

BHARAT HEAVY ELECTRICALS LIMITED

(A GOVT. OF INDIA UNDERTAKING)

Tiruchirappalli – 620 014. TamilNadu.

SCOPE OF WORK FOR SUPPLY OF LIQUEFIED PETROLEUM GAS THROUGH MOBILE TANKER

1. GENERAL:

BHEL intend to procure Liquefied Petroleum Gas on FOR destination basis as per their monthly requirement. The Destination of delivery is BHEL HPBP & SSTP/Trichy and BHEL/PPPU/Thirumayam. The installed plant static tank capacities of BHEL HPBP & SSTP/Trichy are 180 MT and PPPU/Thirumayam is 80 MT.

2. ITEM TO BE SUPPLIED:

LIQUEFIED PETROLEUM GAS (LPG) through Tanker Lorries. Tankers capacity should be of Minimum 18MT

3. PHYSICAL PROPERTIES / CHARACTERISTICS / TEST CERTIFICATE:

As per Annexure – I attached (Specified as per IS:4576)

4. PRICE:

The offered price should be for per MT and FOR BHEL/Trichy and BHEL/PPPU/Thirumayam separately. The Price for the quoted supply month shall be firm for the whole month

5. DELIVERY SCHEDULE:

The successful tenderer shall make arrangements to deliver the required quantity of material as per our requirement. However, we reserve the right to regulate supplies by increasing/decreasing/suspending dispatches according to our production schedule, which shall be intimated to the successful tenderer.

6. TRANSPORTATION:

The successful tenderer shall make his own arrangements to deliver Liquefied Petroleum Gas at our Factory and the transportation charges applicable shall be fixed and firm and shall not vary on any account till completion of the entire ordered quantity. GST on Transportation Charge, if applicable, shall be shown separately. All precautions shall be taken to ensure that no contamination of the material happens during transit. Tenderer shall also comply to requirements under Annexure II.

7. UNLOADING / Rejection:

Our usual unloading time is from 8.00 a.m. to 4.00 p.m. on all normal working days, except on Sundays and other public holidays. BHEL weighment is final. In case BHEL weighment exceeds the invoice weight, it will be restricted to invoice weight only. In case of any rejection, the successful tenderers shall make their own arrangements to take back the rejected quantity, at his own risk and cost. However, we shall try to ensure that the vehicles are not detained beyond reasonable time.

8. MATERIAL TEST CERTIFICATE:

Each consignment of Liquefied Petroleum Gas should accompany with a Test Certificate and the Test Certificate shall be handed over to the authorized officer of our Stores department without fail. The test certificates, missed if any, shall be submitted along with subsequent supplies.

9. Adherence to Safety of LPG tanker

Following points to be ensure before reaching to BHEL premises,

- a. To ensure that vehicle parked must be devoid of inflammable objects.
- b. To ensure that vehicle parked must have all safety requirements as per statutory rules (OISD-159 & PNGRB 2016).
- c. To ensure that vehicle parked must have all mandatory safety certifications as listed out in OISD- 159.
- d. To ensure that vehicles must always be parked with Driver/caretaker only

10. BHEL may, at Bidders expenses and without prejudice to any other right of it

- a. Perform such portion of the contract work as Bidders might have failed to execute or,
- b. Take the work wholly or part out of Bidders hand and re-contract the same to any other person /firm or
- c. Cancel the contract.

The company shall not be liable for any loss suffered by Bidders as a result of the company's action.

Bidders shall indemnify the company against all losses suffered by the company and liabilities imposed on the company as result of the default committed by them.

11. All questions, disputes arising under, out of or in connection with this Tender/Contract shall be decided by the Management of the Company whose decision shall be final and binding on the Tenderer/Contractor.

12. Any suit or legal proceeding against Company in connection with this Tender/Contract shall be filed or instituted only in a Court having jurisdiction in the town of Trichy court only. 1

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1. Liquefied Petroleum Gas (LPG):

LPG is a mixture of commercial butane and commercial propane having both saturated and unsaturated hydrocarbons. LPG marketed in India shall be governed by Indian Standard Code IS-4576 (Refer Table 1.0) and the test methods by IS-1448.

2. PHYSICAL PROPERTIES AND CHARACTERISTICS

2.1 DENSITY

LPG at atmospheric pressure and temperature is a gas which is 1.5 to 2.0 times heavier than air. It is readily liquefied under moderate pressures. The density of the liquid is approximately half that of water and ranges from 0.525 to 0.580 @ 15 deg C. Since LPG vapor is heavier than air, it would normally settle down at ground level / low lying places, and accumulate in depressions.

2.2 VAPOUR PRESSURE

The pressure inside a LPG storage vessel / cylinder will be equal to the vapor pressure corresponding to the temperature of LPG in the storage vessel. The vapor pressure is dependent on temperature as well as on the ratio of mixture of hydrocarbons. At liquid full condition any further expansion of the liquid, the cylinder pressure will rise by approx. 14 to 15 kg./sq.cm For each degree centigrade. This clearly explains the hazardous situation that could arise due to overfilling of cylinders.

2.3 FLAMMABILITY

LPG has an explosive range of 1.8% to 9.5% volume of gas in air. This is considerably narrower than other common gaseous fuels. This gives an indication of hazard of LPG vapor accumulated in low lying area in the eventuality of the leakage or spillage. The auto-ignition temperature of LPG is around 410-580 deg C and hence it will not ignite on its own at normal temperature. Entrapped air in the vapor is hazardous in an unpurged vessel/ cylinder during pumping/ filling-in operation. In view of this it is not advisable to use air pressure to unload LPG cargoes or tankers.

2.4 COMBUSTION

The combustion reaction of LPG increases the volume of products in addition to the generation of heat. LPG requires up to 50 times its own volume of air for complete combustion. Thus it is essential that adequate ventilation is provided when LPG is burnt in enclosed spaces otherwise asphyxiation due to depletion of oxygen apart from the formation of carbon-dioxide can occur.

2.5 ODOUR

LPG has only a very faint smell, and consequently, it is necessary to add some odorant, so that any escaping gas can easily be detected. Ethyl Mercaptan is normally used as stenching agent for this purpose. The amount to be added should be sufficient to allow detection in atmosphere 1/5 of lower limit of flammability or Odor level 2 as per IS: 4576.

2.6 COLOUR

LPG is colorless both in liquid and vapor phase. During leakage the vaporization of liquid cools the atmosphere and condenses the water vapor contained in them to form a whitish fog which may make it possible to see an escape of LPG.

2.7 TOXICITY

LPG even though slightly toxic, is not poisonous in vapor phase, but can, however, suffocate when in large concentrations due to the fact that it displaces oxygen. In view of this the vapor possesses mild anesthetic properties.

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TECHNICAL SPECIFICATION FOR SUPPLY OF LIQUEFIED PETROLEUM GAS THROUGH MOBILE TANKER

2.8 THE SPECIFICATIONS AND REQUIREMENTS OF LPG ARE AS FOLLOWS:

LPG SPECIFICATIONS (Salient Features as per LS 4576)			
MATERIAL CODE		DESCRIPTION	
130030250000 Specification of LPG		Liquefied Petroleum Gas as per the following technical specifications	
Liquid Petroleum Gas will be of commercial propane / Butane mixture generally as per IS 4576 & conform to the following:			
1.	COMPOSITION: PROPANE - Min. 25% - Max. 45% ISO BUTANE - Min. 5% - Max. 20% N-BUTANE - Min. 45% - Max. 55%	TOTAL Min. 98%	ASTM D - 2163
	UN — SATURATED HYDROCARBONS & OTHERS	Max. 2%	ASTM D - 2163
2.	VAPOUR PRESSURE	Min. 80Psi, Max. 110Psi at 37.8° C.	ASTM D - 2163
3.	NET CALORIFIC VALUE	Min. 10, 700 K. Cal / Kg	
4.	HYDROGEN SULPHIDE	Absent	ASTM D - 2420
5.	DRYNESS	NO FREE ENTRAINED WATER	
6.	TOTAL VOLATILE SULPHUR % BY MASS	0.02% Max.	ASTM D - 2784
7.	COPER STRIP CORROSION at 38°C FOR 1 hr.	NOT WORSE THAN ONE	ASTM D - 1838
8.	ODOUR	LEVEL 2	
9.	RELATIVE DENSITY	Min. 0.54, Max. 0.56 at 15.6° C.	ASTM D - 2598
10.	VOLATILE EVAPORATIVE TEMP.IN Degrees C FOR 95% VOL. @760MM PRESSURE	2° C Max.	ASTM D - 1837
NOTE: Test certificate should indicate the values for all the above parameters.			

2.8.1 The composition of LPG should not be more than 75% butane and not less than 25% propane. The vapour pressure of LPG should not be less than 80 psi and not more than 110 psi at 37.8° C.

2.8.2 Every tanker receipt shall indicate the density and the temperature at the time of loading.

2.8.4 The vapour pressure should be specified in psi at 37.8°C

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ENVIRONMENTAL MANAGEMENT/OCCUPATIONAL HEALTH AND SAFETY SYSTEM REQUIREMENTS FOR SUPPLY OF LIQUEFIED PETROLEUM GAS THROUGH MOBILE TANKER

As per the environmental management system- SO 14001:2004 and occupational health and safety system 18001-1999, we are committed to ensure that our transporters strictly follow specific environmental and OH and S requirements while transporting the materials to our factory. Your attention is drawn to the following act and rules, which you are earnestly requested to follow.

- i. The Motor Vehicles Act 1988 and Central Motor Vehicles Rules 1989 The Manufacture, storage and import of Hazardous Chemicals Rules 1989 iii. Holding Fitness Certificate of the vehicle.

You are also requested to strictly adhere to the following statutory/legal requirements with regards to safety, which will be checked by our authorized officials, while your trucks reach our premises.

- a) The vehicles should have valid registration and road permit.
- b) The driver should have photo identified valid Heavy License (Original Only) and all other statutory documents. Also each should have attended special training for transportation of hazardous Chemicals and must possess certificate issued by the concerned authority to that effect.
- c) The driver's license must be duly endorsed by Road Traffic Authorities for transporting hazardous chemicals.
- d) The vehicle should have a Spark Arrester. Unloading Trucks (BS VI or BS IV -minimum 18MT) shall be of non-sparking of exhaust and shall produce certificate for Exemption of spark arrester for exhaust system if inbuilt in the system. If otherwise a separate Spark arrester shall be fitted to the unloading truck before entering BHEL premises.
- e) The vehicle should have "Reverse Hooter".
- f) The "Pollution **under Control**" certificate should be available with the drivers in the vehicles.
- g) The First **Aid Box, Fire Extinguishers and required safety appliance must be available in the vehicles.**
- h) **Your vehicles while carrying materials to our company are not supposed to carry smoking materials, Match boxes, lighters, stoves etc.**
- i) The Driver must bring along with him the Delivery Challan / Invoice of the material issued by our vendors, Test certificate for the LPG carrying and should produce the same to the authorities while reaching BHEL

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Technical Specifications

Technical Specifications

Specification	Specification Name	Bid Requirement (Allowed Values)
Standards	Conformity to Standard	IS 4576 (Latest)
Specifications	Types of LPG	Commercial Butane -Propane Mixture
Packaging	Material Shall be supplied in Packing Size Of	18.0, 21.0,16.0 (metric tonne)

Additional Specification Parameters - Liquefied Petroleum Gas (LPG) As Per IS 4576 For Bulk Supply

Specification Parameter Name	Bid Requirement (Allowed Values)
Consignee	The quantity mentioned in Schedule 1 is for the requirement of BHEL TRICHY and the quantity mentioned in Schedule 2 is for the requirement of BHEL PPPU THIRUMAYAM.
Delivery schedule	Staggered Delivery of LPG tanker as and when required by BHEL.
Quantity short close	Unutilised ordered quantity will be short closed after the end of delivery date
Adherence to Safety of LPG tanker	<ol style="list-style-type: none">1. To ensure that vehicle parked must be devoid of inflammable objects.2. To ensure that vehicle parked must have all safety requirements as per statutory rules (OISD-159 & PNGRB 2016).3. To ensure that vehicle parked must have all mandatory safety certifications as listed out in OISD- 159.4. To ensure that vehicles must always be parked with Driver/caretaker only

*Bidders offering must also comply with the additional specification parameters mentioned above.