



Department for  
Business, Energy  
& Industrial Strategy

# Smart Meter Guidance for Domestic New Builds

Guidance for Developers and Architects, and relevant to all those involved in the specification of metering locations in new build premises

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# Contents

Introduction and Context	4
New Guidance	6
Existing Guidance	8

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# 1 Introduction and Context

- 1.1 Smart meters are a vital upgrade to our national energy infrastructure and underpin the cost-effective delivery of Government's net zero commitment. They are a critical tool in modernising the way we all use energy and support the transformation of the retail energy market, helping the system to work better for energy consumers. Through our recent consultation<sup>1</sup>, we gathered feedback from stakeholders that the location of meters at newly built domestic properties can prevent the successful installation and operation of smart meters. Common problems reported by suppliers include the size of the meter cupboards, additional equipment located in meter boxes / cupboards (installed by the home builder), large distance / barriers between the various components of the smart metering system which prevent them from communicating, specifically between the gas and electricity meters, as well as the location of the electricity meter and the consumer premises. In the Government response to our consultation we committed to providing guidance to developers and architects to prevent and resolve these common problems whilst at the same time not compromising safety compliance.<sup>2</sup>
- 1.2 Installing smart meters when a home is built could help building owners, energy suppliers, and ultimately consumers avoid potential future costs such as undertaking post-build remedial work in order to have a smart meter installed. Maximising the rollout of smart meters to domestic new builds will allow customers to take advantage of future smart systems and appliances, which will increasingly become the norm in the future as we move towards a more flexible energy system. Smart meters are enabling energy suppliers to offer new products and services, including smart tariffs that allow consumers to save money by using energy away from peak times or when cheap, renewable generation is available. This could disadvantage consumers whose properties are incompatible with smart meter operation. Smart metering is also complementary to the energy efficient homes that are now being built, as they help consumers better understand their energy use.
- 1.3 During installation four smart components are installed: an electricity meter, a gas meter (if the property is on the gas grid), a communications hub (physically attached to the electricity meter) and an in-home display (IHD). For successful commissioning of the meter, the communications hub needs to connect to the smart metering wide area network (WAN) when it is powered on to send meter readings to the energy supplier. The WAN in Central and Southern England is based on cellular technology (eg: mobile phones) whereas in Scotland and Northern England it is based on Long Range Radio technology. The Data Communications Company (DCC) is contracted to provide WAN

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<sup>1</sup> <https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020>

<sup>2</sup> Relevant safety legislation includes: the Pipeline Safety Regulations [<https://www.legislation.gov.uk/ukxi/1996/825/contents/made>], the Gas Safety (Installation and Use) Regulations [<https://www.legislation.gov.uk/ukxi/1998/2451/contents/made>], and the Dangerous Substances and Explosive Atmospheres Regulations [<https://www.legislation.gov.uk/ukxi/2002/2776/contents/made>].

to at least 99.25% of premises across Great Britain by the end of 2020. In a small number of instances (typically where a smart gas meter is installed first), the communications hub is attached to the meter tails below the electricity meter via an adapter (a “hot shoe”) which can be fitted to meter tails.

- 1.4 The above components also need to be able to connect to a Home Area Network (HAN) via the communications hub in order to log gas meter readings and display near real time consumption information via the IHD – this is based on zigbee radio technology. The meters do not join automatically without the installing energy supplier first having sent the necessary commands to the communications hub, usually via the WAN. The HAN connects the smart meters, IHD and communications hub so that information can be exchanged between devices and also energy suppliers via the WAN.
- 1.5 Up to 5% of GB premises (the HAN Coverage ‘gap’) will require additional equipment to extend the range of the HAN in order to connect all of the smart metering devices. This is done through the Alt HAN solutions.
- 1.6 In Multiple Dwelling Units (MDUs, ‘blocks of flats’), which are typically high rise or medium / low rise sprawling buildings, specific provisions may be needed to enable the installation of smart metering equipment, and enabling efficient wireless connectivity between meters and individual flats. Co-operation between the developer, architect, and the gas and electricity utility infrastructure providers from the earliest opportunity is essential for the prevention and resolution of common smart metering problems whilst ensuring safety is not compromised by the design.
- 1.7 Successful following of the guidance can be demonstrated to the Building Control Body by the installation and successful connection of a smart meter and associated equipment at the property.
- 1.8 This document provides non-binding guidance to developers and architects of domestic new build properties, as set out in the following two sections:
  - **New Guidance** - sets out guidance that is not currently included in any existing guidance e.g. that relating to siting of meters relative to each other and the consumer premises
  - **Existing Guidance** – sets out a list of references of existing guidance to enable successful smart metering installation in domestic new build premises.
- 1.9 At any stage, if any uncertainty remains, please liaise with the intended energy supplier to the premises, and seek their advice on metering arrangements.

## 2 New Guidance

- 2.1 In MDUs, to avoid any potential communications issues between smart metering equipment, meters should ideally be located inside or in the immediate vicinity of individual properties themselves wherever possible, as opposed to being grouped together in communal meter rooms, to avoid any potential communications issues between smart metering equipment.
- 2.2 When there are challenges to fitting meters in close proximity to each dwelling (in an MDU) that cannot be reasonably addressed, the developer should, at building handover, make the owner or their representative aware of the status of smart metering installation within the building and its premises in the context of advice provided by the supply of energy services to the property. Where smart metering is not currently fitted it should also be explained that additional smart metering related equipment (e.g. Alternative HAN) may need to be installed throughout the building to allow all tenants to benefit from the technology.
- 2.3 If unavoidable, meter rooms and cupboards in MDUs accommodating multiple meters should take smart meter equipment sizing into account (leaving sufficient space above and below the electricity meter).
- 2.4 Every effort should be made to ensure effective HAN / WAN communications, completing the set-up as set out in Paragraphs 1.3 and 1.4 of this guidance. This can be done in conjunction with the chosen energy supplier providing a metering service to the property.
- 2.5 Check if the new build MDU is on the Alt HAN Co Inventory<sup>3</sup> and if not, notify Alt HAN.
- 2.6 For new build premises it is no longer regarded as acceptable for gas meters to be located in semi-concealed meter boxes – these have the potential to fill with water, and cause communications and other meter operational issues for smart metering equipment.
- 2.7 When a gas and electricity smart meter are installed on the same site, it is important that the meters are in a separate enclosure. The minimum distance between the two enclosures can be found in ENA ENREC G87 and BS 6400-1:2016, (see next section), although the distance can be greater to allow sufficient safety protocols to be followed. Beyond this, the distance and obstacles between the gas and electricity meters should be minimised to the extent permitted.
- 2.8 Certain electricity metering arrangements will include ‘meter tails’, which interconnect, between the meter, to the local isolating device (e.g.: cut-out fuse) and consumer switchgear. Meter Operators will need space clearance to allow additional items to be attached, including within the meter box itself. Details of clearances can be found in

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<sup>3</sup> <https://www.althanco.com/>

existing guidance (ENA ENREC G87 see next section), and should be taken into account when installing anti-tamper security blocks. This clearance is in addition to the mechanical protection of the tails between the meter and the switchgear.

- 2.9 External meter boxes / cupboards should only contain equipment required to enable an electricity or gas supply to be provided to the premises safely, as defined by relevant regulations.
- Items permitted to be installed within electricity meter boxes/cupboards include: the local isolating device (e.g.: main cut-out fuse), the electricity meter and communications hub, and may include a single or double pole isolation device (installed between the electricity meter and consumer unit).
  - Items permitted to be installed within gas meter boxes/cupboards include: the incoming gas supply's Emergency Control Valve, meter regulator, gas meter and supporting brackets.
- 2.10 Prospective occupants of new properties should be informed that the area around the smart meter should remain clear and not obstructed, to allow future access to the devices and avoid future inconvenience and the costs of corrective actions that may be necessary.
- 2.11 Smart meters (or the space to install smart meters) should be placed away from any metal objects, cladding, metallic based insulation panels, and pipework so as not to surround the smart meter on all sides, as the presence of such items is likely to interfere with communication to and from the smart metering components, especially where there is significant distance between them. Judgements on the spacing of the meters should be made based on the surrounding materials' likelihood to block communication signals.
- 2.12 It is important that all domestic new build properties are registered on the Post Office database before any meter installs are carried out, to ensure that the WAN status is known.

## 3 Existing Guidance

3.1 The following existing guidance documents may also be relevant (this is not an exhaustive list):

**Table 1 - Existing Guidance Relevant for Smart Meter Installation**

Topic	References
Safe positioning of gas pipework and meters in multi-occupancy buildings	<i>Institution of Gas Engineers and Managers Standard IGEN/G/5 - Gas in Multi-occupancy Buildings</i>
Gas meter box installation requirements	<i>Institution of Gas Engineers and Managers Standard IGEN/TD/4 – PE and Steel Gas Services and Service Pipework</i>
Size requirements and positioning guidance for gas smart meters	<i>BS 6400-1:2016 Specification for installation, exchange, relocation, maintenance, and removal of gas meters, with a maximum capacity not exceeding 6 m<sup>3</sup>/h. Part 1: Low Pressure</i>
Size requirements and positioning guidance for electricity smart meters <sup>4</sup>	<i>Energy Networks Association (2015) Engineering Recommendation G87 Issue 2 – 2015</i> ( <a href="https://www.ena-eng.org/ena-docs/">https://www.ena-eng.org/ena-docs/</a> )
Cut-Outs – Location and Ownership	<i>The Electricity Safety, Quality and Continuity Regulations (ESQCR)</i> <i>Energy Networks Association (2015) Engineering Recommendation G87 Issue 2 – 2015</i> ( <a href="https://www.ena-eng.org/ena-docs/">https://www.ena-eng.org/ena-docs/</a> )
DNO and BNO responsibilities and demarcation	<i>Electricity and Gas Internal Markets Regulations (2011)</i> <i>Building Networks – BS 7671</i>
Communications Hub Support	<i>SEC Appendix I - CH Installation and Maintenance Support Materials</i> ( <a href="https://smartenergycodecompany.co.uk/the-smart-energy-code-2/">https://smartenergycodecompany.co.uk/the-smart-energy-code-2/</a> )

<sup>4</sup> This refers to SMETS1 spatial dimensions – these meters take up a similar space to SMETS2 spatial dimensions, and guidance is expected to be updated soon to encompass SMETS2.

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