



ESP/PM/PLAN

MANAGEMENT PROCEDURE FOR

**THE PLANNING and DESIGN PROCESS FOR
GAS METERS INSTALLATION**

January 2023

Document and version control

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Audience

Internal document for ESP staff that have responsibility for planning meter installations in accordance with MCOP requirements.

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FOREWORD

This Management Procedure is approved for use by managers and all engineers who carry out work under the instruction of ES Pipelines Ltd.

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BRIEF HISTORY

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MANDATORY AND NON-MANDATORY REQUIREMENTS

In this document:

must: indicates a mandatory requirement.

should: indicates best practice and is the preferred option. If an alternative method is used then a suitable and sufficient risk assessment must be completed to show that the alternative method delivers the same, or better, level of protection.

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1. General

Metering forms an important part of ES Pipelines (ESP) Gas Transporters (GT) business, and this procedure identifies the key stages in the design and planning process to ensure that the whole life cycle of the meter installation is safely managed in accordance with the requirements of MCOP.

ESP has in place adequate procedures to manage the control of information between relevant parties regarding essential data that is required to design and size the gas meter.

2. Specific

Administrative procedures are in place to control the interface relationships between relevant parties which precedes the design stage and selection of materials. This includes obtaining details of the proposed gas loads to be used by specific gas consumers.

The Gas Safety (Management) Regulations, regulation 6(8) places a duty on a person conveying gas in a network to, where he is requested to do so by a person proposing to carry out work in relation to a gas fitting, provide him with information about the operating pressures of the gas at the outlet of a service pipe. This is particularly relevant to persons undertaking work downstream of the emergency control valve (ECV), such as installing a gas supply meter installation.

This procedure details the technical requirements for planning but refers to the administrative process where applicable.

When planning the **DESIGN** for a meter installation (including where applicable the meter housing) consideration shall be given to taking the following aspects into account for the design:-

- A. The construction, operation and safe maintenance of the meter installation and housing
- B. Modification, exchange and removal of the meter/meter installation and/or housing
- C. Final decommissioning and disposal of the meter/meter installation and/or housing

Note: The meter housing is normally the responsibility of the end user, building owner, landlord or responsible person for the building and as such any housing maintenance identified during site visits for any reason (emergency, audit, inspection etc) shall be communicated to them. Any safety critical remedial action such as ventilation shall be tracked to completion (see also ESP/PM/Meter Audits

When planning the **INSTALLATION** or **MAINTENANCE** of a meter installation (including any meter housing belonging to ESP) consideration shall be given to:-

1. The relevance of existing records for the installation
2. For installation that a gas supply contract is in place for the meter point identified
3. From such records or if advised by the AMI from site, if any ancillary equipment, data logger, AMR equipment etc is affected by the planned works
4. The provision of records for the installation/work done
5. The availability and/or lead time for any and all components
Required for the satisfactory completion of the work
The provision of the required information to relevant parties, e.g. end user, supplier, GT etc
 - If any works shall impact on the connected equipment then the gas consumer shall be notified and also the gas supplier/GT if appropriate
 - The AMI shall be advised regarding provision of tapping's/connection points for any ancillary equipment (as per design)
 - If ancillary equipment has to be moved or disconnected during the works, ESP shall instruct that it is reconnected and left in good working order

3. Work Type Categories

ESP as a Meter Asset Manager (MAM) fits gas meters to its own networks principally through Asset Adoption Agreements with Utility Infrastructure Providers (UIP), Infill projects managed directly by ESP, and direct requests from consumers requesting a gas supply. In addition, a Gas Supplier may request another MAM to fit a gas meter to the network which will be managed by the incoming MAM. Mature sites are acquired by ESP periodically, and any associated meter assets may be transferred or retained by the vendor accordingly. Administrative procedures are in place to accommodate this.

In the unlikely event that a pre-payment meter becomes the subject of an instruction for installation, exchange, maintenance, or removal (ESP do not fit this type of meter initially on our networks) then the contracted gas supplier for that meter point shall be contacted and advice sought on the mechanism for any credit from the old meter to be transferred to the new meter. This advice/instruction shall be robustly communicated to the AMI carrying out the work on behalf of ESP.

4. Details

4.1 All contract requests for a metered gas supply shall include the site and location identified by address, which is outlined in office procedure SPA 1.

4.2 Reliable information relating to the nature and size of load and the anticipated flow rate (present and anticipated in the future) is obtained from the gas supplier, consumer or via load assessment procedures where specific gas demand is unknown. The latter may require the engagement of specialist consultants. Distribution Networks are designed according to this load information, and further detail is within office procedure SPA 4 and technical design procedures ESP/PM/NDM and ESP/PL/DM.

4.3 Meters installed by ESP, or their agents are sized for the contracted hourly load (peak instantaneous load). This includes the estimated maximum flow rate (which is not necessarily a summation of the total connected load) and the minimum flow rate anticipated (a realistic assessment and not a zero-flow rate). For domestic loads a diversity factor is used to assess the expected maximum load obtained from Gas industry standards.

Meter Installation Categories	
Low pressure domestic installations	$Q_{\max} \leq 6\text{m}^3/\text{h}$, $\text{MOP} \leq 75\text{mbarg}$ Standard installation
Medium pressure domestic installations	$Q_{\max} \leq 6\text{m}^3/\text{h}$, $75\text{mbarg} < \text{MOP} \leq 2\text{barg}$ Standard installation
Industrial and commercial installations.	$6\text{m}^3/\text{h} < Q_{\max} \leq 1076\text{m}^3/\text{h}$, $\text{MOP} \leq 75\text{mbarg}$ Standard installation
All other installations	$Q_{\max} > 6\text{m}^3/\text{h}$, $\text{MOP} \leq 85\text{mbarg}$ Non-standard installation

Note:

1. LP and MP meter installations up to $6\text{m}^3/\text{h}$ capacity are designed in accordance with BS6400 Parts 1 and 2.
2. Larger LP and MP meter installations are planned and designed in accordance with:
 - a) IGEM/GM/6 Non-domestic meter installations. Standard design; and
 - b) IGEM/GM/8 Meter installations of flow exceeding $6\text{m}^3/\text{h}$

4.4 The majority of meters installed by ESP are domestic gas meters that create no special sizing issues. However, some industrial loads may have special characteristics (such as pulsating loads) and it is important that the anticipated load pattern for each plant is assessed. ESP may engage specialist consultants to assist with obtaining this data from the end user.

4.5 Any abnormal loads shall be assessed which may cause large and rapid changes of flow in the network or installation pipework. Plant such as gas compressors may have a detrimental effect on the network gas supply

and must be assessed to determine if any special safeguards are required on the inlet to the compressor.

4.6 The range of operating pressures are assessed for the meter system which include the following pressure terms as shown in the table below.

Pressure Terms	
MIP	Maximum incidental pressure
MOP	Maximum operating pressure
LOP	Lowest operating pressure
DMP	Design minimum pressure
DMIP	Design maximum incidental pressure

4.7 ESP meter regulators are factory set to achieve a nominal pressure of 21mbarg at the outlet of the meter. On request from a Gas Supplier ESP will consider an elevated pressure if the network has sufficient capacity and pressure available.

4.8 ESP will determine the size of the inlet service to ensure that adequate pressure is made available at the outlet of the ECV to provide sufficient pressure for the downstream appliances. The operating pressure criteria will be assessed to ensure the meter regulator is sized to provide sufficient protection to the downstream pipework.

4.9 The service is sized to ensure that at the LOP that sufficient gas is available to safely supply the downstream load.

4.10 ESP specification for LP and MP meter installations conforming to BS6400 are that the meter housing is either a multi-box (Unibox), inset or surface mounted pre-assembled box. For other types of meter installations either the end user or ESP will install an approved meter housing conforming to ESP/PM/GT6 requirements.

4.11 At the planning stage the meter box, housing or compound will be agreed with ESP. This will ensure as appropriate, that ventilation is adequate, that escape routes are considered (both from building and meter installation), and special requirements for explosion relief is made. Non-domestic meter housings will be in accordance with IGEM/GM/8 Part 2: Location, housings, and compounds. If required under current legislation, hazardous areas will be calculated which is normally undertaken by specialist consultants employed by ESP.

4.12 At the planning and design stage ESP will determine any ancillary equipment that is required at the meter installation, which may include data logging or telemetry equipment.

4.13 It is ESP policy that the end user is responsible for the meter box, housing, or compound and that any additional services shall be agreed such

as not to compromise the safety of the meter installation. Responsibility for these services will be agreed prior to installation at the planning stage. Any electrical equipment associated with a meter installation shall be designed, constructed, and installed in accordance with statutory requirements and an appropriate standard must be achieved.

4.14 ESP maintains a record on its IT system of site occupiers with industrial and commercial meter installations that can be contacted regarding on site responsibilities, and vulnerable customers for domestic installations and where otherwise required, e.g., care homes, etc.

4.15 ESP or its agents will comply with safe working practices of the site occupier such as permits to work, risk assessments etc, unless they conflict with current gas industry standards.

4.16 ESP is a licensed Gas Transporter and via its accreditation as a MAM will only fit gas meters to its own networks. The Gas Safety (Installation and Use) Regulations 1998, (GS(M)R), places legal obligations on a GT to provide authority to a person to break the seal on a regulator for adjusting the pressure and resealing. For ESP managed meter installations authority is provided by contractual agreements and for 3rd parties authority is provided by ES Pipelines procedure ESP/PM/GT2, where another MAM is engaged by a Gas Supplier to install a meter on an ESP network.

4.17 As a Gas Transporter ESP will comply with its HSE approved Safety Case which is a requirement under The Gas Safety (Management) Regulations 1996.

4.18 Continuity of supply is a requirement of ESP as a Gas Transporter.

4.19 Any restrictions such as a hazardous environment as designated by the end user in the interests of safety will be taken into account at the planning stage to ensure that the meter installation is sited at a safe location including positioning of vents designed to vent gas.

4.20 ESP resource all of their meters through competent meter suppliers who via The Gas (Meters) Regulations 1983 (as amended) requires that all primary gas meters are stamped. Accuracy of gas measurement is within defined limits as laid down by gas industry legislation and any deviations from these standards will require that the meter is sent for Ofmat testing.

4.21 The GS(M)R require that the GT has procedures in place to restore safely the gas supplies to end users following disruption of supply. ESP has in place procedure ESP/PM/COS to cover this eventuality.

APPENDIX A

REFERENCES

A.1 Statutes and Regulations

- The Gas Act 1986 as amended by the Gas Act 1995
- The Gas Safety (Installation & Use) Regulations 1998 as amended
- The Dangerous Substances & Explosive Atmospheres Regulations 2002
- Control of Substances Hazardous to Health Regulations 2002
- Electricity at Work Regulations 1989
- Gas Safety (Management) regulations 1996
- Health and Safety at work etc. Act 1974
- Management of Health and Safety at Work Regulations 1999
- The Gas Meters (Information on Connection and Disconnection) Regulations 1996

A.2 Publications

COP/1a	Code of Practice for Low Pressure Diaphragm and Electronic Meter Installations with Badged Meter capacities not exceeding 6m ³ /h (212 ft ³ /h) <i>Note: Ofgas CoP1/a and other Ofgas CoP are now obsolete, containing references to CORGI, etc</i>
COP/1b	Code of Practice for Low Pressure Diaphragm and Rotary Displacement Meter Installations with Badged Meter capacities exceeding 6m ³ /h (212ft ³ /h) but not exceeding 1076m ³ /h (38,000ft ³ /h) <i>Note: Ofgas CoP1/b and other Ofgas CoP are now obsolete, containing references to CORGI, etc</i>
COP/1c	Code of practice for all higher pressure and all other low pressure meter installations not covered by COP/1a and COP/1b <i>Note: Ofgas CoP1/c and other Ofgas CoP are now obsolete, containing references to CORGI, etc</i>

A.3 Institution of Gas Engineers and Managers Publications

IGEM/GM/5	Electronic Gas Volume Conversion Systems
IGEM/GM/6	Non-domestic meter installations. Standard design
IGEM/GM/8	Non-domestic meter installations.
Parts 1 to 5	
IGEM/GM/7A	Electrical connections for gas metering equipment
IGEM/GM/7B	Hazardous area classification for gas metering

equipment.

A.4 ES Pipelines Limited Publications

ESP/PM/EL1	Procedure for Electrical Safety at Consumers' Premises
ESP/PM/MP3	The installation, exchange and removal of low pressure gas meters not exceeding 6m ³ /h
ESP/PM/MP4	Industrial and Commercial Metering Installations (Inlet pressures not exceeding 7 bar Gauge)
ESP/PM/GT2	The Setting and Sealing of the Meter Regulator and any associated Pressure Control and Protection Device(s) associated with the Gas Supply Meter Installation
ESP/PM/GT3	Management procedure the approval for the provision and use of a meter by-pass.
ESP/PM/GT6	Procedure for the approval of gas supply meter housings.
ESP/PM/MM9	Procedure for the Management of the Maintenance of Gas Supply Meter Installations Not Exceeding 7 Bar Gauge.
ESP/PM/ME6	Procedure for the Maintenance, Installation and Fault Handling on Data logger, Gas Meter Volume Conversion Systems and Associated Equipment fitted to Supply Point Meter Installations for Pressures not Exceeding 7 bar gauge
ESP/PM/MP8	Policy for the installation of automatic meter reading (AMR) apparatus to ES Pipelines Limited owned gas meter installations by a 3rd party organisation
ESP/PL/PRM1	Management of the maintenance of pressure regulating installations with inlet pressures not exceeding 7barg
ESP/PM/NDM	Management procedure for Gas Networks Design Manual.
ESP/PL/DM	Management policy for design manual – Natural Gas Distribution Networks.
ESP/PM/COS	Management of Gas supply cessation and subsequent restoration of gas supply.

A.5 British Standard Publications

- BS6400-1:2016 Specification for installation, exchange, relocation, maintenance and removal of gas meters with a maximum capacity not exceeding 6m³/h – Part 1 LP (2nd family gases).
- BS6400-2:2018 Specification for installation, exchange, relocation, maintenance and removal of gas meters with a maximum capacity not exceeding 6m³/h – Part 2 MP (2nd family gases).