



GASNET SERVICES (RJ) LIMITED

**ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI,
PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA**



RESONANCE ENERGY PVT LTD

TECHNICAL VOLUME II OF II



TENDER NO.: GSL/REPL/006/C-DBS

OPEN DOMESTIC COMPETITIVE BIDDING

0	22/12/2022	SU	PG	AN
Rev.	Date	Prepared By	Checked By	Approved By

	ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA	
TENDER DOCUMENT NO: GSL/REPL/006/C-DBS		Date: 22/12/2022

TECHNICAL SPECIFICATION

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>



PARTICULAR JOB SPECIFICATION

DIVISION – I

TECHNICAL SPECIFICATION FOR MECHANICAL WORKS

CONTENTS



- A. SS TUBE LAYING AND TESTING**
- B. ERECTION OF MECHANICAL EQUIPMENT**
- C. SUPPLY, ERECTION & COMMISSIONING OF MISCELLANEOUS ITEMS**

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

A. SS TUBE LAYING AND TESTING

CONTENTS

- 1.0 SCOPE OF WORK AND TECHNICAL SPECIFICATION
- 2.0 INSTALLATION PROCEDURE
- 3.0 REMAKE OF FITTINGS
- 4.0 REFERENCE SPECIFICATION, CODES AND STANDARDS
- 5.0 SCOPE OF SUPPLY
- 6.0 SCRAP AND EXCESS MATERIAL

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

1.0 SCOPE OF WORK AND TECHNICAL SPECIFICATION



1.1 LAYING OF SS TUBE

Laying, testing and commissioning of SS tubes and fittings complete with all supports, whereas the tubes shall be scope in the contractors. The required SS fittings and valves, MS Angles and U-clamps (galvanized) and other fixing arrangement shall be procured and installed by the contractor. Payment shall be at the rate for the work set out in the agreed Schedule of Rates.

1.2 SCOPE OF WORKS: FOR LAYING, TESTING & COMMISSIONING OF SSTUBING

Generally the following shall constitute the Contractor's scope of work but not limited to as given herein:

- 1.2.1 Contractor shall supply from their stores, loading, transportation and unloading at project sites. Proper storing, stacking, identification, providing security and insurance during and before erection, and commissioning.
- 1.2.2 SS tubes shall be clamped to the MS Angle at every 1000 mm using P clamps of SWAGELOK make / any other approved make / SS – 308 clamps with EPDM cushion. **The practice of flattening tubes for clamping purposes shall not be permitted.**
- 1.2.3 MS Angle and U-clamps (galvanized) shall be procured from approved manufacturers and based on approved sample by Engineer In-charge.
- 1.2.4 Tubes shall be bend using tube benders only and any hot bending will be totally rejected. Tubes shall be cut using pipe cutting device. **Hot cutting is not allowed.**
- 1.2.5 Carrying out pneumatic testing and purging with nitrogen as per approved procedures; providing all tools, tackles, instruments, manpower and other related accessories for carrying out the testing of tubes.
- 1.2.6 Submission of final material appropriation statements for all the materials, supply for mechanical, Electrical and erection etc. shall be scope on the bidder.
- 1.2.7 Start-up and commissioning assistance.
- 1.2.8 Handing over the completed works to Owner for their operation/ use purposes.

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

1.2.9 Any other work not specifically mentioned herein, but required for the satisfactory completion/ operation/ safety/ statutory/ maintenance of the works shall also be covered under the scope of work and has to be completed by the Contractor within specified schedule at no extra cost to owner.

2.0 INSTALLATION PROCEDURE

2.1 TUBE END PREPARATION

2.1.1 Cut the ends square with a hacksaw and a suitable guide. Tubes cutters are satisfactory for most tube materials but tend to work harden stainless steel. As such proper care shall be exercised while cutting the SS tubes to avoid the hardening.

2.1.2 Burrs must be removed inside and outside for proper entry into fitting to prevent contamination and/ or **restricted flow. 'Swagelok' deburring tool shall be used.**

2.1.3 Remove all fittings, chips, and grit before attachment of fittings.

2.2 ASSEMBLY

2.2.1 Tube line fabrication must be accurate so that the tube end easily enters the fitting in proper alignment. Do not force an improperly fitted tube line into the fittings.

2.2.2 Ensure that the tube end is bottomed against the shoulder in the fitting body. This is necessary to prevent movement of the tube while the nut forces the ferrule to grip the tube and to seal through any imperfections that may exist on the outside tube surface.



2.2.3 Never permit the fitting body to rotate during tube end make-up, use two wrenches. Assemble port connectors to components first and hold with a wrench while making up the tube joint. All types of union bodies must be held while each of the tube ends is made up.

2.2.4 Never attempt to make up by torque.

2.2.5 Always turn the nut the prescribed amount regardless of torque required. Fitting end plugs required only 1- ¼ turn from finger tight make up in all sizes.

3.0 REMAKE OF FITTINGS

A disassembled joint can be remade, simply by retightening the nut to the position of the original make up. For maximum number of remakes, mark the fitting and nut before disassembly. Before retightening, make sure the assembly has been inserted into the

	ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA	
TENDER DOCUMENT NO: GSL/REPL/006/C-DBS		Date: 22/12/2022

fitting until the ferrule(s) seats in the fitting. Retighten the nut by hand. Rotate the nut with a wrench to the original position as indicated by the previous marks lining up. (A noticeable increase in mechanical resistance will be felt indicating the ferrule is being resprung into sealing position.) Then snug the nut 1/12 turn (1/2 hex flat) past the original position.

4.0 REFERENCE SPECIFICATION, CODES AND STANDARDS

The Contractor shall carry out the work in accordance with this specification & Standards, ASME B 31.8 - Gas Transmission and Distribution Piping Systems, Oil Industry Safety Directorate (OISD) norms. Should the Contractor find any discrepancy, ambiguity or conflict in or between any of the Standards and the contract documents, then this should be promptly referred to the Engineer-in-Charge (EIC) for his decision, which shall be considered binding on the contractor.

5.0 SCOPE OF SUPPLY

5.1 SUPPLIED BY BIDDER

Unless otherwise specified, Bidder will supply the all tubes necessary to complete the laying at CNG stations and for consumer connectivity at Giloth. by owner except with written approval from the EIC.



In general the following tubes & fittings shall be supplied as bidder

- i ¾" OD SS Tube of 0.095 wall thick min.
- ii ½" OD SS Tube of 0.083 wall thick min.
- iii 1/4" OD X 0.083 min wall thk. SS Tube

5.2 SUPPLIED BY THE CONTRACTOR AT HIS OWN COST AS PART OF THIS SPECIFICATION:

The procurement and supply of SS Fittings, SS Valves (as specified in Schedule of Rates), MS Angle with U- clamps at the appropriate time of all the materials and consumables except for the materials specifically enlisted under bidder scope of supply, shall be entirely the Contractor's responsibility and its rates of execution shall be inclusive for all these items, as follows but not limited to these:

- i Bolts and nuts for supports, U-bolts with nuts, P-clamps for tubes, anchor bolts of various sizes for fixing to concrete structure.

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

- ii Bitumen paints primer and solvents.
- iii All material for minor civil works like grouting etc.,
- iv Minor structural steel for fabrication of tube/ tray supports like MS plates, GI plates, flats, pipe etc.,
- v Pumps, compressor, Corrosion Inhibitor for water used for hydrostatic testing, including water for testing, inert gas for purging.
- vi All items not expressly mentioned in the Contract but which are necessary for the satisfactory completion and performance of the Work under this Contract.

Note:

Samples of all the consumables items/ test certificates required to be approved by EIC.

All the supply for mechanical, Electrical material and Erection work shall be scope on the bidder

6.0 SCRAP AND EXCESS MATERIAL



Every month the Contractor shall submit an account for all the materials issued to him by the owner in the standard Proforma prescribed for this purpose by the Engineer-in-charge. On completion of the work, the Contractor shall submit material appropriation statements for all the materials issued by the Owner in the standard Proforma.

The following scrap allowances are permissible.

ITEM	UNACCOUNTABLE	SCRAP
Tube	1 %	1% (Less than 0.3 m)

All excess materials and scrap shall be returned after duly accounting for, to the owner's stores. Where materials are to be weighed before return, the Contractor shall be responsible for making necessary arrangements for weighing etc. The contractor shall not use scrap sections obtained during the course of construction for fabrication of temporary supports or other items without prior written permission of Engineer-in-Charge.

If the Contractor fails to return the surplus material aforesaid, the Owner will charge the Contractor for such unreturned material at penal rates, which will be deducted from whatever amount is due to the Contractor. In case any material issued by the Owner deteriorates during storage by the Contractor, new material will be issued to him if

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

available at penal rates, but delay in procuring such materials will be at the Contractor's account only.

B. ERECTION OF MECHANICAL EQUIPMENT

CONTENTS

1. SCOPE OF WORK FOR LOADING, UNLOADING, TRANSPORTATION & ERECTION OF EQUIPMENT.
2. EQUIPMENT WEIGHTS & SIZES.



LOADING, UNLOADING, TRANSPORTATION & ERECTION OF MECHANICAL EQUIPMENT

1.0 SCOPE OF WORK:

- 1.1 Generally the following shall constitute the Contractor's scope of work but not limited to as given herein:
 - i) Receiving of material from stores.
 - ii) Loading of material/ equipment on a trailer / truck from stores. Safe transportation to various sites
 - iii) Unloading, placement and alignment on foundation (on ground or above ground + 3.5 m at roof top (cascade & Dispenser).
 - iv) Transit Insurance of equipment from stores to site.
 - v) All equipment transported shall be securely boarded and transported without causing any damage to equipment. Any damage caused during loading, transportation & unloading shall be recoverable from the contractor.
 - vi) All the equipment shall be leak tested after erection as per instruction of engineering in charge and standard practice.

2.0 EQUIPMENT DETAILS:



S. N.	Equipment	Dimension	Weight
01.	Dispenser	1.0 M X 1.2 M X 2.1 M (H) approx.	1.0 Ton Approx.
02.	Cascade	3.5M x 1.8M x 1.8 M approx.	6.0 Ton approx.

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

All excess, unutilized or defective materials and scrap shall be returned after duly accounting for, to owner's stores. Where materials are to be weighed before return, the Contractor shall be responsible for making necessary arrangements for weighing etc. The contractor shall not use scrapped or defective materials obtained during the course of construction for fabrication of temporary supports or other items without prior written permission of Engineer-in-Charge.

If the Contractor fails to return the surplus material aforesaid, the Owner will charge the Contractor for such un-returned material at penal rates, which will be deducted from whatever amount is due to the Contractor. In case any material issued by the Owner deteriorates during storage by the Contractor, new material will be issued to him if available at penal rates, but delay in procuring such materials will be at the Contractor's account only.



Contractor to arrange all equipment & tools such as cranes, winch, lifting hook etc. and skilled & semi-skilled manpower and consumables for erection of all the electro-mechanical equipment

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

C SUPPLY, ERECTION & COMMISSIONING OF MISCELLANEOUS ITEMS

CONTENTS

1. Fire Fighting Equipment

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

1.0 Fire Fighting Equipment: Contractor will supply and erect at designated locations the firefighting equipment. The details of the firefighting equipment are given below.

1. Supply and installation of **4.5 kg** capacity **CO2 type fire extinguishers** with steel cylinder with discharge valve and conforming to **IS: 2878-1975**. Extinguisher shall be painted with red enamel paint and hardware/ bracket required for fixing to wall.
2. Supply and installation of **9/10 kg** capacity dry chemical powder (**DCP**) type **fire extinguisher** with extinguishers cabinet suitable for inverted operation and fabricated from MS sheet internally protected with anticorrosive treatment and hydraulically tested. Extinguishers shall be externally painted with red enamel paint. Manufacturing code **IS: 13849**.
3. Supply and installation of **75 kg** capacity trolley mounted dry chemical powder (**DCP**) type **fire extinguisher** suitable for inverted operation fabricated from MS sheet internally protected with anticorrosive treatment and hydraulically tested extinguishers externally painted with red enamel. Manufacturing code **IS: 10658**.
4. Providing & installation of galvanized mild steel **fire buckets** of **9 Ltrs.** capacity, made as per **IS: 2546** Including supplying & fixing of **MS angle iron stand** to accommodate **6 nos.** of fire buckets with canopy and first fill with sand/water all complete as per direction of Engineer In charge (One set consisting of 6 buckets with stand).



Note: The equipment is to be purchased from the vendor list enclosed.

LIST OF SUPPLIERS OF MAJOR BOUGHT-OUT ITEMS

FIRE FIGHTING EQUIPMENT

Fire Extinguishers

1. M/s Tecshol Engineers Bangalore
2. M.s Nitin Fire Protection Pvt. Ltd.
3. M/s Safex Fire Services
4. M/s Fire Safety Services.
5. M/s HD Fire Protect Co.

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

6. M/s Zenith Fire Services
7. M/s Steelage Industries
8. M/s Atlas Firetech Pvt. Ltd.

or equivalent *

*The material should be successfully supplied & working in any of the CGD companies operating in India.

Note: Contractor shall select vendor/ agency from above list and clearly indicate name(s) as selected from the list.

APPROVED MAKE LIST FOR SS TUBING

1. M/s Tecshol Engineers Bangalore
2. M/s. Sandvik.
3. M/s Aadhaar Projects
4. M/s Khurana Engineering Works
5. M/s Eco Technologies,
6. M/s. Shah Enterprises,
7. M/s Jindal
8. M/s Parker
9. M/s DKLOK
10. M/s Dawsontec.

*or equivalent

*The material should be successfully supplied & working in any of the CGD companies operating in India.

APPROVED MAKE LIST FOR UPS



1. M/s Tecshol Engineers Bangalore
2. M/s Luminous
3. M/s Microtech
4. M/s Exide

*or equivalent

*The material should be successfully supplied & working in any of the CGD companies operating in India.

APPROVED MAKE LIST FOR ELECTRICAL ITEMS LIKE CABLES, FPL (flame proof light)

1. M/s Tecshol Engineers Bangalore
2. M/s Polycab

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

3. M/s Havel's
4. M/s Finolex

*or equivalent



*The material should be successfully supplied & working in any of the CGD companies operating in India.

APPROVED MAKE LIST FOR EDB COMPONENTS

9. M/s Tecshol Engineers Bangalore
10. M/s Switch Gear
11. M/s L&T
12. M/s ABP

*or equivalent

*The material should be successfully supplied & working in any of the CGD companies operating in India

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>



PARTICULAR JOB SPECIFICATION

DIVISION – II

TECHNICAL SPECIFICATION FOR ELECTRICAL WORKS

INDEX

S. N.	Description
1	General
2	Scope
3	Other Miscellaneous Work
4	Area Classification
5	Job Specification
6	Makes of equipments and materials
7	Inspection, testing and commissioning
8	Drawings, standard specifications and Installation standards

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

1.0 GENERAL

1.1 Introduction

The intent of this specification is to define the requirements for the supply of equipment and materials (as required), erection, testing and commissioning of the electrical power distribution system.

The work shall be carried out in the best workmanship – like manner, in conformity with these specifications, approved drawings and the instructions of the Engineer-in-charge from time to time.

The contract shall include clearing of temporary construction, waste materials and loose earth, which might get collected in and nearby the work site consequent of the execution of work under this contract.

1.2 Standards



The work shall be performed in conformity with, standard specifications and installation standards enclosed and code of practices of the Bureau of India Standards. In case of any conflict, the stipulations under this specification shall govern.

In addition, the work shall also conform to the requirements of the following:

- The Indian Electricity Act, and the rules framed there under
- The fire Insurance Regulations
- The regulations laid down by the Chief Electrical Inspector of the state government/
- Central Electricity Authority (CEA).
- The regulations laid down by the Factory Inspector.
- The regulations laid down by the Chief Inspector of Explosives.
- Any other regulations laid down by the Central, State or Local Authorities from time to time during the pendency of this contract.

1.3 Guarantee

The contractor shall guarantee the installation against any defects of workmanship and materials (supplied by the contractor) for a period of 12 months from the date of issue of the completion certificate. Any damage or defects connected with the erection of materials, equipment's or fittings supplied by the contractor that may be undiscovered at

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

the time of issue of the completion certificate, or may arise or comet light thereafter, shall be rectified or replaced by the contractor at his own expenses deemed necessary and as per the instruction of the Engineer-in-charge within the time limit specified by the Engineer-in-charge.

The above guarantee shall be applicable for the quality of work executed as well as for the equipment/ cable/ fittings/ other material supplied by the contractor.

1.4 Site Conditions

The equipment offered and the installation shall be suitable for continuous operation under the following site conditions.

Max. / Min temperature : 50 Degree /5 Degree
Max. Relative humidity : 90 %
Altitude : Less than 1000 m above MSL
Atmosphere : To withstand site conditions
(Dry, dust storms during summer, Humid & Heavy Rainfall during Monsoon)

1.5 Power Supply Parameters:

For Daughter Booster station at IOCL, BPCL, HPCL RO & Other equivalent like Decompressing

NORMAL POWER : 415V AC, 3 Phase & Neutral
LIGHTING DISTRIBUTION (Normal) : 230 V AC, 1 Phase
INSTRUMENTATION (UPS) : 230 V AC, 1 Phase



2.0 SCOPE

2.1 SCOPE OF DESIGN & ENGINEERING

2.1.1 Submission of electrical equipment drawings for review, preparation of site engineering drawings and details for installation works wherever applicable or required by the Engineer-in-charge, and submits to the Engineer-in-charge for review.

2.1.2 Correction, updating and submission of all Owners' drawings for as-built status.

2.2 SCOPE OF SUPPLY

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

Following electrical equipment and material are in the contractor's scope of supply in this tender.



- 2.2.1 MV power and control cable (XLPE – insulated armoured Al/Cu conductor 3 core cables).
- 2.2.2 GI pipes, GI Cable-trays and accessories, cable markers, identifier tags, GI saddles and all other associated accessories for cable-laying.
- 2.2.3 FLP type double-compression nickel-plated brass cable glands, tinned- copper lugs, clamping material etc. for cable termination.
- 2.2.4 Earthing system, including earthing pits, earth electrodes, earthing strips, grounding conductor of various sizes, Cu strip for flange jumper and Cu earth plates etc.
- 2.2.5 Safety equipment in the stations/terminals, like shock treatment charts, caution boards, first aid equipment, rubber mats, portable fire extinguishers, sand bucket etc.
- 2.2.6 UPS system inbuilt Battery Bank & interconnecting cables as per specification.
- 2.2.7 Fabrication and supply of MS frames, supports, canopies and brackets for miscellaneous electrical equipment's, including welding, supply of bolts, nuts etc. for mounting and other necessary supplies, all inclusive of painting as specified.

2.3 SCOPE OF INSTALLATION, TESTING & COMMISSIONING

- 2.3.1 Laying & termination of all power and control cables laid in concrete-lined trenches, buried cable trenches, pipes, road crossings, pipe-racks etc.
- 2.3.2 Installation testing & commissioning of 125 Amp switch boards/PDBs/LDBs.
- 2.3.3 Installation of earthing system material & testing and commissioning of complete system.

3.0 OTHER MISCELLANEOUS WORKS

- 3.1 Preparation of buried cable trenches, including, back filling, compacting providing of brick protection by second-class bricks, spreading of fine river sand, including all supplies.
- 3.2 The job includes repairing of all civil works damaged during installation of electrical facilities.
- 3.3 The scope of work under this contract shall be inclusive of breaking of walls, floors and chipping of concrete foundations necessary for the installation of equipment, materials, and making good of the same.

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

- 3.4 Minor modifications wherever required to be done in the bidder supplied equipment's/ devices to enable cable entry, termination, etc.
- 3.5 Sealing of opening made in the walls / floors for cables trays, cables, bus ducts, etc. using acceptable practice and standards.
- 3.6 Supply and installation of all other accessories not specifically mentioned herein, but never the less necessary for completion of the job.

4.0 AREA CLASSIFICATION

Hydrocarbon handling areas have been generally classified as zone 1, gas group IIA/IIB as per IS: 5572, API RP-500, OISD - 113 and IP Rules. All equipment to be installed in these areas shall be suitable for the area classification with temperature class T3 (2000C), CMRI testing and approved by CCOE, DGFAS and having BIS license.

5.0 JOB SPECIFICATIONS

Various electrical works covered under this contract like equipment erection, cabling and grounding works, etc. shall be performed in accordance with specifications attached with this tender. (Certain clauses of specifications, which are applicable to equipments or system not covered under this contract, shall not be applicable).



Erection and commissioning of certain special equipments shall be performed in accordance with supplier's instructions and directions of the Engineer-in-charge under supervision by equipment supplier/s. The equipments/materials to be supplied by the contractor shall conform to the requirements of the applicable specifications enclosed in the tender document.

6.0 MAKES OF EQUIPMENTS AND MATERIALS

All equipments/ materials supplied by the contractor shall be as per the list of approved makes enclosed with this document subject to submission of Certification and approvals.

7.0 INSPECTION, TESTING & COMMISSIONING



- a. All the equipment supplied and installed by the contractor shall be tested and commissioning as required and no separate payments shall be made. Any damage or defect noticed shall be brought to the notice of the engineer- in-charge.

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

- b. Any work not conforming to the execution drawings, specifications or codes shall be rejected forthwith and the contractor shall carry out the rectification at his own cost.
- c. The contractor shall carry out all the tests as enumerated in the technical specifications and as per applicable codes and standards.
- d. Before the electrical system is made live, the electrical contractor shall carry out suitable tests to establish to the satisfaction of engineer-in-charge that the installation of equipments, wiring and connections have been correctly done and are in good working condition and that it will operate as intended.
- e. All the tests shall be conducted in the presence of Owner/ Engineer-in-charge or his authorized representative unless he waives this requirement in writing. The contractor shall arrange all testing equipment necessary to carry out the test. The tests shall be recorded on approved Performa and certified records of the tests shall be submitted to Owner/ Engineer-in-charge.
- f. After the completion of all tests and rectification of all defects pointed out during final inspection, plant start-up trials would be commenced. During the start-up trials contractor shall provide skilled / unskilled personnel and supervision round the clock at his cost. The number and category of workmen and duration up to which required, will be decided by the Engineer-in-charge. Any defects noticed during the start-up trial relating to the equipment supplied and work carried out by the Contractor, will be rectified by the contractor at his own cost.
- g. Engineer-in- charge shall have the right to get these defects rectified at the risk and cost of the contractor if he fails to attend to these defects immediately as desired.
- h. After the operating conditions are fully achieved in the plant and the other requirements as stated in the General Conditions of Contract are fulfilled, the contractor would be eligible for applying for a completion certificate.



8.0 DRAWINGS, STANDARD SPECIFICATIONS AND INSTALLATION STANDARDS

- 8.1 The equipments/ materials to be supplied by the contractor shall conform to the requirements of the applicable specifications. Also the installation of various material/ equipment shall conform to the installation standards /norms.
- 8.2 The drawings accompanying the tender documents when read with specification shall depict the electrical system of the Terminal. These are indicative of the nature of work



	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

and issued for tendering purposes only. Purpose of these drawings is to enable the tendered to make an offer in line with the requirements of the Owner. Construction shall be as per drawings /specifications issued / approved by the Engineer-in-charge during the course of execution of work.

- 8.3 Conduit layout drawing in ceiling, wherever required, to be prepared by the contractor and shall be submitted for approval.
- 8.4 After the job completion, contractor shall prepare AS-BUILT drawings and documents, submit catalogues/manuals (O&M) of major brought out items like UPS etc. Final certified as built drawings, documents and manuals etc. shall be submitted by the contractor to owner in bound volume with one set in soft copy (CD) plus five sets of prints.

	ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA	
TENDER DOCUMENT NO: GSL/REPL/006/C-DBS		Date: 22/12/2022

**HEALTH, SAFETY
ENVIRONMENT [HES] SPECIFICATIONS**

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>



HEALTH, SAFETY AND ENVIRONMENT [HSE] SPECIFICATIONS

1.0 SCOPE

These specifications establish the 'Health, Safety and Environment [HSE] Management' requirement to be complied with by the Contractors during executing their Job. Requirements stipulated in these specifications shall supplement the requirements of 'HSE Management' given in relevant act(s) / legislation(s).

2.0 REQUIREMENTS OF 'HEALTH, SAFETY AND ENVIRONMENT [HSE] MANAGEMENT SYSTEM' TO BE COMPLIED BY BIDDERS

- 2.1 Preferably, the Contract should have a documented 'HSE Policy' to cover commitment of their organization to ensure health, safety and environment aspects in their line of operations.
- 2.2 The Contractor shall ensure that the GSL's 'Health, Safety and Environment [HSE]' requirements are clearly understood and faithfully implemented at all level, at sites.
- 2.3 Contractor shall promote & develop consciousness for health, safety & environment among all personnel working for the Contractor. Regular work-site meetings shall be arranged on 'HSE' activities to cover hazards involved in various operations during executing their jobs, location of First Aid Box, trained personnel to give First Aid, Assembly Points, standby Ambulance or vehicle and fire protection measures such as fire hydrant, water and fire extinguishers, etc.
- 2.4 Non-conformance of 'HSE' by Contractor [including his sub-Contractors] as brought out during review/audit by GSL / external agency authorized by GSL, shall be complied by Contractor and its report to be submitted to GSL.
- 2.5 Contractor shall adhere consistently to all provisions of 'HSE' requirements. In case of non-compliance of continuous failure in implementation of any of the 'HSE' provisions, GSL may impose stoppage of work and a suitable penalty for non-compliance. The decision of imposing work-stoppage, its extent & monetary penalty shall rest with GSL.
- 2.6 All fatal accidents and other personnel accidents shall be investigated for root cause by GSL and Contractor shall extend all necessary help and cooperation in this regard. Recommend corrective and preventive actions of findings will be communicated to Contractor for taking suitable actions should be taken by the Contractors to avoid recurrence of such incidences.

	<p align="center">ANNUAL RATE CONTRACT FOR CNG DBS STATION CONSTRUCTION AT CHURU, MANDI, PAURI GARWAL (RISHIKESH) & CHAMPAWAT GA</p>	
<p>TENDER DOCUMENT NO: GSL/REPL/006/C-DBS</p>		<p align="right">Date: 22/12/2022</p>

- 2.7 Contractor shall ensure that all their staffs and workers, including their sub-Contractor(s), shall wear 'Personal Protective Equipment [PPEs]' such as safety helmets, safety shoes, safety belts, protective goggles, gloves, etc., as per job requirements. All these gadgets shall conform to relevant IS specifications or equivalent.
- 2.8 Contractor shall assign competent & qualified personnel for carrying out various tasks/jobs as per requirement.
- 2.9 All equipment should be tested and certified for its capacity before use.
- 2.10 Contractor shall ensure storage and utilization methodology of materials that are not detrimental to the environment. Where required, Contractor shall ensure that only the environment-friendly materials are used.
- 2.11 All persons deployed at site shall be knowledgeable of and comply with the environmental laws, rules and regulations relating to the hazardous material substances and waste. Contractor shall not dump release or otherwise discharge or dispose off any such materials without the express authorization of GSL.
- 2.12 Contractor should obtain all work permits before start of activities [as applicable] like hot work, confined space, work at heights, storage of chemicals/explosive materials and its use & implement all precautions mentioned therein.
- 2.13 Contractor should display at site office and work locations caution boards, provide posters, banners for safe working to promote safety consciousness, etc.
- 2.14 Contractors should carryout audits/ inspections/ supervisions at the sub-Contractor's works and submit the reports for review by GSL.

3.0 RELEVANT CODES FOR 'PERSONAL PROTECTION EQUIPMENTS'

IS: 2925 - 1984	Industrial Safety Helmets
IS: 47701 - 1968	Rubber Gloves for Electrical Purpose
IS: 6994 - 1973 [Part-I]	Industrial Safety Gloves [Leather & Cotton Gloves]
IS: 1989 - 1986 [Part-II]	Leather Safety Boots & Shoes
IS: 5557 - 1969	Industrial & Safety Rubber Knee Boots
IS: 6519 - 1971	Code of Practice for Selections, Care & Repair of Safety Footwear
IS: 11226 - 1985	Leather Safety Footwear Having Direct Molding Sole
IS: 5983 - 1978	Eye Protectors
IS: 9167 - 1979	Ear Protectors
IS: 3521 - 1983	Industrial Safety Belts & Harnesses

ELECTRICAL
LIST OF SUPPLIERS OF MAJOR BOUGHT-OUT ITEMS

Air Conditioner

1. O General
2. Daikin
3. Hitachi

Batteries (Lead Acid)

1. Amco Batteries Ltd.
2. Exide Industries Ltd.
3. HBLNIFE Power System Ltd.
4. Amara Raja Batteries Ltd.

Batteries (Nickel Cadmium)

1. Amco Batteries Ltd.
2. HBLNIFE Power Systems Ltd.

Batteries Charger/DC-DC Converter

1. Amara Raja Power System(P)Ltd.
2. BCH.
3. Chhabi Electricals Pvt. Ltd.
4. Caldyne Automatics Limited
5. Dubas
6. HBL Nife Power Systems Ltd.
7. Universal Industries Products
8. Universal Instrument Mfg Co Pvt Ltd

Cable – Fire Alarm & Communication Cables

1. Cords Cable Industries Ltd.
2. CMI
3. Delton cables Ltd.
4. ELKAY Telelinks
5. KEI Industries Ltd.
6. Reliance Engineers Ltd.

Cable – HT(XLPE)

1. Universal Cable Ltd.
2. KEI Industries Ltd.

3. *Industrial Cables*
4. *NICCO Corporation Ltd.*
5. Uniflex
6. Polycab.
7. Torrent cables Ltd.

Cable – LT Power and Control

1. Cords Cable Industries Ltd.
2. Universal Cable Ltd.
3. KEI Industries Ltd.
4. Havells.
5. Delton
6. Elkay Telelinks
7. Evershine Electricals
8. Ecko
9. Ravin
10. Rallison.
11. Suyog
12. Netco
13. Uniflex
14. Paramount
15. Gloster
16. Associated cables Pvt Ltd.
17. CMI
18. Gemscab
19. Industrial cables
20. NICCO
21. Polycab
22. Torrent

Cable – Gland

1. .Baliga
2. .Comet
3. Flexpro
4. Flameproof
5. FCG
6. Electro Werke
7. Dowels

8. CCI

Cable – Lugs

1. Dowels
2. Jainson
3. Ismal

Cable – Tray

1. Ercon Composites
2. Yamuna Power & Infrastructure Ltd.

Cable Termination and Jointing Kit

1. CCI
2. Raychem
3. M-Seal

Ceiling/Exhaust/Pedestal Fans & Circulators

1. Bajaj Electricals Ltd.
2. Crompton Greaves Ltd.
3. Khaitan Electricals Ltd.
4. Havell's

Contractors – AC Power

- 1 Andrew Yule
- 2 ABB
- 3 BHEL
- 4 C&S
- 5 Havell's
- 6 L&T
- 7 Schneider
- 8 Siemens Ltd.
- 9 Telemecanique

Control Transformer

1. AE
2. Indushree
3. Intra Vidyut
4. Kalpa Elektrikals
5. Transpower Industries Ltd.
6. Siemens

DG Set

1. Sterling and Wilson.
2. GD ankalesaria.
3. Deev Genset.
4. Jackson
5. Sudheer Gensets.
6. Power Engineering(India) Pvt Ltd.

Earthing Materials

1. Rukmani Electrical & Components Pvt Ltd.
2. Indiana Grating Pvt Ltd.
3. Jef Techno Solutions Pvt Ltd

Flame proof LDB's/ JB,s/Control Station/ switches

7. FCG
8. Sudhir
9. Prompt Engineering Works
10. Flame Proof equipments pvt. Ltd.
11. Baliga Lighting Equipments Pvt. Ltd.
12. Flexpro Electricals Pvt. Ltd.

High Mast

1. Bajaj Electricals Limited
2. Crompton Greaves Limited.
3. Philips India Limited
4. Surya Roshani

High Voltage PCC/ MCC panels

1. BHEL
2. Control and Switchgear
3. Siemens
4. Tricolite Electrical Industries
5. Schneider
6. CGL
7. L&T

Indicating Lamps

1. Alstom Ltd.
2. BCH
3. L&T Ltd.
4. Siemens Ltd.
5. Vaishno Electricals

Indicating Meters

1. ABB
2. AMCO
3. AE
4. Alstom Ltd. (EE)
5. Conzerv/Schneider
6. Elecon Measurement Pvt. Ltd.
7. HPL Electric & Power Pvt. Ltd.
8. MECO Instruments Ltd.
9. Minilec
10. Rishabh Instruments Pvt. Ltd.
11. Trinity energy system
12. kaycee
13. Salzer

Lighting Fixtures

1. GE Lighting Pvt. Ltd.
2. Bajaj Electricals Ltd.
3. Crompton Greaves Ltd.
4. Philips India Ltd.

Lighting Fixtures – Flameproof

1. Bajaj Electricals Ltd.
2. Baliga Lighting Equipment Pvt. Ltd.
3. Crompton Greaves Ltd.
4. CEAG Flameproof Controlgear Pvt. Ltd.
5. Flexpro Electricals Pvt. Ltd.
6. Philips India Ltd.

7. Sudhir Switchgears Pvt. Ltd.
8. FCG.

Miniature Circuit Breakers (MCBs) and Lighting DB

1. ABB
2. Hagger
3. Havell's India Ltd.
4. Indo Asian Fusegear Ltd.
5. Legrand
6. MDS Switchgear Ltd.
7. Schneider
8. Siemens Ltd.
9. HPL

Moulded Case Circuit Breaker (MCCBs)

1. ABB
2. Andrew yule
3. Larsen & Toubro
4. Schneider
5. Siemens
6. Control and Switchgear

Protection Relays – Thermal

1. BCH
2. L&T Ltd.
3. Siemens Ltd.
4. Telemenchanique & Controls (India) Ltd.

Low Voltage Power Control Center (PCC)/ MCC/ PDB/ MLDB/ LDB

1. ABB
2. BCH
3. C & S
4. Elecmech Switchgear & Instrumentation
5. KMG ATOZ
6. L&T

7. Pyrotech Electronics Pvt. Ltd.
8. Risha control Engineers Pvt. Ltd.
9. Siemens
10. Tricolite Electrical Industries
11. Unilec Engineers Ltd.
12. Vidyut Control India Pvt. Ltd.
13. Control and Schematic
14. Zenith Engineering

Push Buttons

1. BCH
2. Alstom Ltd.
3. L&T
4. Siemens Ltd.
5. Telemenchanique & Controls (India) Ltd.
6. Vaishno Electricals

Switches-Control

1. BCH
2. Easum Reyrolle Relays & Devices Ltd.
3. Alstom
4. Kaycee Industries Ltd.
5. L&T
6. Siemens Ltd.

Switches – 5/15A Piano/ Plate, Switch Socket

1. Anchor Electronics & Electricals Pvt. Ltd.
2. Kingal Electricals Pvt. Ltd.
3. North-West Switchgear Ltd.

Switch Socket Outlets (Industrial)

1. Alstom Ltd.
2. Best & Crompton Engineering Ltd.
3. BCH
4. Crompton Greaves Ltd.

5. Essen Engineering Company Pvt. Ltd.

Solar Modules

1. Tata BP Solar (I) Ltd.
2. REIL, Jaipur.
3. CEIL, Sahibabad.
4. HBL Power

Solar Street Lighting

1. Tata BP Solar (I) Ltd.
2. REIL, Jaipur.
3. CEIL, Sahibabad.
4. HBL.

Terminals Blocks

1. Connectwell
2. Controls & Switchgear Co. Ltd.
3. Elmex Controls Pvt. Ltd.
4. Essen Engineering Co. Pvt. Ltd.

Transformers

1. ABB
2. Andrew Yule
3. Areva
4. BHEL
5. Bharat Bijlee
6. Crompton Greaves
7. EMCO Ltd.
8. Intra Vidyut
9. Indushree
10. Indcoil
11. Kirloskar
12. Skippers Electricals
13. Transformers & Rectifiers (I) Ltd.
14. Voltamp

UPS System and Inverter

1. DB POWER
2. APLAB
3. KELTRON
4. HI-REL
5. DUBAS
6. Toshiba Corporation
7. Fuzi Electric Co Ltd
8. Synergy System

GI-Octogonal Pole

1. Bajaj
2. Transrail
3. Wipro

NOTE:- Item/Vendor, which are not listed above, shall be subject to prior approval from Client/Consultant.

-X-X-X-