Tenderer's Data Sheet

_____
(Tenderer's Name)

3. METAL CLAD SWITCHGEAR

3.1 6,600 V METAL CLAD SWITCHGEAR

		Unit No. 1	Common
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)	_____	_____

Tenderer's Data Sheet

(Tenderer's Name)

3.2 400 V POWER CENTER		Unit No.1	Common
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			
Manufacturer		_____	_____
Type		_____	_____
Rating			
Capacity	(kVA)	_____	_____
Class of rating		_____	_____
Voltage			
High tension side	(V)	_____	_____
Low tension side	(V)	_____	_____
		For Unit No. 1	For No. 1 Common
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)	_____	_____

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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)	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

3.3 400 V CONTROL CENTER

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

Tenderer's Data Sheet

(Tenderer's Name)

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

		400V 1-3 C/C	400V Common No. 1 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)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

3.4 MOTOR VALVE CONTROL CENTER

3.4.1 400V CONTORL 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 230V 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 WATER TREATMENT SWITCHGEAR

3.5.1 400V 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)

3.5.2 DISTRIBUTION PANEL

(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) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

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)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

3.6 WASTE WATER TREATMENT CONTROL CENTER

3.6.1 400V 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)

3.7 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)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

3.8 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)	_____

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	_____	_____	_____

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	_____	_____	_____

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	_____	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

4.2 DISTRIBUTION PANEL

		No.1 220V Normal Emergency	No.1 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			

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. 1 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)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Weight (including transformer cubicle) (Approx.)	(kg)	
Space heater		
Capacity	(VA)	
Voltage	(V)	

(1) Panel		No.1 200V Lighting D/P	380V-220V Misc. Power 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. 1 200 V Lighting D/P	380 V 220 V Misc. Power 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)		

Laboratory D/P

(1) Panel

Manufacturer		
Type		
Thickness of steel plate	(mm)	
Rating		
Voltage	(V)	
Phase and wire		
Bus current	(A)	

Tenderer's Data Sheet

_____
(Tenderer's Name)

Molded type air circuit breaker

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

Tenderer's Data Sheet

_____
(Tenderer's Name)

ADMINISTRATION BUILDING
D/P

(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 _____

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)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

DC 48V D/P

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

Tenderer's Data Sheet

_____
(Tenderer's Name)

DC 24V D/P

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

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		_____
		_____
		_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

4.5 SUBSTATION MONITOR 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)

5. EMERGENCY DIESEL ENGINE GENERATOR

5.1 EMERGENCY DIESEL ENGINE GENERATOR

Manufacturer		_____
Type		_____
Rating		
Class of rating		_____
Capacity	(kVA)	_____
Power factor		_____
Voltage	(V)	_____
Current	(A)	_____
Frequency	(Hz)	_____
Phase		_____
Pole		_____
Connection		_____
Speed	(RPM)	_____
Insulation class		_____
Excitation system		
Type		_____
Automatic voltage regulator		_____
Over load capability at 110% Rated load	(hour)	_____
Over speed capability	(%)	_____
Dimension		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Weight (kg) _____

5.2 DIESEL ENGINE

Manufacturer _____

Type _____

Rating

Output (kW) _____

Speed (RPM) _____

Number of cylinder _____

Over load (%) _____

Compression ratio _____

Combustion system _____

Over load capability at 110% Rated load (hour) _____

Over speed capability (%) _____

Starting system _____

Automatic starting device _____

Starting time from starting signal to full speed (sec) _____

Kind of fuel

Fuel tank capacity (litre) _____

Lubrication oil system _____

Exhaust system _____

Dimension

Height (mm) _____

Width (mm) _____

Length (mm) _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Weight	(kg)	_____
Diesel engine generator completely assembled		
Dimension		
Width	(mm)	_____
Length	(mm)	_____
GD^2 effect	($kg.m^2$)	_____
Weight	(kg)	_____

5.3 CONTROL PANEL

		Diesel engine generator control panel	Auxiliary panel
Manufacturer		_____	_____
Type		_____	_____
Thickness of steel plate	(mm)	_____	_____
Dimension (Approx.)			
Height	(mm)	_____	_____
Width	(mm)	_____	_____
Depth	(mm)	_____	_____
Weight (Approx.)	(kg)	_____	_____
Space heater			
Capacity	(VA)	_____	_____
Voltage	(V)	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

5.4 MAIN CIRCUIT AIR CIRCUIT BREAKER

Manufacturer		_____
Type		_____
Rating		
Voltage	(V)	_____
Current	(A)	_____
Interrupting capacity	(kA)	_____
Short time current	(kA)	_____
Operating time	(sec)	_____
Control voltage	(V)	_____
Molded type air circuit breaker		
Numbers		_____
Rating	(V, A)	_____

5.5 AIR COMPRESSOR EQUIPMENT

Air compressor		
Manufacturer		_____
Type		_____
Number		_____
Cylinder number		_____
Stroke	(mm)	_____
Speed	(RPM)	_____
Capacity	(m^3/min at free air)	_____
Suction pressure	(kg/cm^2g)	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Electric Motor

Manufacturer		_____
Type		_____
Class of rating		_____
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 (including air compressor (Approx.)	(kg)	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Air Receiver

Manufacturer		_____
Type		_____
Number		_____
Capacity	(m^3)	_____
Diameter	(mm)	_____
Height	(mm)	_____
Design pressure	(kg/cm^2g)	_____

Tenderer's Data Sheet

(Tenderer's Name)

6. BATTERY AND BATTERY CHARGER

6.1 220V BATTERY AND BATTERY CHARGER

(1) Battery

Unit No. 1

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. 1

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) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

6.2 48V BATTERY AND BATTERY CHARGER

(1) Battery

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. 1

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) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

6.3 24V BATTERY AND BATTERY CHARGER

(1) Battery

Unit No. 1

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. 1

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)

7. COMMUNICATION

7.1 PAGING SYSTEM

(1) Amplifier Panel

Manufacturer		_____
Type		_____
Thickness of steel plate	(mm)	_____
Rating		
Output	(W)	_____
Frequency characteristics	(Hz)	_____
S/N ratio	(dB)	_____
Input impedance	(ohm)	_____
Output impedance	(ohm)	_____
Dimension		
Height	(mm)	_____
Width	(mm)	_____
Depth	(mm)	_____
Weight (Approx.)	(kg)	_____

(2) Power Source Panel

Manufacturer		_____
Type		_____
Thickness of steel plate	(mm)	_____
Rated voltage		
Input	(V)	_____
Output	(V)	_____

Tenderer's Data Sheet

(Tenderer's Name)

Molded type air circuit breaker

Number

Rating (V, A)

Dimension

Height (mm)

Width (mm)

Depth (mm)

Weight (Approx.) (mm)

(3) 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)

(4) Speaker

Manufacturer

Type

Tenderer's Data Sheet

_____
(Tenderer's Name)

Number _____

Horn wall type _____

Horn water proof type _____

Cone type _____

Diameter

Horn type (mm) _____

Cone type (mm) _____

(5) Control Console Desk

Manufacturer _____

Type _____

Dimension

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (Approx.) (kg) _____

7.2 PRIVATE AUTOMATIC BRANCH EXCHANGER

(1) PABX

Manufacturer _____

Type _____

Rating

Subscriber (circuit) _____

Public telephone trunk (circuit) _____

Extension trunk (circuit) _____

Number group _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Tone signal and class of rating

Dial tone	(Hz)	_____
Busy tone	(Hz)	_____
Ring back tone	(Hz)	_____
Ringing tone	(Hz)	_____
Howler tone	(Hz)	_____
Output	(V)	_____
Input voltage	(V)	_____

Line condition

Loop resistance of line	(ohm)	_____
Leakage resistance	(ohm)	_____

Characteristics of impulse

Impulse type	(PPS)	_____
Impulse speed	(PPS)	_____
Minimum pulse	(msec)	_____

Trunking scheme _____

_____

_____

_____

_____

_____

_____

_____

Dimension

Height	(mm)	_____
Width	(mm)	_____

_____
(Tenderer's Name)

Depth (mm) _____

Weight (Approx.) (kg) _____

(2) Attendand Consol

Manufacturer _____

Type _____

Dimension

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (Approx.) (kg) _____

7.3 CLOCK SYSTEM

Master clock equipment

Manufacturer _____

Type _____

Rating _____

Oscillating frequency (kHz) _____

Time error (per day) _____

Slave clock output (channel) _____

Signal _____

Capacity _____

Input power source _____

Panel

Type _____

Thickness of steel plate (mm) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Dimension (Approx.)

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (including master clock equipment) (kg) (Approx.)

Slave clock

Manufacturer _____

Type _____

Numbers _____

60cm diameter _____

30cm diameter _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

8. 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	_____	_____

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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		

	H_2 gas generator room	Screen & chlo. control room
Lighting fixture		
Manufacturer		
Quantity and type		
Fluorescent lamps		
Numbers		
Type		
Rating		

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Tenderer's Data Sheet

_____
(Tenderer's Name)

		H_2 gas generator room	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			

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Tenderer's Data Sheet

_____
(Tenderer's Name)

	Plant and waste water equip. area	Plant water equip. control room
Lighting fixture		
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Power receptacles		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Exit sign lights		
Quantity	_____	_____
Type	_____	_____
Rating	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

		Plant and waste water equip. area	Plant water equip. control room
Lighting distribution panel			
Manufacturer		_____	_____
Quantity		_____	_____
Type		_____	_____
Rating	(V, A)	_____	_____
Illumination level		_____	_____

	Screen area	Heavy oil tank and pump station
Lighting fixture		
Manufacturer	_____	_____
Quantity and type		
Fluorescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Screen area	Heavy oil tank and pump station
Power receptables			
Number		_____	_____
Type		_____	_____
Rating		_____	_____
Exist sign lights			
Quantity		_____	_____
Type		_____	_____
Rating	(V, A)	_____	_____
Lighting distribution panel			
Manufacturer		_____	_____
Quantity		_____	_____
Type		_____	_____
Rating	(V, A)	_____	_____
Illumination level		_____	_____
Lighting fixture		Main transformer area	Heavy oil service tank area
Manufacturer		_____	_____
Quantity and type			
Fluorescent lamps			
Numbers		_____	_____
Type		_____	_____
Rating		_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

	Main transformer area	Heavy oil service tank area
Incandescent lamps		
Numbers	_____	_____
Type	_____	_____
Rating	_____	_____
Mercury vapor lamps		
Number	_____	_____
Type	_____	_____
Rating	_____	_____
Power receptacles		
Number	_____	_____
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)

	Administration Building
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	
Exit sign lights	
Quantity	_____
Type	_____
Rating	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Administration Building
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	_____	_____
Power receptacles		
Numbers	_____	_____
Type	_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

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

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Tenderer's Data Sheet

_____
(Tenderer's Name)

	Other outdoor equipment	Parking area
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)

		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		_____	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Lighting fixture	Central control room	Computer room
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)

Lighting fixture	Battery room	Control equip. room
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)

Lighting fixture	Laboratry room	PABX room
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)

Lighting fixture	Air conditioner machine room	Conference room
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)

9. CV (XLPE) CABLE

9.1 220 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)	

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Tenderer's Data Sheet

_____
(Tenderer's Name)

9.2 132 kV CV CABLE

		Starting 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)

9.3 11 kV CV CABLE

		Starting 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)

10. CONSTRUCTION MATERIALS

10.1 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 Data Sheet

_____
(Tenderer's Name)

(5) Others

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

10.2 CONDUIT

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

10.3 CABLE TRAY

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

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Tenderer's Data Sheet

_____
(Tenderer's Name)

10.4 GROUNDING WIRE

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

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Tenderer's Data Sheet

_____
(Tenderer's Name)

11. 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

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. _____

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) _____

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)	

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) _____

(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		_____

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) _____

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)	

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)	_____

Tenderer's Data Sheet

(Tenderer's Name)

10. HARD COPY UNIT

(1)	Type		
(2)	Number		
(3)	Dimension	(mm)	x 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) _____

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) _____

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) _____

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

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		

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

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) Mechanical engineer				
(5) Electrical engineer				
(6) Safety engineer				
(7) 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				

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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.

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SECTION VIII

ERECTION EQUIPMENT AND TOOL LIST

Tenderer's Data Sheet

(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

Tenderer's Data Sheet

_____
(Tenderer's Name)

Name	Q'ty	Specification	Remarks

TENDERER'S DATA SHEET

(UNIT 2)

SECTION I

POWER PLANT UNIT

TENDERER'S DATA SHEETS

Tenderer's Data Sheet

_____
(Tenderer's Name)

I. POWER PLANT UNIT

1. Guaranteed Plant Performance

1.1 Average net plant heat rate

(1) Guaranteed average net plant heat rate (kcal/kWh) _____ or less
(Weighted average of net plant heat rates)

(2) Net plant heat rate (kcal/kWh)

at rated output (MW) _____

at 75% of rated output (MW) _____

at 50% of rated output (MW) _____

1.2 Plant maximum load

Generator output (kW) _____

Main steam pressure at turbine throttle (kg/cm^2g) _____

Main steam temperature at turbine throttle (^oC) _____

Reheat steam temperature at reheat stop valve (^oC) _____

Condenser pressure (mmHg abs.) _____

Make-up water (%) _____

Power factor _____

1.3 Capability (4/4 load)

Generator output (kW) _____

Main steam pressure at turbine throttle (kg/cm^2g) _____

Main steam temperature at turbine throttle (^oC) _____

Reheat steam temperature at reheat stop valve (^oC) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Condenser pressure (mmHg abs.) _____

Make-up water (%) _____

Power factor _____

1.4 Plant minimum load

Generator output (kW) _____

Main steam pressure at turbine throttle (kg/cm^2g) _____

Main steam temperature at turbine throttle (^oC) _____

Reheat steam temperature at reheat stop valve (^oC) _____

Condenser pressure (mmHg.abs) _____

Make-up water (%) _____

Power factor _____

1.5 Auxiliary Load (House Load)

At rated output (kW) _____

At 75% of rated output (kW) _____

At 50% of rated output (kW) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

2. Plant Starting Time

	Cold start	Start after 8 hour shutdown	Start directly after MFT
From light-off - Steam admission to turbine (min)	_____	_____	_____
Steam admission - Synchronizing to turbine (min)	_____	_____	_____
Synchronizing - Full load (min)	_____	_____	_____
Total time (min)	_____	_____	_____

SECTION II

STEAM GENERATOR AND AUXILIARY EQUIPMENT

SECTION-II: STEAM GENERATOR AND AUXILIARY EQUIPMENT

Tenderer's Data Sheet _____
(Tenderer's Name)

II. STEAM GENERATOR AND AUXILIARY EQUIPMENT

Note: The Contractor shall guarantee the values with * marks.

1. STEAM GENERATOR

(1) Type _____

(2) Manufacturer _____

(3) Number _____

(4) Steam generating capacity at plant maximum load (kg/h) * _____

(5) Design pressure (kg/cm^2g) _____

(6) Design temperature (^oC) _____

Superheater outlet _____

Reheater outlet _____

(7) Furnace release rate at plant maximum load

Note: Use the definition of American Boiler Manufacturer's Association for the furnace release rate.

Heat available in the furnace (kcal/h) _____

Heat absorbing surface (m^2) _____

Furnace release rate ($kcal/h/m^2$) _____

(8) Total weight (t) approx. _____

Steam generator complete except steel structure (t) _____

Drum (t) _____

Boiler supporting steel structure (t) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

(9) Holding water capacity

Normal operation (m^3) _____

Hydrostatic test (m^3) _____

(10) Maximum size for shipping (max. m) _____

Name of part _____

(11) Maximum weight for shipping
(tons) approx. _____

Name of part _____

Tenderer's Data Sheet

(Tenderer's Name)

(13) Performance data of steam generator

Items \ Load	Dimension	Minimum Load ( )MW	50% ( )MW	75% ( )MW	ECR ( )MW	Capability ( )MW	Maximum Load ( )MW
Steam generation	(kg/h)						
Drum pressure	(kg/cm^2g)						
SH outlet pressure	(kg/cm^2g)						
RH outlet pressure	(kg/cm^2g)						
Econ. inlet pressure	(kg/cm^2g)						
SH outlet temperature	(^oC)						
RH outlet temperature	(^oC)						
Steam generator efficiency	(%)						
Feedwater temperature at Econ. inlet	(^oC)						
Fuel oil consumption	(kg/h)						
High calorific value	(kcal/kg)						
Furnace liberation rate	($kcal/h/m^3$)						
Furnace release rate	($kcal/h/m^2$)						
Air flow at AH inlet	(kg/h)						
Air flow at AH outlet	(kg/h)						
Gas flow at AH inlet	(kg/h)						
Gas flow at AH outlet	(kg/h)						
Excess air	(%)						
CO_2 leaving steam generator	(%)						

Tenderer's Data Sheet

(Tenderer's Name)

Load Items	Dimension	Minimum Load ( )MW	50% ( )MW	75% ( )MW	ECR ( )MW	Capability ( )MW	Maximum Load ( )MW
Feedwater flow	(kg/h)						
SH spray water flow	(kg/h)						
RH spray water flow	(kg/h)						
Gas temp. at furnace outlet	(^{o}C)						
Gas temp. at RH inlet	(^{o}C)						
Gas temp. at RH outlet	(^{o}C)						
Gas temp. at Econ. inlet	(^{o}C)						
Gas temp. at Econ. outlet	(^{o}C)						
Gas temp. at AH outlet	(^{o}C)						
Air temp. at FDF outlet	(^{o}C)						
Air temp. at SCAH outlet	(^{o}C)						
Air temp. at AH outlet	(^{o}C)						
Number of burners in use							
Draft at FDF outlet	(mm H^2O)						
Draft at wind box	(mm H^2O)						
Draft at furnace	(mm H^2O)						
Draft at Econ. outlet	(mm H^2O)						
Draft at AH outlet	(mm H^2O)						
Draft at stack inlet	(mm H^2O)						
Solids in steam at SH outlet	(ppm)						

Note: Steam generation shall be met completely with the throttle steam flow of steam turbine.

Tenderer's Data Sheet

_____
(Tenderer's Name)

(14) Guaranteed performance data

(a) Steam generator efficiency at ECR *_____

Heat losses of steam generator at ECR (%)

Total _____

Heat loss due to heat in dry flue gas _____

Heat loss due to moisture in the fuel _____

Heat loss due to moisture from burning hydrogen _____

Heat loss due to moisture in the combustion air _____

Heat loss due to heat in atomizing steam _____

Heat loss due to the formation of carbon monoxide _____

Heat loss due to radiation and convection _____

Heat loss due to un-counting losses _____

(b) Steam generating capacity

Plant maximum load (Kg/h) *_____

MCR (Kg/h) *_____

(c) Steam pressure at H.P. turbine inlet

Maximum load *___ kg/cm^2g ± _____ kg/cm^2g

Capability *___ kg/cm^2g ± _____ kg/cm^2g

ECR *___ kg/cm^2g ± _____ kg/cm^2g

75% load *___ kg/cm^2g ± _____ kg/cm^2g

50% load	*___ kg/cm^2g ± _____ kg/cm^2g
Minimum load	*___ kg/cm^2g ± _____ kg/cm^2g

(d) Steam temperature at H.P. turbine inlet

Maximum load	* 538°C ± _____ °C
MCR	* 538°C ± _____ °C
ECR	* 538°C ± _____ °C
75% load	* 538°C ± _____ °C
50% load	* 538°C ± _____ °C
Minimum load	± _____ °C

(e) Steam pressure at I.P. turbine inlet

Maximum load	____ kg/cm^2g ± _____ kg/cm^2g
MCR	____ kg/cm^2g ± _____ kg/cm^2g
ECR	____ kg/cm^2g ± _____ kg/cm^2g
75% load	____ kg/cm^2g ± _____ kg/cm^2g
50% load	____ kg/cm^2g + _____ kg/cm^2g
Minimum load	____ kg/cm^2g ± _____ kg/cm^2g

(f) Steam temperature at I.P. turbine inlet

Maximum load	*___ °C ± ____ °C
MCR	*___ °C ± ____ °C
ECR	*___ °C ± ____ °C
75% load	*___ °C ± ____ °C
50% load	*___ °C ± ____ °C
Minimum load	____ °C ± ____ °C

Tenderer's Data Sheet

(Tenderer's Name)

(15) Furnace and boiler

Furnace surface	(m^2)		
Furnace volume	(m^3)		
Tube		Furnace	Boiler
Diameter	(mm)		
Thickness	(mm)		
Material			
Header		Furnace	Boiler
Diameter	(mm)		
Thickness	(mm)		
Material			
Number			
Manhole number and size	(mm)	, x	

(16) Data for steam generator at all high pressure feedwater heater bypass operation

Generator output	(MW)		
Steam generation	(T/h)		
Main steam temperature at turbine inlet	(^oC)		
Reheat steam temperature at turbine inlet	(^oC)		
Boiler metal temperature at the most highest parts and its name (area)	(^oC)		
Feedwater temperature at the economizer inlet	(^oC)		
Spray water flow	(T/h)	(SH) ,	(RH)

Tenderer's Data Sheet

_____
(Tenderer's Name)

(17) Drum (steam drum)

Internal diameter	(mm)	_____
Thickness	(mm)	_____
Length	(mm)	_____
Material		_____
Manhole size	(mm)	_____ x _____
Number of thermocouples for metal temperature		_____

(18) Economizer

Type (include supporting method)		_____
Heating surface	(m^2)	_____

Tube

Distance between tube and tube	(mm)	_____
Diameter	(mm)	_____ OD
Thickness	(mm)	_____
Material		_____

Header

Number		_____
Diameter	(mm)	_____ OD
Thickness	(mm)	_____
Length	(mm)	_____
Material		_____
Manhole number and size	(mm)	_____, _____ x _____
Bypass line of economizer		_____ Yes _____ No

Tenderer's Data Sheet

(Tenderer's Name)

(19) Superheater and attemperator

		Primary	Secondary	Final
Type of superheater				
Heating surface	(m^2)			
Radiant				
Radiant & convection				
Convection				
Tube		Primary	Secondary	Final
Distance between tube and tube	(mm)			
Diameter	(mm OD)			
Thickness	(mm)			
Material				
Header				
Number				
Diameter	(mm)			
Thickness	(mm)			
Material				
Size of outlet connection nozzles (mm in nominal)				
Spacer material				
Number of thermocouples for metal temperature				
Steam temperature control range				
Attemperator				
Type				
Number				

Tenderer's Data Sheet

_____
(Tenderer's Name)

(20) Reheater and attemperator

		Primary	Secondary	Final
Type of reheater		_____		
Heating surface	(m^2)			
Radiant		_____	_____	_____
Radiant and convection		_____	_____	_____
Convection		_____	_____	_____
Tube				
Distance between tube and tube	(mm)	_____	_____	_____
Diameter	(mm OD)	_____	_____	_____
Thickness	(mm)	_____	_____	_____
Material		_____	_____	_____
Header				
Number		_____	_____	_____
Diameter	(mm)	_____	_____	_____
Thickness	(mm)	_____	_____	_____
Material		_____	_____	_____
Size of outlet connection nozzle	(mm in nominal)	_____	_____	_____
Spacer material		_____	_____	_____
Number of thermocouples for metal temperature		_____	_____	_____
Steam temperature control range		_____		
Attemperator				
Type		_____		
Number		_____		
Material		_____		

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Tenderer's Date Sheet

_____
(Tenderer's Name)

		Inner	Outer
(21)	Casing		
	Material	_____	_____
	Thickness (mm)	_____	_____
	Total number of inspection hole (peep hole) for steam generator	_____	
(22)	Total number of valve		
	Safety valve number and type		
	Drum	_____	
	Superheater including PCV	_____	
	Reheater	_____	
(23)	Gas air preheater		
	Type	_____	
	Manufacturer	_____	
	Number	_____	
	Total heating surface of gas side per set (m^2)	_____	
	Speed (rpm)	_____	
	Material and thickness (mm)	_____	
	Hot end	_____,	_____ mm
	Intermediate	_____,	_____ mm
	Cold end	_____,	_____ mm
	Housing	_____,	_____ mm
	Weight complete (t/each)	_____	

Tenderer's Data Sheet

_____
(Tenderer's Name)

(24) Steam coil air preheater

Type _____

Manufacturer _____

Number _____

Heating surface (each coil) (m^2) _____

Number of heating section _____

Tube

Material _____

Diameter (mm OD) _____

Thickness (mm) _____

(25) Oil burners and igniters

(a) Burner

Type _____

Manufacturer _____

Number _____

Capacity (kg/h each)
(Nm^3/h each)

Heavy fuel oil _____

Warm-up gas _____

Pressure (kg/cm^2g)

Heavy fuel oil _____

Warm-up gas _____

Atomizing steam

Pressure (kg/cm^2g) _____

Capacity (kg/h each) _____

Tenderer's Data Sheet

(Tenderer's Name)

Available viscosity of heavy fuel oil at burner inlet _____

Turn down ratio, each burner _____

Minimum number of burner in service at MCR

(b) Igniter

Type _____

Manufacturer _____

Number _____

Capacity (Nm^3/h each) _____

Gas pressure (kg/cm^2g) _____

(c) Flame detector

Type _____

Manufacturer _____

Number _____

(d) Burner valve

Type _____

Manufacturer _____

Number _____

(26) Soot blower

Type _____

Manufacturer _____

Number

Superheater _____

Reheater _____

Economizer _____

Air preheater _____

(Tenderer's Name) _____

Other _____

Steam requirement for retractable soot blower

Steam flow (kg/h) _____

Steam pressure (kg/cm^2g) _____

Steam temperature (^oC) _____

Control method _____

(27) Blow down tank

Type _____

Number _____

Tank capacity (m^3) _____

Design pressure (kg/cm^2g) _____

Design temperature (^oC) _____

(28) Air and flue gas duct

(a) Air duct

Material _____

Thickness (mm) _____

(b) Flue gas duct _____

Material _____

Thickness (mm) _____

Measures against corrosion _____

(c) Soot hopper

Material _____

Thickness (mm) _____

(29) Forced draft fan

	FDF	IDF
Type and Model No.	_____	_____

Manufacturer			
Number			
Operating speed	(rpm)		
Capacity per set	(m^3/min)		
Static pressure	(mmH_2O)		
Air temperature	(^oC)	/	
Shaft horse power	(kW)	/	
Efficiency	(%)	/	
Motor		The Tenderer shall indicate the motor specification in accordance with sub-clause 10 V of Tenderer's Data Sheet.	
Noise at 1m distance;	dB(A)		
Weight			
Rotor	(t/each)		
Motor	(t/each)		
Complete	(t/each)		

(30) Gas recirculation fan or gas injection fan

Type and Model No.		
Manufacturer		
Number		
Operating speed	(rpm)	
Capacity	(m^3/min)	
Static pressure	(mmH_2O)	
Gas temperature	(^oC)	
Shaft horse power	(kW)	
Efficiency	(%)	

_____
(Tenderer's Name)

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.
Noise	(dB)	_____
Weight		
Rotor	(kg/set)	_____
Motor	(kg/set)	_____
Complete	(kg/set)	_____

(31) Boiler water circulating pump (If necessary)

Type		_____
Manufacturer		_____
Number		_____
Operating speed	(rpm)	_____
Capacity per set	(m^3/min)	_____
Total head	(m)	_____
Boiler water pressure	(kg/cm^2g)	_____
Boiler water temperature	(^oC)	_____
Shaft horse power	(kW)	_____
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.
Type of shaft seal		_____
Material of seal		_____
Seal water from		_____
Material		
Casing		_____

(Tenderer's Name)

Impeller _____

Shaft _____

(32) Heavy fuel oil, warm-up oil and ignition oil facilities

(a) Heavy fuel oil service tank

Type _____

Number _____

Capacity (kl) _____

Diameter (mm) _____

Height (mm) _____

Thickness

Bottom plate (mm) _____

Shell plate (mm) _____

Roof plate (mm) _____

Material

Number of courses _____

Painting material _____

Weight complete (kg) approx. _____

Material and size of heating coils (mm) _____

Heating area per unit volume of the tank (m^2/m^3) _____

(b) Heavy fuel oil pump

Type _____

Manufacturer _____

Number _____

Capacity (kg/h) _____

Suction pressure (m) _____

Tenderer's Data Sheet

(Tenderer's Name)

Discharge pressure	(kg/cm^2g)	
Viscosity range	(cst)	
Shaft horse power	(kW)	
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	(rpm)	
Type of shaft seal		

(c) Heavy fuel oil heater

Type		
Manufacturer		
Number		
Heating surface	(m^2)	
Oil flow	(kg/h)	
Oil pressure	(kg/cm^2g)	
Steam flow	(kg/h)	
Steam pressure	(kg/cm^2g)	
Inlet oil temperature	(^oC)	
Outlet oil temperature	(^oC)	
Temperature of condensate	(^oC)	
Material		
Tube		
Shell		
Diameter x Thickness		
Tube	(mm)	x
Shell	(mm)	x

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Fluid in tubes _____

Heat transfer coefficient (Kcal/m^2h^oC) _____

(d) Heavy fuel oil flow meter with Strainer

Type _____

Manufacturer _____

Number _____

Available flow range (Kl/h) _____

Accuracy (%) _____

Screen material and mesh _____

(33) Seal air booster fan

Type _____

Manufacturer _____

Number _____

Capaciy (m^3/min) _____

Static pressure (mmH_2O) _____

Design temperature (^oC) _____

Shaft horse power (kW) _____

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.

(34) Flame detector and television camera cooling air fan

Type _____

Manufacturer _____

Number _____

Capacity (m^3/min) _____

Static pressure (mmH_2O) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Design temperature	(^{o}C)	_____
Shaft horse power	(kW)	_____
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.

(35) Steam generator supporting steel structure

Type		_____	
Manufacturer		_____	
Total weight	(kg) approx.	_____	
Size of steel structure		Boiler area	AH area
Height	(m)	_____	_____
Width	(m)	_____	_____
Depth	(m)	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

2. STEAM CONVERTER SYSTEM

(1) Steam converter with deaerator

Type		_____
Manufacturer		_____
Number		_____
Heating surface	(m^2)	_____
Heating steam flow	(kg/h)	_____
Maximum heating pressure	(kg/cm^2g)	_____
Maximum heating temperature	(^oC)	_____
Heating steam drain outlet temp.	(^oC)	_____
Secondary steam flow	(kg/h)	* _____
Secondary steam pressure	(kg/cm2g)	* _____
Feed water inlet temperature	(^oC)	_____
Weight complete	(in dry) approx.	_____
Weight complete	(in service) approx.	_____

(2) Steam converter drain cooler

Type		_____
Manufacturer		_____
Number of set		_____
Heating surface	(m^2)	_____
Heating drain flow	(kg/h)	_____
Heating drain inlet temp.	(^oC)	_____

(Tenderer's Name)

Heating drain outlet temp.	(^{o}C)	
Heating drain outlet pressure	(kg/cm^{2}g)	
Feed water flow	(m^{3}/h)	
Feed water inlet temp.	(^{o}C)	
Feed water outlet temp.	(^{o}C)	
Fluid in tubes		
Weight complete (in dry) approx.		
Weight complete (in service) approx.		

(3) Steam converter condensate drain tank

Type		
Number of set		
Size - Wide(m) x Length(m) x Height(m)		_____ x _____ x _____
Capacity in normal operation	(m^{3})	

(4) Steam converter feed water pump

Type		
Manufacturer		
Number of set		
Capacity	(m^{3}/h)	
Suction head	(m)	
Discharge head	(kg/cm^{2}g)	
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.

Tenderer's Data Sheet

(Tenderer's Name)

Feed water maximum temp. (^{o}C) _____

Material

Casing _____

Impeller _____

Shaft _____

Type of gland seal _____

Material of gland seal _____

(5) Pressure control valve and level control valve

	Heating steam P.C. valve	Steam drain L.C. valve	Feed water L.C. valve
Type			
Manufacturer			
Number of set			
Maximum flow (m^3/h)			
Minimum controlable flow (m^3/h)			
Material			
Body			
Disc			
Seat			
Stem			

(6) Control panel

Type _____

Height x Width x Depth (m) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

3. INSTRUMENT AIR SYSTEM

(1) Air compressor

Type		_____
Manufacturer		_____
Number		_____
Cylinder number x cylinder diameter	(mm)	_____ x _____
Stroke	(mm)	_____
Speed	(rpm)	_____
Capacity (m^3/min at free air)		* _____
Suction pressure	(mm bar)	_____
Discharge pressure	(kg/cm^2g)	_____
Shaft horse power	(kW)	_____
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.

Material

Frame and cylinder	_____
Cross head	_____
Piston	_____
Piston ring	_____
Connecting rod	_____
Crank shaft	_____
Valve seat	_____
Valve plate	_____
Valve spring	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Weight approximate

Compressor (kg/each) _____

Motor (kg/each) _____

Complete set (kg/each) _____

(2) After cooler

Type _____

Number _____

Capacity (m^3/min at free air) _____

Material

Tube _____

Shell _____

Diameter

Tube (mm OD) _____

Shell (mm OD) _____

Thickness

Tube (mm) _____

Shell (mm) _____

Length (mm) _____

Outlet air temp. (^oC) _____

Outlet cooling water temp. (^oC) _____

Weight complete (kg/each) approx. _____

(3) Air receiver

Type _____

Number _____

Capacity (m^3) _____

Diameter (mm) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Height (mm) _____

Design pressure (kg/cm^2g) _____

Material _____

Shell thickness (mm) _____

Weight complete (kg) approx. _____

(4) Air dryer

Type _____

Manufacturer _____

Number _____

Capacity (m^3/min at free air) _____

Air pressure (kg/cm^2g) _____

Dimension

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Number of gas compressor _____

Dew point of discharge air (^oC) _____

Discharge air temp. (^oC) _____

Weight (kg/each) approx. _____

(5) Pressure regulator and air filter set

Type _____

Manufacturer _____

Air filter

Type _____

Manufacturer _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

(6) Control panel

Type _____

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight complete (kg) approx. _____

(7) Divided package number for shipping _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

4. SERVICE AIR SYSTEM

(1) Air compressor

Type		_____
Manufacturer		_____
Number		_____
Cylinder number x cylinder diameter	(mm)	_____ x _____
Stroke	(mm)	_____
Speed	(rpm)	_____
Capacity	(m^3/min at free air)	_____
Suction pressure	(mm bar)	_____
Discharge pressure	(kg/cm^2g)	_____
Shaft horse power	(kW)	_____
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.
Complete weight	(kg/set)	_____

(2) Inter cooler

Type	_____
Number	_____
Capacity (m^3/min at free air)	_____
Material	
Tube	_____
Shell	_____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

Diameter x Thickness

Tube (mm) _____ x _____

Shell (mm) _____ x _____

Outlet air temp. (^{o}C) _____

Outlet cooling water temp. (^{o}C) _____

(3) After cooler

Type _____

Number _____

Capacity (m^3/min at free air) _____

Material

Tube _____

Shell _____

Diameter x Thickness

Tube (mm) _____ x _____

Shell (mm) _____ x _____

Outlet air temp. (^{o}C) _____

(4) Air receiver

Type _____

Number _____

Capacity (m^3) _____

Diameter (mm) _____

Height (mm) _____

Design pressure (kg/cm^2g) _____

Shell thickness (mm) _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

(5) Control panel

Type _____

Number _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

5. CHEMICAL FEED SYSTEM

(1) Hydrazine solution pump

Type		_____
Manufacturer		_____
Number		_____
Capacity	(max. l/min)	_____
Type of stroke adjustment		_____
Range of adjustment	(%)	_____ to _____
Discharge pressure	(max. kg/cm^2g)	_____
Connection size		
Suction	(mm)	_____
Discharge	(mm)	_____
Material		
Cylinder		_____
Ball check		_____
Ball seat		_____
Plunger		_____
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/each) approx.		_____

(2) Hydrazine solution tank

	Diluted	Concentrated
Type	_____	_____
Manufacturer	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Diluted	Concentrated
Number			
Capacity	(l)		
Size			
Inside diameter	(mm)		
Height	(mm)		
Thickness	(mm)		
Material			
Measuring tank			
Capacity	(l)		
Size (W x D x H)	(mm)		
Material			
Number			

		Diluted	Concentrated
Hand pump			
Number			
Capacity	(l/min)		
Weight complete (kg/each) approx.			

(3) Phosphate solution pump

Type	
Manufacturer	
Number	
Capacity (max. l/min)	
Capacity adjustment variable	
Type of adjustment provided	
Discharge pressure (max. kg/cm^2g)	

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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 of Tenderer's Data Sheet.

Connection size

- Suction (mm) _____
- Discharge (mm) _____

Material

- Cylinder _____
- Ball check _____
- Ball seat _____
- Plunger _____

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/each) approx. _____

(4) Phosphate solution tank

- Type _____
- Manufacturer _____
- Number _____
- Capacity (l) _____
- Size
  - Inside diameter (mm) _____
  - Height (mm) _____
  - Thickness (mm) _____
- Material _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Dissolving screen material		_____
Agitator		_____
Type		_____
Number		_____
Speed	(rpm)	_____
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 complete (kg/each) approx.		_____

(5) Ammonium solution tank

Type		_____
Manufacturer		_____
Number		_____
Capacity	(l)	_____
Size		_____
Inside diameter	(mm)	_____
Height	(mm)	_____
Thickness	(mm)	_____
Material		_____

(6) Ammonium dissolving equipment

Dissolving method		_____
Conductivity meter		
Manufacturer		_____

Tenderer's Data Sheet

(Tenderer's Name)

Number

Range

Type

Pressure reducing valve

Type

Reducing range

Number

Piping material

(7) Ammonium solution pump

Type

Manufacturer

Number

Capacity (max. l/min)

Capacity adjustment variable

Type of adjustment provided

Discharge pressure (max. kg/cm^2g)

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.

Connection size

Suction (mm)

Discharge (mm)

Material

Cylinder

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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 of Tenderer's Data Sheet.

Weight complete (kg) approx. _____

(8) Control panel

Type _____

Height (mm) _____

Width (mm) _____

Depth (mm) _____

Weight (kg) approx. _____

(9) Chemical feed pump stroke controller at CCR

Type _____

Manufacturer _____

Range _____

Number _____

Control System block diagram by No. _____

(10) Electric power source

kW _____

Voltage _____

Phase _____

(11) Divided package number for shipping _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

6. SAMPLING RACK SYSTEM

(1) Sampling rack

Type _____

Manufacturer _____

Number _____

Analyzer

pH

Type _____

Manufacturer _____

Number _____

Range _____

Conductivity

Type _____

Manufacturer _____

Number _____

Range _____

Dissolved oxygen

Type _____

Manufacturer _____

Number _____

Range _____

Hydrazine

Type _____

Manufacturer _____

Number _____

Range _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

Pressure reducing valve

Type _____

Material _____

Size of sampling rack

Length (mm) _____

Width (mm) _____

Height (mm) _____

Weight complete (kg) approx. _____

(2) Recorder and indicator

	Recorder (Control room)	Indicator (Local)
(a) pH		
Type	_____	_____
Manufacturer	_____	_____
Number	_____	_____
Number of pen	_____	_____
Range	_____	_____
(b) Conductivity		
Type	_____	_____
Manufacturer	_____	_____
Number	_____	_____
Number of pen	_____	_____
Range	_____	_____

Tenderer's Data Sheet

_____
(Tenderer's Name)

	Recorder (Control room)	Indicator (Local)
(c) Oxygen and hydrazine		
Type	_____	_____
Manufacturer	_____	_____
Number	_____	_____
Number of pen	_____	_____
Range	_____	_____

(3) Uni-sampler

Type _____

Number _____

Manufacturer _____

Weight (kg) approx. _____

(4) Electric power source

kW _____

Voltage _____

Phase _____

(5) Divided package number for shipping _____

(6) Aut flow control valve

Type _____

Number _____

Manufacturer _____

Power souce _____

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Tenderer's Data Sheet

_____
(Tenderer's Name)

7. PIPING FOR STEAM GENERATOR AND AUXILIARY EQUIPMENT

		Material	Size (mm)
(1)	Auxiliary steam piping		
	From secondary superheater inlet - HP auxiliary steam control valve	_____	_____
	HP auxiliary steam control valve - HP auxiliary steam header	_____	_____
	From cold reheat pipe to HP auxiliary steam header	_____	_____

(2) Motor operating valves

	Soot blowing steam line	Burner atomizing steam line	H.P. aux. steam line
Type of valve	_____	_____	_____
Manufacturer	_____	_____	_____
Pressure rating	_____	_____	_____
Material	_____	_____	_____
Number of valve	_____	_____	_____

(3) Main steam piping

Material and size	(mm)	_____	_____
Design pressure	(kg/cm^2g)	_____	
Design temperature	(^oC)	_____	
Schedule (thickness)	(mm)	_____	
Calculation thickness	(mm)	_____	

(4) Reheater inlet steam piping

Material and size	(mm)	_____	_____
Design pressure	(kg/cm^2g)	_____	
Design temperature	(^oC)	_____	
Schedule (thickness)	(mm)	_____	
Calculation thickness	(mm)	_____	

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(Tenderer's Name) _____

(5) Reheater outlet steam piping

Material and size	(mm)	_____	_____
Design pressure	(kg/cm^2g)	_____	
Design temperature	(^oC)	_____	
Schedule (thickness)	(mm)	_____	
Calculation thickness	(mm)	_____	

(6) Turbine by-pass piping

	Thickness (mm)	Material	Size (mm)
(a) Main steam to pressure control valve	_____	_____	_____
(b) Pressure control valve to attemperator	_____	_____	_____
(c) Attemperator to reheat inlet pipe	_____	_____	_____

(7) Automatic control valves on H.P. turbine by-pass line

		On-off valve	Pressure control valve
Type		_____	_____
Manufacturer		_____	_____
Number of set		_____	_____
Size	(mm)	_____	_____
Maximum flow	(kg/h)	_____	_____
Pressure control	(kg/cm^2g)	_____	_____
Material			
Body		_____	_____
Disc		_____	_____
Seat		_____	_____

Tenderer's Data Sheet

(Tenderer's Name)

		On-off valve	Pressure control valve
	Stem		
	Noise (As a complete set) (dB (A))		
	Weight (kg) approx.		
(8)	Feedwater piping		
	Material and size (mm)		
	Design pressure (kg/cm^2g)		
	Schedule (thickness) (mm)		
(9)	Chemical feed piping	Material	Size (mm)
	Diluted water pipe		
	Chemical feed pipe		
	For drum		
	For deaerator		
	For condensate pump outlet		
(10)	Sampling piping	Material	Size (mm)
	Sampling pipe		

Tenderer's Data Sheet

_____
(Tenderer's Name)

8. INSULATION FOR STEAM GENERATOR AND AUXILIARY EQUIPMENT

	Heat transfer coefficient (kcal/mh^{o}C)	Maximum allowable temperature (^{o}C)
(1) Heat insulation material		
Calcium silicate		
Rock wool		
Hard cement		
Calcium silicate paste		
Other materials ( )		
(2) Insulation material		
Boiler drum		
Header		
Wall tube (Furnace)		
Wall tube (Convection)		
Ceiling		
Bottom		
Air duct and wind box		
Flue gas duct and soot hoppers		
Steam coil air preheater		
Air preheater		
Residual oil heater		

Tenderer's Data Sheet

_____
(Tenderer's Name)

Blow down tank _____

_____

Piping

Main steam _____

Turbine by-pass _____

Reheater inlet steam _____

Reheater outlet steam _____

Feedwater _____

Spray water _____

Residual oil _____

Auxiliary steam _____

Drain vent and vent _____

Wash water _____

(3) Description of safety insulation _____

_____

_____

_____

_____

(4) Lagging and jacketing

Material _____

Thickness (mm) _____

(5) Total weight of the insulation materials (ton) approx. _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

9. PAINTING FOR STEAM GENERATOR AND AUXILIARY EQUIPMENT

		Kind of paint	
		Primary painting	Finished painting
(1)	Steam generator		
(2)	Drum		
(3)	Header		
(4)	Tube		
(5)	Casing (inner)		
(6)	Casing (outer)		
(7)	Air duct		
(8)	Gas duct		
(9)	Forced draft fan		
(10)	Steam coil air preheater		
(11)	Air preheater		
(12)	Steel structure		
(13)	Heavy fuel oil and diesel oil service tank		
(14)	Heavy fuel oil pump		
(15)	Diesel oil pump		
(16)	Heavy fuel oil heater		
(17)	Blow down tank		
(18)	Steam converter		
(19)	Steam converter drain tank		
(20)	Steam converter drain cooler		
(21)	Steam converter feedwater tank		
(22)	Steam converter feed water pump		

Tenderer's Data Sheet

_____
(Tenderer's Name)

		Kind of paint	
		Primary painting	Finished painting
(23)	GRF or GlF	_____	_____
(24)	Boiler water circulating pump (if necessary)	_____	_____
(25)	Insulated piping	_____	_____
		_____	_____
(26)	Uninsulated piping	_____	_____

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10. INSTRUMENTATION

10.1 BOILER CONTROL SYSTEM

(1) Type _____

(2) Signal range (From/to another system) Analog _____ Degital _____

(3) Manufacturer, Model No. _____

(4) Number _____

(5) System cabinet

Dimension (mm) W x D x H _____ x _____ x _____

Grounding wire _____

Anti-vibration rubber Yes _____ No _____

(6) Transmitter & actuator type _____

_____

(7) Control system block diagram with main interlock system by No. _____

(8) Power supply system block diagram by No. _____

(9) Outline arrangement of unit master man-machine communication device by No. _____

(10) Operating condition of digital control system

Temp. _____ °C - _____ °C

Humidity _____ % - _____ %

(11) Power source and consumption

DC _____ V _____ W

AC _____ V _____ VA _____ W

Air _____ Nm^3/min

(12) Control ability

Automatic control range Yes _____ No _____

Tenderer's Data Sheet

_____
(Tenderer's Name)

	Control accuracy		
	Pressure (less than ± 2 kg/cm^2)	Yes	No
	Temperature (less than $\pm 5^{o}$C)	Yes	No
	Drum level (less than ± 50 mm) or one-third of alarm range)	Yes	No
(13)	MTBF more than 10^4 hours	Yes	No
(14)	Troubleshooting equipment		
	Console	Yes	No
	CRT	Yes	No
	Hard copy	Yes	No
	Printer	Yes	No
	Manual stand by operating modules	Yes	No
	Online, off line maintenance	Yes	No

Tenderer's Data Sheet

_____
(Tenderer's Name)

10.2 BURNER CONTROL SYSTEM

(1)	Type		
	Wired Ry on Degital		
(2)	Signal range (From/to another system)		
(3)	Manufacturer, Model No.		
(4)	Number		
(5)	System cabinet		
	Dimension (mm) W x D x H	x	x
	Grounding wire		
	Unti-vibration rubbers	Yes	No
(6)	Function		
	Boiler safety interlock system	Yes	No
	Burner management system	Yes	No
	Remote/Local light off	Yes	No
	Each burner control system	Yes	No
	Self diagnosis		
(7)	Applied standard, code, regulation	NFPA or	
(8)	MFT circuit power source		
(9)	Outline block diagram of each function by No.		
(10)	Outline composition of backup system for digital control system by No.		
(11)	Flame detector		
	Type, manufacturer		
	Ignition burner		
	Main oil burner		
	Main gas burner		

Tenderer's Data Sheet

(Tenderer's Name)

(12) Fuel trip valve type (oil) _____

Ditto (gas) _____

(13) Outline arrangement of central control console by No. _____

(14) Power supply system block diagram by No. _____

(15) Operating condition of digital control system

Temp. _____ °C - _____ °C

Humidity _____ % - _____ %

(16) Power source consumption

DC _____ V _____ W

AC _____ V _____ VA _____ W

Instrument air _____ Nl/min

Station air _____ Nl/min

(17) MTBF more than 10^4 hours Yes No

(18) Troubleshooting equipment

Console Yes No

CRT Yes No

Hard copy Yes No

Printer Yes No

Manual stand by operating modules Yes No

Online-offline maintenance Yes No

Tenderer's Data Sheet

(Tenderer's Name)

10.3 SPECIAL INSTRUMENTS

(1) Heavy fuel oil flow meter (installed at FCV inlet)

Type		Positive displacement
Manufacturer, Model No.		
Flow range	(Kl/h)	
Accuracy	(%)	
Calibrated by (Institute, laboratory)		
Manual printer (for used normal and performance test)		Yes / No
Aut-temp compeusator		Yes / No

(2) Heavy fuel oil tank level meter (installed at service tank)

Type		
Manufacturer, Model No.		
Measuring range	(mm)	
Minimum measuring unit	(mm)	
Accuracy	(%)	
Calibrated by (Institute laboratory)		
(for used normal and performance test)		

(3) Natural gas flow meter

Type		
Manufacturer, Model No.		
Flow range Nm^3/h		
Accuracy	(%)	
Calibrated by (Institute, laboratory)		