seeking prior approval of the utility.</p>

<p>19 Conflict of Interest</p>	<p>19.1 The Implementation Agencies shall not engage, and shall cause their Personnel not to engage, either directly or indirectly, in any business or professional activities which would conflict with the activities assigned to them under this Contract.</p> <p>19.2 The Utility considers a conflict of interest to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations, and that such conflict of interest may contribute to or constitute a prohibited corrupt practice</p> <p>19.3 Implementation Agency for a Utility cannot participate in the bidding process of <Project Name> Consultant of the same Utility.</p> <p>19.4 If the <Project Name> Implementation Agency is found to be involved in a conflict of interest situation with regard to the present assignment, the Utility may choose to terminate this contract as per Clause 34 of GCC</p>
<p>20 Specifications and Standards</p>	<p>20.1 Technical Specifications and Drawings</p> <p>(a) The Supplier shall ensure that the Goods and Related Services comply with the technical specifications and other provisions of the Contract.</p> <p>(b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.</p> <p>(c) The Goods and Related Services supplied under this Contract shall conform to the standards mentioned in Section VI, Scope of Work and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the country of origin of the Goods with express approval of the Utility.</p> <p>20.2 Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Section VI, Scope of Work. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with GCC Clause 31.</p>
<p>21 Packing and Documents</p>	<p>21.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the final destination of the Goods and the absence of heavy handling facilities at all points in transit. The Purchaser shall not be responsible in any manner for any loss or damage caused to the Goods during Transit.</p> <p>21.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and in any other instructions ordered by the Purchaser.</p>

22 Insurance	22.1 The Goods supplied under the Contract shall be fully insured by the Supplier, in INR, against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in accordance with the applicable Incoterms or in the manner specified in the SCC.
23 Transportation	23.1 Obligations for transportation of the Goods shall be borne by the Supplier and shall be in accordance with the Incoterms specified in Sections VII
24 Inspections and Tests	<p>24.1 The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of to ensure that the Goods and Related Services are complying with the functional parameters, codes and standards specified in the Scope of Work at Section VI, to the satisfaction of the Purchaser.</p> <p>24.2 The inspections and tests may be conducted on the premises of the Supplier, at point of delivery, and/or at the final destination of the Goods, or in another place in the Purchaser's country as per the requirement of Section VI. Subject to GCC Sub-Clause 24.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.</p> <p>24.3 The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in GCC Sub-Clause 24.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.</p> <p>24.4 Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser.</p> <p>24.5 The Purchaser may require the Supplier to carry out any test and/or inspection to verify that the characteristics and performance of the Goods or Related Services comply with the technical specifications, codes and standards under the Contract.</p> <p>24.6 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.</p> <p>24.7 The Purchaser may reject any Goods / Related Services or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods/ Related Services or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to GCC Sub-Clause 24.4.</p> <p>24.8 The Supplier agrees that neither the execution of a test and/or inspection of the Goods / Related Services or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to GCC Sub-Clause 24.6, shall release the Supplier from any warranties or other obligations under the Contract.</p>
<u>E. Guarantees & Liabilities</u>	
25	Completion Time Guarantee
	25.1 The Contractor guarantees that it shall attain Completion of the Facilities (or a part for which a separate time for completion is specified in the SCC) within the Time for Completion specified in the SCC pursuant to GCC Sub- Clause 8, or within such extended time to which the Contractor shall be entitled under GCC Clause 33 (Extension of Time for Completion) hereof.

	<p>25.2 If the Contractor fails to attain Completion of the Facilities or any part thereof within the Time for Completion or any extension thereof under GCC Clause 33 (Extension of Time for Completion), the Contractor shall pay to the Employer liquidated damages in the amount computed at the rates specified in the GCC Clause 26.</p>
	<p>25.3 No bonus shall be given for earlier completion of the facilities or part thereof.</p>
<p>26 Liquidated Damages and Penalty</p>	<p>26.1 Except as provided under GCC Clause 33, if the Supplier fails to deliver any or all of the Goods or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 0.5% of the value of the Goods or Related Services, supplied beyond stipulated delivery schedule for each week or part thereof of delay until actual delivery or performance, subject to a maximum of 10% of value of such goods and services <i>except FMS and BW which is a part of SLA</i></p>
	<p>26.2 In addition, the Supplier is liable to the Purchaser for payment penalty as specified in the SLA.</p>
	<p>26.3 If the Goods and Related Services supplied do not meet the minimum specifications as per the Contract, and the same is not replaced/modified by the Supplier to meet the requirements within 14 days of being informed by the Utility, the Utility shall be free to impose any penalty as deemed fit. In addition, the Utility shall reserve the right to terminate the contract and recover liquidated damages by forfeiting the performance guarantee submitted by the Purchaser.</p>
<p>27 Warranty</p>	<p>27.1 The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.</p>
	<p>27.2 Subject to GCC Sub-Clause 20.1, the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.</p>
	<p>27.3 The warranty shall remain valid for the period Specified in the SCC.</p>
	<p>27.4 The Purchaser shall give Notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.</p>
	<p>27.5 Upon receipt of such Notice, the Supplier shall, within the period specified in the SCC, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.</p>
	<p>27.6 If having been notified, the Supplier fails to remedy the defect within the period of warranty specified in the SCC; the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.</p>

<p>28 Liability/ Indemnity</p>	<p>28.1 The Supplier hereby agrees to indemnify the Purchaser, for all conditions and situations mentioned in this clause, in a form and manner acceptable to the Purchaser. The supplier agrees to indemnify the Purchaser and its officers, servants, agents (“Purchaser Indemnified Persons”) from and against any costs, loss, damages, expense, claims including those from third parties or liabilities of any kind howsoever suffered, arising or incurred inter alia during and after the Contract period out of:</p> <ul style="list-style-type: none"> a. any negligence or wrongful act or omission by the Supplier or its agents or employees or any third party associated with Supplier in connection with or incidental to this Contract; or b. any infringement of patent, trademark/copyright or industrial design rights arising from the use of the supplied Goods and Related Services or any part thereof.
	<p>28.2 The Supplier shall also indemnify the Purchaser against any privilege, claim or assertion made by third party with respect to right or interest in, ownership, mortgage or disposal of any asset, property, movable or immovable as mentioned in any Intellectual PropertyRights, licenses and permits.</p>
	<p>28.3 Without limiting the generality of the provisions of this clause 28.1 and 28.2, the Supplier shall fully indemnify, hold harmless and defendthe Purchaser Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Purchaser Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any Goods, Related Services, information, design or process supplied or used by the Supplier in performing the Supplier’s obligations or in any way incorporated in orrelated to the Project. If in any such suit, action, claim or proceedings,a temporary restraint order or preliminary injunction is granted, the Supplier shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Goods or Related Services, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Supplier shall promptly make every reasonable effort tosecure for the Purchaser a license, at no cost to the Purchaser, authorizing continued use of the infringing work. If the Supplier is unable to secure such license within a reasonable time, the Supplier shall, at its own expense, and without impairing the specifications and standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process, or modify the same so that it becomes non-infringing.</p> <p>Survival on Termination The provisions of this Clause 28 shall survive Termination.</p>
	<p>28.4 Defense of Claims:</p> <ul style="list-style-type: none"> (a) If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in GCC Sub-Clause 28.1, 28.2, or 28.3 the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser’s name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

	<p>(b) If the Supplier fails to notify the Purchaser within twenty- eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf</p> <p>(c) The Purchaser shall, at the Supplier’s request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.</p>
<p>29 Limitation of Liability</p>	<p>29.1 Except in cases of gross negligence or willful misconduct :</p> <p>(a) neither Party shall be liable to the other Party, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, which may be suffered by the other Party in connection with the Contract, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Employer and</p> <p>(b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Contractor to indemnify the Employer with respect to patent infringement.</p> <p>(c) the aggregate liability of the Employer to the Contractor except for GCC sub-clause 28.3, whether under the Contract, in tort or otherwise, at any point of time during the execution/performance of the Contract, shall not exceed the ‘total Contract Price less payments already released to the Contractor’.</p>
<p><u>G. Risk Distribution</u></p>	
<p>30 Change in Laws and Regulations</p>	<p>30.1 Unless otherwise specified in the Contract, if after the date of the Invitation for Bids, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in the place of the Purchaser’s country where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date, then such Delivery Date shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Additional clause of AMISP Bid Document creates a ambiguity w.r.t. clause Contract Prices</p>
<p>31 Force Majeure</p>	<p>31.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that it’s delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.</p> <p>31.2 For purposes of this Clause, “Force Majeure” means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to wars or revolutions, earthquake, fires, floods, epidemics, quarantine restrictions, and freight embargoes.</p>

	<p>31.3 If a Force Majeure situation arises, the Supplier shall promptly and no later than seven days from the first occurrence thereof, notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.</p> <p>31.4 The decision of the Purchaser with regard to the occurrence, continuation, period or extent of Force Majeure shall be final and binding on the Supplier.</p>
<u>H. Change in Contract Elements</u>	
32 Change Orders and Contract Amendments	<p>32.1 The Purchaser may at any time order the Supplier through Notice in accordance GCC Clause 4 ,12.1, Section VI to make changes within the general scope of the Contract in any one or more of the following:</p> <ul style="list-style-type: none"> (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser; (b) Specifications for hardware, software and Related Services (c) the method of shipment or packing; (d) the place of delivery; and (e) the Related Services to be provided by the Supplier.
	<p>32.2 If any such Change Order causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery and Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's Change Order.</p>
	<p>32.3 No variation or modification of the terms of the contract shall be made except by written amendment signed by the parties.</p>
33 Extensions of Time	<p>33.1 If at any time during performance of the Contract, the Supplier or its Subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to GCC Clause 10, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.</p>
	<p>33.2 Except in case of Force Majeure, as provided under GCC Clause 31 or where the delay in delivery of the Goods or completion of Related Services is caused due to any delay or default of the Purchaser, any extension granted under clause 32.1 shall not absolve the Supplier from its liability to the pay of liquidated damages pursuant to GCC Clause 26.</p>
34 Termination	34.1 Termination for Default
	<ul style="list-style-type: none"> (a) The Purchaser may, without prejudice to any other remedy for breach of Contract, by Notice of default sent to the Supplier, terminate the Contract in whole or in part: <ul style="list-style-type: none"> i. if the Supplier fails to deliver any or all of the Goods or Related Services within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 32; or

	<ul style="list-style-type: none"> ii. if the Supplier, in the judgment of the Purchaser has engaged in corrupt, fraudulent, collusive, or coercive practices, as defined in ITB Clause 4, in competing for or in executing the Contract; or iii. Any representation made by the bidder in the proposal is found to be false or misleading iv. if the Supplier commits any breach of the Contract and fails to remedy or rectify the same within the period of two weeks (or such longer period as the Purchaser in its absolute discretion decide) provided in a notice in this behalf from the Purchaser. v. as specified in the SLA
	<p>(b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 34.1(a), the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.</p>
	<p>34.2 Termination for Insolvency</p> <p>(a) The Purchaser may at any time terminate the Contract by giving Notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser.</p>
	<p>34.3 Termination for Convenience</p> <p>(a) The Purchaser, by Notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The Notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.</p> <p>(b) The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of the Notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:</p> <ul style="list-style-type: none"> (i) To have any portion completed and delivered at the Contract terms and prices; and/or (ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.

Model Bid Document for Appointment of SCADA/DMS Implementation Agency by Power
Distribution Utility

	<p>34.4 Consequences of Termination Upon Termination of the Contract, the Supplier shall:</p> <ul style="list-style-type: none"> (i) Prepare and present a detailed exit plan within five calendar days of termination notice receipt to the Project Manager or authorized representative (“Exit Plan”). (ii) The Project Manager or authorized representative and along with designated team will review the Exit plan. If approved, Supplier shall start working on the same immediately. If the plan is rejected, Supplier shall prepare alternate plan within two calendar days. If the second plan is also rejected, Project Manager or authorized representative or the authorised person will provide a plan for Supplier and it should be adhered by in totality. (iii) The Exit Plan should cover at least the following :- <ul style="list-style-type: none"> a. Execute all documents that may be necessary to effectively transfer the ownership and title, including OEMwarranties in respect of all equipment; b. Handover all developed codes, related documentation and other Configurable Items, if any in his possession; c. Handover the list of all IT Assets, passwords at all locations to the Purchaser. (iv) The supplier and Project Manager or authorized representative will sign a completion certificate at the end of successful completion (all points tracked to closure) of the ExitPlan.
<p>35 Assignment</p>	<p>35.1 The Contractor shall not, without the express prior written consent of the Employer, assign to any third party the Contract or any part thereof, or any right, benefit, obligation or interest therein or thereunder, except that the Contractor shall be entitled to assign either absolutely or by way of charge any monies due and payable to it or that may become due and payable to it under the Contract.</p>
<p>36 Disclaimer</p>	<p>36.1 Purchaser reserves the right to share, with any consultant of its choosing, any resultant Proposals in order to secure expert opinion. 36.2 Purchaser reserves the right to accept any proposal deemed to be in the best interest of the Utility.</p>
<p><u>I. Other Conditions</u></p>	
<p>37 Public Disclosure</p>	<p>37.1 All materials provided to the Purchaser by bidder are subject to Country and <STATE> public disclosure laws such as RTI etc. 37.2 The Supplier’s Team shall not make or permit to be made a public announcement or media release about any aspect of this Contract unless the Purchaser first gives the Supplier its written consent.</p>
<p>38 SLA Audit</p>	<p>38.1 A designated team / person from <UTILITY> will review the performance of Supplier against the SLA each month. The review / audit report will form basis of any action relating to imposing penalty on or breach of contract of the Supplier.</p>

Model Bid Document for Appointment of SCADA/DMS Implementation Agency by Power
Distribution Utility

<p>39 Adherence to safety procedures, rules regulations and restriction</p>	<p>39.1 Supplier shall comply with the provision of all laws including labour laws, rules, regulations and notifications issued there under from time to time. All safety and labour laws enforced by statutory agencies and by Purchaser shall be applicable in the performance of this Contract and Supplier's Team shall abide by these laws.</p>
	<p>39.2 Access to the Datacenter Sites and Purchaser's locations shall be strictly restricted. No access to any person except the essential personnel belonging to the Supplier who are genuinely required for execution of work or for carrying out management/maintenance who have been explicitly authorised by the Purchaser shall be allowed entry to the Datacenter Sites and some Purchaser's locations. Even if allowed, access shall be restricted to the pertaining equipment of the Purchaser only. The Supplier shall maintain a log of all activities carried out by each of its personnel.</p>
	<p>39.3 The Supplier shall take all measures necessary or proper to protect the personnel, work and facilities and shall observe all reasonable safety rules and instructions. Supplier's Team shall adhere to all security requirement/regulations of the Purchaser during the execution of the work. Purchaser's employee also shall comply with safety procedures/policy.</p>
	<p>39.4 The Supplier shall report as soon as possible any evidence, which may indicate or is likely to lead to an abnormal or dangerous situation and shall take all necessary emergency control steps to avoid such abnormal situations.</p>
	<p>39.5 The Purchaser will be indemnified for all the situations mentioned in this clause in the similar way as defined in GCC clause 28.</p>
<p>40 Non-Solicitation of Staff</p>	<p>40.1 For the purpose of this contract, both parties to this contract agree, not to solicit either directly or indirectly with a view to provide or offer employment to, offer to contract with or entice a staff member of the other party to leave without the consent of the other during the term of this agreement and for an additional period of 180 days after termination.</p>
<p>41 Survival</p>	<p>41.1 The clauses of this contract, which by nature are intended to survive termination of this contract, shall remain in effect after such termination.</p>

Section VIII.
Special Conditions of Contract

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.	
GCC 1.1(j)	The Purchaser's country is: The Union Of India
GCC 1.1(k)	The Purchaser is: < <u>Name and address of Utility</u> >, India
GCC 3.1	The language shall be: English
GCC 4.1	For <u>notices</u> , the Purchaser's contact details shall be: <u><Address. Phone. Fax. Email, etc.></u>
GCC 5.1	The governing law shall be: Laws applicable in exclusive jurisdiction of The High Court Of Judicature at <u><Utility HQ></u> , India and all courts subordinate to its exclusive Jurisdiction.
GCC 6.2	<p>The formal mechanism for the resolution of disputes shall be:</p> <p>If the parties fail to resolve such a dispute or difference by mutual consultation within twenty-eight (28) days from the commencement of such dispute and difference, either party may require that the dispute be referred for resolution to the formal mechanisms, described below (The date of commencement of the dispute shall be taken from the date when this clause reference is quoted by either party in a formal communication clearly mentioning existence of dispute or as mutually agreed) :</p> <ol style="list-style-type: none"> a. The mechanism for resolution of disputes for bidders shall be in accordance with the Indian Arbitration and Conciliation Act of 1996. The Arbitral Tribunal shall consist of 3 (Three) Arbitrators. Each Party shall nominate an Arbitrator and the two nominated Arbitrators shall mutually agree and nominate a third Presiding Arbitrator. b. The Arbitrators shall necessarily be retired High Court Judges and the umpire shall be a retired Chief Justice. c. The place for arbitration shall be <to be mentioned by utility>
GCC 12	<u>Payment Schedule:</u> <u>Please refer Annexure-I to SCC</u>
GCC 12.2	<p>Details of shipping and documents to be furnished by the Supplier shall be:</p> <p>FOR GOODS SUPPLIED FROM ABROAD AS PER INCOTERMS CIF :</p> <ul style="list-style-type: none"> • Upon shipment, the Supplier shall notify the Purchaser and the Insurance Company by telex or fax the full details of the shipment (Consignment through air is also possible), including Contract number, description of Goods, quantity, the vessel, the

	<p>bill of lading number and date, port of loading, date of shipment, port of discharge, etc. The Supplier shall send the following documents to the Purchaser, with a copy to the Insurance Company.</p> <ul style="list-style-type: none"> (a) Copy of the Supplier’s invoice showing the description of the Goods, quantity, unit CIF price and total amount; (b) Copy of on-board bill of lading marked “freight prepaid”. (c) Copy of the packing list identifying contents of each lot. (d) Insurance certificate; (e) Copy of test certificate approval and dispatch instructions issued by the purchaser (combined or separately). (f) Certificate of Origin. (g) Manufacturer’s or supplier’s Warranty Certificate <p>The Purchaser shall receive the above documents at least two weeks before arrival of the Goods at the port or place of arrival and, if not received, the Supplier will be responsible for any consequent expenses.</p> <p>For goods from within the Purchaser’s country as per INCOTERMS EXW basis including freight and insurance charges:</p> <p>Upon delivery of the Goods to the transporter, the Supplier shall notify the Purchaser and send the following documents to the Purchaser;</p> <ul style="list-style-type: none"> a) Copy of the Supplier’s invoice showing the description of the Goods, quantity, unit Ex-works price and total amount; b) Copy of Motor Transport Receipt (MTR) of a transport contractor approved by Indian Bankers Association or material receipt certificate from consignee. c) Copy of test certificate approval and dispatch instructions issued by the purchaser combined or separately. d) Copy of packing list identifying contents of each lot. e) Insurance certificate; f) Certificate of Origin. g) Manufacturer’s or supplier’s Warranty Certificate <p>The Purchaser shall receive the above documents before the arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.</p>
GCC 12.5	The currencies for payments shall be in Indian Rupees (INR).

GCC 13.3	<p>The Supplier shall provide Performance Security of three (03) percent of the total Contract Price.</p> <p>The Performance Security shall be in the form of Bank Guarantee issued by a Scheduled Bank as notified by Reserve Bank of India (RBI). <i>A model format of Performance Bank Guarantee is provided, utilities to modify the format as per there standard practices.</i></p>
GCC 14.5	<p>The price adjustment shall be:</p> <p>Prices shall not be subject to any upward/downward revision on any account whatsoever throughout the period of contract, except as provided in GCC Sub Clause 14.5.</p> <p>The utility reserves the right to increase or decrease the number of towns under the contract subject to the limit of 30% of the number of towns covered under the contract. It is clarified that this increase or decrease of 30% shall not entitle either party to claim revision of the unit price of the goods supplied.</p> <p>In case of services where lump-sum prices are quoted, the increase or decrease of 30% of the number of towns shall be subject to mutual negotiations.</p>
GCC 21.2	<p>The packing, marking and documentation within and outside the packages if applicable shall be: As specified (if any) in Technical Specification</p>
GCC 22.1	<p>The insurance coverage: Goods supplied under the contract shall be also fully insured on all risk basis during inland transit up to destination store in the purchaser's country. The supplier must insure the Goods in an amount equal to 110% of CIF/EXW price of Goods.</p>
GCC 27.3	<p>The period of validity of the warranty shall be governed as per provisions of FMS</p>
GCC 27.5	<p>In case of any damage or defect is found during verification after receipt of material at Purchaser's stores or material develops defects within warranty period, the supplier shall attend/replace such defects free of all charges within 30 days of being notified by the Purchaser, of the occurrence of such defects. In case the defect is not attended or replacement of material is not received within specified period, then apart from encashing the performance security deposit, the Purchaser may also take suitable penal action including debarring from all future business.</p>

Annexure I to SCC – Payment terms

Payment Schedule

- 10% of total value of contract as (excluding FMS and Bandwidth Charges) “Mobilization Advance” after signing the contract. The following shall be ascertained before release of payment :-
 - Opening of site office in project area
 - Submission of necessary Bank Guarantee for the 110% of Initial Advance (Interest bearing)
 - Submission of the necessary Contract Performance Bank Guarantee. The same will be released on completion of contract/assignment.
 - Submission of agreed project implementation schedule

- Progressive /Milestone based payment for Each Project Area excluding DR Centre

SCADA /DMS/ OMS system (Control center wise) For Group A&U towns

S.No.	Description/Milestone	% Value
A	Software	
	1.0 Approval of Functional Design document , BOQ , DRS	20 % of software component of contract
	2.0 Pro-rata basis after Successful Completion of Factory Acceptance Tests (FAT as defined in MTS) and Delivery of necessary software to Utility as per Bill of Quantities for Software Installation based on certification by the Utility	20% of software component of contract
	3.0 Pro-rata basis after successful completion of End to End Tests (as defined in MTS) at Site based on certification by the Utility (Pro rata payment based on 0.25(FRTU E TO E tested /TOTAL FRTU) +0.7(RTU E TO E tested /TOTAL RTU)+ 0.05 (FPI end to end tested/ Total FPI)	10 % of software component of contract
	4.0 After successful completion of Field Performance Tests (as defined in MTS)	25 % of software component of contract
B	Hardware***	
	1.0 Approval of Functional Design document , BOQ , DRS	20 % of Hardware component of contract
	2.0 Pro-rata basis on the receipt of equipment at site along with submission of : <ul style="list-style-type: none"> a. Detailed Packing list identifying contents of each consignment (3 copies) b. Manufacturer’s/contractor’s Guarantee certificate of Quality c. Insurance Policy/certificate (3 Copies) d. Material Inspection Clearance or equivalent Certificate for dispatch issued by the Utility e. Test Certificates 	20 % of hardware component of contract