



Bhagyanagar Gas
Limited

**Procurement of Pre-Paid Commercial Smart Meter with all required
accessories and MDM Cloud/Server, Mobile Application for
Industrial & Commercial Customers in Hyderabad, Vijayawada &
Kakinada GA's**

Document No. BGL/672/2025-26

Volume II
of II



BHAGYANAGAR GAS LIMITED

(A JOINT VENTURE OF HPCL & GAIL)

BID DOCUMENT FOR

**Supply of Pre-Paid Commercial Smart Meters with all required
accessories and MDM Cloud/Server, Mobile Application for
Industrial & Commercial Customers in Hyderabad, Vijayawada
& Kakinada GA's.**

UNDER OPEN DOMESTIC COMPETITIVE BIDDING

**Bid Document No.:
BGL/672/2025-26**

VOLUME-II of II

Sign & Seal of the Bidder



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SECTION-7

SCOPE OF WORKS (SOW)



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1.0 INTRODUCTION

Bhagyanagar Gas Limited (BGL) is a joint venture of M/s. GAIL (India) Limited and M/s. Hindustan Petroleum Corporation Limited (HPCL) and operating CNG & City Gas Distribution in the states of Telangana and Andhra Pradesh. BGL engaged in development of CNG & City Gas Distribution Networks (CGDN) at different Geographical Areas in the country for distribution of CNG and PNG to various consumer segments. BGL has planned to provide CNG (Compressed Natural Gas) as fuel to commercial and private vehicles through filling stations and PNG (Piped Natural Gas) to household, commercial and industrial consumers in cities.

2.0 BIDDER'S ELIGIBILITY CRITERIA-TECHNICAL

Bidder shall refer bid documents for qualification criteria and submit documentary evidence in support of qualification as defined in respective clauses.

3.0 SCOPE OF WORK

PART-I: NATURAL GAS SMART PREPAID COMMERCIAL/INDUSTRIAL METERS - (CAPACITY G-1.6, G-4, G-6)

Design, Detailed Engineering, fabrication/ manufacturing, assembly, Inspection (as defined in bid document) for supply of Natural Gas Smart Prepaid Commercial/Industrial Gas Meters based on GPRS communication technology along with AMR, auto shut off valve, Battery for AMR, SIM cards etc. including packaging, insurance, handling, preparation for shipment, transportation, loading and unloading at sites/ designated store, documentation etc.

Installation, Interfacing & configuration of all Smart Prepaid COMMERCIAL/ INDUSTRIAL Gas Meter installed at consumer locations with proposed Smart automatic metering & metering data management system for providing data to client server through bidder's proposed cloud server.

This includes Installation, Testing and commissioning & training of New Smart metering for smart meter at consumer locations. (Services are required for all quantities of supplied meters. All the Smart Prepaid COMMERCIAL/INDUSTRIAL Meters must be compatible and suitable for proposed smart Metering system).

PART-II: NATURAL GAS SMART COMMERCIAL/INDUSTRIAL METERS SERVICES - FOR SMART METERING & DATA MANAGEMENT - (CAPACITY G-1.6, G-4 & G-6 FOR COMMERCIAL/INDUSTRIAL CONSUMERS)

The work include Services for Smart Metering & Data Management System and all related Comprehensive Maintenance Services of all supplied Smart Commercial/Industrial prepaid Meters and Smart Commercial/Industrial Gas Meter with AMR/MIU or any similar metering system as proposed, including batteries, manpower, tools and tackles, Installation, integration with smart metering system, Testing and commissioning of Smart metering /Automatic Meter Reading (AMR) system suitable to provide metering data to client's Server, training, as per technical specification and service level agreement defined in tender on Annual Rate Contract (ARC) basis for 5 years . The services are required for all the Smart Gas Meters as supplied under Part-I



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The bidder shall be responsible for Installation, Testing and Commissioning and Interfacing with smart metering system covered under Part-II. For this purpose, the Bidders shall take all services as required from OEM of meter offered as required.

All type of accessories as required for end connectivity of meter with GI Gas line will be in bidder's scope.

The 05 years MDM Services for will start from date of intimation from client for completion of Gas In / Conversion (any quantity against first Release Orders); however, all activities under Part-II limited to 05 years from date of intimation of Gas In / Conversion of meter (i.e. maximum upto 06 year for meter supply). However, Client would make endeavor to complete the Gas In/Conversion of total Meter supplied within max 01 years of last supply of meter.

The above requirements are for City Gas Projects for 03 GAs of BGL. The breakup of Natural Gas Smart Commercial/Industrial Meters & Metering Data Management services are given in MR.

The supplier shall comply with local statutory regulations of Legal metrology of 2009 and Legal Metrology (Enforcement) rules, 2011 of the respective States (where these meters may be installed).

EXCLUSIONS

Installation, Integration / interfacing, training has to be provided by the bidder (if any location mentioned differently), the work as defined here and scope of work will prevail. General training once per year shall be provided for client's personnel during the contract period.

5.0 DETAIL SCOPE OF WORKS AND SERVICES:

5.1 All the works as defined in clause no 3.0 in bidder's scope. In addition to all the works and the services as defined in all the clause 5.0 (including sub clauses) are in bidder's scope.

Bidder has to sign disclosure agreement for the order execution and confidentiality.

For proposed telecom commutation connectivity, Vendor shall ensure availability of communication facility in all the areas. It's vendor's responsibility to arrange the same with all required infrastructure without any cost to client in case of non-availability. Network charges, service provider connection, integration with client SAP/payment gateway system.

5.2. Payment facility for customer via credit card/ debit card/online/cheque shall be made available. Customer should be able to pay through web application and mobile application. Entire payments shall be made to Client through Client's payment gateway.

5.3. All the required software for bidirectional communication, meter to cloud server, cloud server to client SAP/payment Gateway server and mobile apps/software will be developed under bidder's scope. All these networks shall be secured from theft, unauthorized intrusion and malware. For providing secure network and data management is in bidder's scope. The network architecture must



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be secure with support for firewalls and encryption. Any communication of data of third party with client shall be secured and encrypted to avoid any theft or loss of data.

Bidder shall take cyber security measures to safeguard the “integrity, security and confidentiality of BGL/Customers data, application/software, systems etc.” for all the purchase/services being made wherein data is being hosted in cloud or being shared with the external world online. Written undertaking for the same has to be provided at the time of final contract signing.

5.4 Mobile APPS development shall be in bidder's scope for customers to view their own billing details, consume parameters, current parameters, battery status etc. APPS shall be compatible to android and iOS operating system.

In addition to above; bidder shall take care:

- Involvement of any portal to view/update/delete the data
- Vendor need to provide “safe to host” certificate from CERT-In certified auditor
- And this certificate shall be required after any change in portal or every year
- Integration of destination server to BGL Pragyaware/Sahaj/CRM Server/Portal/Software/Application & SAP Application/Server or any other Servers/Portal/Applications available in BGL.
- Data transfer through secure channel https/sftp
- For communication mode of data transfer from Commercial/Industrial meter to destination server
- Vendor needs to ensure non-existence of data vulnerability
- Data security in destination server
- Periodic backup may be stored in BGL server
- Portal source code
- Latest source code may be provided by vendor
- Provide the API & Protocol to BGL as required or after closing of contract to configure the Meters with any other MDM Server/Portal/software/application.

5.5 Gas meters shall be installed by the vendor. To ascertain the suitability of location of meter for data communication purpose is in bidder's scope. Upon receiving site readiness intimation from Client, the vendor shall initiate the Installation, testing and commissioning of metering system for the given location. Commissioning shall involve geo-tagging of the meter, sync of meter data with Client provided data and establishment of communication in all aspects. Vendor shall capture minimum one photograph of the commissioned meter and shall store in server as per advice of Client up to contract period. Sufficient prior intimation for installation will be provided to bidder when site is ready for commissioning.

5.6 Any manufacturing damage/defects to Meter/AMR/ before handing over or within the warranty period of meter will be in scope of vendor. Vender have to replace the old meter from new meter within warranty period.

5.7 Provision of alarm/customer complaint with closure report with CRN no. shall be logged for complete contract period.



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5.8 The scope also include all Services related to Smart Automatic Meter Reading (AMR), Payment, Geo tagging (consisting of latitude & longitude of meter installed location), Managing & Maintaining metering data, Report Generation; providing Metering data/ payment (as pre- paid meter) as per the defined schedule & format to client's server for record of bill; Provide data analytics of selective installed meter and ensure availability of the data related to Smart Meters & Smart system as proposed and other associated services.

5.9 Supply of consumables and commissioning spare as required are in vendor's scope throughout the warranty/guarantee period from the date of energization of individual Meter.

5.10 For smart metering, License from government bodies if required for use of any technology is in vendor scope.

5.11 Certification of Natural Gas Smart Prepaid Commercial/Industrial Meters

5.11.1 Valid Certification of W&M India, PNGRB Regulatory/OIML 137 1 & 2:

In case proposed Natural Gas Smart Prepaid Commercial/ Industrial Meter manufactured in India: -

Bidder shall furnish a copy of valid approval for Meter from W&M India

- a) Valid Model approval for offered model,
- b) Valid License to Manufacture for offered model,
- c) Valid License to Dealer
- d) Valid License to Repair

In case proposed Gas Meters manufactured outside India: -

Bidder shall furnish a copy of valid approval from W&M India for:

- a. Model approval of offered model of foreign manufacturer.
- b. Certification of registration and importing license of Importer from W&M India in the name of bidder.
- c) Valid License to Dealer
- d) Valid License to Repair

5.11.2 Valid Certification of ATEX: The bidder to submit Valid Certification of ATEX for AMR, Natural Gas Smart Commercial/ Industrial Meter (if integrated AMR along with meter) considered for Supply under this tender.

5.11.3 Valid Certification of PESO India: The bidder to submit Valid Certification of PESO for AMR, Natural Gas Smart Commercial/ Industrial Meter (if integrated AMR along with meter) considered for Supply under this tender. In case of non-availability of valid PESO certificate; bidder has to provide the undertaking on letter head to provide PESO certificate to Bhagyanagar Gas Limited as and when required by the statutory authority of India.



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In case of revalidation of ATEX / PESO, W&M India (as requested in respective clauses) certificate as required during the contract tenure shall be provided without any cost and delivery implications

The AMR & EVC must have ATEX certification for hazardous area installations / UL hazardous area certification for modules along with PESO/CCOE certification. The same should be provided by vendor. In case of non-availability of valid PESO certificate for AMR & EVC; bidder has to provide the undertaking on letter head to provide PESO certificate as and when required by the statutory authority. Vendor shall provide the data accessibility for integration with client's SAP/ERP (confirmed during detailed engineering) either through web services (Online data transmission) or through SAP Process Orchestration (Offline data transmission). The data transfer should be in such a format which is readily available for processing, access, read and uploaded in SAP and other systems. Data should be saved in compatible formats like csv/txt. The architecture/ protocol of AMR & EVC should be compliant to any new system in future and should be shared with client when required. The architecture/ protocol of AMR & EVC shall be such that interfacing of different make of product / services shall be smooth and without any prosperity requirement.

AMR & EVC should have ability to send the data to cloud server/ client's server directly using Internet/ Ethernet. If any application is required to be installed for accessing the data, it will be in the scope of vendor. The data transmission between MIU/ HHU and remote server shall be encrypted to prevent intruder access.

Data-transmission from the AMR/ EVC will be in encrypted format and it will be transferred to Bidder's server. This server will be integrated to the web-application and client's SAP/ERP server.

5.12 The Services for all supplied Gas Meter with AMR/MIU, EVC including batteries; Services for Meter reading, data storage & management system / infrastructure, calibration, testing as required and all services as per scope of Refer Technical specification- Data SERVICES FOR SMART METERING & DATA MANAGEMENT. The rates shall be made available to all inclusive rates per month basis payable quarterly/half yearly/yearly.

5.13 For the proposed Manufacturer (Indian or Foreign) of Gas Meter, manufacturing facility/workshop / calibration facilities shall be certified by a reputed Inspection/ testing agency such as defined in tender for fabrication, assembly & testing of Natural Gas Meters. Documents shall be provided along with bid.

5.14 Inspection - Third Party Inspection, as per approved QAP, is to be included in the quoted prices. Arranging Third Party Internationally recognized Inspection agencies (list enclosed in TS) only with Prior Approval of Client, for witnessing inspection and testing. In case of Indian representative / Indian Authorized dealer of foreign manufacturer having manufacturing unit outside India, TPI inspection at manufacturer's works has to be consider as defined above. The TPI scope will be inspection of complete materials as per approved QAP; review of all materials certificate and internal testing reports, issue of inspection certificate and clear release certificate and same has to be submitted in "ORIGINAL" for client/ PMC review and issue of certificate for dispatch. Minimum 14 days' time shall be provided by the vendor for mobilization of the manpower for inspection of the lot to be supplied.



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Bidder has to demonstrate final proposed system during Inspection / FAT. Materials will be accepted based on reviewing of internal test reports, material compliance and other documents as per approved QAP by PMC/Client. The testing documents & materials compliance certificate as per approved QAP has to be submitted for review by client /PMC for issuing of Inspection waiver or release certificate.

As the TPI /Client inspection will be based on the sample testing; to ensure the quality of Meters as per the tender requirement, client may request for Testing & calibration at FCRI India for sample meters selected from the supplied LOT. However, manufacturers who is having following valid certificate; inspection at FCRI expenditure will be under client's scope, if client wants further verification / compliance of supplied meter. Any coordination with FCRI as required is in bidder's scope.

- a) MID - D approval for the testing and manufacturing setup
- b) MID – B approval for design

However, if manufacture not having above certification; valid factory testing facilities issued by traceable recognized calibration & testing agency / TPI as define in tender as per the EN 1359:2017/ OIML standard compliance shall be provided by the manufacturer.

During the inspection, all the test instruments / measuring instruments must have valid calibration certificate issued by NABL accredited lab / FCRI / traceable recognized calibration & testing agency with the accuracy better than meter to be calibrated / tested.

For the manufacturer NOT having above certification, expenditure of inspection at FCRI will be under bidder's scope; if client wants further verification / compliance of supplied meter.

5.15 The supplier shall comply with local statutory regulations of Legal Metrology of 2009 and Legal Metrology (Enforcement) rules, 2011. Such natural gas meters shall have compliance and tested in accordance with requirements of PNGRB, Technical Standards & specifications including Safety standards for City or Local Natural Gas Distribution Networks (also known as T4S), BS EN 1359: 2017 or the latest edition in force / OIML R 137-1 & 2 for Gas Meters standards and as per the requirements of this specification. The supplier shall comply with latest local statutory regulations of Legal metrology

5.16 The SIM cards (as per scheme proposed by the bidder) & communication connection shall be taken in name of the client (or in the name of successful bidder due to accounting purpose and transfer at completion of contract during handing over and project closure), however payments supply, installation, running bill, maintenance all-inclusive taxes shall be in vendor's scope till the completion of contract (as per released order of supply under 5 year of contract of MDM).

After the end of the contract; the data hosted on the cloud and the all the inventory has to be handed over to BGL. Vendor has to arrange a training session for smooth handing over and taking over of the already maintained system to client and the process of further extension/ operation as required. Any encrypted Meter reading data decoded procedure has to be handed over to client with all necessary software as required after completion of Service contract.



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Vendor must help BGL for extension of any agreement with cloud service provider/ telecom service provider/ associated service team if desired by client. Client may extend the existing contract further as per mutually agreed terms and conditions.

BGL shall have right to migrate the MDM application and data hosted at cloud to BGL's own hired cloud if required in future, this will be at sole discretion of BGL; when the migration is done to BGL hired own cloud, payment of applicable line item (Item-II) i.e. smart metering services cloud & SIM services shall be reduced by 35 % of the quoted rates for payment purpose. After migration of application to BGL hired cloud, 65 % payment w.r.t. item-II shall be payable for respective SOR for supply of M2M SIM.

5.17 Installation of New Smart Meter with AMR/MIU & EVC has to be done by bidder. Training to the client's operators / technicians / consumer regarding proper use / installation shall be provided at site as well in client office. Any assistance required during the contract period for the smooth installation and interfacing has to be provided by the vendor.

Sufficient advance intimation will be provided for execution of works under bidder's scope. During the on-site training sessions, bidder may guide for procedure of smooth installation and commissioning. Any other mode of support may be decided as per the site requirement and decision of EIC will be final.

5.18 The above requirements are for City gas project of BGL. Distribution of quantities will be provided in respective PO issued separately during the contract.

5.19 Meter index readings shall have provision to be stored for every hour and collected at server end every 24 hours or as & when required basis. This data shall be relayed to Client in .csv/.xls or any other format as per requirement of Client. For the present pre-paid metering requirement, metering data must be updated once per day. Bidder has to select and design the system for the once per day consumption of battery. However, it can be programmable for any future real time data requirement. Battery life in such case may be reviewed as per actual consumption per day and accordingly recorded in system.

5.20 The supplier shall comply with local statutory regulations of Legal metrology and Supplier shall specify and include hardware/software, which are not specially mentioned but are required to complete the commissioning /functioning of metering system as per specification and statutory requirement. As per statutory requirement, model approval from W&M is applicable for entire country; however, any statutory W&M requirement of state / area of installation has to be comply by the bidder.

5.21 Contractor shall carry out routine checks / inspection of setup, prepare report and submit to Client.

5.22 Contractor shall replace battery in metering unit whenever due before complete drain to ensure uninterrupted gas supply (in warranty/guarantee period). Its battery shall be replaceable and encapsulated inside the unit casing to avoid tampering. The manufacturer shall apply a physical seal to the battery compartment to prevent interference from customer. It shall retain all information contained within it during battery change. Following battery change, any clock shall maintain correct



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time. Under 5 years of warranty/guarantee period the battery shall be made available healthy and working till the completion of contract period. Any replacement is required till end of the contract period is in bidder's scope.

5.23 The gas meter must have the warranty of 06 years warranty or till the completion of the MDM Server/Cloud period whichever is later, towards design, materials, workmanship & quality of process/manufacturing of gas meters under this contract for due and intended performance of the same, as delivered under this contract. In the event any defect is found by client/contractor up to a period of 72 months from the date of supplies made under the contract, vendor will be liable to undertake to replace/rectify such defects at its own costs, within 15 days from the date of intimation or mutually agreed time frame.

5.24 Contractor shall submit details of plan, which shall be followed throughout the contract period.

5.25 Attend to client's demands regarding report abnormality or absence & provide justification/rectification against any mismatch or issue raised within prescribed period.

5.26 There may be a possibility for relocating the existing meter (up to 5% of total supplied quantity) to different location, this meter shall be reconnected and interface with cloud server at no extra cost to client.

5.27 Supplier shall support the software supplied for entire duration of contract. In case any updation of the software/system is required, contractor will update the same without any additional cost to Client

5.28 Supply and installation of required license, software etc. for server/cloud server will be in the scope of supplier. Later at the time of handing over of the system; bidder shall be handed over the in healthy condition with all data shred with cloud services. Complete contractual details (except rates) shall be provided to client for taking further decision on extension of work with same cloud service provider.

5.29 Supplier shall provide facility of viewing and extracting reports according to requirement and in the format desired by Client through dashboards / web-based software. Supplier to support Client to resolve any issues related in viewing and extracting report and modification of report layout in future as required by Client without any cost implication.

5.30 The system supplied by Supplier shall be suitable to add or delete consumers as and when required by Client. The changes required for addition/deletion in software/system shall be done by the Supplier. The modification is to be done seamlessly without disturbing the billing system of Client.

5.31 SOFTWARE/FIRMWARE: Supplier shall be responsible for upgrading any software/firmware as and when required for optimum performance of the services without any cost to Client. Supplier shall take approval from Client before performing such activity. Any interface issue arising due to such activity shall be under scope of supplier. The software upgrade shall be seamless and shall not hinder the billing process. System shall be restored within 24 hrs of software or firmware upgrade.

5.32 CODE OF CONDUCT: Good conduct shall be maintained by Suppliers's personnel while



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having any interface with CUSTOMER/CLIENT. Supplier personnel shall always carry CLIENT's provided Identification Card and also any Government of India issued ID card (e.g. Adhaar etc.) in support. CLIENT shall not be liable for any misconduct or mal practices adventured by supplier's personnel during any operation.

5.33 System energy usage: All components of the Metering System shall be designed so as to minimize their energy usage. The combined energy usage of components shall have a defined operational life and the same shall be clearly specified in the offer.

5.34 Tamper Protection: All components of Meters or of Metering Systems should be suitably protected from interference or tamper. This means protected by the seals. Therefore, the use of slots, flaps or hatches that could compromise the physical integrity of the meter is accessible with an appropriate sealing mechanism. In case of low battery/battery failure, the shut off valve shall close if applicable.

5.35 Identification and serial numbers: All components of a Metering System shall be uniquely identifiable both electronically and mechanically. In the case where modular construction is employed, a means to identify individual modules shall be provided.

5.36 Branding: All components of the Metering System shall be branded as "Property of the asset Client".

5.37 IDENTIFICATION OF MISHANDLING OF ASSET/EQUIPMENT: Supplier shall be responsible to inform the client upon identification of any kind of malpractice or mishandling of ASSET at Customer premises. The responsibility of bidder in case of theft is limited to provide the sufficient proof of theft such (not limited to) as last installed and present photograph of location of installation and after the instruction of EIC; installation / reinstallation of new meters as required.

5.38 IDENTIFICATION OF THEFT OF THE ASSET/EQUIPMENT: Supplier shall be responsible to inform the client upon identification of theft of the ASSET at Customer premises.

5.39 SAP INTEGRATION: The Suppliers's scope for SAP integration (bi-directional) shall include meter data capturing, installation information, commissioning information, Customer details, inserting of meter reading, generation of prepayment receipt.

5.40 AMR & EVC REQUIREMENTS:

1. Bidder should submit the details of hardware such as Make, Model, Approval certificates and catalogues of all the hardware along with the unpriced bid for technical evaluation.
2. AMR & EVC system shall be compliant for Zone- 2;
3. Certification shall be provided for ATEX or UL explosive certificate/ PESO as per Clause no. 5.11
4. Equipment type approval from concerned authorities like wireless planning & coordination wing WPC/WEEE/ROHS shall be provided;



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5. Area classification as per IEC-79, hazardous area, Group IIA/B, T3;
6. Site condition: Temperature 0°C to 55°C (Design), hot humid, Tropical saline environment;
7. Enclosure: IP65 or better;
8. Necessary mounting supports shall be supplied by the vendor.

5.41 METER WITH AMR and or EVC System

5.41.1 The following are in the scope of Contractor:

License from government bodies for use of frequency band. Equipment type approval from concerned authorities like Wireless Planning & Coordination Wing (WPC)/ WEEE/ ROHS Necessary mounting supports shall be supplied by the contractor AMR should be OPC compliant and should be shared with CLIENT. AMR should have ability to send the data to server directly using Internet/ Ethernet. If any application is required to be installed at server for accessing the data, it will be in the scope of supplier.

5.41.2 DATA STORAGE FACILITY

- Data security through password facility and hardware sealing.
- Parameters and programmed constants shall be stored in memory.
- Data storage facility shall be provided during communication break between server and meter. After recovery of communication backfill shall be done. The stored data should be retrievable by using laptops/ mobile application / centralized system.
- Memory meter data reading as specified by contractor shall have facility to delete on a first in first out basis, wherever required. Priority shall be given to certain events, which shall not be deleted unless the removal is carried out by authorized person. There shall be NO provision to deleted data manually. The contractor shall ensure cumulative basis monthly reading OR as required.
- Meter shall have time stamp for all stored data. Gas meter shall have the facility to configure the Year wise calendar/ holiday list for 10 years in the meter from the factory itself or shall be updated where meter associated device get connected with server in case the same is not configured from factory.
- System should be capable to store hourly log, Daily log, event logs & battery health for at least 3 years.

5.41.3 AMR/Meter shall have facility of easily readable LED/LCD display showing battery life remaining/low battery, balance payment/available gas volume limit.

5.42 METER READING SERVICES:

Provision of meter reading should be available in Meter AMR and which will be reflected in MDM Server/Cloud/Software/Applications for gas reconciliation and calculation of daily gas consumption.



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5.42.1 READING COVERAGE: 100% reading collection activity should be done on MDM Server/Portal as per client billing cycle for commissioned meters. Supplier shall be penalized for not providing 100% reading. However, the based on the site survey reports and the performance of the system if required; decision will be taken by EIC for any relaxation. As for the pre-paid meters; reading requested once on daily basis % availability as per tender can be achieved.

5.42.2 The Supplier must submit a minimum of 100 % readings in every billing cycle through AMR & MDM Server/Portal system i.e. without entering the household.

5.42.3 Deleted

5.42.4 Deleted

5.42.5 Client shall conduct audit of the installed meters for a sample size as per client convenience. If it is found that the difference of meter reading between meter index and AMR reading is more than ± 1 SCM, supplier shall be penalized.

5.42.6 The Supplier shall provide the data log of the consumption of PNG of the customers as and when required by client. In case of any loss of meter reading data or software malfunction or any other reason attributable to the supplier due to which erroneous invoices of PNG customers are generated, supplier needs to recollect and resubmit the meter reading to client within the timelines as mentioned above.

5.42.7 The Supplier shall provide the details of the AMR which are not working or are damaged or the software not working properly or any other technical reason due to which the meter reading is not recorded. The Supplier shall submit the list of exceptions i.e. cases where AMR is not working, list of customers where manual reading is submitted, Temporary disconnection cases, Permanent Disconnection cases etc.

NOTE:

The maximum deductions pertaining to above mentioned penalty clauses that can be imposed on the supplier shall be capped at 20% monthly invoice value. If the penalty levied on the supplier is 20% of the monthly invoice value for consecutive 3 months period, then it may be considered as a valid ground of poor performance. There after client may exercise the discretion of terminating the contract by serving single notice. In case of termination of contract due to poor performance, client reserves the right to forfeit the CPBG.

5.42.8 Contractor shall be liable to pay the penalty as described in tender.

5.43 CLOUD SERVER BASED SERVICES:

Bidder has to hire / host cloud services for Managing & Maintaining metering data for records of Bill, meter reading, payment etc, Report Generation; providing Metering data, payment/recharges as per the defined schedule & format to client's server / SAP / ERP server for generation of bill; Provide data analytics of selective installed meter (once in six months if desired by client) and ensure availability of the data related to Smart Meters & Smart Automatic Meter Reading system as proposed and other associated services.

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The cloud server services shall be provided with web-enable application software, cloud hosting, development, subscription, software & licenses charges including required accessories for proper function of system and shall be as defined(during detailed engineering).

The cloud service has to be hired in the name of client. Necessary liasoning and assistance in subscribing the cloud services and coordinating with service provider for proper functioning shall be in scope of the bidder.

5.43.1 Cloud server should comply to ISO27001. Cloud Server shall be Tier-3 server with Availability of 99.8%. A maximum downtime of 12 hours in a 30 day cycle shall be allowed for the server due to scheduled maintenance. Server shall be subjected to Audit conditions as prevailed in ISO 27001.

5.43.2 Supplier shall hire a third-party and shall conduct Cloud server audit once in each financial year. Intimation of Audit shall be conveyed to Client and Client may witness of the Audit at its discretion. A random audit shall be conducted by Client once in each financial year, Client shall provide intimation of such a random audit to contractor, 7 days prior to audit.

Supplier shall be liable to pay the penalty, when the audit reports indicates non-availability of server more than 12 hours.

5.43.3 The cloud server should have provisions for scalability and shall be capable to store the data for a period of 12 months and shall provide interfaces to client server. The cloud server shall provide secured and encrypted platforms for Owner and their customers through web services using Https/ protocols.

5.43.4 Supplier shall sign a Non-Disclosure Agreement (NDA) with the purchaser at the time of kick off meeting. Supplier to comply the PCI DSS Requirement (Payment Card Industry Data Security Standard) and WEB Security – SSL (Secure Socket layer) & TLS (Transport Layer Security).

5.43.5 The server/cloud server should be OPC compliant. The Cloud or Physical Server shall be capable of managing 200 consumers at the starting point and shall be scalable to accommodate up to 50000 consumers over next 5 to 7 years for BGL's respective GAs individually.

5.43.6 Supplier shall follow the integration approach as suggested by CLIENT's IT team. Supplier shall deploy their IT & SAP team for integration activity in co-ordination with CLIENT SAP & IT Team.

5.43.7 Supplier shall ensure the two-way integration with CLIENT system within the 30 days of issuing the Purchase Order.

5.43.8 The data transfer should be in such a format, which is readily available for processing, access, read and uploaded in SAP and other systems. Data should be saved in compatible formats like csv/txt or any other format as per requirement of CLIENT.

5.43.9 Data shall be provided in common data format (CDF) for integration with General Service platform (GSP)/Business Analytics (BA)



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5.43.10 The gas meter internal valve should get closed in case of malfunction/ tampering found with the meter.

5.43.11 Up-gradation of software or cloud must be carried out in lean hours i.e, 01:00 -04:00hrs.

5.43.12 The software used should be capable of generating alarms / event. Any updation/modification in reports/format as per CLIENT requirement shall be done by the Contractor free of cost.

5.43.13 Real time alarms to CLIENT in case of any malfunction/ tampering. The alarm SMS shall be sent to 3 CLIENT designated phone number and simultaneously email to 3 designated email IDs. SMS/ Emailing services shall be integrated through BGL SMS/ Mailing service. Supplier to carry out the configuration etc. required for enabling these services.

5.43.14 The software used should be capable of generating trends, alarms, graphics. Any updation / modification in reports /formats as per client requirement a n d shall be done by the Contractor free of cost.

5.43.15 Battery life remaining indication shall be visible on meter (in terms of either percentage or other visual indication depicting remaining life) & same shall reflect as a message on portal which is accessible to CLIENT, Customer & Contractor or as suggested by CLIENT. Contractor to provide battery life calculation.

5.43.16 System shall be capable of generating minimum following MIS (Management information System) reports. Format and contents of each report shall be mutually agreed with CLIENT/ PMC.

Average Yearly, Half-yearly, Quarterly, Monthly, Daily Consumption pattern.

Cumulative Quantity of Zero consumption meters,

Cumulative Reading coverage,

Low/ Peak consumptions,

Details of portion wise manual reading collected in billing cycles,

Tamper/Event Log,

Exception Report,

Above reports shall be configurable for specific Consumer, Type of installation, GA or Company wise.

5.43.17 SAP/JDE INTEGRATION

i. The contractor shall integrate his software system with Client's SAP/JDE so that the meter reading thus collected from gas meter shall be sent to Client's SAP system from the contractor's system through integration. The infrastructure must be capable to integrate to the Client's SAP/JDE infrastructure. Detailed about SAP/JDE system will be provided to successful bidder.

ii. Development of communication interface module for integration of suppliers' application with SAP/JDE shall be in the scope of supplier. The necessary development for integration at Client's SAP/JDE system for consuming the data of supplier's system shall be the responsibility of the CLIENT.



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Supplier shall provide technical assistance to Client's SAP/JDE team for successful integration at both end

iii. Supplier shall design integration flow and provide detailed document for the integration process detailing all the steps, process flow and architecture with any other technical information.

iv. Supplier shall submit a detailed report of impact analysis against any developments to be performed on SAP/JDE application, which shall be tested, validated and accepted by concerned Client user before moving into production environment.

v. Supplier shall submit technical and functional specifications for establishment of an integrated end-to- end two-way communication.

vi. Supplier will be responsible for monitoring and resolving meter/server communication with SAP/JDE related issues including but not limited to performing onsite troubleshooting of all post-installation problems during contractual period.

vii. Supplier will use and maintain a hardware and software backup solution each Business Day to conduct backups of application configuration files & Business Data.

viii. The network architecture must be secure with support for firewalls and encryption. Any communication of data of third party with client shall be secured and encrypted to avoid any theft or loss of data. contractor to provide detailed description of the same.

ix. Implementation of anti-virus software and other malicious software prevention tools shall be in the scope of contractor. All support related to software will be in contractor's scope.

5.43.18 CONSUMER INFORMATION THROUGH MOBILE APP/ WEBSITE:

Following are the bare minimum information which shall be available/ accessible to the consumer.

- a. Consumer detail,
- b. Total Consumption (INR or SCM) In current billing cycle,
- c. Historical Consumption (INR or SCM) data for past 12 billing/recharge cycles,
- d. Consumption pattern (INR or SCM),
- e. Selected Alarm/ Event data,

5.43.19 EVENT/ALARM LOGS:

5.43.19.1 Meter shall provide the following Alarms/Event as a minimum;

- a. Any tamper events,
- b. Low battery,
- c. Corruption of data base

5.43.19.2. Meter shall provide the following Tamper Events as a minimum;



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- a. Battery replacement,
- b. Opening and closing of valve for pre-paid meter
- c. Un-authorized Opening of Meter,
- d. No communication between Meter

5.43.19.3. AMR shall provide the following Other Events as a minimum;

- a. Change of configuration/ Tariff programme,
- b. Change in firmware
- c. Change of setting of clock

Note- above are min, this may supplement as per client requirement. So, flexibility shall be available.

5.44 DATA ANALYTICS:

Supplier shall provide the following features of data analytics to CLIENT through dashboards / web based software (for web or mobile)

	Number of Concurrent Users of Dashboards	60
1	Types of Dashboards/web-based software.	1. Management dashboard / web based software. 2. Marketing dashboard / web based software 3. Operational team Dashboard/ web based software
2	Data Analytics on Management Dashboard / web based software	1. Hourly consumption 2. Daily report 3. Monthly report 4. Fortnightly report. 5. Same report shall be generated as consolidated reports for all customers.
3	Data Analytics on Marketing Dash Board / web based software.	1. Hourly consumption 2. Daily report 3. Fortnightly report. 4. Monthly report. 5. Same report shall be generated as consolidated reports for all customers.
4	Data Analytics on Operation Dash Board / web based software	1. Hourly consumption 2. Daily report 3. Fortnightly report. 4. Monthly report. 5. Same report shall be generated as consolidated reports for all customers.
5	Reports	1. Hourly, weekly, monthly consumption reports as per CLIENT requirement. 2. Daily exception report 3. The software shall be capable of generating alarms / events.



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6 List of Alarms / Events

4. Any updation/modification in reports/ formats as per CLIENT requirement should be done by Contractor without any cost implication.
5. Billing summary, cumulative consumption, recharge summary, monthly reconciliation summary
1. Any tampering of the gas meters.
2. Low battery
3. No flow
4. Zero consumption for 5 consecutive days
5. Low credits
6. Valve closed.

7 Graphical representation.

Bill summary, cumulative consumption, monthly summary.

Information required on each dashboard / web-based software may vary as per requirement of owner and shall be provided by supplier for entire duration of contract.

5.45 Bidder shall provide end-to-end communication solution for all supplied meters, including all required provisions like GPRS technology, for seamless communication between supplied smart meters at various locations / sites and smart metering server (cloud) on secured communication link.

For the offered end-to-end communication network, the subscription, rental charges etc. towards contract period from the date of each lot of receipt of supply at site will be in the scope of the bidder as per contract. Bidder shall ensure that such subscription account shall be transferrable to client after the contractual period and shall be of renewable type as per requirement of client, after that charges shall be paid by the client. Cloud shall maintain daily log once in a day for meter reading, daily gas consumption, alert, battery status recharge status, balance etc of each meter. The historical data of at least 12 months shall be available at cloud server.

Metering data must be received at cloud server as per the polling frequency; however in case of communication failure; data shall stay in the queue and shall be transfer to cloud server when communication restored.

The API/Protocol shall be provided by the vendor for client's SAP/ ERP / any other requirement including the format. At client's SAP / ERP / Any purpose server end; necessary securities will be ensured by client.

5.46 BRIEF SCOPE OF DATA MANGEMENT SERVICES:

The scope of works as define above shall be executed as per the Technical specification. The Vendor shall comply with all technical requirements (PJS & TS) and Comprehensive Maintenance and Contract Management Service along with other conditions of the tender. The services of the contract shall be of 05 years (or 07 years based on the supply as per ARC contract) period. The contract defined the services required for comprehensive maintenance of Smart Commercial/Industrial gas meters installed within region of operation defined in the tender. Vendor shall provide a complete manpower loading chart and project quality plan required to execute the project as per schedule. Vendor shall provide record of manpower deployed sector wise or area wise & provide report to client / PMC.



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The Meter shall be installed by bidder to ascertain the suitability of location of meter for AMR purpose. Once the system is installed, commissioning shall be performed by Vendor and the meter shall be considered handed over to Vendor after the NG conversion by client. It shall be Vendor's responsibility to maintain a fully functional and operational meter during the entire contract period for 05 / 07 years (maximum).

VENDOR shall be primarily responsible for:-

1. Installation, Commissioning of smart meters and geo-tagging (Longitudinal & latitudinal data of installed meter location up to fifth decimal) of the commissioned meters.
2. In case after installation, there is issue in communication then Vendor shall be liable for suitable replacement of meter location and/or for replacement of meter with suitable technology.
3. Comprehensive Maintenance of the handed-over meter. Replacement of faulty meters (supplied by vendor) at client's store with new meters in cases where defect is attributable to Vendor.
4. Update any firmware or software required for the comprehensive maintenance of the complete system.
5. Maintain communication with client through reports, provide alarms, Any purpose inputs, information with respect to reading, mal-functionality, mal-practices, mishandling or faultiness of the meter.
6. Attend to client demands regarding calibration of the installed meters and perform required activity against demands raised within the boundary of the contract.
7. Attend to clients requests regarding Any purpose inputs and provide inputs in requested format and respond regarding report abnormality or absence and provide justification & rectification against any mismatch or issue raised within prescribed time frame.
8. Attend to client issues regarding non-responsiveness of cloud based software and resolve the issues within prescribed time frame.
9. Providing data analytics is not the scope of vendor however if required vendor may provide data analytics until 12 months within cloud service.
10. The Vendor has to integrate the AMR cloud server with client's SAP for submission of meter reading. It shall be vendor's responsibility to establish communication with BGL SAP/Billing Portal for Providing the meter/billing data.

Vendor shall execute services as proposed & as defined but not limited to:

1. Grid independent battery packs for powering of AMR/MIU/ Sensor/Modem;
2. All available technologies shall be used for data transmission;
3. Mode of communication shall be one/ two way, two way communication is also required as



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and when data needs to be pushed to the meter from the server.

4. Data transmission cost includes SIM card and monthly charges as applicable;
5. Hardware for server, Server should be OPC compliant. Cloud server is accepted;
6. Bidder shall interface & commission the gas meters within 5 working days after BGL's intimation of completion of meter installation. Interfacing & Commissioning cost to be included in the meter Services cost, data hosting cost, no separate cost is envisaged for commissioning & and data hosting. Installation of the gas meters is in client's scope; if geo-tagging desired for the meters installed; shall be in the prescribed format;
7. Configuration of Meter ID for each meter after commissioning (Meter ID provided by client);
8. Bidder shall establish and demonstrate the signal communication between gas meters and Bidder's cloud server to client /PMC; also demonstrate the alarms features considered for various situation as defined;
9. Bidder shall be responsible for hosting of meter reading data in Bidder's cloud server for 05/07 years from the date of FOI;
10. Bidder has to ensure 100% availability of meter reading for Any purpose every month as mutually agreed and communicated by client.
11. Maintain shift wise log (eight hourly logs or as mutually agreed with client) of gas consumption of each meter per day and storing of historical data for at least 12 months in Bidder's cloud server;
12. If desired by client, Bidder to provide data analytics access through dash boards to client personnel via secured and encrypted platforms through web services using https protocols as per the frequency defined by client.
13. Bidder to provide real time alarms to client in case of any malfunction / tampering attempts. The alarm SMS shall be sent to at least 3 designated phone number and simultaneously email to 3 designated email IDs. SMS/ Emailing services shall be integrated through BGL SMS/ Mailing service.
14. Update any firmware or software required for proper functioning of the complete system is in Bidder's scope;
15. Attend to Owner's demands regarding report abnormality or absence and provide justification / rectification against any mismatch or issue raised within prescribed time frame;
16. In case of failure of automatic reading collection, reading should be collected manually and submit to on 1st and 5th of every month or as defined by client.
17. Re-commissioning: There may be some cases where client need to relocate the gas meters. In such cases Bidder to re-commission the meter and update the software / hardware in the system to put the meter in line for gas consumption reading. Maximum 4 % of the meters to be considered for

relocation.

18. Reading: Bidder to upload / provide the meter reading data as agreed otherwise bidder will be penalized as per penalty clause. Bidder to support client to resolve any issues related metering / recharge within the contract period without any cost implication.

19. Addition / Deletion: The system supplied by Bidder shall be suitable to add or delete consumers as and when required by client. The changes required for addition/deletion in software / system shall be done by the Bidder. The modification is to be done seamlessly without disturbing the Smart metering system of client.

20. Cloud Server: The meter reading data shall be collected automatically. Bidder's server shall be subjected to audit conditions as prevailed in ISO 27001. Bidder shall hire a third- party and shall conduct cloud server audit once in each financial year. Intimation of audit shall be conveyed to client to witness the audit. A random audit may be conducted by client any time in any financial year on intimation in advance.

21. AMR Data Availability: Scan time of necessary values for AMR should be as mutually agreed for the daily basis recording. Data should be transmitted to centralized client's server as per the frequency define din SLR.

22. Data transmission between AMR and remote server shall be encrypted to prevent intruder access. Overall data security shall be ensured by Bidder through suitable encryption to prevent intruder access. Data security through password and hardware sealing.

23. Number of user ID & password for logging on to cloud server shall be minimum 05 or as desired by client.

24. The stored data should be retrievable by using laptops / centralized system. System should be capable to store at least daily log and event logs for 12 months.

25. Code of Conduct: Good conduct shall be maintained by Bidder's personnel while having any interface with Customer / Owner. Bidder personnel shall always carry Owner's provided Identification Card and also any Government of India issued ID card (e.g. Adhaar etc.) in support. Owner shall not be liable for any misconduct or mal-practices adventured by Bidder's personnel during any operation.

5.47 PENALITIES:

If Bidder fails to meet any of the following requirements; if the frequency of penalties more than 05 incidences per month consecutively for 3 month (within a quarter); after that client may forfeit the CPBG as per the penalty clauses:

1. Delay in commissioning within 5 working days of installation after intimation by client.
2. In the event of server downgraded performance of 12hrs in a 30-day cycle.
3. The Bidder has to make readings available every billing cycle. In case it is found that the performance level is below the committed levels in tender document; penalty imposed.
4. In case it is found that wrong readings are submitted by the vendor (due to nonworking/ malfunctioning of AMR system).



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5. The vendor must provide the data logs of any particular customer on demand from client. In case, the vendor is unable to provide the logs within the stipulated time lines or is unable to provide the logs.

6. If any authorized representative / employee of Bidder is involved in connivance with the consumers / indulged in mal-practice like deliberately forwarded wrong meter reading or is found to be manipulating the reading of customers or is tampering the software or in PNG meter or any client's installation, bypassing of meter etc. In addition to penalties legal action may be initiated against the Bidder.

5.48 SPARE STOCK:

5.48.1 CLIENT may replace any defective meter supplied by contractor. The defective meters shall be kept at CLIENT store. Supplier shall be informed by CLIENT every month for reconciliation of the entire lot of defective meters with new meters at CLIENT store without any cost implication. Contractor shall refurbish the entire lot within 30 days from the date of reconciliation.

5.48.2 Failing to reconcile the lot in 30days the Contractor shall be liable to pay the penalty as described in Commercial/Industrial.

5.49.0 ANNUAL COMPREHENSIVE MAINTENANCE CONTRACT (ACMC): Not Applicable

5.49.1 The Contractor shall include proposal at the time of bid for providing ACMC from the date of award and provide the total i.e comprehensive operation & maintenance of system/ sub system, which is part of this MR.

5.49.2 The proposal shall include supply of tools and tackle as required; travel, boarding & lodging of service engineer. The bid shall be made year wise and the price validity shall be available for the entire period of contract.

5.49.3 Contractor shall maintain at least 5% inventory for gas meters in OK condition. Replace/repair of faulty meter in inventory on quarterly basis to maintain inventory.

5.49.4 Contractor to provide 24x7 services for customer.

5.49.5 Update any firmware or software required for the comprehensive maintenance of the complete system.

5.49.6 In the event of any malfunction of the system hardware/ system software,

5.49.7 Maintain communication with CLIENT through reports, provide alarms/event, billing inputs, information with respect to reading, mal-functionality, mal-practices, mishandling or faultiness of the ASSET.

6.0 TRAINING

The Bidder shall be required to hold training session at site as well as in client's head office for



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approx. 10 personnel initially (first batch) and thereafter at least once in every year during the contract period to facilitate the operation and to provide hands on training to the dealing staffs.

The training shall include installation, commissioning, programming, trouble shooting and analysis of hardware, software and metering data handling.

The Bidder shall provide requisite information and hard copies of manuals for reference. Client will not reimburse any charges for the training.

7.0 SAFETY & SECURITIES

All employee of contractor including engineers, technicians etc., associated with the project shall be required to wear protective gears such as safety shoes, helmets etc. and must have valid identity cards. Bidder shall submit organogram towards the project team that shall be deputed for installation and commissioning and proposed location for project office.

All manpower deputed at site for Supervision, installation, commissioning of Meters and associated equipment shall be covered under statutory government compliances of PF, ESI, accident insurance, death, disability etc. as applicable.

8.0 MODE OF COMMUNICATIONS:

The agreement shall be written in English language unless specified otherwise in SCC. All correspondence & other documents pertaining to agreement which are exchanged by parties shall be written in the same language. In case, any document/brochure is written in any other language then its English translation shall govern. The Contract shall be governed and interpreted in accordance with laws of India & Courts at Dakshin Kannada shall have exclusive jurisdiction.

9.0 Compliance to technical specifications:

Vendor shall submit bid in full compliance with the requirements of this MR, technical specification, Particular Job specification requirement and other relevant documents enclosed with tender. This will be a "No deviation" tender; any deviation taken for any techno-commercial offer may liable to be rejected. "No deviation" form has to be submitted along with bid. Any change or deviation observed after order placement will be treated as non-compliance of contract and deal as per contract without assigning any reason.

Compliance with this Material Requisition in any instance shall not relieve the vendor of his Responsibility to meet the specified performance. Vendor is completely responsible for the design, materials, fabrication, testing, Inspection and services as define.

Successful vendor shall furnish all the documents as define in Vendor Data Requirement (VDR) and submit document submission schedule as per the format enclosed with Vol II.

10.0 QUALITY ASSURANCE

The Supplier will provide details of their quality assurance procedures / plan during the detailed engineering for final inspection as per the respective Inspection Plan.

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BGL have reserves the right to visit the Supplier's facilities without prior notice and inspect test records and witness assembly and testing in progress.

11.0 WARRANTY / GUARANTEE PERIOD

The devices shall be guaranteed against malfunction and degradation through corrosion or faulty workmanship as per respective clause of SCC. BGL also reserves the right to charge the supplier all costs incurred for rectifying or replacing defective units within the guarantee period as required on non-performance/ services on within the stipulated time.

For Part-II the 05-years Data Services Contract will start from the date of the successful commissioning and integration of meter with cloud / client server and maximum up to contract period.

12.0 INSTRUCTION TO BIDDER

- a) The Supplier is required to submit to BGL the details of the items to be supplied, including the manufacturing standards, model number, along with bid for technical evaluation of bid. All the technical documents / catalogues, etc., to be submitted along with technical bid shall be in English Language only.
- b) The tender is "No deviation" Tender; any deviation of specification or terms and condition of the contract; the bid likely to be rejected.
- c) Technical specification and data sheet should be fully compliance & duly filled up enclosed with the Technical Bid.
- d) Compliance with Technical Specifications will be taken for granted if deviations are not specifically mentioned.

13.0 ANNEXURES:

Gas Composition

VENDOR DATA REQUIREMENTS

The table hereunder specifies the quantities and the nature of the documents to be submitted by the Vendor to the Client / Consultant for Approval / Record.

Any document, even when preliminary, shall be binding and therefore duly identified and signed by the Vendor. It shall bear the Project reference, the PO no. and the document identification number.

THE DOCUMENTS ARE FULLY PART OF THE SUPPLY WHICH SHALL BE COMPLETE ONLY IF AND WHEN THE DOCUMENTS COMPLYING FULLY WITH THE MATERIAL REQUISITION EQUIREMENTS ARE RECEIVED BY THE CLIENT / CONSULTANT.



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SECTION-8
SPECIAL CONDITIONS OF CONTRACT
(SCC)



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1. GENERAL

- 1.1 Special Conditions of Contract shall be read in Conjunction with the General Conditions of Contract, Specification of work, Drawing and any other documents forming part of this Contract wherever the context so requires.
- 1.2 Notwithstanding the sub-division of the documents into these separate sections and volumes ever part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with in the Contract so far as it may be practicable to do so.
- 1.3 Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears, the provisions of the Special Conditions of Contract of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall be the extent of such repugnancy, or variations, prevail.
- 1.4 Wherever it is mentioned in the specification that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his cost and the **Value of Contract** shall be deemed to have included cost of such performance and provisions, so mentioned.
- 1.5 The materials, design, and workmanship shall satisfy the relevant Indian Standard, the Job Specifications contained herein and Codes referred to where the job specification stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied.
- 1.6 In case of an irreconcilable conflict between Indian or other applicable standards, General Conditions of Contract, Special Conditions of Contract, Specification, Drawings or Schedule of Rates, the following shall prevail to the extent of such irreconcilable conflict in order of precedence:
 - i) Letter of Acceptance/ FOI along with Statement of Agreed Variations.
 - ii) Schedule of Rates as enclosures to Letter of Acceptance
 - iii) Special Conditions of Contract
 - iv) Meter Data Sheets & Manual
 - v) Technical/ Material Specifications
 - vi) Instruction to Bidder
 - vii) General Conditions of Contract
 - viii) Indian Standards and other applicable standards
- 1.7 It will be the Contractor's responsibility to bring to the notice of Engineer-in-charge any irreconcilable conflict in the contract documents before starting the work(s) or making the supply with reference which the conflict exists.
- 1.8 In the absence of any Specifications covering any material, design of work(s) the same shall be performed/ supplies/ executed in accordance with Standard Engineering Practice as per the instructions/ directions of the Engineer-in-charge, which will be binding on the Contractor.



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1.9 The Bidder shall supply meters only from the approved list of manufacturers/make (If the bidder is authorized supplier/distributer).

2.0 India Weight and Measurement Certificate, EN1359:2017 (As per PNGRB Standards), MID, BIS, Model Approval/Certification as per OIML137 1&2 etc. and other relevant certificates must be submitted as per standard of Dept of Legal metrology standard, of Indian Government.

2.0 SCOPE OF SUPPLY

The Scope of SUPPLY shall be as set out at Material Requisition, Data Sheets and Technical Specifications given in Volume-II of tender document and supplemented by all stipulation in the total tender document.

Seller's scope shall include

- (a) Manufacturing of mentioned items as per Material Requisition technical specifications.
- (b) Preparation of Quality Assurance / Quality Control Programme.
- (c) Obtaining Owner's Approval;
- (d) Arranging Inspection and Testing certification.
- (e) Calibration & warranty certificates.
- (f) Inspection and obtaining Inspection Release Note.
- (g) Obtaining dispatch clearance.
- (h) Packing.
- (i) Transit Insurance, loading on truck/trailer including loading and unloading of materials/ spare kits at Bhagyanagar Gas's store/site.

3.0 CONTRACT PRICE

The contract price shall be deemed to be firm and valid for the entire duration of the contract till the completion of work, and shall not be subject to any adjustment due to increase in price of materials, utilities, or any. other input for performance of work and the contract except for increase/decrease in taxes and duties on account of subsequent legislation.

4.0 DIVISION OF ORDER

BGL reserves the right to divide the quantity among more than one bidder at its sole discretion and as mentioned in BEC of Vol I of II.

5.0 QUALITY ASSURANCE/QUALITY CONTROL:

- 5.1. The Contractor shall "prepare a detailed quality assurance plan as per industry standards for the execution of Contract for various facilities, which will be mutually discussed and agreed to.
- 5.2. The Contractor shall establish document and maintain an effective quality assurance system outlined in recognized codes.
- 5.3. The Purchaser while agreeing to a quality assurance plan shall mark the stages where



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they would like to witness the tests; review any or all stages of work at shop/site as deemed necessary for quality assurance.

6.0 QUANTITY VARIATION

The tendered quantity may vary depending upon the project requirement. BGL reserves the right to decrease/ increase the quantity depending upon its requirement.

7.0 DISPATCH INSTRUCTIONS

7.1 Seller shall obtain dispatch clearance from the Purchaser prior to each dispatch.

7.1 Copy of Inspection Release Certificate, Dispatch Clearance and statement showing the name of the Vessel/Trailers description and weight of material and shipping marks etc. to be submitted along with the documents.



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8.0 INSPECTION OF SUPPLY ITEMS

All inspections and tests on bought out items shall be made as per the specifications forming part of this contract. Various stages of inspection and testing are indicated in the bidding document and shall also be identified after receipt of Quality Assurance Programme from the Contractor/ Manufacturer. Third party inspection mandatorily to be considered (all-inclusive in rates quoted) for each Lot/ RO. client / PMC may randomly inspect along with TPI as per the approved QAP.

Final inspection of the meters shall only be done by TPIA (PNGRB Approved), approved by BGL. All the charges towards all kinds of tests/TPIA cost shall be included in the quoted rates per unit. No additional payment to this effect will be made. The charges towards BGL's Inspection Agency, if engaged, shall be borne by Vendor.

9.0 REJECTION

- 9.1. Any materials/goods covered under scope of supply, which during the process of inspection by appointed third party, at any stage of manufacture/fabrication, and subsequent stages, prior to dispatch is found not conforming to the requirements/specifications of the Purchase Requisition /Order, shall be liable for immediate rejection.
- 9.2. Supplier shall be responsible and liable for immediate replacement of such material with acceptable material at no extra cost or impact on the delivery schedule to EMPLOYER

10.0 TRAINING OF PURCHASER'S PERSONNEL

Contractors shall train & support (remotely) Purchase's Engineers as per the scope define in the Job specifications. Bidder's quoted price shall include all expenses towards their personnel's travel, transportation, boarding, loading, living and personnel expenses, etc. for on-site training (if required). Training has to be provided before final commissioning and once per year during 5-year service period. Travel, transportation, venue, boarding, lodging & personnel expenses of Purchaser's personnel shall be borne by seller (If physical visit required).

11.0 INSTALLATION & COMMISSIONING

The buyer shall carry out required installation and testing. The commissioning will be the scope of supplier as per quality assurance plan and furnish all assistance required by the OWNER in carrying out inspection work during this phase. The OWNER will have engineers; inspectors or other authorized representatives present who are to have free access to the work at all times. If an OWNER's representative notifies the supplier's authorized representative not lower than a Foreman of any deficiency, or recommends action regarding compliance with the SPECIFICATIONS, the supplier shall make every effort to carry out such instructions to complete the work conforming



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to the SPECIFICATIONS and approved DRAWINGS in the fullest degree consistent with best industry practice. All last mile connectivity fittings as required for meter installation shall be in bidder's scope.

12.0 FIELD INSPECTION

Supplier shall have at all times during the performance of the WORK, a Competent Superintendent on the premises. Any instruction given to such superintendent shall be construed as having been given to the supplier.

13.0 TERMS OF PAYMENTS

The Payment shall be made in the following manner subject to completion of all contractual requirements as per tender document.

A- The following shall be read in conjunction with Clauses of GCC (Goods)
90 % (Ninety percent) payment of the supplied portion along with freight including taxes & duties will be paid on receipt & acceptance of goods at FOT site after adjustment of PRS, if any along with submission of following documents.

B- 10% (Ten Percent) payment of the supplied materials after successful erection, testing & commissioning and associated works.

However, if Erection, testing and commissioning is not started within 180 days (6months) after supply (from the date of delivery of material at site / date of GRV) due to non-availability of site/gas-in, payment against Erection Testing, Integration and commissioning shall be released to the successful bidder.

C- For MDM/Cloud/Server (SIM and Data Hosting/Server Charges) can be billed/claimed Quarterly/Half Yearly/Yearly and same will be released for commissioned meters.

100% Progressively on successful commissioning of Smart Commercial Gas meters, training and services for metering system & Metering data to the server / SAP Server of client and submission of following additional document with invoice.

Monthly/Quarterly/Half Yearly/Yearly payment on pro-rata basis as certified by Engineer-in-charge shall be made against the invoices raised.

- i) Original Invoice in triplicate in compliance with GST law in force
- ii) Inspection Release note by Owner or his appointed or approved agency.
- iii) Original GR / LR
- iv) Packing List
- v) Insurance cover note covering transit insurance
- vi) Performance Bank Guarantee(s) of 5% of Contract Value. If already submitted, a copy of the same.
- vii) Document related to Input Tax Credit (ITC) to be claimed by owner, if applicable.

D- For FINAL BILL, the following documents are to be provided:

v) No Claim & No due Certificate



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vi) Statement of Completion.

ii. MODE OF PAYMENT

All payments payable in Indian rupees against the contract shall be released by Owner through account payee cheque payable at par or by electronic transfer.

iii. DEDUCTION AT SOURCE

Purchaser will release the payment to the Seller after effecting deductions as per applicable law in force. Purchaser will release payments by F&A Dept, BGL to the Contractor after offsetting all dues to the Purchaser payable by the Contractor under the Contract.

11.0 COMPENSATION FOR DELAY (PRICE REDUCTION)

In case of delay in delivery of materials beyond contractually agreed delivery schedule, price reduction schedule will be applicable @0.5% of material value for the unsupplied portion per week of delay or part thereof, subject to ceiling of 5% (FIVE PERCENT) of the total order value. For details, please refer relevant clause of GCC-Goods.

The value referred in PRS clause is excluding taxes & duties.



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12.0 PERFORMANCE BANK GUARANTEE/ SECURITY DEPOSIT/CONTRACT PERFORMANCE SECURITY:

As per clause no 37 of ITB of Vol I of II.

13.0 REPEAT ORDER

BGL reserves the right to place a repeat order within Six (06) months from date of purchase order for upto 25% of order quantities on same rate, terms and conditions.

14.0 DELIVERY

The delivery of the items location wise is as per the Material Requisition. The Vendor to arrange transportation of these materials from the vendor shop to designated locations of BGL yard in respective cities. No extra payment shall be made for transportation and deemed to be included in the quoted price. Bidder to deliver the materials at all locations as per the quantity estimated.

15.0 DELIVERY SCHEDULE

Delivery of the quantity of orders will be completed in single lots as per given by the purchaser. The lot should be delivered within **16 weeks** for the supply of all materials as per SOR, from the date of receipt of LOI/PO from the date of Fax of Acceptance (FOA)/Purchase Order (PO).

Parts	Description as per Part	Completion Period
Part A1	Part A.1- Supply of Natural Gas Smart Prepaid Commercial/ Industrial Meters	16 weeks on FOT site basis from date of intimation/ Release Order. The quantities shall be mentioned in the individual Release Orders within Two years ARC.
Part A2	Part A.2 - Installation and Commissioning of Natural Gas Smart Prepaid Commercial/ Industrial Meters	Physical Installation will be BGL Scope
Part A3	Integrations with MDM Server/Cloud Services, API, Protocol for Smart Metering & Data Management for Natural Gas Smart Prepaid Commercial/ Industrial Meters.	The 05 years Services for Part A.3 will start from date of intimation from client for completion of Gas In / Conversion (any quantity against first Release Orders); all activities under A.3 limited to 05 years from date of intimation of Gas In / Conversion of meter.

16.0 PRICE REDUCTION SCHEDULE (PRS)

16.1 PRS shall be applicable as per clause 26.0 in GCC Goods for supply part (i.e. part A1) and GCC - Services for Services.

16.2 Penalty towards services i.e. installation and commissioning, smart metering & data



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management services shall be as defined in the PJS/ TS enclosed with tender.

17.0 PACKING, MARKING AND SHIPMENT

The Seller, wherever applicable shall after proper painting, pack and crate all goods for sea/air/road/rail transportation in a manner suitable to tropical humid climatic region in accordance with the internationally accepted practices and in such a manner so as to protect it from damage and deterioration, in transit by sea or air or road or rail and during storage at the storehouse. The seller shall be held responsible for all damages due to improper packing. The Seller shall ensure sizing or packing of all oversized consignments in such a way that availability of carrier and/or road/rail route is properly taken into consideration.

For MARKING & PACKAGING of the Materials shall be as Section-IV of Vol I of I.

Seller shall comply with the Packing, Marking and Shipping Instructions and Special Packaging Requirement as per Vol I of II of this Bidding Document.



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18.0 INDEPENDENT SELLER

It is expressly understood and agreed that Seller is an independent party and that neither the Seller/ its personnel are servants, agents or employees of Purchaser nor the Seller has any kind of interest in other sellers.

19.0 LIEN

Seller shall ensure that the Scope of Supply supplied under the Agreement shall be free from any claims of title/liens from any third party. In the event of such claims by any party, Seller shall at his own cost defend, indemnify and hold harmless Purchaser or its authorized representative from such disputes of title/liens, costs, consequences etc.

20.0 LIMITATION OF LIABILITY

Notwithstanding anything contrary contained herein, the aggregate total liability of Supplier under the Contract or otherwise shall be limited to 100% of contract value. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profits or loss of production.

21.0 GOVERNING LAW

Laws of India will govern the Agreement and Hyderabad courts will have exclusive jurisdiction on all matters related to Agreement.

22.0 OWNER'S RIGHTS AND REMEDIES

Without prejudice to Owner's right and remedies under Agreement, if supplier fails to commence delivery as per agreed schedule and/or in reasonable opinion of the OWNER, supplier is not in a position to make up the delay to meet the intended purpose, the OWNER may terminate the AGREEMENT in full or part at supplier's default and may get supplies from other sources at supplier's risk and cost.

23.0 TRANSIT INSURANCE (additional to Clause no. 16.0 of GCC)

Bidder shall arrange Transit Insurance and the cost of which shall be borne by bidder. Quoted price shall be inclusive of the same.

24.0 GUARANTEE/WARRANTY

If any trouble or defect, originating with the design, material, workmanship or operating characteristics of any materials, arises at any time prior to expiry of **6Years (72months)** from the date of delivery of material and **5Years (60months)** from the date of commissioning or prior to expiry of **6Years (72months)** from the date of last shipment (particular delivery LOT for Groups) whichever is earlier, first expire, and



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the seller is notified thereof, seller shall, at his own expense and as promptly as possible, make such alterations, repairs and replacements as may necessary to permit the materials to function in accordance with the specifications and to fulfill the foregoing guarantees.

25.0 DEFECT LIABILITY PERIOD (DLP):

Defect Liability Period (DLP) will be **5Years (60months)** from the date of commissioning or prior to expiry of **6Years (72months)** from the date of last shipment (particular delivery LOT for Groups) whichever is earlier, first expires for any types of manufacturing defects and non-performance of meter as per standards (except external physical damages/tempering). The vendor has to supply /replace the new meter within the 15days of intimation of the purchaser. After completion of Defect liability period, any damage or defect that may arise or lie undiscovered at the time of issue of completion certificate, connected in any way with the equipment or materials supplied by him or in the workmanship, shall be rectified or replaced by the CONTRACTOR/ SUPPLIER at BGL expense as deemed necessary by the ENGINEER IN CHARGE or in default, the ENGINEER IN CHARGE may carry out such works by other vendors and original OEM/manufacture/Supplier have to support for the required spares or associated equipment's or materials.

25.0 MDM Server/Cloud, SIM Payment Gateway & Data Hosting Services:

25.1 Monthly charges for **MDM Server/Cloud, SIM, Payment gateway & Data Hosting services** will be start after installation of Meters at site and the same will be for **5Years**. **And after completion of 5Years the contract for MDM Server/Cloud, SIM Payment Gateway & Data Hosting Services will be renewed/extended as per mutual acceptance of the seller and buyer with same terms & conditions.**

25.2 Regular Metering data services as per SOR/MR A.3 shall start only after successful commissioning & satisfactory working of prepaid smart gas meters for at least 1 month for First Lot/Test is duly accepted & certified by EIC. Payment shall be done as per clause 13- C. above.

25.3 Price Reduction Schedule for delay in completion, Defect Liability/Guarantee/ Warranty and contract value for Limitation of Liability will be applicable separately for each order (i.e. Release order).

25.4 Quantity mentioned in the SOR is indicative only. There is no minimum guarantee of quantity to be ordered. Order for any quantity of MR / SOR item can be placed to the supplier as per the project requirement. No claim shall be entertained for any variation of quantities mentioned in MR/SOR.



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25.0 General Conditions:

- (i) When the materials are dispatched to the consignee intimation must also be given to this effect. Reference to the supply order should invariably be given in all the relevant correspondence.
- (ii) The tender is liable to be rejected in case the tender does not comply with tender stipulations or the goods, works and services offered do not conform to the required specifications indicated there in.
- (iii) Any other terms and conditions offered by the firm and not included in the order/contract, are not acceptable to BGL.

26.0 Location/Site Information: Location of site will be informed by BGL Engineer-In-charge

Location Wise Delivery Schedule							
Sl. No.	Material Descriptions	Qty.	Unit	Qty (Hyd.)	Qty. (VJA)	Qty (KKN)	Remarks
1	Design, Engineering, Supply and delivery of items up to FOT Site, Hyderabad, Vijayawada & Kakinada as per the material requisition and scope of supply of pre-paid commercial smart meters with brass union connector, meter clamps/brackets with suitable set of washers and meter clamps/brackets. Providing the Installation & Commissioning guideline/manual, assistance/guidance, configurations, synchronization with BGL payment gateway/portal and common HES System Platform tailored for the CGD sector. Which can be integrated and synchronized with any Meter Data Management (MDM).						
1.1	G-1.6 Pre-Paid Commercial Smart Meter						
1.1.1	Supply of G-1.6 Pre-Paid Commercial Smart Meter with $\frac{3}{4}$ " Male NPT Threaded Brass Union Connector and Meter Clamp/Bracket.	35	No's	10	10	15	
1.2	G-4 Pre-Paid Commercial Smart Meter						
1.2.1	Supply of G-4 Pre-Paid Commercial smart Meter with Brass 1" Male NPT Union Connector and Meter Clamp/Bracket.	35	No's	10	10	15	
1.3	G-6 Pre-Paid Commercial Smart Meter						
1.3.1	Supply of G-6 Pre-Paid Commercial Smart Meter with 1" Brass Union Connector and Meter Clamp/Bracket.	45	No's	20	15	10	
2	Designing, Engineering and providing the Meter Data Management (MDM) application/software/server to BGL with credentials to review and take the data log, check the parameters remotely/physically, checking and resetting of alarms, changing of gas rates. The MDM should be compatible for integrated/synchronized with all types of HES systems. And all associated works required						



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	for successful integration/synchronization with pre-paid commercial smart meters as per requirements by buyer/purchaser for 5years (Server/Data Hosting/ Payment gateway & SIM). MDM will be maintained by the vendor without any additional cost to BGL.					
2.1	Monthly Charges for Meter Data Management (MDM) Cloud/Server, Mobile Application/Software to BGL with credentials All Services related to Smart Automatic Meter Reading (AMR) of Natural Gas Prepaid Meter, Collection of meter readings data services; Managing & Maintaining metering data, Report Generation; providing Metering data, Billing schedule & format to BGL Gas SAP/Portal/Server for generation of bill and ensuring availability of the data related to Smart Meters & Smart Automatic Meter Reading system as proposed and other associated services as per the Service Level agreement and providing Comprehensive Maintenance Services of all supplied Gas Meter with AMR/MIU, including batteries; Services for maintenance, operation, calibration, testing. The rates shall be per month on the basis for the no. of meters installed. Natural Gas Prepaid Meter month quantity (115 nos. x 60 months) METER MONTHS.	6900	No's	2400	2100	2400



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SECTION – 9

MATERIAL REQUISITION & TECHNICAL SPECIFICATIONS



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Material Requisition

Project : Procurement of pre-paid commercial smart meters with brass union connector, meter clamp/bracket and all required accessories, MDM server/cloud, data hosting, payment gateway & SIM for Industrial & Commercial Customers in Hyderabad.

Client : M/s Bhagyanagar Gas Limited

Items : Pre-paid commercial smart meters (flow capacity from 0.016m³/hrs to 10m³/hrs)

Tender No. : B G L /672/2025-26

Sl. No.	Material Descriptions	Q Max	Qty.	Unit	Remarks
1	Design, Engineering, Supply and delivery of items up to FOT Site, Hyderabad, Vijayawada & Kakinada as per the material requisition and scope of supply of pre-paid commercial smart meters with brass union connector, meter clamps/brackets with suitable set of washers and meter clamps/brackets. Providing the Installation & Commissioning guideline/manual, assistance/guidance, configurations, synchronization with BGL payment gateway/portal and common HES System Platform tailored for the CGD sector. Which can be integrated and synchronized with any Meter Data Management (MDM).				
1.1	Supply of G-1.6 Pre-Paid Commercial Smart Meter with $\frac{3}{4}$ " Male NPT Threaded Brass Union Connector and Meter Clamp/Bracket.	2.5 m ³ /hrs.	35	Nos.	
1.2	Supply of G-4 Pre-Paid Commercial smart Meter with Brass 1" Male NPT Union Connector and Meter Clamp/Bracket.	6 m ³ /hrs.	35	Nos.	
1.3	Supply of G-6 Pre-Paid Commercial Smart Meter with 1" Brass Union Connector and Meter Clamp/Bracket.	10 m ³ /hrs.	45	Nos.	
2.0	Designing, Engineering and providing the Meter Data Management (MDM) application/software/server to BGL with credentials to review and take the data log, check the parameters remotely/physically, checking and resetting of alarms, changing of gas rates. The MDM should be compatible for integrated/synchronized with all types of HES systems. And all associated works required for successful integration/synchronization with pre-paid commercial smart meters as per requirements by buyer/purchaser for 5years (Server/Data Hosting/ Payment gateway & SIM). MDM will be maintained by the vendor without any additional cost to BGL.				
2.1	Monthly Charges for Meter Data Management (MDM) Cloud/Server, Mobile Application/Software to BGL with credentials All Services related to Smart Automatic Meter Reading (AMR) of Natural Gas Prepaid Meter, Collection of meter readings data services; Managing & Maintaining metering data, Report Generation; providing Metering data, Billing schedule & format to BGL Gas SAP/Portal/Server for generation of bill and ensuring availability of the data related to Smart Meters & Smart Automatic Meter Reading system as proposed and other associated services as per the Service Level agreement and providing Comprehensive Maintenance Services of all supplied Gas Meter with		6900	Nos.	



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AMR/MIU, including batteries; Services for maintenance, operation, calibration, testing. The rates shall be per month on the basis for the no. of meters installed. Natural Gas Prepaid Meter month quantity (115 nos. x 60 months) METER MONTHS.				
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1.0 INTRODUCTION

The intent of this specification is to establish minimum requirements for manufacturing and supply of Natural Gas Smart Prepaid Commercial/Industrial Meters with AMR/MIU for smart metering system required for PNG gas measurement to Commercial/Industrial consumer's customers for City Gas Distribution project. This specification is for BGL Project only.

2.0 SCOPE OF WORK

The successful Bidder (the "Supplier") shall complete delivery of Goods along- with its incidental services (if any) as per Specification, Scope of Supply/Job within the period stated in Special Conditions of Contract.

Seller's scope shall include (a) manufacturing of above-mentioned items as per Material Requisition technical specifications; (b) preparation of Quality Assurance / Quality control programme; (c) obtaining Owner's approval; (d) arranging Inspection and Testing certification; (e) Inspection and obtaining Inspection Release Note; (f) obtaining dispatch clearance; (g) Packing; (h) Transit Insurance, loading on truck/trailer including and unloading of at Bhagyanagar Gas's store/site.

The scope of work shall cover (but not limited to) Supply, design engineering, documentation, manufacturing, testing, inspection, preparation for shipment and transportation of the Smart Prepaid Commercial/Industrial Gas Meters (with Integrated Valve) and AMR/MIU. This also including packaging, insurance, handling, transportation, loading / unloading at sites/ designated store, documentation etc. and providing all related services conforming to respective data sheets, this technical specification along with enclosed tender with National / International standards specified.

The scope also includes Supply, Installation, Testing, Commissioning of Automatic Meter Reading systems (Prepaid Smart metering / Automatic Meter Reading system), maintenance and upkeep of AMR system components/equipment, recharge, payment, update of status and balance and all type of meter reading services, data management services including cloud services/ own server based services, providing operational / management and other dashboards for the gas utility company and providing billing data, payment gateway data; its integration to the gas utility company's SAP system.

The bidder's scope shall also include hiring of Third-Party Inspection Agency (TPIA) from the list of TPIAs approved by the company for inspection as per approved QAP; refer relevant sections of the bid documents for list of approved TPIAs and QAP.

The supplier shall comply with local statutory regulations of Legal metrology of 2009 and Legal Metrology (Enforcement) rules, 2011. Such natural gas smart Commercial/Industrial meters shall have



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compliance and tested in accordance with requirements of PNGRB, Technical Standards & specifications including Safety standards for City or Local Natural Gas Distribution Networks (also known as T4S), BS EN 1359:2017 or the latest edition in force / OIML Recommendation R 137-1 & 2 for Gas Meters standards and as per the requirements of this specification.

3.0 GENERAL

3.1 DEDINITIONS

Subject to the requirements of the context, the terms (hereafter listed in alphabetical Order) used in this specification are given the following meaning:

AGREEMENT

Designates the agreement concluded between the CLIENT and the supplier, under which the latter undertakes to the former the GOODS and/or SERVICES according to the stipulations which are agreed and specified in the form of an order. LIENT / OWNER Designates the purchaser of the GOODS and/or SERVICES, which are the subject of the AGREEMENT.

SUPPLIER Designates the individual or legal entity with whom the order has been concluded by the CLIENT. The term "SUPPLIER" may be used indifferently for a supplier, a manufacturer, an erection SUPPLIER, etc.

DAYS - **WEEK**S – **MONTH**S Specify the number of calendar days, weeks or months and not of working days, weeks or months.

CLIENT'S REPRESENTATIVE Designates the individual or legal entity to which the CLIENT has entrusted various tasks in relation with the carrying out of his PROJECT

GOODS and/or SERVICES Designate, depending on the case, all or part of the drawings or documents, substances, materials, materiel, equipment, structures, plant, tools, machinery, to be studied, designed, manufactured, supplied by the supplier under the AGREEMENT, including all the studies, tasks, works and services specified by the order. The Terms GOODS or SERVICES may by indifferently used one for the other as required by the context.

PROJECT Designates the aggregate of GOODS and/or SERVICES to be provided by one or more SUPPLIERS.

CUSTOMER Party or Individual that engages owner for PNG supply service.

3.2 REVIEW & APPROVAL:

Whenever Client and/or Client's Representative's review and approval is requested on a document to be submitted by the Supplier or before an action is implemented by the supplier, such review and/or approval shall always be requested in writing by the supplier to the Client and/or the Client 's Representative's before any action subject of this review and/or approval is taken. Client and/or Client's Representative's approval shall always be given in writing.



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3.3 REFERENCES:

Unless otherwise specified, the latest editions of the standards mentioned herein this specification including all addenda and revisions shall apply. All pressure values mentioned in this specification are in gauge.

Following Technical Specifications also to be refer:

**NATURAL GAS SMART COMMERCIAL METERING SYSTEM – TENDER NO.-
BGL/672/2025-26**

SERVICES FOR SMART METERING & DATA MANAGEMENT & COMPREHENSIVE ANNUAL MAINTENANCE OF SMART GAS METERING SYSTEM:

4.0 ABBREVIATIONS

PNGRB : Petroleum and Natural Gas Regulatory Board

BS : British Standard

EN : European Standard

DVGW : Deutscher Verein des Gas- und Wasserfaches e.V.

RF : Radio Frequency

RFID : Radio Frequency Identification

TPIA : Third Party Inspection Agency

WPC : Wireless Planning & Coordination Wing

AMR : Automatic Meter Reading

ATEX : Atmosphere Explosibles (French: Explosive Atmospheres)

MIU : Meter Interface Unit

OEM : Original Equipment Manufacturer

MOP : Maximum Operating Pressure

QAP : Quality Assurance Plan

TPIA : Third Party Inspection Agency

PO : Purchase Order

DO : Delivery Order

CDD : Contractual Delivery Date

FTP : File Transfer Protocol.

OIML : International Organization of Legal Metrology (OIML)

EVC : Electronics Volume corrector

FC : Flow Computers

5.0 CODES, STANDARD AND LEGAL REQUIREMENTS

All meters shall comply with the requirements of PNGRB guidelines. In case of dispute between PNGRB and other codes, PNGRB guidelines shall prevail. Below mentioned standards shall be complying by the Bidder.

The vendor shall furnish (along with the technical bid) a copy of the approval documents, certificates (in English language only) for each of the offered model, for compliance to the requirements of



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following standards applicable for Diaphragm Commercial/Industrial Gas meters

BS EN : EN 1359-2017 or latest edition in force.

ATEX : 94/9/EC Directive.

IEC 60529 : Degrees of Protection Provided by Enclosure

ANSIB1.20.1 : Pipe Threads

ISO 27001 : Information security standards.

PNGRB : T4S standard

W&M : Weights and Measure India

OIML R 137 1 & 2 : International Organization of Legal Metrology standard for all Gas Meters other than Diaphragm Gas Meters

Mandatory Requirements for – Smart Commercial/Industrial Gas Meters:

a) Meters shall have compliance to the test requirements of EN 1359: 2017 or the latest edition in force for Diaphragm Gas Meter / OIML R 137-1 & 2 /for other type of Gas Meters as per PNGRB regulatory requirement (refer T4S)

b) Product Certification Type Approval/ Type Compliance/ Type Examination

i) For Commercial/Industrial Diaphragm Gas Meter

As per EN1359-2017 or the latest edition in force / OIML R 137-1 & 2.

ii) For other type of Gas Meters as per PNGRB regulatory requirement (refer T4S) issued by a notified body /agency accredited by UKAS or any Member of European cooperation for Accreditation (EA).

The certificate shall be submitted along with Bid.

c) For Indian Manufacturer Valid Model approval, Valid License for manufacturing, Valid License for Sales& Services certificates from Legal Metrology Department - Weights and Measures, India for Commercial/Industrial meters shall be submitted along with bid. All the weights and measures approval should also be valid at the time of bid submission. For Foreign Manufacturer Model approval & importing license for Commercial/Industrial meters import to India from W&M India shall be submitted along with bid. For the bidder; the name of the manufacturer / supplier / representative as mentioned in the W&M certificate shall be valid.

d) Bidder shall submit an undertaking that the Smart Commercial/Industrial Gas meter supplied by them shall perform within the accuracy limits prescribes by EN 1359-2017 / latest edition in force/ OIML R137 1 & 2.

e) Type approval certificate for degree of protection (as specified) as per IEC 60529.

f) ANSIB1.20.1 Pipe Threads - End Connections (Two- pipe version) of meter inlet and outlet confirming / according to ANSI B1.20.1 (NPT and NPTF pipe threads - dimensions) or other (will confirmed during detailed engineering)

g) PESO approval for AMR/MIU of meter or an undertaking as per clause 5.11 of PJS.



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h) ATEX certificate for electrical/electronic items conforming to Zone2, IIB hazardous area use requirement

All certificates duly must be verified by any Third-Party Inspection agency listed in the tender document.

6.0 TECHNICAL SPECIFICATION – SMART PREPAID COMMERCIAL / INDUSTRIAL GAS METERS

- I. All meters shall be of compact size (As meter has to be used in - applications, bidder has to offer the meter with proper cyclic volume size & meeting all the requirements including accuracy), confirm long term accuracy and reliability, robust, maintenance free.
- II. The meter capacities shall be as indicated in the technical datasheet.
- III. Meter shall be supplied with AMR/MIU
- IV. Index shall be compatible for implementing automatic meter system and preferably be factory with Meter Interface Unit. The Pulse generating Mechanism should remain unaffected by an external magnet.
- V. Meter shall be painted with electrostatic spray epoxy paint or Polyester powder coating and the paint shall be of approved color and quality.
- VI. The meters shall have corrosion resistant powder coated (inside and outside) of the steel casing.
- VII. Enclosure protection of all meters shall confirm to IP-54 (as per IEC 60529) or better.
- VIII. Metering equipment shall be sealed and shall be able to prevent & detect tampering.
- IX. All Meters shall have in-built reverse flow & reverse count restrictor.
- X. The meters shall be supplied with all mounting accessories. End connection shall be protected by Plastic caps.
- XI. All the Meters shall be tested for external leak tightness and resistance at 1.5 times the design pressure.
- XII. Refer Data Sheet of Prepaid Commercial/Industrial Gas Meter enclosed separately.

AUTOMATIC METER READING SYSTEM:

The meter shall be equipped with an Automated Meter Reading System. The pulse generating mechanism shall be in-built into the meter and shall be based on proximity sensor magnetic or inductive principle and should remain unaffected by an external magnet (of any capacity) to the best extent possible during the remote meter reading. During the inspection of the prepaid smart gas meters at the works of the manufacturer by client/ PMC, the vendor shall carry out tests to demonstrate that the prepaid gas meters are capable of generating pulses and AMR reading is not affected by external magnet of any capacity. Prepaid Smart Gas Meters with magnetic pulse principle with a magnetic tamper alarm are acceptable subjected to any tempering event by any capacity magnet; alarm has to be generated and recorded in the system. For demonstration; necessary arrangement has to be made by the vendor during inspection. (Refer clause no 7.15).

Prepaid Smart Gas Meters (Commercial) shall be suitable for GPRS technology meeting the requirement of prepaid smart metering.

There shall be no data loss during the battery replacement event. It has to be demonstrated during



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inspection as per QAP.

Valve between the inlet and outlet is required to remotely/locally shut or open(manually) based on the configuration for gas consumption. Valve shall be open for sufficient balance available and must close for Zero balance automatically. Opening of valve must be manually only. Automatic feature if available shall be accepted based on site requirement. Power to Internal valve shall be through the battery of AMR/MIU.

Remark: No external power source is to be used for powering AMR/MIU & only internal battery power is to be utilized.

The Prepaid Smart Meters shall be installed in strategic locations as designated by Owner. The prepaid smart gas meter shall utilize GPRS technology along with any required accessories (to be supplied by bidder) to record gas consumption, recharge, auto closing of valve on finished balance, integration with payment gate way/ server and diagnostics from the meter through GPRS technology.

Details of metering data interfaces with any communication services through cloud based services up to clients billing Server and related services; refer separate technical specification.

7.0 INSPECTION, TESTING AND QUALITY ASSURANCE

The Vendor shall provide details of their quality assurance procedures during the assembly of the units and for final inspection as per Inspection Plan. (Client) reserves the right to visit the Supplier's facilities without prior notice and inspect test records and witness assembly and testing in progress.

7.1 Inspection shall be carried out as per the approved Technical Specification, Inspection Plan/QAP meeting EN 1359 / OIML requirements etc. ; as applicable.

7.2 Vendor shall submit QAP to Client / PMC for approval as per given format with minimum requirements as specified.

7.3 For any control, test or examination required under the supervision of PMC / TPIA / Owner/ Owner's representative, later shall be informed in writing one (01) week in advance by vendor about inspection date and place along with production schedule.

7.4 The Vendor shall provide calibration certificate and accuracy of the Gas Meter (As per EN 1359 latest / OIML) for the flow rates and operating pressure; as applicable. Calibration certificates should be traceable to calibration standards.

7.5 Vendor shall hire Third Party Inspection Agency (to be approved by the Client) to perform inspection work all-inclusive in quoted price. This agency shall inspect all the equipment/material and issue all inspection certificates/reports as per specifications and codes. Client / PMC may also do Inspection by along with TPI appointed by bidder.

7.6 Inspection as per approved QAP shall be performed / witnessed / carried out on each lot by a Third Party Internationally recognized Inspection agencies listed below for witnessing inspection and testing as required.



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- Société Générale de Surveillance (SGS)
- Gulf Lloyds Industrial Services (India) Pvt. Ltd (GLISPL)
- International Certification Services (ICS)
- (Bureau Veritas (Ind.) Pvt. Ltd (BVIS)
- DNV GL
- TUV
- Intertek India Pvt. Ltd.
- Moody International (India) Pvt. Ltd.
- RINA India Pvt. Ltd.
- Tata Projects Ltd.
- Competent Inspectorate and Consultants LLP
- Apave TIV India Pvt. Ltd.

Indian agent / Indian representative supplying the materials from their foreign manufacturer's works shall also include third party inspection at foreign manufacturer's works as defined above. If bidder is having appropriate facilities in India duly certified by TPI and agreed & accepted by the bidder (acceptance shall be given in writing); may offer inspection from India.

7.7 Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports, Accuracy test report for individual meter, as per Technical Specification and specified code for 100% material at the time of final inspection of each supply lot of material.

7.8 Review of calibration certificates for all the measuring instruments at the time of inspection, i.e., used for checking and testing, along with the Master calibration certificate of the measuring instruments from which the instruments is calibrated.

7.9 Third party inspection agency appointed by bidder shall carry out inspection during final inspection at the works of the manufacturer and submit all original test I inspection reports with released note for review of client/ PMC.

In case of Indian agent, I representative supplying materials from their foreign manufacturer's works; third party inspection shall be carried out at manufacturer's works only and submit all original test/ inspection reports with released note for review of client/ PMC.

7.10 PMC or client / their representative may also join along with TPI (appointed by bidder) during the inspection. At least 15 days' advance intimation shall be given for such inspection call along with the name of approved Third Party Inspection agency as suggested below.

7.11 All meters should be sealed properly by the manufacturer after final inspection clearance and before dispatch. Meters found in unsealed conditions will not be accepted.

7.12 If the performance of any of the sample meter/AMR / EVC is not in compliance with the acceptance norms of the respective standards then that the lot of respective item will be rejected.



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7.13 Vendor should furnish QAP in line with EN 1359: 2017 or latest standard / OIML for diaphragm gas meter / other type as per format attached with the tender. For Other type of Gas meter QAP shall be furnished for approval meeting OIML requirement.

7.14 Even after third party inspection, client/Inspector reserves the right to select a sample of Commercial/Industrial Meters randomly from each manufacturing batch and have these independently tested. Should the results of these tests fall outside the limits specified in technical specification, then client/Inspector reserves the rights to reject all production supplied from the batch.

7.15 Manufacture who is having following valid certificate; provide certificate for supplied meter:

- a) MID - D approval for the testing and manufacturing setup
- b) MID – B approval for design

However, if manufacture not having above certification; factory testing facilities must be evaluating and certified by traceable recognized calibration & testing agency / Third Party Inspection cum assessment agency as define in tender as per the EN 1359 /OIML standard; compliance shall be provided by the manufacturer.

7.16 The Inspection cover the test listed in EN1359: 2017 or latest/ OIML and shall not limited to the following:

- a) Visual : Face Plate Marking, Arrow Marking, Meter Index Reading, Seal, Construction & Workmanship, Colour & Appearance
- b) Dimensional: Meter Size, End Connections (NPT threading), Centre to center distance of inlet & outlet connection, Powder coating thickness
- c) Fitment & alignment
- d) Calibration: 3-Point Calibration, Accuracy testing
- e) Functional & Operational tests: Total mean pressure absorption, Pressure (max. Pressure & operation pressure), Max. Flow, Meter Index, Valve (for Commercial/Industrial meters only),
- f) AMR functioning, Handheld unit functioning, Mobile device functioning, Data concentrator Functioning, Data communication / exchange
- g) Leak Test: Body Leak Test
- h) Physical Properties / Chemical Analysis: Body & internal parts
- i) Enclosure protection: IP Certification for Meter
- j) Approvals: Fire Resistance Type Approvals, W&M Model- India Approval, PESO Approval

7.17 Tampering Test Procedure

MAGNETIC TAMPERING: The meter under test (Gas meter as offered by the bidder) shall be connected via pulse reader.

Following steps are to be followed for the tampering test:

STEP-1: Meter under test & Master meter index shall be synchronized with each other before test.



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STEP-2: Apply some flow into the meter under test & check both Meter under test & Master meter index value. At least the test should be conducted for 20 pulse & both Index should increase equally.

STEP-3: Now put the magnet (any small capacity & up to 0.2 Tesla) on pulsar and apply same above procedure as given in **STEP-2**. (Apply some flow into the meter & check both the Meter under test & Master meter index value. At least the test should be conducted for 20 pulses & both indexes should increase equally).

STEP-4: Remove the magnet from pulsar. (Apply some flow into the meter & check the both (Meter under test & Master meter) index value. At least the test should be conducted for 20 pulse & both index should increase equally). At the end if the Index value of both the Meter under test & Master meter matched after all above mentioned steps, it will be concluded that there is no impact/tamper for external magnet. Hence offered meter is acceptable.

7.18 Procedure for AMR/ MIU functioning Test

After the AMR/ MIU is installed and wired properly on the meter follow these steps to verify that the AMR/MIU is working properly:

- a) Check the mechanical index reading and the reading on the MIU or at the Server are same.
- b) Check the serial number on the meter body, communication device and server are the same.
- c) Now move the meter index by blowing air or with the help of low pressure instrument air for minimum one-meter cube,
- d) Check the variation on the index, MIU, handheld device and on the server.
- e) If the increments on all the places are same then it is demonstrated that the communication is established.
- f) Meter index reading and the AMR/MIU reading display must be same or check that difference always same during testing.
- g) EVC and reading sending through modem correctly received at other / server end.

7.19 Procedure for Tamper Alarm Test

Tamper Alarm will be conducted along with Calibration of test for Accuracy of Registration testing. Once the meter passes the calibration test 3 points flow rate, then the following tests will be conducted on the same apparatus:

- a) Ensure that the communication is established between the MIU of AMR meter with Bidder's proposed server.
- b) Once the communication is established, bring a magnet (up to 0.2 Tesla) near the meter index and keep it there till at least one meter cube of air is passed through it. Tamper alarm should be generated and if the alarm is not generated meter shall be considered as technically not qualified.
- c) Try to remove the MIU from the meter by breaking the seal on removal of MIU the system shall generate alarm for the same and if the alarm is not generated meter shall be considered as technically not qualified.
- d) Go back to step (a) again, if required.

7.20 REJECTION CRITERIA



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- a) Not having Valid W&M India certificates for model approval, Manufacturing Sales & Services for Indian manufacturer and Model approval with Import license for foreign manufacturer at the time of bid submission and at the time of supply. For AMC contract; the validity must be for the entire tenure of AMC.
- b) During the Shop Testing any meters fail to meet the desired result as defined in the datasheet shall stand rejected. For sampling plan refer IS 2500: 2000 (or latest) standards.
- c) During independent tested for compliance with (Client) Technical Specifications like dimensional tolerances, leakage testing, performance, accuracy, retrofitting AMR functioning, AMR meter reading tampering etc. Should the results of these tests fall outside the limits specified in technical specification, then Client reserves the rights to reject all production supplied from the batch.
- d) No valid certification from PESO/ Undertaking as per clause 5.11 of PJS and ATEX for AMR/MIU

8.0 MARKING

8.1 Each gas meter shall be marked / provide label in legible characters, which are permanently visible in accordance with BS EN 1359: 2017 or latest in force/ EN12480 / OIML R137 1 & 2 for Gas Meters or as per given below:

- Name and logo of the manufacturer, along with the model
- Name and Logo of Client
- The serial number and month and year of manufacture
- Type approval Mark & Number / or as applicable for Other meter
- Approval Number Issued by Department of Legal Metrology (W&M) (Govt of India)
- Maximum Flow Qmax and minimum flow Qmin (For Metering Units)
- Maximum Operating Pressure
- Nominal Value of Cyclic Volume.
- Ambient Temperature Range
- Gas Temperature Range
- Number and date of EN standard/ applicable standard
- Accuracy Class of the meter.
- Direction of flow
- Sticker for safety information on front side of the body of meter

8.2 ATEX Marking as per directive 94/9/EC & PESO number on the Electrical / Electronic device (AMR/MIU/ Handheld device / EVC etc) or module certified such as AMR/MIU/EVC with client Name & Logo. (If applicable)

8.3 Client Logo on each of the Meter. Client unique serial number to be marked on the meter as per the standard procedure which will be communicated to the successful bidder. Vendor shall ensure that there is no repetition of serial numbers & each meter shall be given unique serial number.

9.0 PACKING AND SHIPMENT



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Supplier shall mention the Packing size to ensure uniformity in delivery conditions of the material being procured. Vendor shall submit the packaging details during offer and also complied with at the time of delivery.

I. The total packaging system shall be such that it will not get damaged / unintentionally opened during handling, transportation and storage of the boxes. The Meter display and AMR should be sealed with the factory setting which cannot be changed on site.

II. The box containing the individual gas meter shall contain the details of the installation and servicing operating instructions, and the same shall be written in English language.

They shall include all relevant information and following in particular:

1. Instruction Manual and Test certificates
2. Installation, Operation and servicing
3. Mounting Position & Instruction
4. The maximum and minimum operating temperatures
5. Maximum operating pressure

III. Each of gas meters shall be protected with plastic end caps on the inlet and outlet end connections of the gas meters. Meter should be individually packed in a transparent plastic cover (of adequate thickness) to protect the meter from ingress of dirt and water. The individual meter box should be packed in such a way to prevent movement during transit. The type of packing of each of the gas meter shall be such that it provides adequate protection against any damage to the meter.

IV. Each of the boxes of individual gas meter shall be closed / sealed appropriately with a tape, and packing and strength of the box shall be such that same does not get opened or damaged during handling and storing of the same. A set of 04 Nos. (Or as deemed suitable by the manufacturer) of individual gas meters shall be packed in a larger box / carton and contents of (larger) box / carton, viz. Description of the gas meter and total quantity of gas meters (in the box), shall be clearly and specifically mentioned (in English language only) on each of the (larger) box as under:

1. Name of manufacturer
2. Description of material
3. Purchase Order No.
4. Total quantity (inside the box)
5. Date of inspection

V. The Manufacturer has to ensure that the Inspection Agency apply their mark (stamp / sticker/ embossing applicable as per inspection cum dispatch released certificate) on each box ensuring above mentioned information before dispatch.

VI. The calibration certificates of each item shall be enclosed within the package box. Each package box shall be tagged with the purchase order number (unique identification is required). The package box shall be suitable for Inland transport or seaworthy (if imported). Necessary precautions and pre-requisites shall be considered by supplier for package delivery to the concern client site / location / workshop.

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VII. In order to facilitate a proper storing of the gas meters, the maximum number of such boxes that are permitted to be stacked one upon the other shall also be clearly and legibly mentioned on the box.

VIII. Meter mounting accessories like metal seal wire, screws, wall-mounting brackets shall be packed separately and delivered as per dispatch lot of meters.

LIST OF THIRD-PARTY INSPECTION AGENCIES:

- i. Société Générale de Surveillance (SGS)
- ii. Gulf Lloyds Industrial Services (India) Pvt. Ltd. (GLISPL)
- iii. International Certification Services (ICS)
- iv. Bureau Veritas (Ind.) Pvt. Ltd (BVIS)
- v. DNV GL
- vi. TUV Rheinland (India) Pvt. Ltd.
- vii. TUV SUD South Asia Pvt. Ltd.
- viii. TUV India Pvt. Ltd. (TUV Nord Group)
- ix. Intertek India Pvt. Ltd.
- x. Moody International (India) Pvt. Ltd.
- xi. RINA India Pvt. Ltd.
- xii. Tata Projects Ltd.
- xiii. Competent Inspectorate and Consultants LLP
- xiv. ABS Industrial Verification (India) Pvt. Ltd.

10.0 WARRANTY/GAURANTEE:

As per Warranty Clause defined in Clause No. 24.0 SCC.

DOCUMENTS TO BE FURNISHED:

- I. This is a “No deviation” tender; however, for any specify deviation or variations in offer from specified standard & acceptance as per contract shall be at the sole discretion of client/PMC.
- II. Following Documents (in English language only) to be submitted with technical bid:
 - a. Approval certificates against specified standard duly verified by TPI.
 - b. Details of manufacturers' quality plan, QA / QC procedure and ISO Certification.
- IV. Along with shipment of materials the vendor shall furnish a copy of the following documents:
 - a) Test certificates confirming the accuracy of registration of each meter in accordance with the requirement of standard.
 - b) Performance & material test certificate and results of all the tests that are carried out in



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accordance with specified standard & as per manufacturers' quality control procedure and any other relevant certificate as per client / PMC equipment's.

c) Certificate of compliance against specified standard for all meters along with supply and inspection release note issued by third party inspection agency /PMC /client.

V) Following is the list of documents required to be sent to (Client) / PMC along with each lot of Gas Meters (2 sets hard copy & 6 sets of soft copies in CDs):

a) Performance specification and test certificates, test certificates for material properties and chemical composition, calibration certificates of 100% quantity of supplied Meter, internal & final test reports, handling instruction etc.

b) GA & Construction drawings, Dimensional & section drawing, Material specifications and technical data sheets, Testing, calibration & Inspection procedures, QAPs. (In English language only).

c) Installation, operation, maintenance, recommendations and instruction manual in detail with Catalogue and technical literature of Commercial/Industrial meters in English.

d) Any other relevant documents required by (Client) /PMC..

e) Inspection certificate, material compliance certificate, packing list, released note.

In the final documents, copy of PO/ FOI, Inspection Certificate and Inspection Testing Report of each lot, Dispatch / Receiving details, Guarantee/ Warranty Certificates etc shall be provided in 2 sets (Hard Copy) and 6 Sets in CD (Soft Copy).

DOCUMENTS TO BE FURNISHED:

I. Bidder shall specify any deviation or variations in their offer from specified standard & acceptance of such deviations / variations shall be at the sole discretion of client/PMC.

II. Following Documents (in English language only) to be submitted with technical bid:

- Approval certificates against specified standard duly verified by TPI.
- Details of manufacturers' quality plan, QA / QC procedure and ISO Certification.

III. Along with shipment of materials the vendor shall furnish a copy of the following documents:

- Test certificates confirming the accuracy of registration of each meter in accordance with the requirement of standard.
- Performance & material test certificate and results of all the tests that are carried out in accordance with specified standard & as per manufacturers' quality control procedure and any other relevant certificate as per client/PMC equipment's
- Certificate of compliance against specified standard for all meters along with supply and inspection release note issued by third party inspection agency /PMC /client.

V) Following is the list of documents required to be sent to (Client) / PMC along with each lot of



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Gas Meters (1 set hard copy & 6 sets of soft copies in CDs):

- a) Performance specification and test certificates, calibration certificates (100%, for each of the Meter).
- b) GA & Construction drawings, Material specifications and technical data sheets, Testing & Inspection procedures, QAPs. (In English language only)
- c) Installation, operation, maintenance, recommendations and instruction manual in detail.
- d) Any other relevant documents required by (Client) /PMC.
- e) Inspection certificate, material compliance certificate, packing list, released note etc.
- f) In the final documents, copy of PO/ FOI, Inspection Certificate and Inspection Testing Report of each lot, Dispatch / Receiving details, Guarantee/ Warranty Certificates etc shall be provided in 1 set (Hard Copy) and 6 Sets in CD (Soft Copy).

TECHNICAL SPECIFICATIONS- PRE-PAID COMERCIAL SMART METERS & MDM SERVER/CLOUD/SAFTWARE/APPLICATION:

11.0 DATA SHEET – PREPAID GAS SMART METERS (THERMAL or DIAPHRAGM)

Note: Refer various clauses of Particular job specifications related to statutory / standards requirements, Inspection, Marking, Packaging and furnished the relevant documents along with the offer / detailed engineering for compliance of data sheet and specifications for - meters.

Owner approval to be obtained after third party Inspection & Testing.

The technical specifications & drawings for the required items are plotted below. However, BGL will finalize the drawings of the item with the vendor after the placement of order:



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PRE-PAID COMMERCIAL SMART METERS (THERMAL METERS)

GENERAL	Service	Natural Gas
	Type	Pre-Paid Commercial Smart Meter
	Reference	Thermal Meters- PNGRB regulatory, EN 17526, (OIML R137-1 or 2 certifications for foreign manufactures), W&M India, MID
	Standard	As Indicated in Clause 4.0-Codes and Standards
	Make & Model No.	Vendor to specify
	Installation	Suitable for outdoor/ Indoor installation, tamper proof, corrosion resistant for life period of 15 years
	Mounting	Wall/ Pole mounted.
	Mounting Accessories	Required. Shall be provided with the meter
PROCESS CONDITIONS	Flow/ Service (For B.1)	G1.6:Qmax: 2.5m ³ /hr, Qmin:0.016m ³ /hr, Qty.: As per MR
	Flow/ Service (For B.2)	G4:Qmax: 6m ³ /hr, Qmin:0.04m ³ /hr, Qty.: As per MR
	Flow/ Service (For B.3)	G6:Qmax: 10m ³ /hr, Qmin:0.06m ³ /hr, Qty. :As per MR
	Accuracy	Class1.5 [Qmin to 0.1Qmax±3%, 0.1 Qmax to Qmax±1.5%]
	Rangeability	150:1 or better
	Cyclic Volume	Vendor to specify
	Normal Working Pressure	0.3 bar(g)
	Max. Working Pressure	0.5 bar(g)
	Design Pressure	0.5 bar(g)
	Max. Allowable pressure drop	3 mbar or as per EN 17526 (or latest)
	Density Kg/ Sm ³	0.72-0.77
	Operating Temperature	-10°C to +55°C or higher temp. range
	Prs. compensation element	Optional
BODY	Temp. compensation element	Optional
	Flow Direction	As per MR and to be marked on meter body.
	Case work/ Body	Suitable for outdoor/ Indoor Installation, tamper proof and corrosion resistant powder coated steel casing
	Corrosion protection	Suitable coating on inside and outside of casing.
	End Connections (Two-pipe version)	¾" for G-1.6, 1" for G-4 & 1" for G-6 NPT (M) inlet and outlet confirming to ANSI B1.20.1 (In case the end connection size differing, bidder to provide suitable set brass union connector/adapters/loose nut & washer to meet the specified end connections).
INDEX	Fire resistance	As per EN 17526/ equivalent
	Max. Index reading	8 or 9 or 10 Digits with auto reset facility/Digital Display
	Unit	ACM (Cubic Meter) or SCM (Standard Cubic Meter) or both
	Ingress protection	IP 65 or better
	Facility	Meter should be provided with either an inbuilt AMR / MIU (wireless) or external AMR/MIU (Wireless), and integrated valve facility
	Protocol	Shall be open protocol. Bidder shall share protocols at all levels in smart metering with the client and shall comply to EN 13757



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	Data Log Points	Daily Flow, System Health, Battery Status
	MIU Memory Capacity	180 Days of log/alarms
	MIU Battery	There shall be no data loss during the battery replacement event. It has to be demonstrated during inspection as per QAP.
	Pulse output type	Inductive/ Magnetic/Encoder must be suitable for supplied meter output. (In case magnetic pulse; shall be tamper proof with alarm for any tampering event; It has to be demonstrated during inspection as per QAP).
INTERNAL S	Battery Life	5 Years or Higher and replaceable
	Valve between inlet and outlet	Inbuilt/Integrated
	Meter Internal Valve Operation/Shut	From remote server through any suitable technology
	Power supply to valve	Battery supplied with back-up up to 5 years and replaceable
	Power supply to Metrology	Lithium Battery (Minimum 5 Years of Life)
	Centre to center distance between inlet and outlet connections	To be specified by vendor
	Other internals	All meter internals shall be prevented from tampering with magnet
OTHERS	Leak Testing	Meter pressurized with air at 1.5 MAOP of the meter, immersed in water for observance of leakage
	Sealing arrangement	Provision to be made by vendor
	Marking on the meter	Required
	EN/ MID, OIML, W&M marking on the meter	Required
	MIU Memory Capacity	Vender to specify >72 Days
	AMR	Meter should be with inbuilt AMR Device & System
	Communication interface	Any suitable two-way communication technology, such as LoRaWAN network, Optical Interface (IEC 62056-21), Modem GPRS or LTE-Cat 1 or LTE- Cat NB, NB-IoT and Secondary as RFID/BLE to ensure technical feasibility and timely execution.
	Alarms	Vender to specify (Temper, High Flow, Low Battery, Low Balance, Valve Status change, Communication Failure, MIU Health Status, Alarm Log & Transmit etc.)
	Reverse flow deterrents	Reverse flow restrictor to be provided. Reverse rotation of index is not allowed.
	Color of Meter	Vender to specify
	Meter Brackets/Clamps	Vender to specify (but thickness of bracket/clamp should be 3mm and powder coated)



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PRE-PAID COMMERCIAL SMART METERS (DIAPHRAGM METERS)

GENERAL	Service	Natural Gas
	Type	Pre-Paid Commercial Smart Meters
	Reference	Smart Diaphragm meters- Compliance as per EN-1359:2017 (or latest), PNGRB Regulatory, (OIML R137-1 or 2 certifications for foreign manufactures), MID, BIS, W&M India
	Standard	As indicated in Clause 4.0-Codes and Standards
	Make & Model No.	Vendor to specify
	Installation	Suitable for outdoor/ Indoor installation, tamper proof, corrosion resistant for life period of 15 Years
	Mounting	Wall/ Pole mounted.
	Mounting Accessories	Required. Shall be provided with the meter
PROCESS CONDITIONS	Flow/ Service (For B.1)	G1.6: Qmax: 2.5m ³ /hr, Qmin: 0.016m ³ /hr, Qty.: As per MR
	Flow/ Service (For B.2)	G4: Qmax: 6m ³ /hr, Qmin: 0.04m ³ /hr, Qty.: As per MR
	Flow/ Service (For B.3)	G6: Qmax: 10m ³ /hr, Qmin: 0.06m ³ /hr, Qty. : As per MR
	Accuracy	Class 1.5 [Qmin to 0.1 Qmax ± 3%, 0.1 Qmax to Qmax ± 1.5%]
	Rangeability	150:1 or better
	Cyclic Volume	Vendor to specify
	Normal Working Pressure	0.3 bar(g)
	Max. Working Pressure	0.5 bar(g)
	Design Pressure	0.5 bar(g)
	Max. Allowable pressure drop	3 mbar or as per EN-1359:2017 (or latest)
	Density Kg/ Sm ³	0.72-0.77
	Operating Temperature	-10°C to +55°C or higher range
	Prs. compensation element	Optional
	Temp. compensation element	Optional
BODY	Flow Direction	As per MR and to be marked on meter body.
	Case work/ Body	Suitable for outdoor/ Indoor Installation, tamper proof and corrosion resistant powder coated steel casing
	Corrosion protection	Suitable coating on inside and outside of casing.
	End Connections (Two-pipe version)	3/4" for G-1.6, 1" for G-4 & 1" for G-6 NPT (M) inlet and outlet confirming to ANSI B1.20.1 (In case the end connection size differing, bidder to provide suitable set brass union connector/adapters/loose nut & washer to meet the specified end connections).
INDEX	Fire resistance	As per EN 1359:2017/ equivalent
	Max. Index reading	8 or 9 or 10 Digits with auto reset facility/ Electronic index for smart meters
	Unit	ACM (Cubic Meter) or SCM (Standard Cubic Meter) or both
	Ingress protection	IP 65 or better
	Facility	Index should be compatible for installing AMR / MIU (wireless) of any manufacturer and implementing pre-paid metering system with



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	valves.
Protocol	Shall be open protocol. Bidder shall share protocols at all levels in smart metering with the client and shall comply to EN 13757
Data Log Points	Daily Flow, System Health, Battery Status
MIU Memory Capacity	180 Days of log/alarms
MIU Battery	There shall be no data loss during the battery replacement event. It has to be demonstrated during inspection as per QAP.
Pulse output type	Inductive/ Magnetic/Encoder must be suitable for supplied meter output. (In case magnetic pulse; shall be tamper proof with alarm for any tampering event; It has to be demonstrated during inspection as per QAP).
Diaphragm	Diaphragm Meter: Polyester fabric coated with rubber on either side of equipment for an endurance life cycle as per EN 1359:2017 standards
Battery Life	5 Years or Higher and replaceable
Valve between inlet and outlet	Inbuilt/Integrated
Meter Internal Valve Operation/Shut	From remote server through any suitable technology
Power supply to valve	Battery supplied with back-up up to 5 years and replaceable
Power supply to Metrology	Lithium Battery (Minimum 5 Years of Life)
Centre to center distance between inlet and outlet connections	To be specified by vendor
Other internals	All meter internals shall be non-metallic to prevent from tampering with magnet
Leak Testing	Meter pressurized with air at 1.5 MAOP of the meter, immersed in water for observance of leakage
Sealing arrangement	Provision to be made by vendor
Marking on the meter	Required
EN/ MID, W&M, OIML marking on the meter	Required
Reverse flow deterrents	Reverse flow restrictor to be provided. Reverse rotation of index is not allowed
Color of Meter	Vendor to specify
Meter Brackets/Clamps	Vendor to specify (but thickness of bracket/clamp should be 3mm and powder coated)
AMR	Meter should be with inbuilt AMR Device & System
Communication interface	Any suitable two-way communication technology, such as LoRaWAN network, Optical Interface (IEC 62056-21), Modem GPRS or LTE-Cat 1 or LTE- Cat NB, NB-IoT and Secondary as RFID/BLE to ensure technical feasibility and timely execution.
Alarms	Vendor to specify (Temper, High Flow, Low Battery, Low Balance, Valve Status change, Communication Failure, MIU Health Status,



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		Alarm Log & Transmit etc.)
Inbuilt-EVC (Optional)	Standard	EN12405, MID, W&M India
	Display	Alphanumeric Multisegmented LCD with icons
	Communication interface	Any suitable two-way communication technology, such as LoRaWAN network, Optical Interface (IEC 62056-21), Modem GPRS or LTE-Cat 1 or LTE- Cat NB, NB-IoT to ensure technical feasibility and timely execution.
	Digital outputs	1 Digital output – pulse/binary
	Battery Power Supply (Modem)	Lithium Battery (Battery Life>10Years)
	MIU Memory Capacity	Vender to specify >72 Days
	Alarms	Vender to specify (Temper, Low Battery, Communication Failure etc.)

Note:

catalogue and necessary, EN/OISD certificate, W&M Certificate/ PESO certificate/ ATEX certificate/ MID B/ MID D / IP protection class type certificate etc. duly certified by TPI as defined in tender submit along with bid.

For any deviation / dispute over specification/ standard compliance / type approval, bidder must inform during bid stage with documentary evidence. It is “No deviation” tender for consideration. After the award; no change will be acceptable.

Bidder has to compulsorily fill the data sheet, provide documentary evidence with product.



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TECHNICAL SPECIFICATION - SERVICES FOR SMART METERING & DATA MANAGEMENT & COMPREHENSIVE ANNUAL MAINTENANCE OF SMART GAS METERING SYSTEM (AS PER PART-II OF MR)

1.0 INTRODUCTION

Client intends to install Communication technology (as defined and proposed) based AMR for installed Gas Meters Commercial/Industrial with MIU and / or EVC and services to provide Comprehensive AMC, operate and maintain these meters for a period of 05 years. This specification is designed for the BGL requirement only.

This document constitutes the comprehensive maintenance and contract management services envisaged as part of Commercial/Industrial Gas Meters installed at various locations and regions as per this tender. The document specifies the terms and conditions which VENDOR shall adhere to.

For pre-paid Smart Commercial/Industrial Meter with AMR/MIU with / without EVC and the Automated Smart Meter reading system; refer Particular Job specification, Material requisitions and respective technical specifications enclosed separately.

2.0 PURPOSE

This document constitutes the comprehensive maintenance and contract management services envisaged as part of Commercial/Industrial Smart Gas Meters installed at various locations and regions as per this tender. The document specifies the terms and conditions which VENDOR shall adhere to.

3.0 CONTRACT CONDITIONS

The Vendor shall comply with all technical requirements and Comprehensive Maintenance and Contract Management Service (this document) along with other conditions of the tender. The contract states the services required for comprehensive maintenance of Commercial Smart gas meters (pre-paid) installed by client in their region of operation, as mentioned in this tender. VENDOR shall provide a complete manpower loading chart and project quality plan required to execute the project as per schedule. VENDOR shall provide a record of manpower deployed sector wise or area wise and provide report to client.

Successful Vendor shall sign a Non-Disclosure Agreement (NDA) with the purchaser after award of Service contract and submit the same along with acceptance of contract.

Following Technical Specifications also to be refer: (As applicable; refer PJS/MR for scope) Technical specification of Commercial/Industrial Meter with AMR/MIU & EVC; and NATURAL GAS SMART METERING SYSTEM

4.0 METER DATA COLLECTION AND DATA MANAGEMENT SERVICES

This section defines the scope of services required to be delivered to the satisfaction of the gas utility company. The scope includes:

- Collection of meter readings through the AMR system/ Recharge consumption status for



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prepaid meter

- Providing cloud hosting services for the data
- The cloud hosting location must be in INDIA
- Providing data management services including data security, integrity.
- Providing billing data to the owners' Server/Portal/Application/Software/CRM & SAP system
- Providing services for recharging pre-paid type meters
- Providing Dashboard or client and data for portal of consumers

BIDDER to comply the PCI DSS Requirement (Payment Card Industry Data Security Standard) and WEB Security –SSL (Secure Socket layer) & TLS (Transport Layer Security) Latest Version.

The data from MIU/ HHU received at a Cloud Server for securely storage. The cloud server is integrated and synchronized with Owner's server software for data analytics and billing generation. Vendor shall provide the information of data analytics to Owner through dashboards.

Types of Dashboards which are required from Vendor are:

- a) Management dash board: It provides Average Yearly, Half-yearly and Quarterly consumption, Cumulative Quantity of Zero consumption meter and Cumulative Reading coverage for Management.
- b) Marketing dash board: It provides Average Yearly, Half-yearly, Quarterly & monthly Consumption, Cumulative Quantity of Zero consumption meters, Cumulative Reading coverage.
- c) This dashboard provides details of area wise manual reading collected in consecutive two billing cycles, Low Consumptions, Alarms like -Tampering of MIU & meter, Zero consumption for 5 Consecutive calendar days.
- d) Operational team Dashboard: It provides Average Yearly, Half-yearly, Quarterly & monthly Consumption, Cumulative Quantity of Zero consumption meters, Cumulative Reading coverage, and Alarms like - Alarm of Tampering of MIU & meter, Zero consumption for 5 Consecutive calendar days.
- e) System provides by the vendor should support implementation of GIS and GSP upgrade in future.

Hence, it shall be VENDOR's responsibility to integrate all Cloud features when such an upgrade is being implemented. VENDOR shall ensure third party integration of new processes that may be introduced during the contract period.

- f) Data analytics for Customer:- The AMR system customer portal supplied by the vendor shall



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support customer facilitation about billing and reading information using a mobile Application. VENDOR shall ensure, data analytics information as described below is available to the customer portal. The number of customers using the APP shall be ~500 (Commercial/Industrial) in number at one location.

It shall be Vendor's responsibility to integrate all Cloud features when any upgrade is being implemented. Vendor shall ensure third party integration of new processes that may be introduced during the contract period.

Data Analytics required on customer mobile APP

- Total Consumption in every billing cycle.
- Zero consumption in every billing cycle.
- Average monthly & yearly consumption

g) Secured dashboard VENDOR shall provide authorized login with password to access the data for OWNER personal. VENDOR shall maintain a record of events of cloud access along with IP address to assert the authenticity of the data access. Any issues regarding login failure or cloud irresponsiveness shall be rectified by VENDOR within 24 Hrs. VENDOR shall be liable to pay the penalty clause, in case of failure of rectification or resolution of complaints.

Unless otherwise specified, the latest editions of the standards mentioned herein this specification including all addenda and revisions, shall apply. All pressure values mentioned in this specification are in gauge.

5.0 SUPPLIER'S/VENDOR'S BROAD SCOPE OF SERVICE

The Gas Meter shall be installed by the Owner under the supervision of Vendor. Once the system is installed, testing & commissioning shall be performed by Vendor and the Gas Meter shall be considered handed over to Vendor irrespective whether the customer is drawing the gas or not. It shall be Vendor's responsibility to maintain a fully functional and operational meter during the entire contract period.

Vendor shall depute their representative for Supervision of Meter installation, configuration of AMR/ MIU to any proposed communication mode for transferring data from meter to proposed Cloud Based Server.

Vendor shall depute competent and experienced engineer who is aware of supervision, configuration and commissioning of AMR/MIU. Deputed engineer to carry all the tools and tackles and software required to configure AMR/MIU and test communication between AMR/MIU and Communication devices as proposed.

Fetching, Hosting and Analysis of Metered data on Cloud server

Vendor has to provide for data hosting service in Cloud Server for Commercial/Industrial Metering data and storing it in Cloud Storage. Vendor has to provide Web Application for display and



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analysis of fetched meter data through proper and Secured Authentication. Necessary Software required at Server end to carry out the above job is in the scope of the vendor. All the network services to fetch the data, display and transfer the data to client SAP/MDM/Billing Server for billing is in the scope of the vendor. Vendor has to support client IT team and provision necessary setup at Cloud Server end required for connection of client SAP/MDM/Billing Server with Data hosting Cloud Server

Vendor shall be primarily responsible for: -

- a. Supervision of installation of initial (as per scope), Commissioning of Gas meters & MIUs, photography and geo-tagging of the commissioned meters and Installation, commissioning of associated field devices of AMR system, Data collecting devices
- b. The services are inclusive of data collection, communication management, telemetry equipment maintenance, on-site operation assistance, performance management and providing metering data as per the billing schedule for client's billing server / MDM server / SAP server.

This required any assistance for generating the bill based on the actual meter reading collected by the bidder.

- c. Configuration in Data fetching Software in Cloud Server for adding new consumer. Data-polling from the devices to Cloud server.
- d. Ensuring suitable communication infrastructure at Cloud Server.
- e. Installation of requisite and compatible software in Cloud Server for fetching meter data as per proposed communication solutions.
- f. VENDOR shall submit detailed Functional Design Specification for all software and hardware (e.g., Server specifications and compliances, platform specifications, data base etc.) post award within 21 days of LOI for acceptance of client.
- g. Round the clock Network services to be ensured by the vendor.
- h. Data security to be ensured by vendor on cloud Server.
- i. Data backup from start of contract to closure of contract date to be ensured by vendor
- j. Ensuring availability of read out - data in requisite format for billing purpose.
- k. Preparation of Web-application for accessing the data and analysis of data.
- l. Providing Web-application interface to access all metered data installed.
- m. Providing up to 5 basic reports (screens) in web- application for convenient data presentation. For eg. Checking the consumption pattern of each customer, checking the alarm state, etc.
- n. Coordination and support for interfacing of meter data with client's MDM/SAP/ Billing System



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for online billing.

o. MDM/SAP/ Billing Integration for Billing Purpose - This is one time activity to integrate the data from proposed Cloud server to client's MDM/ SAP/ billing server for billing purpose that includes; Understanding client's MDM/ SAP/ Billing server requirement for interface and prepare methods for integration between proposed Cloud server to client's Billing /MDM/ SAP server; to ensure timely & automatic data for billing purpose as per the billing schedule of client.

This service also includes any coordination & support to client's IT team for data interfacing for billing purpose.

p. Comprehensive Maintenance of the handed-over of Gas Meter.

q. Photography of installed meters in healthy, breakdown, tempering and theft situations.

r. Configuration of meters, testing and maintenance of to and fro communication between the meter and server.

s. Meter reading and data collection services

t. Maintenance and replacement of faulty assets (Meter/AMR etc): Vendor shall maintain a stock of spare meters and promptly replace faulty assets within 48 hrs. The vendor shall also submit a monthly report for all the re-commissioned assets.

In case vendor not having spare Meter / AMR; for replace shall be provided by client on replacement basis. Vendor shall refurbish the entire lot of defective meters / AMRs within 30 days from the date of reconciliation to be done every month. Failing to reconcile the lot in 30 days the Vendor shall be liable to pay the penalty as described.

u. Firmware or software upgrade as a service to client and client's customers.

v. Report Generation and Billing inputs.

w. Maintain communication with client through reports, provide alarms, billing inputs, information with respect to reading, mal-functionality, mal-practices, mishandling or faultiness of the asset. Asset includes all equipment such as meters, MIU, data collection units such as hand held units, mobile android devices and other equipment supplied by the vendor as part of the system).

x. Perform 100% reading activity as per billing cycle. Presently the Billing cycle is Fortnightly. During the tenure of contact; any change in the frequency has to be implemented.

y. The Vendor must submit a minimum of 99.5% readings in every billing cycle through AMR system i.e. without entering the household. The balance subject to a maximum of 0.5% can be submitted through manual mode , however consecutive reading of two billing cycle for any particular meter should not be through manual mode and for manual readings Vendor shall provide the photograph for validation purpose and details of portion wise manual reading shall be provided in dashboard.



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z. Attend to client demands regarding accuracy check of the installed meters within the contractual period. Sub-standard meters shall be provided by client.

a. Attend to client requests regarding billing inputs and report abnormality in requested format and provide justification / rectification against any mismatch or issue raised within prescribed time frame.

b. Provide data analytics of each of the installed meter and ensure availability of the data to client within secure cloud server through dashboards:

Management

- o Average Yearly, Half-yearly and Quarterly consumption
- o Cumulative Quantity of Zero consumption meters for 2 months
- o Cumulative Reading coverage

Marketing

- o Average Yearly, Half-yearly, Quarterly & monthly Consumption.
- o Cumulative Quantity of Zero consumption meters
- o Cumulative Reading coverage

Peak Consumptions

- o Details of portion wise manual reading collected in consecutive two billing cycles,
- o Low Consumptions

Alarms

- o Alarm of Tampering of MIU & meter
- o Zero consumption for 5 Consecutive calendar days.

Operations

- o Average Yearly, Half-yearly, Quarterly & monthly Consumption.
- o Cumulative Quantity of Zero consumption meters
- o Cumulative Reading coverage
- o Low Consumptions
- o Alarms

cc. Integration of the AMR cloud server with client SAP / Billing portal/ MDM system for submission of meter reading, billing , payment etc. Vendor shall also prepare a mobile application for customers for meter reading, billing , payment etc. applications.

dd. The cloud server shall be hosted in INDIA. (The Cloud Service Provider shall guarantee the data related to the project will reside in India only. CSP/Service Provider shall maintain privacy, security, safeguard & confidentiality of data. CSP/Service Provider shall notify client promptly in the event of security intrusions, security breach by unauthorized persons, requests from foreign government agencies for access to data. The cloud services offered for this project shall be strictly in line with the guidelines laid by Ministry of Electronics and Information Technology (MEITY), GoI and any amendments on time to time.)



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ee. Cloud Server shall be Tier-3 server with availability of 99.98%. Server shall be subjected to Audit conditions as per ISO 27001. Vendor shall be penalized for non- availability of server for more than 12 hrs as defined in the contract.

ff. Hosting Environment

- Scalable system in VMWare environment, with platform backup
- Recognized Firewall with IPS, VLAN and IPSEC, VPN
- High Availability with 24x7 service desk and problem solving
- Guaranteed exit plan to relocate IT environment in 2 weeks to designated data- centre

gg. HES (Head End Software) may be hosted in the cloud or in CGD data-center in future

- Communication independent end to end for customer sensitive data should be a must in AMR/ MIU. Data are encrypted in the AMR / MIU and decoded in Cloud Server / MDM Server located in CGD data-Centre.
- Suppliers should bring HES system management and performance assurance long term
- 24x7 service desk and problem solving for major HES system failures
- Multivendor, multiprotocol, different manufacturer's compatibility for the MDM. Possibility of configuring another device in the MDM should be there.
- Integration options RESR, Webservices, SOAP, CSV files exchange
- Alarming, Notification SMS/ emails

hh. VENDOR shall ensure third party integration of new processes that may be introduced during the contract period.

ii. Maintain a stock of spare meters and attend to meter fault/replacement calls promptly.

jj. Identification of mishandling of asset/equipment.

kk. Identification of theft of the asset/equipment.

ll. OBSOLESCENCE: Vendor to inform client about the obsolescence of the AMR meter six months before any up-gradation. However, system should be fully functional till the complete contract period, any modification required during the contract period because of obsolescence/ other reason shall be in the scope of the bidder to keep the system functional as per the tender requirements.

mm. TESTING: Vendor shall perform testing of randomly selected meters at NABL approved labs/ FCRI only.

nn. PERFORMANCE: All agreed time bound activities shall be completed as per contract terms and conditions. Any extensions of time outside the boundary of the contract shall not be entertained. Vendor shall be penalized for such un-entertained extensions.

oo. DELAYS: Any type of delay in the service provision will be penalised.



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pp. **CODE OF CONDUCT:** Good Conduct shall be maintained by Vendor while having any customer interface or OWNER interface. OWNER shall not be liable for any misconduct or mal-practices adventured by Vendor during any operation.

qq. **MANPOWER:** Vendor shall depute two onsite resources for provision of any necessary SAP / MDM integration, support and maintenance of meter reading database with relevant SAP experience during the entire period of agreement. Any other IT related infrastructure change and modification shall be done by Vendor. Manpower to be deputed only when mentioned activities are executed on site by the vendor.

rr. **PENALTIES:** There are penalties for services for commissioning, for not providing data analytics on client dashboards, in case of delay in commissioning etc as per details of penalties in the tender.

ss. **SPECIAL METER READING SERVICES:** In addition to Meter Reading Services bidder to collect additional meter readings for the meters requested by purchaser as and when required. Bidder shall submit the readings along with one photograph clearly showing the meter index and meter serial number of the special meter reading cases within 24 hours.

6.0 DELAYS PENALTY:

Any delays in submission of necessary documentation, reports, reading, maintenance, repair or replacement or any other unwarranted mishandling / misplacement of asset, alarm shall not be entertained without any proper justification from Vendor.

The delay periods identified and prescribed in this contract are to be adhered stringently by Vendor. Unjustified incidents or actions shall be penalized.

PENALTIES: Following minimum penalties impose:

- a) In case vendor fails to meet the requirement of data availability of 100% over a month period, this will result in penalty @ Rs. 50 per day. This amount will be deducted from subsequent bill.
- b) The maximum penalty will be equal to 50% of the monthly rental amount of the particular site. However, if data is not available for 20 or more days in a month, then the service charge for that particular site will be zero for the month.
- c) All charges including transportation, lodging, boarding, materials cost, spares cost, and etc. for rectifying the faults within the contract period will be in the scope of the Vendor
- d) 500 INR per meter per day in case of delay in commissioning of reinstallation / installation after repair.
- e) 1,000 INR per day after 15 days from date of reconciliation for not refurbishing the complete lot of faulty meters at c l i e n t ' s store.



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- f) 5000 INR penalty per event of server downgraded performance of 24 hrs in a 30-day cycle.
- g) Penalty for not providing data analytics on dashboards: 100 INR for every event.
- h) Penalty for not providing data analytics on IT sever for customers through APP service: 100 INR for every event. (If applicable)
- i) Penalty for not providing resolution to issues regarding sever: 100 INR for every event.
- j) 100 INR penalties for not supervising the installation of meters for each case. (First lot in each cities)

7.0 TRAINING:

- a) The bidder has to provide training at site as well as client office initially for approximately 10 personnel for each city wise and thereafter every year during the contract period to facilitate the operations and to provide hands on training to the dealing staff.
- b) The training shall include installation, programming, trouble shooting and analysis of data.
- c) The bidder shall provide requisite information and hard copies of manuals for reference.

8.0 GUIDELINE FOR MANPOWER

- a) All manpower including engineers, technicians associated with the project shall be required to wear protective gear such as safety shoes, helmets, goggles etc.
- b) All manpower deputed at site for installation and commissioning of equipment shall be covered under statutory government compliances of PF, ESI, accident insurance, death, disability etc.



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SECTION – 10

SCHEDEULE OF RATES (SOR)
REFER E-TENDER NO.: BGL/672/2025-26 IN E-
TENDERING WEBSITE /PORTAL -
(<https://petroleum.euniwizarde.com/>)
FOR SCHEDEULE OF RATES



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BHAGYANAGAR GAS LIMITED

SCHEDULE OF RATE

Tender Name- Supply of Pre-Paid Commercial Smart Meter with all required accessories and MDM Cloud/Server, Mobile Application for Industrial & Commercial Customers in Hyderabad, Vijayawada & Kakinada GA's

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Name of Bidder								
Sl. No.	Description	HSN/SAC Code	UOM	Qty.	Unit Price up to FOT site incl. of all taxes & duties, excl. GST	GST %	GST Amount (Rs.)	Total Price up to FOT site incl. of all taxes & duties and GST(Rs.)
1	Design, Engineering, Supply and delivery of items up to FOT Site, Hyderabad, Vijayawada & Kakinada as per the material requisition and scope of supply of pre-paid commercial smart meters with brass union connector, meter clamps/brackets with suitable set of washers and meter clamps/brackets. Providing the Installation & Commissioning guideline/manual, assistance/guidance, configurations, synchronization with BGL payment gateway/portal and common HES System Platform tailored for the CGD sector. Which can be integrated and synchronized with any Meter Data Management (MDM).							
1.1	G-1.6 Pre-Paid Commercial Smart Meter							
1.1.1	Supply of G-1.6 Pre-Paid Commercial Smart Meter with $\frac{3}{4}$ " Male NPT Threaded Brass		Nos	35			0.00	0.00



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	Union Connector and Meter Clamp/Bracket.						
1.2	G-4 Pre-Paid Commercial Smart Meter						
1.2.1	Supply of G-4 Pre-Paid Commercial smart Meter with Brass 1" Male NPT Union Connector and Meter Clamp/Bracket.		Nos	35		0.00	0.00
1.3	G-6 Pre-Paid Commercial Smart Meter						
1.3.1	Supply of G-6 Pre-Paid Commercial Smart Meter with 1" Brass Union Connector and Meter Clamp/Bracket.		Nos	45		0.00	0.00
2	Designing, Engineering and providing the Meter Data Management (MDM) application/software/server to BGL with credentials to review and take the data log, check the parameters remotely/physically, checking and resetting of alarms, changing of gas rates. The MDM should be compatible for integrated/synchronized with all types of HES systems. And all associated works required for successful integration/synchronization with pre-paid commercial smart meters as per requirements by buyer/purchaser for 5years (Server/Data Hosting/ Payment gateway & SIM). MDM will be maintained by the vendor without any additional cost to BGL.						



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2.1	<p>Monthly Charges for Meter Data Management (MDM) Cloud/Server, Mobile Application/Software to BGL with credentials All Services related to Smart Automatic Meter Reading (AMR) of Natural Gas Prepaid Meter, Collection of meter readings data services; Managing & Maintaining metering data, Report Generation; providing Metering data, Billing schedule & format to BGL Gas SAP/Portal/Server for generation of bill and ensuring availability of the data related to Smart Meters & Smart Automatic Meter Reading system as proposed and other associated services as per the Service Level agreement and providing Comprehensive Maintenance Services of all supplied Gas Meter with AMR/MIU, including batteries; Services for maintenance, operation, calibration, testing. The rates shall be per month on the basis for the no. of meters installed.</p> <p>Natural Gas Prepaid Meter month quantity (115 nos. x 60 months) METER MONTHS.</p>						
Grand Total including all Taxes and duties (Rs.)						0.00	