SECTION IV

ANCILLARY SYSTEM AND COMMON AUXILIARY EQUIPMENT

SECTION-IV: ANCILLARY SYSTEM AND COMMON AUXILIARY EQUIPMENT

Tenderer's Data Sheet

_____
(Tenderer's Name)

1. TURBINE ROOM OVERHEAD CRANE

(1) Runway rail

Type _____

Length (total) (mm) _____

(2) Trolley wire (mm^2) _____ _____

Material _____ _____

Size _____ _____

Tenderer's Data Sheet

(Tenderer's Name)

2. DRAINAGE AND WASTE WATER TREATMENT EQUIPMENT

(1) Main building machine drainage system

(a) Turbine room sump pump

Type		
Capacity	(m^3/h)	12
Manufacturer		
Number		1
Motor		The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.
Weight	(kg)	approx. 620

(b) Condenser pit sump pump

Type		
Capacity	(m^3/h)	
Manufacturer		
Number		
Motor		The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.
Weight	(kg)	

(c) Turbine oil sump pit pump

Type		
Capacity	(m^3/h)	12
Manufacturer		
Number		1

Tenderer's Data Sheet

_____
(Tenderer's Name)

Motor	The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V Tenderer's Data Sheet.
Weight (kg)	approx. 620

(d) Sump pit for Heavy oil service Tank

(i) Pump	
Type	_____
Capacity (m^3/h)	_____
Manufacturer	_____
Motor	The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.
Weight complete (kg) approx.	_____
(ii) Level indicator for sump pit	
Type	_____
Manufacture	_____
Number	_____

(e) Level indicator for sump pit

Type	_____
Manufacturer	_____
Number	3

(f) Painting _____

_____

(2) Unit neutralizing equipment

(a) Pump

Type _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Manufacturer		_____
Number		_____
Capacity	(m^3/h)	* _____
Head	(m)	* _____
Speed	(rpm)	_____
Shaft length	(mm)	_____
Connection size	(mm)	_____
Material		
Shaft		_____
Impeller		_____
Casing		_____
Motor		The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Bidder's Data Sheet.
Weight complete	(kg) approx.	_____

(b) Level indicator

Type	_____
Manufacturer	_____
Number	1

(c) Control panel

Type		_____
Height x width x depth	(mm)	_____
Number		_____
Weight	(kg) approx.	_____

(d) Painting _____

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Tenderer's Data Sheet

____
(Tenderer's Name)

(3) Piping

(a) Under ground pipe

Pipe material ____________________

Protection material for external surface ____________________

Protection material for internal surface ____________________

Size ____________________

(b) On ground pipe

Pipe material ____________________

Protection material for external surface ____________________

Protection material for internal surface ____________________

Size ____________________

Line	Pipe material	Protection material for internal surface	Protection material for external surface	Size
Waste water				
Sludge				
Air				
NaOH				
HCl				
Coagulant				
Coagurant				
Process water				

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Tenderer's Data Sheet

_____
(Tenderer's Name)

3. FIRE PROTECTION SYSTEM

(1) Fresh water extinguishing equipment

		Motor driven	Diesel driven
(a) Emergency fresh water fire pump			
Type		_____	_____
Manufacturer		_____	_____
Number		_____	_____
Capacity	(m^3/h)	_____	_____
Discharge pressure	(kg/cm^2g)	_____	_____
Speed	(rpm)	_____	_____
Shaft horse power	(KW)	_____	_____
Material			
Casing		_____	_____
Shaft		_____	_____
Impeller		_____	_____
Engine			
Type			_____
Manufacturer			_____
Number			_____
Horse power	(KW)		_____
Starting method of the engine			_____
Weight			
Complete weight	(t)	_____	_____
(b) Fire water pump			
Type		_____	

Tenderer's Data Sheet

(Tenderer's Name)

Manufacturer		
Number		
Capacity	(m^3/h)	
Discharge pressure	(kg/cm^2g)	
Speed	(rpm)	
Shaft horse power	(KW)	
Material		
Casing		
Shaft		
Impeller		
Complete weight	(kg/each)	

(c) Hydrant

		TURB.ROOM & ADMI.BUILD	BLR.room	Outdoor
Type				
Manufacture				
Number				
Hose connection	(mm)			

(2) Air foam extinguishing equipment

(a) Air foam concentrate tank

Type		
Manufacturer		
Number		
Capacity	(m^3)	

(b) Air foam concentrate injection pump

Type		
Manufacturer		

Tenderer's Data Sheet

_____
(Tenderer's Name)

Number _____

Capacity (kl/h) _____

Discharge pressure (kg/cm^2g) _____

Engine

Type _____

Manufacturer _____

Number _____

Horse power (KW)

Complete weight (kg) _____

(c) Air foam hydrant

Type _____

Manufacturer _____

Number _____

Hose connection (mm) _____

(d) Fire fighting truck

Type _____

Manufacturer _____

Diesel engine horse power (PS) _____

Water tank capacity (m^3) _____

Foam concentrate tank capacity (m^3) _____

Pressure and water flow at the nozzle (kg/cm^2 x l/min) _____ x _____

(3) Dry chemical extinguishing equipment

Type _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Manufacturer _____

Number _____

Chemical storage capacity (kg) _____

Delivery ratio (kg/sec) _____

(4) Fire alarm system

(a) Fire detecting equipment

	Automatic	Push button
Type	_____	_____
Manufacturer	_____	_____
Number of alarm point	_____	_____

(b) Fire protection panel

Type _____

Manufacturer _____

Number _____

Dimension W x L x H (mm) _____

(5) Portable fire extinguishing equipment

	Hand carry	Wheel carry
Type	_____	_____
Manufacturer	_____	_____
Number	_____	_____
Each capacity (kg)	_____	_____

(6) Gas leak detector system

(a) Detector

Type _____

Manufacturer _____

Number _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Detector box dimension (m/m) _____

(b) Panel

Type _____

Manufacturer _____

Number _____

Measurement Point Number _____

Dimension (mm) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

4. INTAKE SCREEN

(1) Screen for condenser circulating water intake

(a) Traveling screen

Type _____

Manufacturer _____

Number _____

Automatic operation speed change

High speed (m/min) _____

Low speed (m/min) _____

Operation Method _____

_____

Automatic start differential head (mm) * _____

Screen

Screen panel size (width x length) (mm) _____

Screen mesh and cloth gauge (mm) _____

Free area each panel (m^2) _____

Frame and guide channel

Frame section number _____

Frame plate thickness (mm) _____

Guide channel section number _____

Guide channel number _____

The Contractor shall guarantee the items marked "*"

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Tenderer's Data Sheet

_____
(Tenderer's Name)

		Tray chain	Drive chain
Chain			
Link size		_____	_____
Pin diameter	(mm)	_____	_____
Roller diameter	(mm)	_____	_____
Chain pitch	(mm)	_____	_____
Roller width	(mm)	_____	_____
Shaft		Head shaft	Foot shaft
Shaft diameter	(mm)	_____	_____
Torque tube or shaft diameter	(mm)	_____	_____
Bearings type		_____	_____

Motor — The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.

Speed reducer

Type	_____
Manufacturer	_____
Reduction ratio	_____
Allowable torque (kg-m)	_____

Spray system

Water capacity (m^3/h)	* _____
Spray pressure (kg/cm^2g)	_____
Spray nozzle size (mm)	_____
Spray nozzle number	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Material

Splash housing		
Frame		
Head sprocket		
Foot sprocket		
Bearing	Head:	Foot:
	Tray chain	Drive chain
Chain link		
Roller		
Pin		
Head shaft		
Foot shaft		
Guide channel		
Spray nozzle		
Screen Panel		

Weight (each)

Screen panel (kg) approx.	
Assembly (kg) approx.	

(b) Bar screen

Type	
Manufacturer	
Number	

Operation speed

High speed (m/min)	
Low speed (m/min)	

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Operation Method _____

_____

Automatic start (mm)
differential head * _____

Screen
(Bar Screen)
Screen panel size
(width x length)
(mm) _____

Free area each panel
(m^2) _____

Frame and guide channel

Frame section number _____

Frame plate thickness (mm) _____

Guide channel section
number _____

Guide channel number _____

Bar

Pitch of bar (mm) _____

Number _____

Width (mm) _____

Thickness (mm) _____

Chain	Tray chain	Drive chain
Link size	_____	_____
Pin diameter (mm)	_____	_____
Roller diameter (mm)	_____	_____
Chain pitch (mm)	_____	_____
Roller width (mm)	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

	Head shaft	Foot shaft
Shaft		
Shaft diameter (mm)	_____	_____
Torque tube or shaft diameter (mm)	_____	_____
Bearing type	_____	_____
Motor	The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.	
Speed reducer		
Type	_____	
Manufacturer	_____	
Reduction ratio	_____	
Allowable torque (kg-m)	_____	
Material		
Bar	_____	
Guide channel	_____	
Splash housing	_____	
Frame	_____	
Head sprocket	_____	
Foot sprocket	_____	
	Head:	Foot:
Rearing	_____	
Rake	_____	
	Tray chain	Drive chain
Chain link	_____	_____
Roller	_____	_____
Pin	_____	_____
Head shaft	_____	

Tenderer's Data Sheet

_____
(Tenderer's Name)

	Foot shaft	_____
	Spray pipe (Jet piping)	_____
	Trash basket (Sieve basket)	_____
	Weight (each)	
	Screen panel (kg) approx. (Bar screen)	_____
	Assembly (kg) approx.	_____
(c)	Wash pump	
	Type	_____
	Manufacturer	_____
	Number	_____
	Capacity (m^3/h)	* _____
	Discharge pressure (kg/cm^2g)	* _____
	Speed (rpm)	_____
	Shaft horse power (KW)	_____
	Shaft length (mm)	_____
	Connection size (mm)	_____
	Material	
	Casing	_____
	Shaft	_____
	Impeller	_____
	Motor	The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.
	Weight complete (kg) approx.	_____
(d)	Control panel	
	Type	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Manufacturer _____

Number _____

Dimension (mm) _____

(e) Ultrasonic defferential water level relay facility and device

Type _____

Manufacturer _____

Number _____

Dit-wat Indicator range (mm) _____

Wat-level indication range _____

Panel dimension (Unit III & IV) (mm) _____

Air receiver capacity (Unit III & IV) _____

(f) Piping

Sea water piping _____

(2) Painting material

Screen _____

Piping, etc. _____

(3) Screen trash pit pump

Type _____

Capacity _____

Manufacturer _____

Number/Material _____

Motor

The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.

Weight (kg) approx. _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

(4) Screen mesh in the trash pit

Type		_____
Area	(m^2) approx.	_____
Weight	(kg) approx.	_____
Material		_____
Thickness	(mm)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

5. CHLORINATION EQUIPMENT

(1) Chlorination equipment (Engelhard system)

(a) Sea water booster pump

Type _____

Manufacturer * _____

Capacity (m^3/h) _____

Number _____

Delivery head (m) _____

Motor: Motor to be confirmed, 25HP for 440V, 3P, 50Hz, TEFC with 220V space heater, tropicalized with insulation grade B or higher

Material

Casing _____

Impeller _____

Conical sleeve _____

Sealing method _____

Weight (kg) _____

(b) Strainer

Type _____

Manufacturer * _____

Capacity (m^3/h) _____

Number _____

Screen (mesh) _____

Material

Body _____

Basket _____

* - marked to be confirmed at actual design stage.

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_____
(Tenderer's Name)

(c) Sodium hypochlorite injection pump

Type		_____
Manufacturer		_____
Number		_____
Capacity	(l/h)	_____
Discharge pressure	(kg/cm^2)	_____
Material		
Casing		_____
Plunger		_____
Valve		_____
Diaphragm		_____
Weight	(kg) approx.	_____
Motor		The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Bidder's Data Sheet.

(d) Bar Screen	(mesh)	_____
Material		_____
Connection pipe		_____
Weight	(kg) approx.	_____

(e) Electrolyzer cell

Type		_____
Manufacturer		_____
Capacity	(kg/h as Cl_2)	* _____
Number		_____
Material		
Anode		_____
Cathode		_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

	Cell body		_____
	Service life (years)		_____
	Connection pipe		_____
	Dimension		_____
	Module	(mm)	_____
	Unit total	(mm)	_____
	Weight	(kg) approx.	_____
(f)	Exhaust fan		
	Type		_____
	Manufacturer		_____
	Number		_____
	Capacity	(m^3/min)	_____
	Static pressure	(mmAq)	_____
	Motor		The Tenderer shall indicate the motor specification in accordance with sub-clause 10 of "Electric Motor" in Clause V of Tenderer's Data Sheet.
(g)	Dearation column (if required)		
	Type		_____
	Manufacturer		_____
	Gas release capacity	(cc/l)	_____
	Number		_____
	Material		
	Body		_____
	Valve housing		_____
	Float		_____
	Cylinder dia.	(mmø)	_____
	Connection pipe		_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Weight (kg) approx. _____

(h) Injection diffuser

Type _____

Manufacturer _____

Number _____

Material _____

Weight (kg) approx. _____

(2) Rectifier equipment

Type _____

Manufacturer _____

Number _____

Rating _____

Rectifier connection _____

(a) Cooling system

Transformer _____

Rectifier _____

(b) AC main power source

Phase _____

Frequency (Hz) _____

Voltage (V) _____

(c) DC output

Rated voltage (V) _____

Rated current (A) _____

Regulating range (A) _____

Constant accuracy (%) _____

(d) Efficiency (%) _____

(e) Power factor (%) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

(f) Dimension (mm) _____

(g) Weight (kg) approx. _____

(3) Control panel

Type _____

Manufacturer _____

Number _____

Dimension (mm) _____

Weight (kg) approx. _____

(4) Flow indicator

Type _____

Manufacturer _____

Number _____

Measuring range (m^3/h) _____

Material _____

Body _____

Float _____

Dimension (mm) _____

(5) Pressure gauge

Type _____

Manufacturer _____

Measuring range (kg/cm^2) _____

Number _____

Accuracy (%) _____

Material _____

(6) Piping

Material and size	Material	Size
Sea water pipe		

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Tenderer's Data Sheet

_____
(Tenderer's Name)

	Material	Size
Injection pipe	_____	_____
Sodium hypochlorite pipe (Drinking outer injection)	_____	_____
Spare nozzles and valves	_____	_____
Drain pipe	_____	_____
Clean water pipe		
Connection flange (kg/cm^2)	_____	_____

(7) Painting

Material _____

(8) Ladder and stage with grating, manhole cover and pit cover

Material _____

Total weight _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

6. PIPE SUPPORT AND STRUCTURAL STEEL FOR YARD PIPING

(1) Support type _____

(2) Manufacturer _____

(3) Number _____

(4) Total length (assumed) _____

(5) Support material _____

(6) Total weight (ton) approx. _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

7. MISCELLANEOUS INSTRUMENTS AND CONTROL APPARATUS

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7.1 INSTRUMENT	Manufacturer	Model No.
(1) Recorder		
Electric signal (V, mA, etc.)	_____	_____
(2) Indicator		
Dial type	_____	_____
Vertical type	_____	_____
(3) Transmitter		
Pressure (draft)	_____	_____
Temperature	_____	_____
Flow	_____	_____
Level	_____	_____
Analysis (conductivity pH, etc.)	_____	_____
(4) Controller		
Pressure	_____	_____
Temperature	_____	_____
Flow	_____	_____
Level	_____	_____
Analysis (conductivity pH, etc.)	_____	_____
(5) Switch		
Pressure (Draft)	_____	_____
Temperature	_____	_____
Flow	_____	_____
Level	_____	_____
Limit switch	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)
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	Manufacturer	Model No.
(6) Local indicator		
Pressure gauge	_____	_____
Thermometer	_____	_____
Flow (positive displacement type)	_____	_____
Flow (other)	_____	_____
Level	_____	_____
(7) Sight glass		
Sight flow	_____	_____
Level glass gauge	_____	_____
(8) Primary element		
Thermocouple	_____	_____
RTD	_____	_____
Thermo-well	_____	_____
Flow orifice	_____	_____
Flow nozzle	_____	_____
pH	_____	_____
Conductivity	_____	_____
(9) Control valve	_____	_____
(10) Manometer	_____	_____
(11) Thermocouple extension wire	_____	_____
(12) Control tubing	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

7.2 POWER CONSUMPTION

(1) Instrument air (Nm^3/min) _____

(2) Electric power

AC	_____ V	_____ VA
		_____ W
DC	_____ V	_____ W

SECTION V

GENERATOR AND ELECTRICAL EQUIPMENT

SECTION V. GENERATOR AND ELECTRICAL EQUIPMENT

Tender

(Tenderer's Name) ______________________

V. GENERATOR AND ELECTRICAL EQUIPMENT

1. GENERATOR EQUIPMENT

1.1 GENERATOR

Manufacturer		______
Type		______
Kind		______
Type of outer cover		______
Cooling system		______
Number and position of cooler		______
Percentage continuous load at one cooler out of service	(%)	______
Rating		
Class of rating		______
Capacity	(kVA)	______
	(kg/cm^2g H_2) At	______
Power factor		______
Voltage	(kV)	______
Current	(kA)	______
Frequency	(Hz)	______
Phase		______
Pole		______
Connection (vector group)		______
Speed	(RPM)	______
Field voltage	(V)	______
Field current	(A)	______

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Hydrogen gas pressure	(kg/cm^2g)	_____
Hydrogen gas consumption	(m^3/day)	_____
Cooling water pressure	(kg/cm^2g)	_____
Pressure test for stator casing	(kg/cm^2g)	_____
Over load operation time at 0.85 PF		
105% (hours)		_____
110% (hours)		_____
Insulation class		_____
Short circuit ratio		_____
GD^2 effect	($kg.m^2$)	_____
Dielectric strength		
Value of withstand voltage (Value for one minute)		
Stator	(kV)	_____
Rotor	(kV)	_____
Negative phase sequence capability	(I_2^2t)	_____
Influence of speed and voltage variation		
Frequency (Speed) variation	(%)	_____ ± _____
Voltage variation	(%)	_____ ± _____
Voltage regulation (without AVR)	(%)	at 1.0 pf at 0.85 of
Mechanical strength		
Over speed strength (For one minute)	(%)	_____
Critical speed	(RPM)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Waveform

Telephone influence factor

Balance (% or less) _____

Residual (% or less) _____

Generator voltage wave shape (% or less) _____

Temperature

Standard of ambient temperature (^{o}C) _____

Temperature rise value (By resistance method) (kg/cm^2g H_2) At _____

Stator coil (^{o}C) _____

Rotor coil (^{o}C) _____

Collector ring (^{o}C) _____

Reactance and time constant (The following per unit (P.U) values are of the rated capacity and rated voltage base)

		Saturation (P.U)	Non-saturation (P.U)
Synchronous reactance	Xd	_____	_____
Quadrature-axis reactance	Xq	_____	_____
Direct-axis transient reactance	Xd'	_____	_____
Direct-axis subtransient reactance	Xd"	_____	_____
Quadrature-axis transient reactance	Xq'	_____	_____
Quadrature-axis subtransient reactance	Xq"	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

		Saturation	Non saturation (P.U)
Positive-phase-sequence reactance	X1	_____	_____
Negative-phase-sequence reactance	X2	_____	_____
Zero-phase-sequence reactance	Xo	_____	
Open-circuit time constant	Tdo'(sec)	_____	
Transient short-circuit time constant	Td' (sec)	_____	
Subtransient short-circuit time constant	Td" (sec)	_____	
Armature time constant	Ta (sec)	_____	

Efficiency (At rated condition)

Load	(%)	100	75	50	25
P.F 1.0		____	____	____	____
P.F 0.8		____	____	____	____

Losses (At rated condition)

Iron loss	(kW)	_____			
Bearing friction loss	(kW)	_____			
Brush friction loss	(kW)	_____			
Windage loss	(kW)	_____			
Load	(%)	100	75	50	25
Resistance loss in the armature winding	(kW)	____	____	____	____
Resistance loss in the field winding	(kW)	____	____	____	____

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Tenderer's Data Sheet

(Tenderer's Name)

		100	75	50	25
Brush loss at the collector ring	(kW)				
Exciter loss	(kW)				
Stray load loss	(kW)				

Generator bushing

Type		
Quantity		
Insulation level	(kV) BIL	
Current	(A)	

Resistance temperature detector (RTD)

Quantity	

Brush

Quantity	

Bushing type current transformer

		For metering	For relaying	For AVR
CT ratio				
Quantity				
Burden	(VA)			
Accuracy class				
Over current strength				
Over current constant (>)				

Minimum space to with draw rotor

Straight pull	(mm)	
Askew	(mm)	

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Weight of generator

Stator	(kg)	_____
Rotor	(kg)	_____

Excitation equipment

Manufacturer		_____
Type		_____
Quantity		_____

Rating

Class of rating		_____
Output	(kW)	_____
Voltage	(V)	_____
Current	(A)	_____

Characteristic

Method of excitation		_____

Control capability of thyristor during system fault

Rated generator voltage reduce	(%)	_____
Time	(sec)	_____
Quick response excitation method		_____
Voltage quick response ratio of exciter	(1/sec)	_____
Ceiling voltage of exciter	(V)	_____
Ceiling voltage of exciter	(P.U)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Excitation transformer

Manufacturer		_____
Rating		
Capacity	(kVA)	_____
Class of rating		_____
High tension side voltage	(kV)	_____
Low tension side voltage	(V)	_____
Frequency	(Hz)	_____
High tension connection		_____
Lowtension connection		_____
Angler displacement		_____
Impedance voltage (at rated kVA base)	(%)	_____
Insulation level		
High tension winding	(kV) BIL	_____
Low tension winding	(kV) BIL	_____
Insulation class bushing		_____
Type		_____
Insulation level	(kV) BIL	_____
Current	(A)	_____
Dimention (Approx.) Width	(mm)	_____
Depth	(mm)	_____
Height	(mm)	_____
Weight (Approx.)	(kg)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Excitation cubicle

Manufacturer		_____
Type		_____
Thickness of steel plate	(mm)	_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____

Main exciter field breaker

Manufacturer			_____
Type			_____
Rating			
Voltage	(V)	DC	_____
Current	(A)	DC	_____
Interrupting capacity	(kA)		_____

Shunt

Manufacturer		_____
Number		_____
Rating		_____
Voltage	(mV)	_____
Current	(A)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

H_2 Cooler Cubicle

Manufacturer _____

Type _____

Dimension (Approx.)

Height (mm) _____

Weight (mm) _____

Depth (mm) _____

Weight (Approx.) (kg) _____

Accessories

Instrument and Meter

Kind x Number _____ _____ _____

Type _____ _____ _____

Accuracy class _____ _____ _____

Manufacturer _____ _____ _____

H_2 Gas Cylinder

Manufacturer _____

Type _____

Number _____

Pressure (kg/cm^2g) _____

Capacity (Nm^3) _____

Dimension

Height (mm) _____

Diameter (mm) _____

Weight (kg) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

CO_2 Cylinder

Manufacturer		_____
Type		_____
Number		_____
Pressure	(kg/cm^2g)	_____
Capacity	(Nm^3)	_____
Dimension		
Height	(mm)	_____
Diameter	(mm)	_____
Weight	(kg)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Seal Oil Pump		Main	Emergency
Pump			
Manufacturer			
Type			
Number			
Discharge pressure	(kg/cm^2g)		
Capacity	(m^3/h)		
Motor			
Manufacturer			
Type			
Class of rating			
Rating			
Output	(kW)		
Voltage	(V)		
Frequency	(Hz)		
Speed	(RPM)		
Vertical or horizontal			
Insulation class			
Starting method			
Dimension (Approx.) (Complete assembly)			
Height	(mm)		
Width	(mm)		
Depth	(mm)		
Weight (Approx.)	(kg)		

Tenderer's Data Sheet

_____
(Tenderer's Name)

Seal Oil Vacuum Pump		Main	Emergency
Pump			
Manufacturer			
Type			
Number			
Discharge pressure	(kg/cm^2g)		
Capacity	(m^3/h)		
Motor			
Manufacturer			
Type			
Class of rating			
Rating			
Output	(kW)		
Voltage	(V)		
Frequency	(Hz)		
Speed	(RPM)		
Vertical or horizontal			
Insulation class			
Starting method			
Dimension (Approx.) (Complete assembly)			
Height	(mm)		
Width	(mm)		
Depth	(mm)		
Weight (Approx.)	(kg)		

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Tenderer's Data Sheet

_____
(Tenderer's Name)

H_2 gas and CO_2 gas in the generator

Minimum H_2 gas purity	(%)	_____
Normal H_2 gas purity	(%)	_____
Gas volume	(m^3)	_____
Total gas capacity (at rated pressure)	(Nm^3)	_____
Total gas capacity (at minimum pressure)	(Nm^3)	_____
CO_2 gas capacity for an air exception	(Nm^3)	_____
H_2 gas capacity for a CO_2 gas exception	(Nm^3)	_____
CO_2 gas capacity for a H_2 gas exception	(Nm^3)	_____
H_2 gas capacity for 90% purity (at minimum pressure)	(Nm^3)	_____
Circulating gas capacity	(Nm^3/min)	_____
Quantity of a used cooling water	(^oC) At	_____
	(m^3/min)	_____
Outlet temperature of a used cooling water	(^oC)	_____
Water head loss of the cooler	(m)	_____

Quantity of a H_2 gas consumption (Including piping, vessel and accessories)

At minimum pressure	(Nm^3/day)	_____
At rated pressure	(Nm^3/day)	_____

9-6-2

Tenderer's Data Sheet

_____
(Tenderer's Name)

Quantity of sealing oil flow

Quantity of the shaft sealing oil (at oil inlet temperature)	(^{o}C)	_____
At minimum pressure	(m^3/min)	_____
At rated pressure	(m^3/min)	_____

Differential pressure between sealing oil pressure and H_2 gas pressure

Collector side end	(kg/cm^2)	_____
Turbine side end	(kg/cm^2)	_____

Quantity of bearing oil flow

Quantity of bearing oil (at oil inlet temperature)	(^{o}C)	_____
	(m^3/min)	_____
Outlet temperature of the bearing oil	(^{o}C)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

1.2 ISOLATED PHASE BUS DUCT

Manufacturer _____

Type _____

Conductor

Kind and conductivity of the material _____

Size _____

Shape _____

Rating		Main Bus circuit	Sub Bus circuit	Branched Bus circuit
Voltage	(V)	_____	_____	_____
Current	(A)	_____	_____	_____
Momentary current (Symm.)	(kA)	_____	_____	_____
Insulator BIL	(kV)	_____	_____	_____

		Main Bus circuit	Sub Bus circuit	Branched Bus circuit
Thermal stressed due to three phase short circuit	(sec)	_____	_____	_____

Temperature rise

Enclosure (^{o}C) _____

Conductor (^{o}C) _____

Supporting structure

Kind of the material _____

Enclosure

Kind of the material _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

1.3 PT CUBICLE

Potential transformer

			For metering and relaying	For AVR
Manufacturer			_____	
Type			_____	
Rating				
PT ratio			_____	_____
Quantity			_____	_____
Accuracy class			_____	_____
Burden		(VA)	_____	_____
Connection			_____	_____

Cubicle

Dimension (Approx.)	Height	(mm)	_____
	Width	(mm)	_____
	Depth	(mm)	_____

Weight (Approx.)

PT cubicle (including PT)	(kg)	_____

Space heater

Capacity	(VA)	_____
Voltage	(V)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

1.4 SA CUBICLE

Surge absover

Manufacturer _____

Type _____

Rating _____

Cubicle

Dimension (Approx.)

SA cubicle Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (Approx.)

SA cubicle (including SA) (kg) _____

Space heater Capacity (VA) _____

Voltage (V) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

1.5 NGR CUBICLE

Grounding transformer

Manufacturer		_____
Type		_____
Rating		
Capacity	(kVA)	_____
Voltage	(V)	_____
Class of rating	(min)	_____

Ground resistor

Manufacturer		_____
Type		_____
Rating		
Resistance	(ohm)	_____
Current	(A)	_____
Class of rating	(min)	_____

Disconnecting switch

Manufacturer		_____
Type		_____
Rating		
Voltage	(V)	_____
Current	(A)	_____

Cubicle (including grounding transformer, grounding resistor and disconnecting switch)

Dimension (Approx.)	Height	(mm)	_____
	Width	(mm)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Depth	(mm)	_____
Weight (Approx.)	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

2. POWER TRANSFORMER

2.1 MAIN TRANSFORMER

Manufacturer				
Type				
Rating		ONAN	ONAF	OFAF
Capacity	(kVA)			
Class of rating				
Over load capability	(%)			
Voltage				
High tension side	(kV)			
Low tension side	(kV)			
On load voltage tap	(kV)			
Number of on load tap				
Frequency	(Hz)			
Connection				
High tension side				
Low tension side				
High tension neutral				
Impedance voltage (at rated kVA base)	(%)			
Insulation class				
High tension side				
Low tension side				

Insulation level			Winding	Bushing
High tension side	(kV)	BIL		
Low tension side	(kV)	BIL		

Tenderer's Data Sheet

_____
(Tenderer's Name)

Pressure test of tank	(kg/cm^2g)		
Cooling equipment			
Number of unit radialor			
Motor		Fans	Pumps
Number per unit radialor			
Rated capacity	(kW)		
Rated voltage	(V)		
Sound level	(dB(A))		
Bushing			
Manufacturer			
Type			
High tension side			
Low tension side			
Neutral			
Dimension (Approx.)			
Height	(mm)		
Width	(mm)		
Depth	(mm)		
Weight (Approx.)			
Cores and coils	(kg)		
Total assembled with oil	(kg)		
Insulating oil			
Quantity	(litre)		
Kind			
Manufacturer			

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Bushing type current transformer

Manufacturer					
CT ratio					
Quantity					
Burden	(VA)				
Accuracy class					
Over current strength					
Over current constant	(>)				

Cooler cubicle

Manufacturer					
Type					
Dimension (Approx.)					
Height	(mm)				
Width	(mm)				
Depth	(mm)				
Weight (Approx.)	(kg)				
Space heater					
Capacity	(VA)				
Voltage	(V)				

Efficiency

Load	(%)	100	75	50	25
P.F 1.0					
P.F 0.85					

Losses (at rated condition)

No load loss	(kW)	

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Full load loss	(kW)	_____
Loss in auxiliary machine and apparatus	(kW)	_____
Voltage regulation		
P.F 1.0	(%)	_____
P.F 0.85 lagging	(%)	_____
No load current	(%)	_____
Impedance (at rated kVA base)		_____
Positive-phase sequence	(%)	_____
Zero-phase sequence	(%)	_____
Tolerance of voltage ratio (at rated tap)		
	within	± _____

Continuous time of operation (at all cooler shutdown)

Load	(%)	100	75	50	25
Time	(min)	____	____	____	____
Winding temperature	(^{o}C)	____	____	____	____

Insulated oil temperature	(^{o}C)	_____
Degree of vacuum (at case)	(mmHg)	_____
Rating capacity on self cooled basis		_____
Temperature rise limit		
Winding	(^{o}C)	_____
Insulation oil	(^{o}C)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

2.2 AUXILIARY TRANSFORMER

Manufacturer		_____
Type		_____
Rating		
Capacity	(kVA)	_____
Class of rating		_____
Voltage		
High tebsuib side	(kV)	_____
Low tension side	(kV)	_____
No load no voltage tap	(kV)	_____
Frequency	(Hz)	_____
Connection		
High tension side		_____
Low tension side		_____
High tension neutral		_____
Impedance voltage (at rated kVA base)	(%)	_____
Insulation class		
High tension side		_____
Low tension side		_____
Insulation level		
High tension side	(kV) BIL	_____
Low tension side	(kV) BIL	_____
Pressure test of tank	(kg/cm^2g)	_____
Cooling equipment		
Number of radiator		_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Sound level	(dB(A))	_____
Bushing		
Manufacturer		_____
Type		
High tension side		_____
Low tension side		_____
Neutral		_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)		
Cores and coils	(kg)	_____
Total assembled with oil	(kg)	_____
Insulating oil		
Quantity	(litre)	_____
Kind		_____
Manufacturer		_____
Bushing type current transformer		
Manufacturer		_____
CT ratio		_____ _____
Quantity		_____ _____
Burden	(VA)	_____ _____
Accuracy class		_____ _____
Over current strength	(>)	_____ _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Over current constant (>)		_____	_____		
Efficiency					
Load	(%)	100	75	50	25
P.F 1.0		____	____	____	____
P.F 0.8		____	____	____	____
Losses					
No load loss	(kW)	_____			
Full load loss	(kW)	_____			
Voltage regulation					
P.F 1.0	(%)	_____			
P.F 0.8 lagging	(%)	_____			
No load current	(%)	_____			
Impedance (at rated kVA base)					
Positive-phase sequence	(%)	_____			
Zero-phase sequence	(%)	_____			
Tolerance of voltage ratio (at rated tap)					
	Within	± _____			
Temperature rise limit					
Winding	(^{o}C)	_____			
Insulation oil	(^{o}C)	_____			

Secondary Cubicle

Grounding transformer

Manufacturer _____

Type _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Rating

Capacity (kVA) _____

Voltage (V) _____

Class of rating (min) _____

Grounding resistor

Manufacturer _____

Type _____

Rating

Resistance (ohm) _____

Current (A) _____

Class of rating (min) _____

Disconnecting switch

Manufacturer _____

Type _____

Rating

Voltage (V) _____

Current (A) _____

Surge absover

Manufacturer _____

Type _____

Rating _____

Cubicle (including grounding transformer, grounding resistor and disconnecting switch)

Dimension (Approx.) Height (mm) _____

Width (mm) _____

Depth (mm) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Weight (Approx.) (kg) _____

Space heater

Capacity (VA) _____

Voltage (V) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

3. METAL CLAD SWITCHGEAR

3.1 6,600 V METAL CLAD SWITCHGEAR

Unit No. 2

Manufacturer			
Stationary structure			
Type			
Number of unit			
Incoming, Bus tie			
Feeder			
Potential transformer			
Surge absorber			
Rating			
Voltage	(V)		
Current	(A)		
Quality of the bus conductor material			
Dimension of completely assembled switchgear		For Incoming and Bus tie	For Feeder
Height	(mm)		
Width	(mm)		
Depth	(mm)		
Weight of completely assembled switchgear (Approx.)	(kg)		
Space heater			
Capacity	(VA)		
Voltage	(V)		

Tenderer's Data Sheet

_____
(Tenderer's Name)

Vacuum circuit breaker		For Incoming and Bus tie	For Feeder
Type			
Rating			
Voltage	(V)		
Current	(A)		
Interrupting capacity	(kA)		
Short time current	(kA)		
Short time capability	(min)		
Interrupting time	(sec)		
Recovery voltage	(kV)		
Opening time	(sec)		
No load closing time	(sec)		
Control voltage	(V)		
Tripping voltage	(V)		
Class of insulation			
Standard operating duty			
Weight	(kg)		

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Tenderer's Data Sheet

_____
(Tenderer's Name)

3.2 400 V POWER CENTER

Unit No. 2

Manufacturer			
Cubicle			
Type			
Number of unit			
Incoming, Bus tie			
Feeder			
Potential transformer			
Rating			
Voltage	(V)		
Current	(A)		
Quality of the bus conductor			
Dimension of completely assembled switchgear (including transformer cubicle)			
Height	(mm)		
Width	(mm)		
Depth	(mm)		
Weight (including transformer and breakers) (Approx.)	(kg)		
Space heater			
Capacity	(VA)		
Voltage	(V)		

Tenderer's Data Sheet

_____
(Tenderer's Name)

Transformer

		Unit No. 1	Unit No. 2
Manufacturer		_____	_____
Type		_____	_____
Rating			
Capacity	(kVA)	_____	_____
Class of rating		_____	_____
Voltage			
High tension side	(V)	_____	_____
Low tension side	(V)	_____	_____
No-load no-voltage tap	(V)	_____	
Frequency	(Hz)	_____	
Connection			
Hightension side		_____	
Low tension side		_____	
Impedance voltage (at rated kVA)	(%)	_____	
Insulation class		_____	
Dimension (Approx.)			
Height	(mm)	_____	
Width	(mm)	_____	
Depth	(mm)	_____	
Weight	(kg)	_____	

Tenderer's Data Sheet

_____
(Tenderer's Name)

Air circuit breaker		For Incoming Bus tie	For Feeder
Type		_____	_____
Rating			
Voltage	(V)	_____	_____
Current	(A)	_____	_____
Interrupting capacity	(kA)	_____	_____
Short time current	(kA)	_____	_____
Opening time	(sec)	_____	_____
Control voltage	(V)	_____	_____
Weight	(kg)	_____	_____

Tenderer's Data Sheet

____
(Tenderer's Name)

3.3 400 V CONTROL CENTER

		400V 2-1A C/C	400V 2-2A C/C
Manufacturer		________	________
Type		________	________
Rating			
Voltage	(V)	________	________
Main bus current	(A)	________	________
Branch bus current	(A)	________	________
Quality of the bus conductor		________	________
Dimension (Approx.)			
Height	(mm)	________	________
Width	(mm)	________	________
Depth	(mm)	________	________
Weight (Approx.)	(kg)	________	________
Space heater			
Capacity	(VA)	________	________
Voltage	(V)	________	________

		400V 2-1B C/C	400V 2-2B C/C
Manufacturer		________	________
Type		________	________
Rating			
Voltage	(V)	________	________
Main bus current	(A)	________	________
Branch bus current	(A)	________	________
Quality of the bus conductor		________	________

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Tenderer's Data Sheet

_____
(Tenderer's Name)

		400V 2-1B C/C	400V 2-2B C/C
Dimension (Approx.)			
Height	(mm)		
Width	(mm)		
Depth	(mm)		
Weight (Approx.)	(kg)		
Space heater			
Capacity	(VA)		
Voltage	(V)		

		400V 2-3 C/C	400V Common No. 2 C/C
Manufacturer			
Type			
Rating			
Voltage	(V)		
Main bus current	(A)		
Branch bus current	(A)		
Quality of the bus conductor			
Dimension			
Height	(mm)		
Width	(mm)		
Depth	(mm)		
Weight	(kg)		
Space heater			
Capacity	(VA)		
Voltage	(V)		

Tenderer's Data Sheet

_____
(Tenderer's Name)

Screen & chlorination C/C

Manufacturer		_____
Type		_____
Rating		
Voltage	(V)	_____
Main bus current	(A)	_____
Branch bus current	(A)	_____
Quality of the bus conductor		_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

3.4 MOTOR VALVE CONTROL CENTER

3.4.1 400 V CONTROL CENTER

Manufacturer		_____
Type		_____
Rating		
Voltage	(V)	_____
Main bus current	(A)	_____
Branch bus current	(A)	_____
Quality of the bus conductor		_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

3.4.2 TRANSFORMER

Manufacturer		_____
Type		_____
Rating		_____
Capacity	(kVA)	_____
Voltage		
High tension side	(V)	_____
Low tension side	(V)	_____
No load no voltage tap	(V)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Insulation class		_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (including transformer cubicle)	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

3.4.3 230 V CONTROL CENTER

Manufacturer		_____
Type		_____
Rating		
Voltage	(V)	_____
Main bus current	(A)	_____
Branch bus current	(A)	_____
Quality of the bus conductor		_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

3.5 DC 220 VOLT CONTROL CENTER

Manufacturer		_____
Type		_____
Rating		
Voltage	(V)	_____
Main bus current	(A)	_____
Branch bus current	(A)	_____
Quality of the bus conductor		_____
Dimension		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

3.6 CVCF (CONSTANT VOLTAGE, CONSTANT FREQUENCY EQUIPMENT)

Manufacturer		_____
Type		_____
Rating in put voltage (DC)	(V)	_____
- ditto - (AC)	(V)	_____
Output voltage	(V)	_____
Voltage regulation	(±%)	_____
Frequency regulation	(±%)	_____
Cooling type		_____
Dimension of completely assembled (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight of completely assembled (Approx.)	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

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Tenderer's Data Sheet

(Tenderer's Name)

4. PANEL AND BOARD

4.1 BOILER-TURBINE-GENERATOR BOARD (BTG BOARD)

Manufacturer				
Type				
Thickness of steel plate	(mm)			
Dimension				
Height	(mm)			
Width	(mm)			
Depth	(mm)			
Weight (Approx.)	(kg)			
Accessories				
Meter				
Kind x Number				
Type				
Accuracy class				
Manufacturer				
Kind x Number				
Type				
Accuracy class				
Manufacturer				
Kind x Number				
Type				
Accuracy class				
Manufacturer				

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Protection relay

Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Manufacturer	_____	_____	_____

Recorder

Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____
Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____

Operation recorder

Kind x Number	_____	_____	_____
Type	_____	_____	_____
Accuracy class	_____	_____	_____
Manufacturer	_____	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

4.2 DISTRIBUTION PANEL

		No.2 220V Normal Emergency	No.2 110V Instrument Power
(1) Panel			
Manufacturer			
Type			
Thickness of steel plate	(mm)		
Rating			
Voltage	(V)		
Phase and wire			
Bus current	(A)		
Molded type air circuit breaker			
Manufacturer			
Numbers			
Rating	(V, A)		
(2) Transformer			
Manufacturer			
Type			
Rating			
Capacity	(kVA)		
Voltage			
High tension side	(V)		
Low tension side	(V)		
No load no voltage tap	(V)		
Insulation class			

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Dimension (Approx.)			
Height	(mm)	_____	_____
Width	(mm)	_____	_____
Depth	(mm)	_____	_____
Weight (including transformer cubicle) (Approx.)	(kg)	_____	_____
Space heater			
Capacity	(VA)	_____	_____
Voltage	(V)	_____	_____

(1) Panel — No. 2 DC 220V D/P

Manufacturer		_____
Type		_____
Thickness of steel plate	(mm)	_____
Rating		
Voltage	(V)	_____
Phase and wire		_____
Bus current	(A)	_____
Molded type air circuit breaker		
Manufacturer		_____ _____ _____
Number		_____ _____ _____
Rating	(V, A)	_____ _____ _____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____

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Tenderer's Data Sheet

(Tenderer's Name)

Weight (including transformer cubicle) (kg) (Approx.) _____

Space heater

Capacity (VA) _____

Voltage (V) _____

(1) Panel

No.2 200V Lighting D/P

Manufacturer _____

Type _____

Thickness of steel plate (mm) _____

Rating

Voltage (V) _____

Phase and wire _____

Bus current (A) _____

Molded type air circuit breaker

Manufacturer _____

Number _____

Rating (V, A) _____

(2) Transformer

Manufacturer _____

Type _____

Rating _____

Capacity (kVA) _____

Voltage

High tension side (V) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

No. 2 200 V
Lighting
D/P

Low tension side	(V)	_____
No load no voltage tap	(V)	_____
Insulation class		_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (including transformer cubicle) (Approx.)	(kg)	_____
Space heater		
Capacity	(VA)	_____
Voltage	(V)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

4.3 AUXILIARY CONTROL PANEL

Manufacturer		_____
Type		_____
Thickness of steel plates	(mm)	_____
Dimension		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____
Accessories		
Meter		
Kind x Number		_____ _____ _____
Type		_____ _____ _____
Accuracy class		_____ _____ _____
Manufacturer		_____ _____ _____
Kind x Number		_____ _____ _____
Type		_____ _____ _____
Accuracy class		_____ _____ _____
Manufacturer		_____ _____ _____
Kind x Number		_____ _____ _____
Type		_____ _____ _____
Accuracy class		_____ _____ _____
Manufacturer		_____ _____ _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

4.4 AUXILIARY RELAY PANEL

Manufacturer		_____
Type		_____
Thickness of steel plates	(mm)	_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____
Accessories		_____
		_____
		_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

5. BATTERY AND BATTERY CHARGER

5.1 220V BATTERY AND BATTERY CHARGER

(1) Battery

Unit No. 2

Manufacturer		_____
Type		_____
Mounting method		_____
Rating		
Voltage	(V)	_____
Capacity (at 5 hour)	(Ah)	_____
Number of unit cell		_____
Nominal voltage of cell	(V)	_____
Nominal floating voltage	(V)	_____
Maximum discharge current	(A)	_____
Specific gravity of electrolyte at when full charged		_____
Maximum temperature of electrolyte	(^{o}C)	_____
Volume of electrolyte per cell	(litre)	_____
Dimension		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight		
Cell (including electrolyte)	(kg)	_____

_______________ (Tenderer's Name)

Unit No. 2

Total (including mounting structure and conductor) (kg)	________
(2) Rectifier	
Manufacturer	________
Type	________
Rectification system	________
Cooling system	________
Rating	
Input (AC side)	
Frequency (Hz)	________
Frequency fluctuation range (With in Hz)	________
Voltage (Hz)	________
Voltage fluctuation range (With in Hz)	________
Power factor (More than %)	________
Output (DC side)	
Set voltage	
Floating (V)	________
Equalizing (V)	________
Voltage adjustment range	
Floating (V)	________
Equalizing (V)	________
Stage voltage in voltage adjustment	________

Tenderer's Data Sheet

_____
(Tenderer's Name)

Current (A) _____

Set voltage accuracy _____

Dropping current (less than A) _____

Efficiency (at Full load)
(More than %) _____

Counter cell

Current (A) _____

Cubicle

Dimension (including rectifier)

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (including rectifier)
(kg) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

5.2 24V BATTERY AND BATTERY CHARGER

(1) Battery — Unit No. 2

Manufacturer		_____
Type		_____
Mounting method		_____
Rating		
Voltage	(V)	_____
Capacity (at 5 hour)	(Ah)	_____
Number of unit cell		_____
Nominal voltage of cell	(V)	_____
Nominal floating voltage	(V)	_____
Maximum discharge current	(A)	_____
Specific gravity of electrolyte at when full charged		_____
Maximum temperature of electrolyte	(^{o}C)	_____
Volume of electrolyte per cell	(litre)	_____
Dimension		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight		
Cell (including electrolyte)	(kg)	_____

Tenderer's Data Sheet

(Tenderer's Name)

Unit No. 2

Total (including mounting structure and conductor) (kg) _____

(2) Rectifier

Manufacturer _____

Type _____

Rectification system _____

Cooling system _____

Rating

Input (AC side)

Frequency (Hz) _____

Frequency fluctuation range (With in Hz) _____

Voltage (Hz) _____

Voltage fluctuation range (With in Hz) _____

Power factor (More than %) _____

Output (DC side)

Set voltage

Floating (V) _____

Equalizing (V) _____

Voltage adjustment range

Floating (V) _____

Equalizing (V) _____

Stage voltage in voltage adjustment _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Current (A) _____

Set voltage accuracy _____

Dropping current (less than A) _____

Efficiency (at Full load)
(More than %) _____

Counter cell

Current (A) _____

Cubicle

Dimension (including rectifier)

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (including rectifier)
(kg) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

6. COMMUNICATION

6.1 PAGING SYSTEM

(1) Hand Set

Manufacturer _____

Type _____

Number

Outdoor wall supporting type _____

Outdoor self standing type _____

Indoor desk type _____

Dimension

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (kg) _____

(2) Speaker

Manufacturer _____

Type _____

Number _____

Horn wall type _____

Horn water proof type _____

Cone type _____

Diameter

Horn type (mm) _____

Cone type (mm) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

6.2 CLOCK SYSTEM

Slave clock

Manufacturer _____

Type _____

Numbers _____

60cm diameter _____

30cm diameter _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

7. LIGHTING	Main building first floor	Main building mezzanine floor
Lighting fixture		
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Power receptacles		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Exit sign lights		
Quantity	_____	_____
Type	_____	_____
Rating	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Main building first floor	Main building mezzanine
Lighting distribution panel			
Manufacturer		_____	_____
Quantity		_____	_____
Type		_____	_____
Rating	(V, A)	_____	_____
Illumination level		_____	_____

Lighting fixture	Main building operation floor	Boiler area
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Main building operation floor	Boiler area
Number			
Type			
Rating			
Exit sign lights			
Quantity			
Type			
Rating			
Lighting distribution panel			
Manufacturer			
Quantity			
Type			
Rating	(V, A)		
Illumination level			

	Screen area	Screen & chlo. control room
Lighting fixture		
Manufacturer		
Quantity and type		
Fluorescent lamps		
Numbers		
Type		
Rating		

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Screen area	Screen & chlo. control room
Incandescent lamps			
Numbers		_____	_____
Type		_____	_____
Rating		_____	_____
Mercury vapor lamps			
Numbers		_____	_____
Type		_____	_____
Rating		_____	_____
Power receptacles		_____	_____
Number		_____	_____
Type		_____	_____
Rating		_____	_____
Exit sign lights			
Quantity		_____	_____
Type		_____	_____
Rating	(V, A)	_____	_____
Lighting distribution panel			
Manufacturer		_____	_____
Quantity		_____	_____
Type		_____	_____
Rating		_____	_____
Illumination level		_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Lighting fixture	Main Transformer area	Heavy oil service tank area
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Power receptacles		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Exit sign lights		
Quantity	_____	_____
Type	_____	_____
Rating	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Main Transformer area	Heavy oil service tank area
Lighting distribution panel			
Manufacturer		_____	_____
Quantity		_____	_____
Type		_____	_____
Rating	(V, A)	_____	_____
Illumination level		_____	_____

	CWP area	FDF area
Lighting fixture		
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

	CWP area	FDF area
Power receptacles		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Exit sign lights		
Quantity	_____	_____
Type	_____	_____
Rating	_____	_____
Lighting distribution panel		
Manufacturer	_____	_____
Quantity	_____	_____
Type	_____	_____
Rating (V, A)	_____	_____
Illumination level	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Other outdoor equipment
Lighting fixture		
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Power receptacles		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Lighting distribution panel		
Manufacturer	_____	_____
Quantity	_____	_____
Type	_____	_____
Rating (V, A)	_____	_____
Illumination level	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

	Main road	Branch road
Lighting fixture		
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Power receptacles		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Lighting distribution panel		
Manufacturer	_____	_____
Quantity	_____	_____
Type	_____	_____
Rating (V, A)	_____	_____
Illumination level	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

	Central control room	Computer room
Lighting fixture		
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Power receptacles		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Lighting distribution panel		
Manufacturer	_____	_____
Quantity	_____	_____
Type	_____	_____
Rating (V, A)	_____	_____
Illumination level	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

8. CV (XLPE) CABLE

8.1 220 kV CV CABLE

		Main transf. CV cable
Manufacturer		
Type		
Rated voltage	(kV)	
Core and size	(mm^2)	x
Conductor		
Shape		
Outer diameter	(mm)	
Insulation		
Thickness	(mm)	
Outer diameter	(mm)	
Weight	(kg/km)	
Length	(m)	

Tenderer's Data Sheet

_____
(Tenderer's Name)

9. CONSTRUCTION MATERIALS

9.1 CABLE

(1) Power Cable

		6,600V	600V
Manufacturer		_____	_____
Kind		_____	_____
Number of core		_____	_____
Total length	(m)	_____	_____

		6,600V	600V
Manufacturer		_____	_____
Kind		_____	_____
Number of core		_____	_____
Total length	(m)	_____	_____

(2) Control Cable

Manufacturer		_____	_____
Kind		_____	_____
Number of core		_____	_____
Total length	(m)	_____	_____

Manufacturer		_____	_____
Kind		_____	_____
Number of core		_____	_____
Total length	(m)	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

(3) Communication Cable

Use		_____	_____
Manufacturer		_____	_____
Kind		_____	_____
Number of core		_____	_____
Total length	(m)	_____	_____
Use		_____	_____
Manufacturer		_____	_____
Kind		_____	_____
Number of core		_____	_____
Total length	(m)	_____	_____

(4) Special cable

Use		_____	_____
Manufacturer		_____	_____
Kind		_____	_____
Total length	(m)	_____	_____
Use		_____	_____
Manufacturer		_____	_____
Kind		_____	_____
Total length	(m)	_____	_____

(Tenderer's Name)

(5) Others

Manufacturer			
Kind			
Total length	(m)		

9.2 CONDUIT

Manufacturer			
Kind			
Total length	(m)		
Manufacturer			
Kind			
Total length	(m)		

9.3 CABLE TRAY

Manufacturer			
Kind			
Total length	(m)		
Total weight	(kg)		
Manufacturer			
Kind			
Total length	(m)		
Total weight	(kg)		

Tenderer's Data Sheet

_____
(Tenderer's Name)

9.4 GROUNDING WIRE

Manufacturer		_____
Kind		_____
Total length	(m)	_____
Total weight	(kg)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

10. ELECTRIC MOTOR (FOR)

Manufacturer		_____
Type		_____
Class of rating		_____
Classification of explosion-proof		_____
Rating		
Output	(kW)	_____
Voltage	(V)	_____
Frequency	(Hz)	_____
Speed	(RPM)	_____
Vertical or horizontal		_____
Insulation class		_____
Starting method		_____
Dimension (Approx.)		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____

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SECTION VI

PLANT COMPUTER SYSTEM

SECTION VI. PLANT COMPUTER SYSTEM

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Tenderer's Data Sheet

_____
(Tenderer's Name)

VI. PLANT COMPUTER SYSTEM

The Contractor shall guarantee the items marked "*" in Tenderer's Data Sheet.

1. CENTRAL PROCESSING UNIT (CPU)

1.1 CPU

(1)	Manufacturer		_____
(2)	Type		_____
(3)	Number		_____
(4)	Logic circuit element		_____
(5)	Arithmetic operation		_____
(6)	Addressing		_____
(7)	Registers		_____
(8)	Data word	(bits)	_____
(9)	Floating point hardware included	YES	NO
(10)	Auto restarting unit	YES	NO
(11)	Power supply		
	. Voltage (AC)	(volts)	_____
	. Frequency	(Hz)	_____
	. Power consumption	(VA)	_____
(12)	Power supply system block diagram by No.		_____
(13)	Outline arrangement of computer system by No.		_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

(14) Outline block diagram of each function by No. _____

(15) Environment requirement

. Temperature (^{o}C) _____

. Humidity range (%RH) _____

. Heat output (kcal/h) _____

1.2 MAIN MEMORY UNIT

(1) Element _____

(2) Error check YES NO

(3) Cycle time (usec) _____

(4) Expansion (KB) _____

(5) Incremental (kB) _____

(6) Memory capacity (kB) _____

2-6/1

Tenderer's Data Sheet

_____
(Tenderer's Name)

2. AUXILIARY MEMORY UNIT

2.1 FIXED HEAD DISK UNIT
OR IC MEMORY

(1)	Manufacturer		_____
(2)	Number		_____
(3)	Type		_____
(4)	Capacity	(MB/drive)	_____
(5)	Access time	(msec)	_____
(6)	Recording density	(BPI)	_____
(7)	Recording method		_____
(8)	Rotation speed	(rpm)	_____
(9)	Transfer rate	(kB/sec)	_____
(10)	Dimension W x D x H	(mm)	_____ x _____ x _____
(11)	Weight	(kg)	_____
(12)	Power consumption	(VA)	_____
(13)	Maintenance interval	(hr)	_____
(14)	Maintenance time	(hr)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

3. PROCESS INPUT/OUTPUT UNIT

3.1 ANALOG INPUT SYSTEM

(1) Input impedance (ohms) _____

(2) Maximum source impedance that can be connected to inputs (ohms) _____

(3) Maximum continuous voltage that can be applied without damage (volts) _____

(4) Surge protection (kV for usec) _____

(5) Maximum number of analog input point _____

(6) Maximum number of R.T.D point _____

(7) Maximum number of thermocouple point _____

(8) Multiplexer scanning (Point/sec) _____

3.2 DIGITAL INPUT SYSTEM

(1) Excitation voltage (volts) _____

(2) Contact current (amps) _____

(3) Minimum contact duration (msec) _____

(4) Maximum distance to field contact (meters) _____

(5) Maximum number of contact input points _____

(6) Number of point/module _____

_____

(7) Maximum continuous voltage applied without damage (volts) _____

(8) Surge protection (kV for usec) _____

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(9) Scan rate (Point/sec) _____

(10) Type of isolation coupling _____

3.3 PULSE INPUT

(1) Line impedance (ohms) _____

(2) Type of input _____

(3) Contact current (amps) _____

(4) Maximum input frequency (Hz) _____

(5) Maximum count input circuit _____

_____

(6) Validity check _____

(7) Maximum number of pulse input point _____

(8) Number of point/module _____

3.4 ANALOG OUTPUT

(1) Type of output _____

(2) D/C converter resolution (bits) _____

(3) Withstanding voltage (volts) _____

(4) Maximum number of output point _____

(5) Number of point/module _____

3.5 DIGITAL OUTPUT

(1) Type of output _____

(2) Type of contact _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

(3)	Contact rating	(VA)	_____
		(ohms)	_____
			_____
(4)	Operating time	(msec)	_____
(5)	Maximum number of output point		_____
(6)	Number of point/module		_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

4. CABINET OF COMPUTER SYSTEM

(1) Manufacturer _____

(2) Number _____

(3) Type _____

(4) Thickness of steel plates (mm) _____

(5) Dimension

. Height (mm) _____

. Width (mm) _____

. Depth (mm) _____

(6) Anti-vibration rubber YES NO

(7) Weight (kg) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

5. CRT UNIT

(1)	Manufacturer		_____
(2)	Type		_____
(3)	Number		_____
(4)	Number of character		_____ x _____
(5)	Kind of character		_____
(6)	Kind of colors		_____
(7)	Character size		_____ x _____
(8)	Keyboard		YES _____ NO _____
(9)	Display tube size	(inch)	_____
(10)	Weight	(kg)	_____
(11)	Power consumption	(VA)	_____
(12)	Ambient temperature range	(^{o}C)	_____
(13)	Ambient humidity range	(%RH)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

6. PRINTER

(1)	Manufacturer		_____
(2)	Number		_____
(3)	Type		_____
(4)	Printing speed	(char./sec)	_____
(5)	Line capacity	(char./inch)	_____
(6)	Dimension W x D x H	(mm)	_____ x _____ x _____
(7)	Key board		YES _____ NO _____
(8)	Weight	(kg)	_____
(9)	Power consumption	(VA)	_____
(10)	Ambient temperature range	(^{O}C)	_____
(11)	Ambient humidity range	(%RH)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

7. I/O PRINTER

(1)	Manufacturer		_____
(2)	Number		_____
(3)	Type		_____
(4)	Printing speed	(char./sec)	_____
(5)	Line capacity	(char./inch)	_____
(6)	Dimension W x D x H	(mm)	_____ x _____ x _____
(7)	Keyboard		YES _____ NO _____
(8)	Weight	(kg)	_____
(9)	Power consumption	(VA)	_____
(10)	Ambient temperature range	(^{o}C)	_____
(11)	Ambient humidity range	(%RH)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

8. TREND RECORDER

(1)	Manufacturer		_____
(2)	Type		_____
(3)	Number		_____
(4)	Number of pen		_____
(5)	Chart speeds	(m/min)	_____
(6)	Dimension W x D x H	(mm)	_____ x _____ x _____
(7)	Input signal	(mA)	_____
(8)	Power consumption	(VA)	_____
(9)	Ambient temperature range	(^{o}C)	_____
(10)	Ambient humidity range	(%RH)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

9. FLOPPY DISK DEVICE

(1)	Manufacturer		_____
(2)	Type		_____
(3)	Storage capacity	(kB)	_____
(4)	Packing density	(BPI)	_____
(5)	Number of track		_____
(6)	Transfer rate	(kB/sec)	_____
(7)	Mean access time	(msec)	_____
(8)	Number of connectable drives		_____
(9)	Dimension	(mm)	_____ x _____ x _____
(10)	Weight	(kg)	_____
(11)	Power consumption	(VA)	_____
(12)	Ambient temperature range	(^{o}C)	_____
(13)	Ambient humidity range	(%RH)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

10. HARD COPY UNIT

(1)	Type		_____
(2)	Number		_____
(3)	Dimension	(mm)	_____ x _____
(4)	Weight	(kg)	_____
(5)	Power consumption	(VA)	_____
(6)	Copying method		_____
(7)	Copy size	(mm)	_____ x _____
(8)	Copying speed	(sec)	_____
(9)	Exposure time	(sec)	_____
(10)	Developing time	(sec)	_____
(11)	Kind of colors		_____
(12)	Ambient temperature range	(^{o}C)	_____
(13)	Ambient humidity range	(%RH)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

11. OPERATOR'S CONSOLE

(1)	Type		_____
(2)	Number		_____
(3)	Dimension W x D x H	(mm)	_____ x _____ x _____
(4)	Selection method of function		_____
(5)	Weight	(kg)	_____
(6)	Power consumption	(VA)	_____
(7)	Key sets		
	. alphanumeric keys		_____
	. functional keys		_____
	. control keys		_____
	. ten keys		_____
(8)	Key arrangement		_____

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Tenderer's Data Sheet

____
(Tenderer's Name)

12. OPERATOR'S DESK

(1) Manufacturer ________________________

(2) Number ________________________

(3) Type ________________________

(4) Soundproof cover YES NO

(5) Dimension

. Height (mm) ________________________

. Width (mm) ________________________

. Depth (mm) ________________________

(6) Weight (kg) ________________________

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Tenderer's Data Sheet

_____
(Tenderer's Name)

13. PRINTER DESK

(1) Manufacturer _____

(2) Number _____

(3) Type _____

(4) Soundproof cover YES NO

(5) Dimension

. Height (mm) _____

. Width (mm) _____

. Depth (mm) _____

(6) Weight (kg) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

14. ENGINEER'S DESK

(1) Manufacturer _____

(2) Number _____

(3) Type _____

(4) Soundproof cover YES NO

(5) Dimension

. Height (mm) _____

. Width (mm) _____

. Depth (mm) _____

(6) Weight (kg) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

15. OPERATION GUIDE TRAINING EQUIPMENT

(1) Manufacturer _____

(2) Number _____

(3) Type, dimension (mm) _____

. Operator station _____

. CRT graphic _____

. Printer _____

. Hard copy _____

(4) Ambient temperature, humidity range _____ _____
(^{o}C) (%RH)

(5) Power comsuption (VA) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

16. SYSTEM AVAILABILITY

(1) M.T.B.F 2×10^3 Hours or more (hr) *_____

(2) Availability 99.5% or more (%) *_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

17. SOFTWARE

(1)	Basic operation system	YES	NO
(2)	Basic application software package	YES	NO
(3)	Diagnostic software	YES	NO
(4)	Application software package	YES	NO
(5)	Plant status monitor system	YES	NO
(6)	Performance compution system	YES	NO
(7)	Utility program	YES	NO
(8)	TSM software	YES	NO
(9)	Event recall	YES	NO
(10)	Trip sequence	YES	NO
(11)	Graphic display	YES	NO
(12)	Hard copy	YES	NO
(13)	Operation guide training	YES	NO

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Tenderer's Data Sheet

_____
(Tenderer's Name)

18. SPARE PARTS FOR COMMON AUXILIARY EQUIPMENT

18.1 INSTRUMENT	Manufacturer	Model No.
(1) Recorder		
Electric signal (V, mA)	_____	_____
(2) Indicator		
Dial type	_____	_____
Vertical type	_____	_____
(3) Transmitter		
Pressure (draft)	_____	_____
Temperature	_____	_____
Flow	_____	_____
Level	_____	_____
Analysis (conductivity pH, etc.)	_____	_____
(4) Controller		
Pressure	_____	_____
Temperature	_____	_____
Flow	_____	_____
Level	_____	_____
Analysis (conductivity pH, etc.)	_____	_____
(5) Switch		
Pressure (Draft)	_____	_____
Temperature	_____	_____
Flow	_____	_____
Level	_____	_____
Limit switch	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Manufacturer	Model No.
(6)	Local indicator		
	Pressure gauge	_____	_____
	Thermometer	_____	_____
	Flow (positive displacement type)	_____	_____
	Flow (other)	_____	_____
	Level	_____	_____
(7)	Sight glass		
	Sight flow	_____	_____
	Level glass gauge	_____	_____
(8)	Primary element		
	Thermocouple	_____	_____
	RTD	_____	_____
	Thermo-well	_____	_____
	Flow orifice	_____	_____
	Flow nozzle	_____	_____
	pH	_____	_____
	Conductivity	_____	_____
(9)	Control valve	_____	_____
(10)	Manometer	_____	_____
(11)	Thermocouple extension wire	_____	_____
(12)	Control tubing	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

18.2 POWER CONSUMPTION

(1) Instrument air (Nm^3/min) _____

(2) Electric power

AC _____ V _____ VA

_____ W

DC _____ V _____ W

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SECTION VII

SCHEDULE OF CONTRACTOR'S REPRESENTATIVES, MANUFACTURER'S SPECIALISTS, ERECTION SPECIALISTS, TECHNICIANS, ERECTION WORKERS AND LABORS, AND TECHNICAL ADVISERS

FOR

POWER PLANT EQUIPMENT

Tenderer's Data Sheet

_____
(Tenderer's Name)

VII. SCHEDULE OF CONTRACTOR'S REPRESENTATIVES, MANUFACTURER'S SPECIALISTS, ERECTION SPECIALISTS, TECHNICIANS, ERECTION WORKERS AND LABORS, AND TECHNICAL ADVISERS

Position	Number of Persons	Month	Total Man-Month	Remarks
1. CONTRACTOR'S REPRESENTATIVES				
(1) Superintendent				
(2) Deputy superintendent				
(3) Administrator				
(4) Electrical engineer				
(5) Safety engineer				
(6) Clerk				
2. Manufacturer's specialists				
2.1 Manufacturer's specialists for installation				
(1) Steam generator				
(2) Steam generator auxiliaries				
(a) Soot blower				
(b) Air preheater				
(c) Forced draft fan				
(d) Burner control				
(e) Boiler control				
(f) Compressor				
(g) Control equipment				

Tenderer's Data Sheet

_____
(Tenderer's Name)

Position	Number of Persons	Month	Total Man-Month	Remarks
(3) Steam turbine				
(4) Steam turbine auxiliaries				
(a) Condenser				
(b) Boiler feed pump				
(5) Common auxiliaries				
(a) Fire protection				
(b) Screen facilities				
(c) Chlorination equipment				
(d) House boiler				
(e) Water treatment and waste water treatment				
(6) Generator and electrical equipment				
(a) Generator				
(b) Excitation system				
(c) Isolated phase bus duct				
(d) Main, auxiliary and starting transformer				
(e) M/C, P/C, C/C				
(f) Battery and charger				
(g) PABX and communication system				

Tenderer's Data Sheet

(Tenderer's Name)

Position	Number of Persons	Month	Total Man-Month	Remarks
(h) Emergency diesel engine				
(i) Grid station equipment				
(7) Computer system				

Tenderer's Data Sheet

_____
(Tenderer's Name)

Position	Number of Persons	Month	Total Man-Month	Remarks
2.2 Manufacturer's specialists for operation (Start up engineer)				
(1) Steam generator				
(2) Steam generator auxiliaries				
(3) Steam turbine				
(4) Steam turbine auxiliaries				
(5) Generator				
(6) Electric equipment				
(7) Chemist				
(8) Main, aux. and starting transformer				
(9) Computer system				

Tenderer's Data Sheet

_____
(Tenderer's Name)

Position	Number of Persons	Month	Total Man-Month	Remarks
2.3 Technical Advisers for operation and maintenance advise after taking over				
(1) For steam generator and auxiliary equipment				
(a) Education _____				
(b) Experience _____ years				
(2) For steam turbine and auxiliary equipment				
(a) Education _____				
(b) Experience _____ years				
(3) For control system				
(a) Education _____				
(b) Experience _____ years				

Tenderer's Data Sheet

_____
(Tenderer's Name)

Position	Number of Persons	Month	Total Man-Month	Remarks
3. Erection specialists, technicians and labors				
3.1 Erection specialists				
(1) Steam generator				
(2) Steam generator auxiliaries				
(3) Steam turbine				
(4) Steam turbine auxiliaries				
(5) Common auxiliaries				
(6) Generator and electrical equipment				
(7) Computer system				

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Position	Number of Persons	Month	Total Man-Month	Remarks
3.2 Erection technician				
(1) Foreman				
(2) Truck crane operator				
(3) Overhead crane operator				
(4) Welder				
(5) Electrician				
(6) Control and instrument				
(7) Piping				

Tenderer's Data Sheet

_____
(Tenderer's Name)

Position	Number of Persons	Month	Total Man-Month	Remarks
3.3 Erection workers and labors				
(1) Expatriate				
(2) Domestic				
The Tenderer shall indicate the kind of job to be done by labor hired in Pakistan.				

SECTION VIII

ERECTION EQUIPMENT AND TOOL LIST

(Tenderer's Name)

VIII. ERECTION EQUIPMENT AND TOOL LIST

The Tenderer shall indicate the necessary erection equipment and tools to be considered using for erection work, test and trial operation.

Name	Q'ty	Specification	Remarks

Tenderer's Data Sheet

(Tenderer's Name)

Name	Q'ty	Specification	Remarks

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Tenderer's Data Sheet

(Tenderer's Name)

Name	Q'ty	Specification	Remarks

Tenderer's Data Sheet

_____
(Tenderer's Name)

Name	Q'ty	Specification	Remarks

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