

Amendment

No.	Vol.	Sect.	Chapt	Page	Original description	Amendment
1	1	3	5	56	<p>DCS: Offered Model shall have at least two (2) years trouble free commercial operation as on Bid Closing Date in at least two (2) supercritical coal fired power plants one (1) of which shall be outside the manufacturer's home country and shall have commitment from the manufacturer for spare part / service support at least for 10 years from the Date of Bid Closing. Manufacturers shall be one of the following: Siemens, ABB, Foxboro or equivalent.</p> <p>Relays: Relays designed identical to relays proposed with five (5) years proven field experiences as on Bid Closing Date. Manufacturers shall be one of the following: Siemens, ABB, Alstom or Mitsubishi or equivalent.</p>	<p>DCS: Offered Model shall have at least two (2) years trouble free commercial operation as on Bid Closing Date in at least two (2) supercritical coal fired power plants one (1) of which shall be outside the manufacturer's home country and shall have commitment from the manufacturer for spare part / service support at least for 10 years from the Date of Bid Closing. Manufacturers shall be one of the following: Siemens (Germany), ABB (Switzerland or Germany), Foxboro (USA) or equivalent</p> <p>Relays: Relays designed identical to relays proposed with five (5) years proven field experiences as on Bid Closing Date. Manufacturers shall be one of the following: Seimens (made in Germany), ABB (made in Switzerland / Sweden / Japan), Alstom (made in France / UK) or Mitsubishi (made in Japan)</p>
2	1	4		90	Equipment (Form EQU)	Equipment (Bidders' Own Form)
3	2	5	3	23	3.6 IMPLEMENTATION SCHEDULE.	Time for Commencement and Completion in this chapter shall be subject to SCC 8 of Section 7 of volume 3 in the Tender Document.
4	2	5	9	23	In the import and export of round coal yard before and behind the coal crusher room three grade iron removers shall be arranged.	In the import and export of rectangle coal yard before and behind the coal crusher room three grade iron removers shall be arranged.
5	2	5	9	24	<p>Two (2) roller screens shall be provided on the coal belt conveyors from the jetty to the coal yard. The roller screens shall remove rock and contamination in excess of 30 mm from the coal stream. The roller screen bars shall be manufactured from a cast manganese alloy. Alternatively perforated deck may be provided.</p> <p>The removed rock and contamination shall be fed to a disposal container, which shall be of mobile type with wheels for easy removal and transfer to dumping area.</p>	Delete.
6	2	5	11	2	Boiler efficiency (low heat value) (%) > 93.7%	Boiler efficiency (low heat value) (%) > 94%
7	2	5	30	1,2	<p>30 GENERATOR STEP-UP (GSU) TRANSFORMER, UNIT AUXILIARY TRANSFORMER (UAT) AND STANDBY/ MAINTENANCE TRANSFORMER</p> <ul style="list-style-type: none"> • Connection between UATs and 11kV switchgear shall be by Segregated Phase Bus Duct. • Connection between the Stand-by/Maintenance Transformer to the 11kV Switchgear shall be of non-segregated phase bus duct. 	<p>30 GENERATOR STEP-UP (GSU) TRANSFORMER, UNIT AUXILIARY TRANSFORMER (UAT) AND STANDBY/ MAINTENANCE TRANSFORMER</p> <ul style="list-style-type: none"> • Connection between UATs and 11kV switchgear shall be by non-segregated phase bus duct. • Connection between the Stand-by/Maintenance Transformer to the 11kV Switchgear shall be of non-segregated phase bus duct.
8	2	5	40	7		<p>40.4.2 HELIPAD</p> <p>The Contractor shall provide two (2) helipads with compliance to all international aviation standards. The Contractor shall provide the detailed drawing for approval of the Employer/the Engineer prior to implementation.</p>
9	2	5	40	11~17	40.7 VEHICLES	Refer to Attachment 2--Volume 2- 40.7 Vehicles
10	4	5	A2	39	<p>400KV Substation</p> <p>1 SF6 Air Bushing PCS 1</p> <p>2 SF6 Circuit breaker PCS 2</p> <p>14 Shunt reactor PCS 1</p>	<p>400KV Substation</p> <p>1 SF6 Air Bushing PCS 1</p> <p>2 SF6 Circuit breaker PCS 2</p>
11	4	5	B3	44	Table B3-1 Coal quality analysis	Refer to Attachment 1--The New Coal Analysis.



Attachment 1

Coal Analysis Table for EPC Bidding Period.

Item	Symbol	Unit	Best Coal	Design Coal	Check Coal	Worst coal
1. Coal type			AS1:IN2 3:2 (mass ratio)	AS1:IN2 1:2 (mass ratio)	AS1:IN2 1:3 (mass ratio)	IN3
2. Element analysis						
Base carbon as received	Car	%	52.87	49.48	47.69	44.56
Base hydrogen as received	Har	%	3.59	3.55	3.64	3.48
Base oxygen as received	Oar	%	11.18	11.69	12.92	13.19
Base nitrogen as received	Nar	%	0.86	0.77	0.70	0.61
Base total sulfur as received	St, ar	%	0.32	0.24	0.17	0.16
Base ash content as received	A, ar	%	12.59	9.07	6.69	5.80
Total moisture as received	M, ar	%	18.59	25.20	28.19	32.20
Total		%	100	100	100	100
3. Technical analysis						
Air-dried base moisture content	Mad	%	3.28	4.30	4.84	4.64
Air-dried base volatile constituent	Vad	%	34.70	38.58	40.98	42.98
Vdaf	Vdaf	%	42.44	45.88	47.49	49.29
4. Base low heat value as received	LHV,ar	MJ/kg	20.94	19.00	18.49	17.52
5. Hardgrove grindability index	HGI		52	54	54	70
6. Ash fusion temperature						
Deformation temperature	DT	°C	1380	1320	1240	1250
Softening temperature	ST	°C	1450	1380	1280	1290
Flowing temperature	FT	°C	1490	1420	1350	1350
7. Ash component analysis						
SiO ₂		%	70.97	68.98	62.34	56.21
Al ₂ O ₃		%	13.44	13.40	13.44	19.92
Fe ₂ O ₃		%	4.12	7.73	11.32	5.59
CaO		%	1.25	2.57	3.96	4.49
MgO		%	0.85	1.24	1.55	1.63
Na ₂ O		%	0.21	0.23	0.52	1.98
K ₂ O		%	0.42	0.46	0.43	0.71
TiO ₂		%	0.72	0.79	0.72	0.80



Item	Symbol	Unit	Best Coal	Design Coal	Check Coal	Worst coal
MnO ₂		%	0.04	0.08	0.10	0.14
SO ₃		%	1.35	2.84	4.10	3.30
P ₂ O ₅		%	0.06	0.09	0.12	0.17
BaO		10 ⁻⁶	343	454	649	559
Other		%	6.57	1.59	1.40	5.06

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Attachment 2

Volume 2 – 40.7 Vehicles

40.7 VEHICLES

40.7.1 SITE TRANSPORTATION

The Contractor shall provide specified vehicles to the Employer.

Requirements of vehicles are as follows:

- Seven (7) Jeeps with capacity of (at least - 3000CC)
- Six (6) Pick-Ups with capacity of (at least - 2500CC)
- Two (2) Microbus with min. of (10 passengers)
- One (1) Microbus with min. of (8 passengers)
- Two (2) Truck with capacity of (10 tons)
- One (1) Speedboat with capacity of (15 passengers)
- One (1) well equipped Fire Brigade Truck
- Nine (9) dump trucks with capacity of (17 tons) (four for ash handling, three for limestone handling, two for gypsum handling)
- One (1) well equipped Ambulance

The Contractor shall also provide O&M cost with fuel (25 liters per car, per day in average) during construction period.

For vehicles, import related taxes, duties, VAT, AIT and local registration cost shall be borne by the Contractor.

All vehicles shall be a new model and comply with the requirements outlined in this specification.

Jeep

- Japan or Europe manufacture
- Minimum 5 speed auto/manual transmission with Four Wheel Drive (4WD)
- 5 Seated Station Wagon type
- Features shall include leather seats, dual safety air bags inflate and air conditioning

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- Power Assisted Steering
- Heavy Duty Steel Wheel for on-road and off-road drive
- Anti-lock Braking System (ABS) with Electric Traction Control (ETC) and Dynamic Stability Control
- The jeep shall equipped with an central locking and alarm system that includes an engine immobilizer and a siren with backup battery to help prevent the possibility of theft
- Heavy Duty chassis (corrosion-resistant aluminium body panels) and suspensions
- Towing Winch capability of 3,500kg.

Pick Ups

- Japan or Europe manufacture
- Minimum 5 speed auto/manual transmission with Four Wheel Drive (4WD)
- 5 Seated
- Features shall include leather seats, dual safety air bags inflate and air conditioning
- Power Assisted Steering
- Heavy Duty Steel Wheel for on-road and off-road drive
- Anti-lock Braking System (ABS) with Electric Traction Control (ETC) and Dynamic Stability Control
- The jeep shall equipped with an central locking and alarm system that includes an engine immobilizer and a siren with backup battery to help prevent the possibility of theft
- Heavy Duty chassis (corrosion-resistant aluminium body panels) and suspensions
- Towing Winch capability of 3,500kg.
- At least 1.68 meter long cargo deck

Micro Bus

- Japan or Europe manufacture
- Minimum 5 speed auto/manual transmission
- Central locking and Alarm System

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- Features shall include leather seats, dual Safety Air Bags inflate and air conditioning
- The seats shall capable of configure in multiple ways so that it could accommodate any occasions and needs
- Power Assisted Steering
- Anti-lock Braking System (ABS) with Electric Traction Control (ETC) and Dynamic Stability Control
- The microbus shall equipped with an alarm system that includes an engine immobilizer and a siren with backup battery to help prevent the possibility of theft
- Towing Winch capability of 3,500kg.
- The microbus shall consist of First Aid Kit, jumper cables and a safety triangle in the event of any unforeseen emergencies.
- The micro bus shall be fuel efficient, requires low maintenance, offers great performance and durability, and is highly economical for various organizations to consider as a shuttle service.

Truck

- Japan or Europe or equivalent manufacture
- 6 cyl. In-line, Turbocharged Intercooler, Direct Injection
- The truck shall be 10 tons wheelbase chassis to allow for cargo space up.
- The truck shall suitable for typical applications include construction, regional and local distribution as well as short-range transportation and services.
- Anti-lock Braking System (ABS) with Electric Traction Control (ETC) and Dynamic Stability Control
- The truck shall consist of First Aid Kit, jumper cables and a safety triangle in the event of any unforeseen emergencies.
- Features shall include Air Suspension Driver Seat, Dual Safety Air Bags inflate and air conditioning

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The boats shall be delivered as per the following specifications: Passenger Capacity: for 15 seater.

- This boat shall be used as an ordinary passenger speed boat and as a rescue boat / ambulance boat in case of emergencies
- The boat shall have hard top cover and nonskid fiber glass flooring.
- The 15 passenger boat hull shall be constructed with fiberglass reinforced plastic (FRP) and be fully strengthened.
- The boat shall be tested for safety of passengers with accordance to maritime standards.
- The boat shall be swam tested, and be provided with full buoyancy.
- The boat shall have a provision for storing emergency first aid kits,
- The boat ideally be powered by two (2) of 4 Stroke out board engine of 200 HP, with remote control.
- Lockers for general storage and general items.
- The boat shall be equipped with DC lights, DC fans, emergency lamp points/sockets.
- The boats shall have fire extinguishers (DCP & Foam type), life jackets, life buoys, search light, horn, etc
- The boats shall be equipped with adequate maritime navigation and communication systems.
- Propose to use the Jetty facility for embarking / disembarking of passenger.

Ambulance

- This ambulance shall be used in case of emergencies.
- The ambulance shall be equipped with First Aid Kit, oxygen unit, stretcher, electrocardiograph, breathing machine, and etc.

40.7.2 MAINTENANCE VEHICLE

The Contractor shall provide the following maintenance vehicle to the Employer as part of the operational and maintenance requirement of the Plant:



- One (1) Mobile Crane
- One (1) Diesel Forklift
- One (1) Cargo Truck
- One (1) Platform Truck
- One (1) Industrial Vehicle with Platform
- Five(5) TY220 type bulldozers (two for coal shed, one for limestone yard, one for gypsum storage room, one for stand-by)
- Five(5) ZL50 type wheel loaders (two for coal shed, one for limestone yard, one for gypsum storage room, one for stand-by)
- Two(2) Limestone Forklifts (3t)

The Mobile Crane and Diesel Forklift shall be delivered to the warehouse, all unpacked and all shipping protective coatings shall be removed, tested through all lifting motions and carrying full rated load.

The Cargo Truck, Platform Truck, Industrial Vehicle and Load Skates shall be delivered to the store, unpacked and all shipping protective coatings removed.

40.7.2.1 MOBILE CRANE

One of 50 tons mobile crane shall be equipped with air conditioning for operator enclosure

40.7.2.2 DIESEL FORKLIFT TRUCK

One of 5,000kg forklift

40.7.2.3 CARGO TRUCK

One of 14 tons cargo truck

40.7.2.4 PLATFORM TRUCK

One of 2,000kg hand operated platform truck

40.7.2.5 INDUSTRIAL VEHICLE

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Industrial vehicle with rising personnel

150kg Loading capacity and 12m maximum height

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