

# **Target Operating Model For the Delivery of Alternative Home Area Networks for the GB Smart Metering Rollout (For RFP Stage)**

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## Document Revision History

### Revision History

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1.4.2	25 May 2016	Updated revision for RFI– TAHF Review	Chris Cook
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### Approvals

Name	Responsibility	Date of Signature	Version
Rosie McGlynn	Energy UK - Director of New Energy Services	15 January 2016	1.0
SMDB Steering Group	Energy UK Smart Metering Project Steering Group	15 January 2016	1.0
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### Related Documents

Description of Version / Changes	Version
Alt HAN Operational Services Requirements for RFI	2.0
Alt HAN Operational Services RFI	2.0

## Preface – Competition Law

Energy UK, Transitional Alternative Home Area Network Forum (TAHF) and Alternative Home Area Network (Alt HAN) project team members have confirmed that they have undergone relevant training to raise their awareness of, and ensure compliance with, applicable competition law, including the Competition Act 1998 and Articles 101 and 102 EC and that they will not discuss matters that would or might lead to any breaches of competition law.

Competition law advice received by Energy UK with regard to shared Alternative Home Area Network (HAN) installation and maintenance services for smart metering described that coordination between energy suppliers is permissible as long as certain safeguards are in place.

Appropriate regulatory obligations are being placed on all energy suppliers to develop Alternative HAN services. This should ensure that cost efficient services are available to the industry at little commercial risk. The implementation of the regulatory obligations requiring competing energy suppliers to co-ordinate on delivery of Alt HAN solutions should minimise the risk of successful competition challenge from regulators. However, it is acknowledged that this risk is not eliminated by the presence of regulatory obligations.

It should be noted that current DECC proposals do not obligate energy suppliers to use Alt HAN solutions or services. This means that participants could choose not to coordinate or step out of arrangements at any time although they will be required to provide funding through regulatory mechanisms.

Reference to competition legal guidance and the safeguards, noted above, will be used as part of the project risk management arrangements.

Please Note: this document was baselined before DECC was transferred into the Department of Business, Energy and Industrial Strategy (DBEIS). All references to DECC within this document should therefore be now be regarded as references to DBEIS.

# 1 Background

The UK Government requires that energy suppliers install smart electricity and gas meters in all of their residential and small business customer premises within Great Britain (GB) by the end of 2020. It is recognised that in approximately 3.5% of GB premises Standard 2.4GHz and 868MHz Home Area Network (HAN) technologies will not connect all smart metering devices and that Alternative HAN (Alt HAN) technologies will be necessary to allow energy suppliers to complete their rollouts.

Due to a number of market and competition constraints, DECC has decided to put in place regulatory arrangements to require all energy suppliers installing smart meters to coordinate activity to deliver Alt HAN services.

An Alternative HAN Forum will govern and oversee the design and delivery of Alt HAN services and technological solutions. The Alt HAN Forum will be made up of all energy suppliers operating in the GB smart metering market, who will be responsible for funding the purchase of these solutions.

An Alternative HAN Company (Alt HAN Co.) will act as a procurement vehicle for delivery of Alt HAN solutions implementing decisions made by the Alt HAN Forum. Subject to successful completion of the Parliamentary process, DECC intend that the Alt HAN Forum and Alt HAN Co. will be formally operational in July 2016. In the interim period, prior to the regulation being designated, the Smart Energy Code (SEC) allows the forum to be established on a transitional basis to allow the design of Alternative HAN services to commence. This is referred to as the Transitional Alt HAN Forum (TAHF). Under the TAHF, an Alt HAN delivery project was established to start the Alt HAN design work.

Under this governance and delivery model, this Alt HAN Target Operating Model (TOM) is intended to be the highest-level definition of how the Alt HAN service provision is expected to operate on a day-to-day basis. This document is focussed on what needs to be delivered to achieve delivery of Alt HAN service provision for the smart metering rollout.

The document is not intended to justify the need for the Alt HAN services nor does it detail how these will be brought into operation as this is within the remit of the Alt HAN Forum itself.

## 1.1 Context

This Target Operating Model is intended to:

- Describe the objectives and principles of the Alt HAN Forum and Alt HAN Co.;
- Illustrate the high level Target Operating Model showing the relevant actors, their roles and how they interact;
- Provide organisational design assumptions with view of how future operations should be managed;
- Describe the functions, contractual relationships and financial relationships between the actors; and
- Explain what technology is needed to deliver Alt HAN services and how that interacts with consumers.

## 2 Alternative HAN Arrangements – Objects and Principles

### 2.1 Alternative HAN Arrangements – Alt HAN Forum Objectives

The DECC Government Response on Alternative Home Area Network (HAN) Solutions<sup>1</sup> published on 27 April 2016 set out Alt HAN Forum Objectives. The objectives, shown below, are due to be implemented in July 2016 by DECC and are set out in section Z 1.3 of the SEC.

- (b) *The Alt HAN Arrangements are given effect so as:*
- (i) *to facilitate the economic and efficient acquisition of Alt HAN service capacity and provision of the Alt HAN services;*
  - (ii) *to facilitate competition between persons engaged in, or in commercial activities connected with, the supply of energy;*
  - (iii) *to ensure that energy consumers' experience of the installation of Alt HAN equipment at their premises is consistent with their reasonable expectations;*
  - (iv) *to ensure that all activities undertaken by or on behalf of relevant supplier parties in relation to the installation, operation, maintenance, removal and replacement of Alt HAN equipment are carried out in a fair, transparent, appropriate and professional manner;*
  - (v) *to ensure the protection of data and the security of data and systems used for the purpose of the acquisition of Alt HAN service capacity and provision of the Alt HAN services; and*
  - (vi) *to ensure that the Alt HAN Arrangements are administered in an economic, efficient and transparent manner.*

These are overarching requirements within which all the Alt HAN infrastructure, implementation and operational activities shall be designed, implemented and maintained.

### 2.2 High Level Government Principles

The following 'Guiding Principles' were provided by DECC as part of the March 2015 HAN Solutions consultation, these principles have steered the design of the TOM:

- take all reasonable steps to achieve 100% coverage (i.e. the selected solutions should fill the gap where the 868MHz and 2.4GHz solutions will not work without additional equipment);
- be economically efficient (evaluated on end-to-end and full life-cycle basis);
- be Industry-owned with appropriate, non-discriminatory governance;
- not unnecessarily distort competition in the energy market;
- allow energy suppliers to meet their rollout obligations;
- not impact on the timely delivery of other programme milestones;
- ensure a consistent and positive consumer experience;
- be flexible and scalable to changes in the number of properties requiring an Alternative HAN solution;
- be transparent regarding costs of provision;
- encourage competition between technology providers to innovate, drive down costs and accelerate development of solutions; and
- meet the following technical requirements:
  - provide a SMETS2 HAN in the premises;

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<sup>1</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/519048/Alt\\_HAN\\_Response\\_27\\_April\\_2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/519048/Alt_HAN_Response_27_April_2016.pdf)

- utilise open standards where possible;
- be interoperable with SMETS2 and CHTS compliant equipment;
- be capable of supporting 10 second updates to high bandwidth devices;
- not compromise the end-to-end security model; and
- provide an energy efficient solution.

### 2.3 High Level Alt HAN Project Delivery Principles

The Alt HAN project is based on the following key principles:

- It shall support and facilitate the Alt HAN Forum to deliver its SEC obligations (Section 2.1 above);
- For DECC to implement the enabling regulatory framework to ensure industry is governed by appropriate legislation and obligations to ensure full energy supplier participation, energy supplier accountability for Alt HAN delivery and that cost recovery is achievable;
- The scope of Alt HAN activities shall be constrained to those activities that are shown to benefit from collective energy supplier delivery (and thus allow management of any competition risk) and ensure the most viable and economic solutions are used;
- The service provision is developed in an open and fully transparent manner in collaboration with energy suppliers and other industry parties;
- Promote and facilitate the execution by energy suppliers of a 'right first time' smart metering installation approach;
- To ensure customers requiring Alt HAN solutions due to the type of building they live in benefit from smart meters in a timely manner and are not disadvantaged;
- Minimise wherever possible customer inconvenience in order to protect and maintain the reputation of the Smart Metering Implementation Programme (including first installation and ongoing operation);
- Provide commercial terms that incentivise efficient and cost effective delivery without disadvantaging any party in the process;
- Be supported by DECC and DCC, where a case exists, facilitate changes through transitional and enduring governance to DCC services, products and / or the regulatory framework;
- Develop necessary regulatory, commercial, service, technical and operational requirements for the Service Provision;
- Separate and incentivised service management and solution provision to provide the best outcomes for energy suppliers and their customers;
- Where a case exists, explore opportunities to provide energy suppliers and other industry participants with information related to the successful installation of Alt HAN services to allow energy suppliers to make informed decisions regarding deployment and remediation;
- Be funded by energy suppliers on an equitable basis that does not unduly disadvantage any market participant;
- Identify and modify any change to industry processes, systems and procedures required to support the service provision delivery;
- Place a priority on data quality to enable efficient operations throughout the Alt HAN process to ensure all buildings and premises are capable of supporting smart meters at install and on an enduring basis; and
- Seek to maintain and / or enhance the expected standard of any related health and safety requirements of the service provision to that expected by energy suppliers.

## 2.4 Delivery of Alternative HAN through the Regulatory Framework

The regulatory framework has been designed by DECC in consultation with industry. DECC is implementing regulation for the provision for Alt HAN, through a combination of licence conditions and SEC provisions. This was outlined in the April 2016 Consultation Response on Alternative Home Area Network (HAN) Solutions<sup>2</sup>. It includes:

- high level requirements on energy suppliers to work together to develop Alt HAN solutions;
- the governance structure for Alt HAN decision making;
- the contracting vehicle for Alt HAN procurement; and
- the charging arrangements for Alt HAN related costs.

In addition, the Government has set out its conclusions on the Alt HAN delivery model that establishes a separate energy supplier only governance structure (Alt HAN Forum), governed under the SEC, with a new contracting vehicle for Alt HAN (Alt HAN Co.). In the interests of getting the Alt HAN service established in the most expedient manner, there is the provision to set up transitional arrangements (mirroring the enduring arrangements) to facilitate transitional work and adopt any preparatory work.

Energy UK has provided budget and resources to support the Transitional Alt HAN Forum (TAHF), established by DECC, and an Alt HAN delivery project. The TAHF is taking forward initial Alt HAN delivery design and procurement activity. When the regulatory provisions are implemented (July 2016), enduring project delivery arrangements will be put in place taking over the activities of transitional project.

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<sup>2</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/519048/Alt\\_HAN\\_Response\\_27\\_April\\_2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/519048/Alt_HAN_Response_27_April_2016.pdf)

### 3 Target Operating Model

#### 3.1 Structure

The proposed TOM is structured to include the high level (level 0) diagram and supportive text detailing the types of organisation involved in Alt HAN services, the role they should play in the arrangements and the regulatory framework within which they should operate.

This TOM describes the regulatory framework through which the Alt HAN service provision will be delivered, the proposed organisational design required to run the service, the relationship framework, description and working assumptions relating to technology and the vision of how the services fit together and how they will be used.

The TOM is supported by a subset of documentation. Those documents describe in detail the operational and technical requirements for the Alt HAN service provision.

#### 3.2 High level Target Operating Model

The key aim of this section is to describe the additional roles needed and illustrate how they fit into the existing smart metering delivery structure, and show how they are linked. This aims to illustrate how the Alt HAN service provision is intended to operate in the wider context. The roles are shown in Figure 1 (below).

It should be noted that some roles could be undertaken by one organisation, on a bundled provision basis, or by separate individual organisations. This is shown in the diagram as stacked boxes - a single box signifies there is only one organisation undertaking the role. Procurement outputs will decide how and if roles can be combined to deliver the most cost efficient and effective delivery model.

The roles are introduced in this document in the context of Figure 1. The information relevant to each of the roles required for the Alt HAN service provision is contained in the next section of this document (Section 4 Organisational Design).

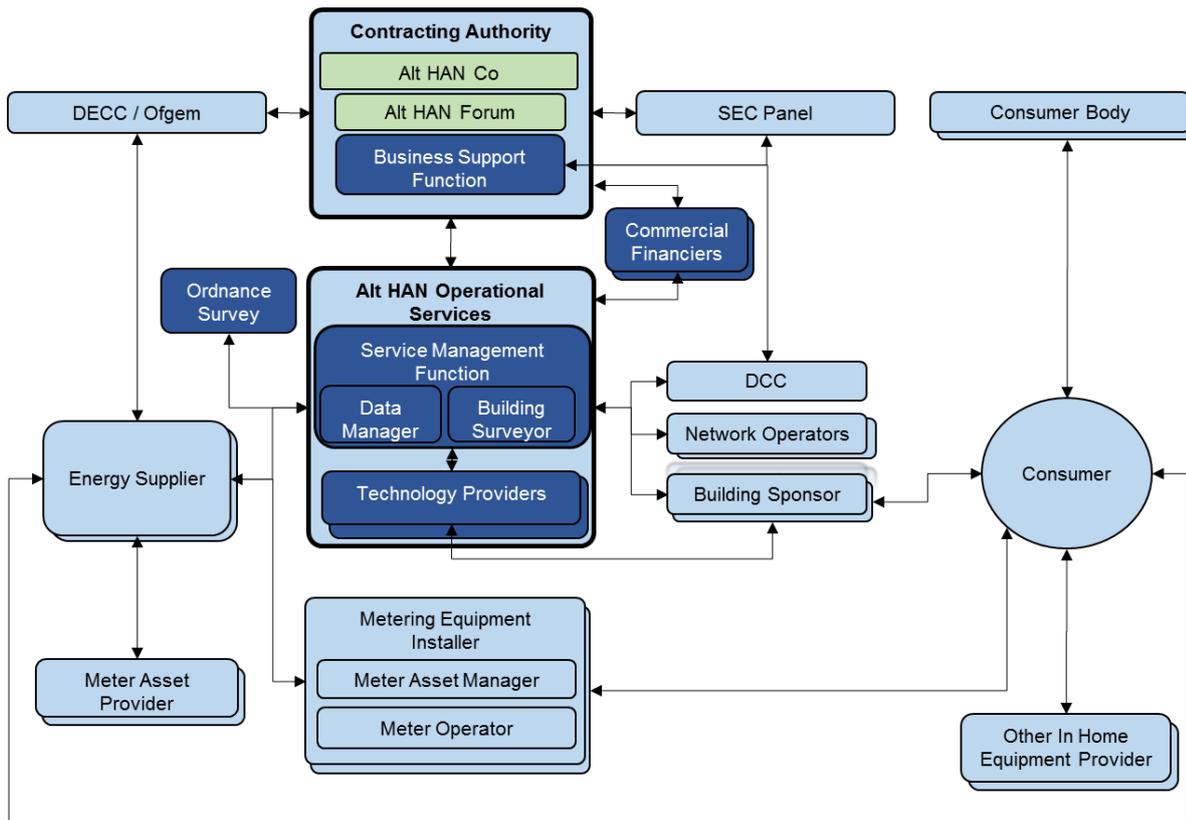


Figure 1 - Level 0 TOM Diagram for Alternative HAN

## 4 Organisational Design

### 4.1 Definition of the Roles and Responsibilities

The high level TOM diagram shows the types of organisations and the roles they will contribute to in the delivery of the Alt HAN service provision. Some of the organisations and roles are existing in the current market and regulatory framework. However, new roles are identified that will be required to deliver Alt HAN.

Figure 2 provides an illustrative view of the expected new roles, high level relationships and a definition of the type of organisation and purpose that is expected to deliver the relevant service requirements.

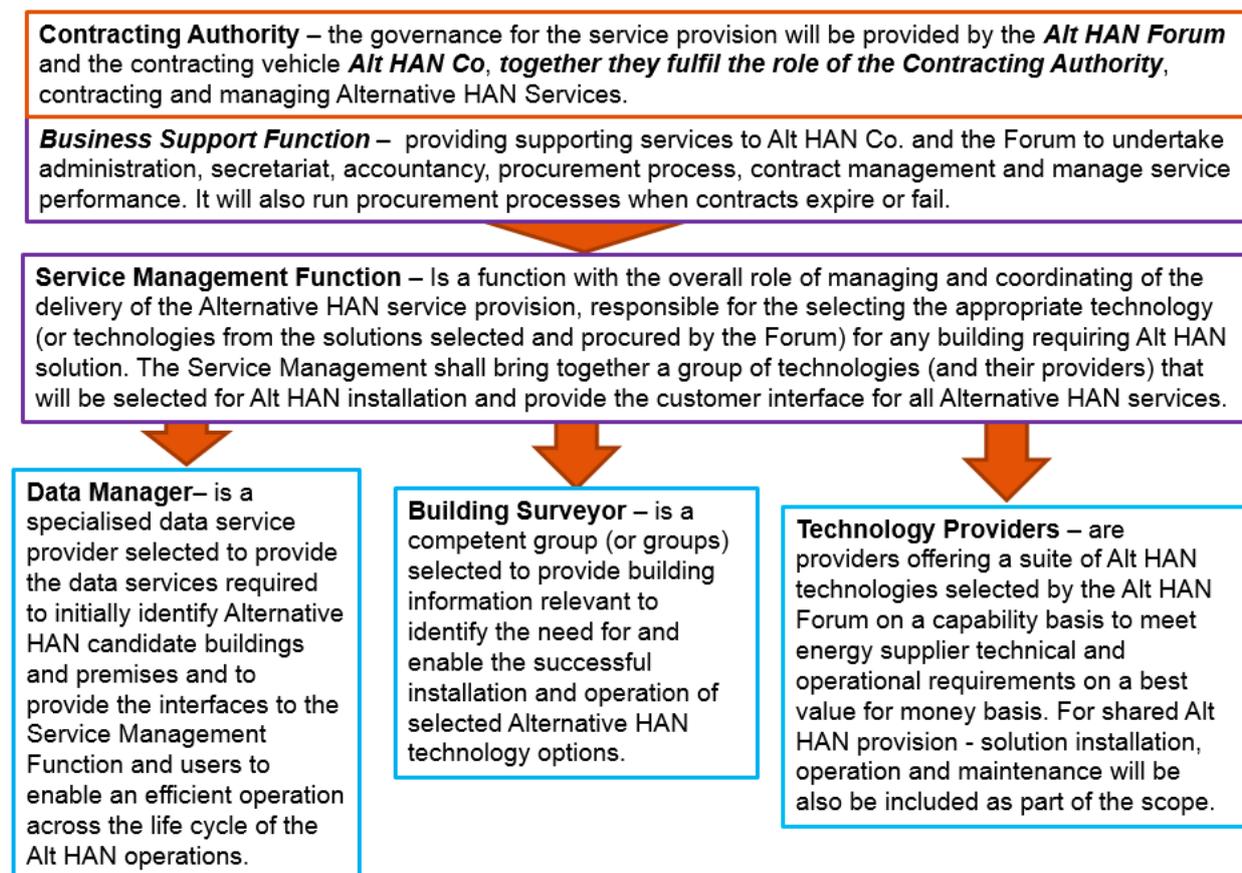


Figure 2 - Role Definitions for Alternative HAN

#### 4.1.1 Contracting Authority:

This role will be fulfilled by the Alt HAN Forum and Alt HAN Co. and is responsible for the operational governance of the service provision. The Alt HAN Forum will essentially make necessary decisions that are required to deliver Alt HAN service provision. Alt HAN Co. then implements those decisions as the contracting vehicle through which the service provision is procured.

Alt HAN Co. will undertake procurement activities, contract management and financial control. It will require resources and capability to do this efficiently. It is intended that the Business Support Function will provide these requirements.

Both the Alt HAN Forum and the legal entity Alt HAN Co is being established under the SEC, which will set out the scope of activity. The extent to which energy suppliers must co-operate will be set out in their Licence Conditions. A mandatory charging and cost recovery model, set out as

part of the regulatory framework, will be utilised to fund the service provision (see also Section 4.2.3 Flow of Funds). The regulatory provisions are expected to be implemented by DECC in July 2016. When in place, the regulatory obligations will be enforced by Ofgem.

#### **4.1.2 Business Support Function**

The Business Support Function will have the role of providing:

- Alt HAN Co. enduring procurement, performance and contract management of the Service Management Function, Data Manager, Building Surveyor and Technology Providers;
- Alt HAN Forum General Administration support including the Secretariat Function;
- Management and administration of the Exempt Premise List on behalf of the AHF;
- Alt HAN Co. Board Support;
- Alt HAN Co. General Administrative Support;
- Alt HAN Co. Legal, Accountancy and Financial Support; and
- Alt HAN Forum project delivery support

It is assumed that Alt HAN Co. will outsource business support activity and not appoint direct employees. Therefore, a Business Support Function will be selected by the Alt HAN Forum following competitive procurement by Alt HAN Co through the Alt HAN delivery project.

The Business Support Function may be provided by one or a number of vendors as the service will be offered in lots. The vendor selection will be made following evaluation of commercial proposals received as part of the procurement. It is planned that this procurement is completed by the end of September 2016.

The current working assumption (of the Alt HAN delivery project) is that the Business Support Function shall be independent from any Service Management Function or Technology Provider to provide assurance that all of its services to Alt HAN Co. are independent, impartial and free from any commercial conflicts.

#### **4.1.3 Alt HAN Operational Services**

Alt HAN Operational Services is the overall description for managing and coordinating of the delivery of the Alt HAN service provision. It will comprise of three contracted parts:

- Service Management Function;
- Data Management; and
- Building Surveyor

Alt HAN Operational Services may be provided by one or a number of vendors as the service will be offered in lots. The vendor selection will be made following evaluation of commercial proposals received as part of the procurement. It is planned that the Alt HAN Operational Service procurements will commence in late June 2016. Further information on the discrete requirements that are required by each part of the service includes:

##### **4.1.3.1 Service Management Function**

A Service Management Function will be selected by the Alt HAN Forum following competitive procurement by Alt HAN Co. The Service Management Function will effectively be the coordinating and operational manager for delivery of the Alt HAN services into premises where the Standard HAN (at 2.4GHz and 868MHz) will not connect all smart metering devices. The Service Management Function role will provide:

- Building survey organisation, management and output analysis – managing the decision making process, approach and scheduling of any building surveys that are required to support Alt HAN service provision;

- Data Manager organisation, oversight and direction – co-ordinating necessary Alt HAN data requirements to support Alt HAN service provision, operation and maintenance;
- Alt HAN technology deployment decisions – determining what Alt HAN technology types, from a choice determined from separate procurements, that should be installed and used by energy suppliers throughout a building, where Alt HAN is required;
- Liaison and coordination with Building Sponsors – dealing with permissions, access and related administration;
- Coordinating information sharing with energy suppliers and Distribution Network Operators where remedial work is required to allow smart meters to be installed;
- Oversight of any technology capability and performance issues;
- Management of Alt HAN technology ordering, delivery, installation and maintenance; and
- Identify, report and provide evidence of premises caught in the scope of the Exempt Premise List.

The selection and procurement of technology providers will be undertaken in the set up phase by the project and Alt HAN Co. The current working assumption is that the Business Support Function will be responsible for the enduring procurement of Technology Providers once appointed under the governance of Alt HAN Co.; the Service Management Function may be used to provide technical support for those enduring procurement processes where no commercial conflict is evident.

As noted above, the Service Management Function will be responsible for selecting the appropriate technology at the premises level. It will inform energy suppliers of the Alt HAN technology choice where an energy supplier can fit or arrange for an Alt HAN Technology provider to install its equipment where necessary. The Service Management Function will also make the information available where an Alt HAN Technology provider will install equipment available to energy suppliers. Energy suppliers will be provided with a single one-stop shop for Alt HAN solutions.

The Service Management Function will, through the Data Manager service, hold information in relation to whether a building is ready (or not) for energy suppliers to install smart meters. This information is likely to include the HAN technology split that will be required for each premises within a building (i.e. which parts of the building should be supported by Standard HAN or Alt HAN), and other operational information which may support installation (e.g. parking and access details).

In addition, a building survey may identify safety or logistical issues which could prevent energy suppliers installing smart meters without remedial work. In such cases, the Service Management Function will communicate relevant information to energy suppliers in the course of its undertakings.

It is the current working assumption that the Service Management Function should have no commercial, business or other interest in Alt HAN technology provision to ensure that technologies are selected objectively and without any potential conflict of interest.

#### **4.1.3.2 Data Manager:**

A specialised data manager service provider will be selected by the Alt HAN Forum, following competitive procurement by Alt HAN Co., to provide three capabilities:

- Mining and analysis of the Alt HAN Datasets and any other relevant data to provide an early view of Alt HAN candidate buildings and premises.
- The design and delivery of the Information Systems and interfaces that will enable the Service Management Function and users to operate efficiently.
- Manage and maintain the data on an enduring basis (including the Information Systems and interfaces relevant to that data as mentioned above).

The Data Manager activities will be managed and coordinated by the Service Management Function.

#### **4.1.3.3 Building Surveyor:**

Is a competent group (or groups) selected by the Alt HAN Forum to provide building information relevant to the identification, selection, installation and operation of selected Alternative HAN technology options.

The Building Surveyor activities will be managed and coordinated by the Service Management Function.

#### **4.1.4 Technology Providers:**

It is envisaged that a suite of Alt HAN technologies will be required to allow all GB premises requiring HAN range extending equipment to benefit from smart metering equipment. It is the working assumption that solutions will be offered by a number of Technology Providers that will be selected by the Alt HAN Forum following competitive procurement by Alt HAN Co. The Technology Provider technologies shall meet the agreed Alt HAN Technical Requirements. It is the current working assumption that Alt HAN technologies will be provided by a minimum of two vendors to manage the risks associated with single source procurement. This assumption will be reviewed when initial procurement responses are received to ensure the balance between single source and other commercial/pricing risk is achieved.

Based on that selection, the Service Management Function will choose the appropriate Alt HAN Technology to be used for each premises. The technology choice shall depend on a number of factors related to a number of building/premises characteristics. For shared Alt HAN provision, solution installation, operation and maintenance will be also included as part of the contractual scope.

The initial Alt HAN technology procurement will be managed for Alt HAN Co. by the delivery project. Additional technologies can be procured at later stages by the Business Support Function on behalf of Alt HAN Co. and guided by the Service Management Function. The case for a later procurement could be, for example, when a more cost effective solution becomes available that better meets energy suppliers technical and operational requirements.

The current working assumption is that Technology Providers should have no commercial, business or other interest in Service Management Function provision to ensure that technologies are selected objectively and without any potential conflict of interest.

More detailed information covering Alt HAN Technology Provision is appended to this TOM at Appendix 1.

#### **4.1.5 Procurement Approach**

As noted above, incentives have been considered to ensure that selected vendors provide services that are objective, impartial and free from potential commercial conflicts. The working assumptions are intended to ensure the Alt HAN Forum meets its principle objectives under the SEC. The following table summarises the procurement approaches for each of the areas of service provision and the commercial relationship constraints that, based on current working assumptions, are intended to be imposed

<b>Service</b>	<b>Lot</b>	<b>Constraint</b>	<b>Rationale</b>
<b>Business Support Function</b>	Administrative and Secretariat support services	A single organisation can bid for any number of Business Support Function lots – decision on appointment will be	The Business Support Function needs to perform its services on an objective and impartial basis free
	Legal, Accountancy and Financial support services		

Service	Lot	Constraint	Rationale
	Enduring Procurement and Contract Management support services	made in consideration of most efficient and economic approach.	from any potential conflict of interest
	Project Management & Delivery	The appointed service provider(s) will be unable to be contracted to provide Service Management Function lots or be a Technology Provider	
<b>Alt HAN Operational Services</b>	Service Management Function	A single organisation can bid for any number of Alt HAN Operational Service lots – decision on appointment will be made in consideration of most efficient and economic approach.	See above (for Business Support Function)
	Data Manager		
	Building Surveyor	The appointed Service Management Function, Data Manager or Building Surveyor will be unable to be contracted to provide Business Support Function lots. The Service Management Function cannot be a Technology Provider	The Service Management Function should not be a Technology Provider (or have a direct commercial relationship) as one of its principle roles will be to make technology choices – the Alt HAN Forum must ensure those choices are free from commercial influence
<b>Technology Provider</b>	No Lots – Requirements driven with a minimum of two Alt HAN technology choices per building/premises architecture to minimise risks associated with single source procurement	More than one Technology Provider will be required  A Technology Provider cannot be the Service Management Function	To manage single source risk and to ensure all premises requiring HAN range extending equipment are covered by Alt HAN technologies  A Technology Provider should not be the Service Management Function (or have a direct commercial relationship) as one of the Service Management Function principle roles will be to make technology choices –

Service	Lot	Constraint	Rationale
			the Alt HAN Forum must ensure those choices are free from commercial influence

Table 1 – Procurement Approaches and Contractual Constraints

The working assumptions noted above will be reviewed following vendor feedback during initial stages of the various procurements. Table 1 (above) will also appear in relevant procurement documents. If a business case exists that allows a more efficient and economic delivery approach and/or for contractual constraints to be effectively addressed, then the Alt HAN Forum will modify this TOM.

## 4.2 Relationship Framework

The proposed regulatory model and charging arrangements have been set out in DECC's December 2015 Consultation on Alternative Home Area Network (HAN) Solutions<sup>3</sup> and confirmed in the April 2016 Government Response to the Consultation on the delivery model regulatory requirements for Alternative HAN<sup>4</sup>. The regulatory framework obligates the Alt HAN Forum to keep these arrangements under review and propose modifications to the SEC where necessary (as these provisions will be set out in the SEC) when more information is known on Alt HAN costs.

The costs for Alt HAN services will be recovered from energy suppliers under the SEC. Supplier Licence Conditions also require energy suppliers to work together and contribute to Alt HAN development. The charging elements have been split into three main charging categories:

- Alt HAN Central Charges;
- Alt HAN Targeted Charges for Shared Solutions; and
- Alt HAN Targeted Charges for Point to Point.

The charging principle being that central charges are to recover costs related to developing the service provision through the delivery model, and the targeted charges are to recover costs related to the provision of equipment and services targeted at those who chose to use them.

The working assumption in the short to medium term is that the Alt HAN Co. will procure all Alt HAN Co. technologies on behalf of energy suppliers and then provide devices, equipment and shared services on demand using formal forecasting and ordering processes. It is assumed that devices will be funded on an asset rental basis, negotiated by Alt HAN Co., and costs will be recovered using the charging methodology noted above. Alt HAN Co. will test the commercial funding market at an appropriate time in the delivery in order to seek the most cost efficient delivery of finance as it is recognised that there are alternative options such as energy suppliers entering into a framework agreement funded through a financier. Funding and cost recovery approaches will be confirmed when it becomes clear how the service and technology provider market responds to procurement requests.

The following sections will set out how the relationship framework is expected to look from both an operational and commercial perspective.

As previously described, there are three main areas of service provision:

- Business Support Function.
- Alt HAN Operational Services.

<sup>3</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/486339/Consultation\\_on\\_Alternative\\_HAN\\_Solutions.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486339/Consultation_on_Alternative_HAN_Solutions.pdf)

<sup>4</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/519048/Alt\\_HAN\\_Response\\_27\\_April\\_2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/519048/Alt_HAN_Response_27_April_2016.pdf)

- Technology Providers.

The proposed separation of the service areas is deliberate as this has been considered by TAHF to be a sensible approach to promote the desired behaviour and create the right incentives in the relationships framework.

### 4.2.1 Operational Relationships

The following diagram illustrates how each of the roles interact operationally. The Business Support Function provides the overall operational oversight and governance for the Alt HAN Forum and is expected to provide the infrastructure to allow Alt HAN Co to operate. The Business Support Function may be provided by more than one provider, it is expected there will be interaction with the customer (energy suppliers) for issue and dispute resolution. Additionally, there will be elements of the Business Support Function that will interface with the Service Management Function for managing contracts, service level performance and providing governance, oversight and direction to the Service Management Function. The Service Management Function is at the heart of the operation managing the operational services for Alt HAN, directing and overseeing the Building Surveyor and Data Manager roles.

As previously noted, the Service Management Function, Data Manager and Building Surveyor services could be provided by a single party or by multiple vendors. However, we expect the interaction with Technology providers to have appropriate commercial separation. The Service Management Function has the customer interaction with the energy suppliers, providing the interfaces through which they will use the service provision.

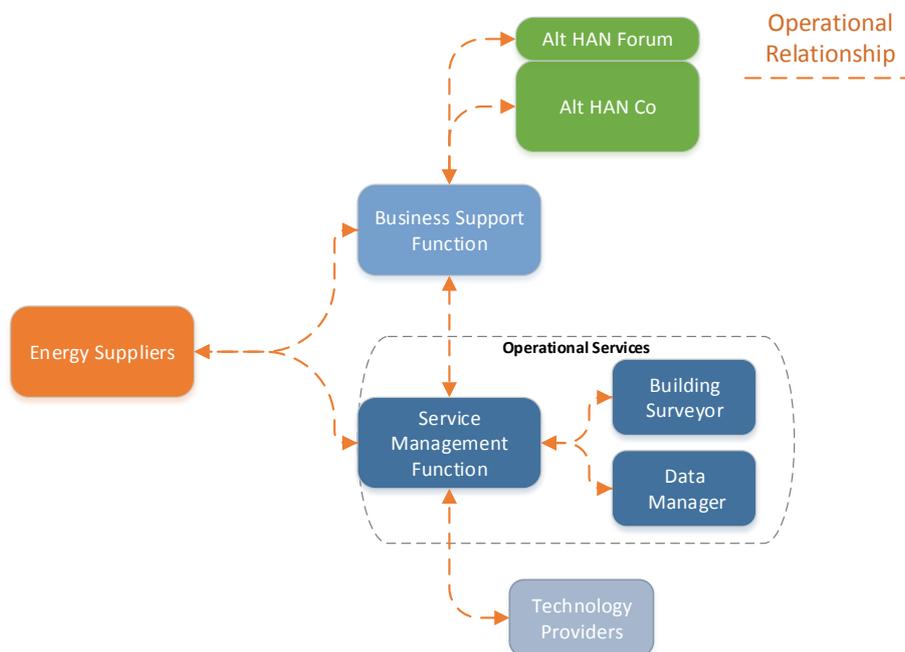


Figure 3 - Operational Relationships

### 4.2.2 Contractual Relationships

The following diagram illustrates the contractual relationship between the roles and Alt HAN Co. All service providers will contract with Alt HAN Co. as this is the established contracting vehicle set out in the regulatory framework. As previously stated, it is our working assumption in the short to medium term that Alt HAN Co. will procure all Alt HAN Co. technologies on behalf of energy suppliers and then provide devices, equipment and shared services on demand using formal forecasting and ordering processes.

It is recognised that alternative contractual model could be implemented whereby Alt HAN Co. agrees a framework agreement with Technology Providers where range extending devices are required (e.g. single premises point to point technologies). Energy suppliers would then have individual contracts with those Technology Providers under the terms of the framework agreement. However, it is recognised that this approach has a number of limitations:

- Procurement costs could be prohibitive as each energy supplier would need to individually contract with the Technology Provider(s); and
- The framework model cannot work efficiently where shared Alt HAN technologies are required as any number of energy suppliers will then be required to contract with a Technology Provider before each building has a solution installed – this will lead to two Alt HAN contractual models.

It is therefore the current working assumption that Alt HAN Co. will procure all Alt HAN technologies, whether for single or shared topologies, using similar approach to those used by DCC for Communications Hubs. This should simplify procurement and contract management leading to lower overall costs.

However, this assumption will be reviewed following feedback from the initial procurement process.

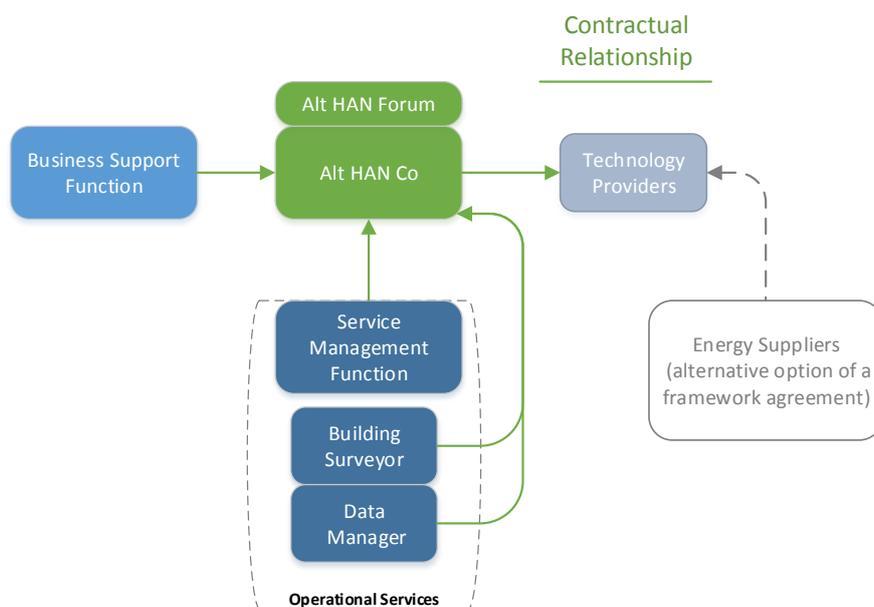


Figure 4 - Contractual Relationship

### **Contractual Relationship between Alt HAN Co and Energy Suppliers**

The Alt HAN related supply licence conditions that will be included from July 2016 require energy suppliers to work together to ensure that Alt HAN Services are made available to all relevant energy suppliers (and provided on reasonable terms to any relevant energy supplier that has elected to require them).

In practical terms, this means that it will be necessary to develop the contractual arrangements under which energy suppliers may take Alt HAN Services from Alt HAN Co.

The simplest model under which this could operate would be to mirror the arrangements under the SEC. In the same way that DCC buys in services from the Data, Communications and Trusted Service providers as well as providing in-house capability and uses these to provide a variety of services under the SEC (such as Communication Hub Services, SMKI Services, Enrolment and Communications Service, Testing Services, etc.), Alt HAN Co will buy in the capability from its service providers (through a number of contracts with different providers) and provide the Alt HAN Services to energy suppliers under an Alt HAN Services Contract. The Alt HAN Services Contract

is therefore the equivalent contract to the SEC (although it is expected to be considerably less complex). Furthermore, in some instances Alt HAN Co might arrange for some Alt HAN related services to be provided directly to energy suppliers.

The Alt HAN Services Contract between Alt HAN Co and energy suppliers will be important as it will set out how the Alt HAN Services are to be provided to energy suppliers. This will include the different services for single and shared solution installations, arrangements establishing site access, provisions governing provision, installation and maintenance of Alt HAN equipment, and associated performance management obligations on Alt HAN Co. This contract is also likely to require energy suppliers to forecast their likely Alt HAN requirements and to include provisions relating to opting in or out of using Alt HAN Services.

The structure of this contract and the nature of the obligations on Alt HAN Co within it will need to be understood before finalising the details of the contracts that Alt HAN Co will strike with its service providers, since it will be important that Alt HAN Co is able to discharge its obligations under this contract in a coherent and efficient manner in line with the reasonable requirements of energy suppliers. This contract will be a major deliverable of the Alt HAN delivery project and its development needs to run in parallel with the Alt HAN Services procurement activity to ensure necessary obligations and/or requirements are reflected in the Alt HAN Co contracts when they are agreed with vendors.

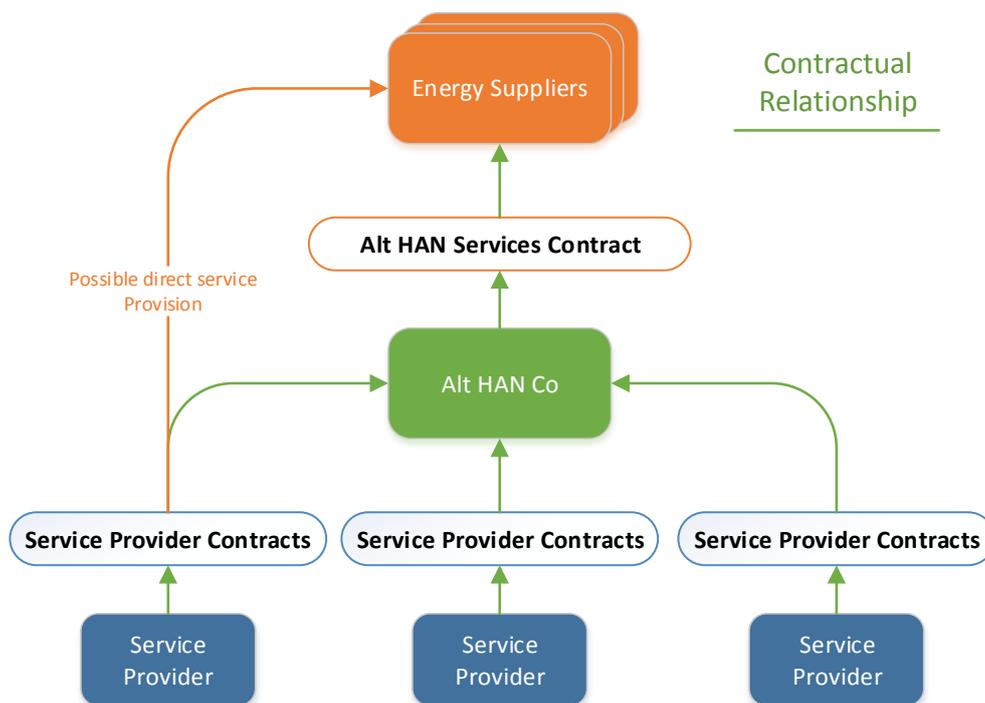


Figure 5 - Alt HAN Services Contracts

### 4.2.3 Flow of Funds

The following diagram illustrates how the financial transactions between the different parties / roles are intended to operate. The following points should be noted when considering the financial relationships as illustrated in the diagram below:

- The Service Management Function, Data Manager and Building Surveyor are represented as three different vendors – as noted above, there is an option whereby one vendor could be chosen to provide a single bundled service.

- The diagram assumes that DCC (as part of its existing price controls<sup>5</sup>) will provide the budgetary funding for all Alt HAN service delivery – the TAHF has agreed that the option for commercial funding of the Alt HAN arrangements will be market tested once the project gains a complete picture of funding options from potential vendors.
- Funding of all Technology Provision will be via Alt HAN Co. reflecting the current working assumption described at 4.2.2 (above) – the option of a framework agreement negotiated by Alt HAN Co. and used by individual energy suppliers will be reviewed following feedback from the initial procurement process.
- The Business Support Function will administer all of the necessary financial transactions on behalf of Alt HAN Co. It will be necessary to implement special governance measures for invoice and payment of the Business Support Function itself (i.e. it would be inappropriate for the Business Support Function to administer its own payment).

This diagram may therefore change in subsequent versions of this document.

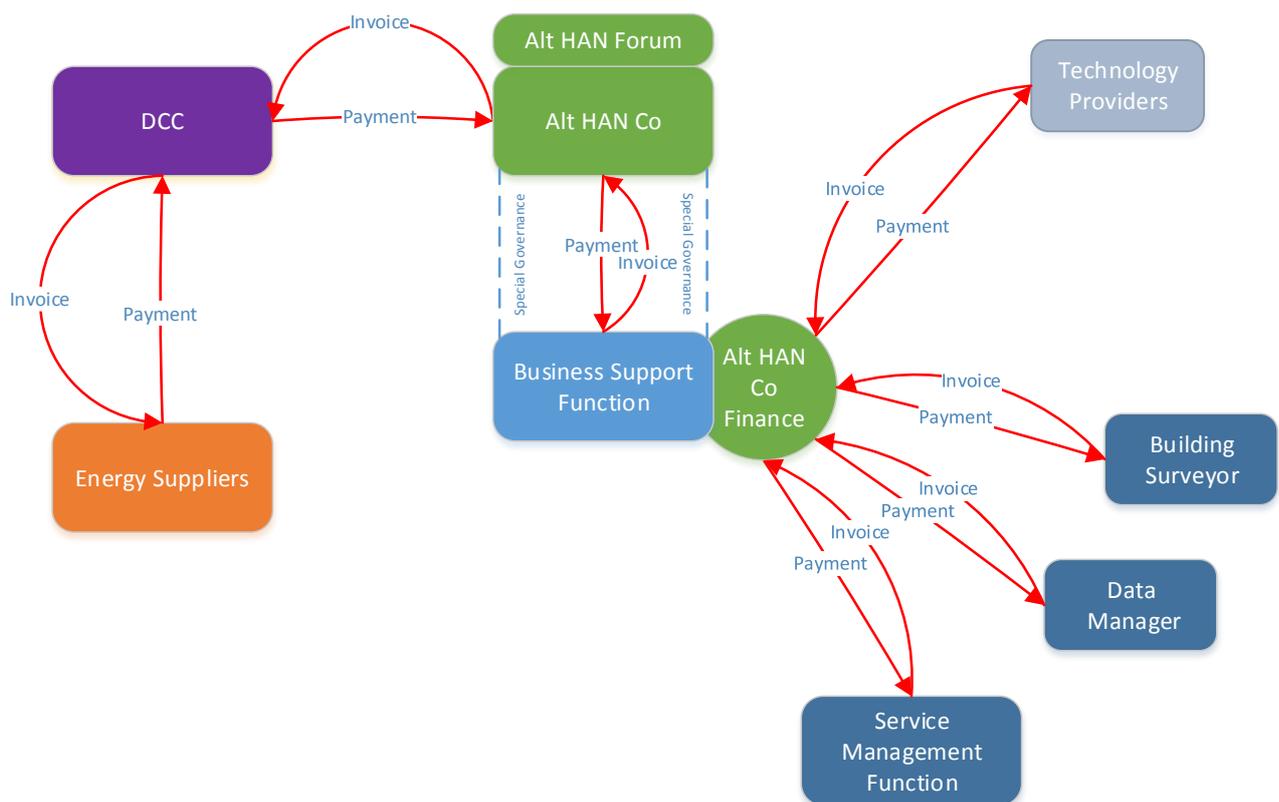


Figure 6 – Flow of Funds

#### 4.2.4 Managing Liability, Warranties and Risk

The formal relationships between the parties will be managed using normal terms and conditions used in contractual agreements where a vendor provides services and/or equipment against defined service schedules and performance metrics. The Alt HAN delivery project will use procurement and legal expertise to support development of the necessary contractual agreements to ensure an appropriate balance of risk is shared between the parties. There is

<sup>5</sup> <https://www.smartdcc.co.uk/charges/>

also an intent to use procurement resources from within energy suppliers to influence contractual development.

It is also recognised by TAHF that this TOM does need to consider the key risks associated with:

- service agents working within buildings, premises and homes owned by third parties (i.e. consumers and landlords); and
- systems/equipment/devices being installed and used in those same environments above.

The contractual agreements must recognise these risks. The current working assumption is that the approaches and precedents already existing in delivering smart metering will be used in the developing approach to Alt HAN delivery contractual agreements. Those precedents include:

- Alt HAN Service agents working on behalf of Alt HAN Co./energy suppliers within third party premises – precedents used in Meter Operator, Meter Asset Management and data collection services should, where appropriate, be adopted
- Alt HAN equipment technical assurance – precedents for the use of Alt HAN equipment should mirror the developing approach to delivery of Communications Hubs from DCC. In brief, Alt HAN Technology Providers will be required to demonstrate conformance to technical assurance requirements set out by Alt HAN Co. and agreed by energy suppliers. Energy suppliers will also have the option to implement their own additional technical assurance procedures if they believe it is necessary for their own internal assurance.

These explicit requirements will be governed by Alt HAN Co against appropriate contractual liabilities and warranties if issues do arise. Appropriate dispute resolution and escalation procedures will also be in place to manage.

The contractual agreements will evolve as the procurement processes finalise. Appropriate protection should be in place for Alt HAN Co and its directors if a vendor fails to deliver in accordance with law or explicit contractual terms and conditions.

## 5 Consumer Facing Considerations

### 5.1 Equipment Connectivity

The objective of the Alt HAN project is to provide smart metering services that are seamless to those provided to customers with Standard HANs. Within the premises, the customer should have the same level of connectivity to smart metering devices and access to data as any other smart metering customer.

In effect, Alt HAN solutions shall act as a range extender between smart meters, devices and the customer. There shall be no impact to performance, security or the customer experience. It is recognised that the installation and commissioning process will be more complex and time consuming. As described above, installation complexity will vary according to the Alt HAN technology to be installed.

### 5.2 Working with the Building Sponsor

One of the significant challenges to Alt HAN delivery is ensuring that there is buy-in and cooperation from those responsible for the buildings where Alt HAN solutions are required.

Where the building is a single premise, normal processes will be largely maintained. Further dialogue and approval is likely where additional equipment (e.g. repeaters) has to be fitted within the fabric of the building. The approach will need to be considered against the health and safety framework and any potential liabilities.

Where the building has multiple dwelling units (MDUs), the Service Management Function should have primary responsibility for:

- Identification and recording of building contacts and/or the responsible person (e.g. the Building Sponsor);
- Liaison with the Building Sponsor – providing information on the Smart Metering Implementation Programme as well as detailed information covering the Alt HAN project;
- Negotiation of any necessary wayleaves or permissions – any financial obligations shall be within an agreed framework;
- Agreeing arrangements to install shared Alt HAN technologies;
- Liaison with energy suppliers potentially at the request of the Building Sponsor to coordinate installation of smart metering equipment; and
- Liaison when Alt HAN equipment requires maintenance or any other asset management requirement.

The approach shall recognise that one of the principle challenges to Alt HAN delivery was ensuring engagement and buy-in of Building Sponsors. All Service Management Function activity in this area should be aimed to address those challenges and facilitate smart metering installation for customers.

### 5.3 Consumer Change of Supplier

As described above, Alt HAN processes should support the Change of Supplier (CoS) process. The approach to support this key objective covers:

- A common set of energy supplier requirements and processes;
- Compliance with technical standards and requirements;
- Technical assurance processes that provide confidence that enduring performance requirements shall be met;
- Asset Management processes shall exist that will allow tracking and sharing of Alt HAN relevant information;

- All energy suppliers shall be obligated to contribute to the development of Alt HAN services; and
- A regulatory framework shall exist that incentivises equitable cost recovery, energy supplier obligations and a charging regime that supports competition.

It is therefore a principal requirement of the emerging Alt HAN arrangements that the CoS process will be equivalent for any smart metering customer, will not necessitate any exchange of smart metering equipment or add any further administrative burden to the customer.

## **5.4 Consumers and Installation**

As discussed in earlier sections, the Alt HAN project shall ensure that those customers that require Alt HAN shall have identical smart metering services to other customers with Standard HANs. This shall cover the whole lifecycle of the smart metering system from installation to de-commissioning.

Where smart metering is installed using Alt HAN the Smart Metering Installation Code of Practice shall apply. Additionally, the Alt HAN equipment shall also comply with the Smart Metering End-to End security architecture and any potential vulnerability shall be addressed as part of the design and selection process.

Data privacy obligations apply equally to those customers where Alt HAN is used. Installation of smart metering equipment in communal areas will have the same protections applied to them that are in place for standard smart metering installations.

It is recognised that the Alt HAN installation process is more complex and challenging than standard installations. Without the Alt HAN project, many customers in MDUs or sprawling buildings would likely suffer significant delays in gaining smart metering services. The Alt HAN approach should ensure that an early and managed approach to releasing buildings and premises for Alt HAN installation should occur. This should ensure that most customer aspirations for smart metering in those buildings and premises could be met.

## Appendix 1

### Technology Provision and Equipment to be installed

#### 1. Alt HAN technologies

It is estimated that 3.5% of premises will require Alt HAN technologies. Technology choices will depend on technology performance when considered against building/premises parameters such as building size, construction, location of meter, etc. Initial analysis of the significance and make-up of the technological challenges was made available through the DECC sponsored Ofcom building Radio Frequency 868MHz propagation study report<sup>6</sup>.

In consideration of this reported information, the Alt HAN delivery project has identified four technological architectures that would likely address many of the identified building/premises types where the Standard HAN will not be suitable on its own.

Please note that these technical architectures are intended only to be suggestive, and that other technical architectures may be proposed which are deemed more appropriate. Ideally, these solutions will require no change to the design of the Smart Metering System (based on its existing DECC Technical Specifications e.g. SMETS2, CHTS and GBCS) and will operate in a manner that is transparent to those systems and its users. Based on the readiness of the current market, the four suggested technical architectures are described below:

##### 1.1 Shared Alternative HAN

A Shared Alt HAN solution is defined as a means of connecting the communications hubs with one or more End Device(s) in each of the Home Area Networks or multiple premises within a building using a single technology infrastructure. This is differentiated from the Communal Individual Repeater topology by the fact that the technology solution provides carriage for multiple HANs, and that the other technologies may be used in addition to a repeater (such as power line carrier).

##### 1.2 Communal Individual Repeater

A Communal Individual Repeater Alt HAN solution is defined as a means of connecting the Communications Hub with one or more End Device(s) on a single HAN, with a radio link between two devices, using an intermediate device to retransmit data. This is differentiated from the Single Individual Repeater topology by the fact that the intermediate device is installed in the communal area in a building (such as a hallway providing shared access to flats) rather than within the customer premises.

##### 1.3 Point-to-point

A point-to-point Alt HAN solution is defined as a means of connecting the Communications Hub with one or more End Device(s) on the HAN with a connection between the devices or between bridging devices using a single direct link.

##### 1.4 Single Individual Repeater HAN

A Single Individual Repeater Alt HAN solution is defined as a means of connecting the Communications Hub with one or more End Device(s) on the HAN with a radio link between two devices using an intermediate device to retransmit data. This is differentiated from the Communal Individual Repeater topology by the fact that the intermediate device is installed only on the consumer's premises (this may be indoors or outdoors, and the premises may comprise one or more buildings).

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<sup>6</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/486058/Ofcom\\_Smart\\_Meter\\_HAN\\_868MHz\\_RF\\_Coverage\\_Campaign.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486058/Ofcom_Smart_Meter_HAN_868MHz_RF_Coverage_Campaign.pdf) - Tables 14, 15 and 16 (Page 46 and 47)

## **2. Installation of Alternative HAN equipment**

Alt HAN equipment may be installed by different parties depending on the characteristics of individual buildings/premises, and the skills and training required for the installation of different technology types. Energy suppliers agree that the Service Management Function should have the responsibility to select what Alt HAN technologies should be installed in defined premises within individual buildings.

The Service Management Function will also have the responsibility for releasing all buildings and premises identified and defined as candidates for Alt HAN solutions. Where a building is assessed and a decision is taken that a Shared Alt HAN solution is required, the Service Management Function will oversee and ensure any remediation activity required to allow Shared Alt HAN installation is undertaken.

The Service Management Function may also identify other issues which may prevent the installation of smart metering equipment. Where such issues arise, the Service Management Function will make relevant information available to energy suppliers and other industry participants. This provision of information is intended to allow an energy supplier to make an informed decision on whether it can install smart metering equipment without impediment to competitors, customers or any other relevant market participant.

How and who then installs Alt HAN equipment will depend on the technology required. The scenarios are set out below:

### **2.1 Scenario 1 - Shared Alternative HAN**

Shared Alt HAN is likely to be a bespoke system used for a sub-set of premises within an individual building that cannot be supported by Standard HAN or Individual Alt HAN equipment installed by an energy supplier. The working assumption is that the technology would be best designed, installed, operated and maintained by the Technology Provider (or sub-contracted by them) due to the complexity and supporting systems likely required for effective operation.

When any remediation activity is complete the Service Management Function will recommend, and formalise (through agreed contracts), the preferred Technology Provider. Installation dates will be agreed and the Technology Provider will arrange for Shared Alt HAN installation. The Service Management Function will then liaise with energy suppliers and provide information on the building release and arrangements for installing smart metering equipment and use of the Shared Alt HAN once installed.

### **2.2 Scenario 2 - Communal Individual Repeater**

There is less dependency on the actions of competing energy suppliers within a building. However, it is clear that liaison is necessary to ensure that Communal Individual Repeater installations are completed effectively and that building managers have agreed to the installation and use of this solution.

Therefore, as part of the building release, the Service Management Function would agree the type of Communal Individual Repeater and decide where they will be fitted (in agreement with the building sponsor). Dependent on the solution chosen, there could be a case for the Service Management Function to arrange for a contract between Alt HAN Co. and the Technology Provider, or another agent, to fit the equipment. This may be relevant when Communal Individual Repeaters are fitted within emergency light fittings or other building equipment/devices. Once fitted, energy suppliers would again be informed of the building release, repeaters used and relevant information on pairing requirements.

Where an energy supplier fits the repeater, the Service Management Function will inform the energy supplier on the type of repeater to be used and fitting instructions (technical and location). This information would form part of the building release. The repeaters will be provided via the Service Management Function using the agreed ordering system and charging approach.

## 2.3 Scenario 3 – Point to Point and Single Individual Repeater

In this case, there is little dependency between competing energy suppliers once a building is released for Alt HAN and the Service Management Function has deemed what Alt HAN technology should be used. Alt HAN equipment will be fitted by the energy supplier at the meter installation and within the customer's premises. The outstanding barrier may relate, in some cases, to building access where the Building Sponsor requests energy supplier coordination.

The energy supplier will fit the Alt HAN equipment using information from the Service Management Function (i.e. the type of repeater to be used and fitting instructions). This information would form part of the building release. The repeaters will be provided via the Service Management Function using the agreed ordering system and charging approach. The aspiration is that the MOCOPA<sup>7</sup> authorisation granted to the metering agent of an energy supplier would allow its operatives to fit Alt HAN equipment with minimal extra training.

## 3. Alt HAN Technology Provider Services

Where feasible, Alternative HAN technology providers will operate as autonomous design authorities, retaining the intellectual property rights associated with their solutions and, thereby, facilitating the rapid introduction of solutions into service. Solutions must coexist with the Smart Metering Systems and their associated governance and must be sustainable. Hence, it is anticipated that a range of supporting service requirements will be required, depending on the types of solution required:

### 3.1 Single Premise

The Alt HAN Technology Provider will provide necessary equipment and support to energy suppliers to allow installation of Alt HAN equipment, this will include:

- Deliver equipment in line with forecasts and orders;
- Delivery lead times & schedules;
- Cost recovery and charging processes;
- Necessary certifications, technical assurance and quality assurance;
- Where appropriate, deliver equipment to the energy supplier or its agent;
- Installer training and guidance;
- Support any defect reporting and triage processes; and
- Reverse logistics and necessary cost recovery (where relevant).

### 3.2 Shared between premises

The list set out above plus the additional services:

- Monitoring corrective actions and, where necessary, escalating if remediation work is not being progressed;
- Liaison between building managers and other interested parties;
- Organising delivery, installation and commissioning of shared equipment/solution;
- Overseeing the performance of HAN technology and service providers;
- Monitoring system performance – faults and alerts;
- Monitoring maintenance schedules and upgrades; and
- Organising equipment exchange and removal.

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<sup>7</sup> Meter Operator Code of Practice Agreement: <https://www.mocopa.org.uk/documents>

### 3.3 Alt HAN Equipment Maintenance

Whilst a relatively small Alt HAN market exists and the technologies are relatively immature, the Alt HAN delivery project anticipates that vendors will respond to the commercial opportunities. It is likely that Alt HAN technologies will be split across a number of different designs. Therefore, using Alt HAN Co. to select and, where appropriate, maintain Alt HAN technologies through contracts would ensure any economies of scale are not diluted and would avoid a multitude of parallel energy supplier procurements.

All Alt HAN technologies would be made available to energy suppliers using agreed forecasting, ordering and charging arrangements. These are still to be determined and should form part of the supporting regulatory framework.

It is likely that there will be different approaches to equipment maintenance dependent on the technologies:

- Shared Alt HAN – as there is likely to be a supporting operational system under the overall responsibility of the Service Management Function. The working assumption is that equipment provision will be procured on a design, supply, install, operate and maintain basis. Maintenance procedures and approaches shall form part of the procurement contract and ongoing service agreement
- Other Alt HAN technologies – it is likely that the equipment will be supplied as a device and therefore subject to minimal maintenance processes. Most equipment will be supplied on a fit and forget basis and energy suppliers' aspiration is that existing Meter Operator Code Of Practice Agreement<sup>8</sup> (MOCOPA) authorisation will allow employed operatives to maintain with minimal extra training. Exceptions to this will include any device that has configurable parameters; firmware operated or require consumables such as batteries. Energy suppliers require that maintenance requirements are minimal due to the costs and potential service impacts. Where it is deemed necessary, the Service Management Function will liaise and inform energy suppliers of maintenance schedules and requirements. The Service Management Function will consider the impact of Change of Supplier processes to ensure that the relevant energy supplier is aware of any actions it should take when inheriting a customer using an Alt HAN solution. There should also be escalation routes through governance processes when maintenance is not performed by any energy supplier.

## 4. Asset Management

It will be necessary for all Alt HAN technologies to be supported by an asset management process. The process should be flexible and proportionate to the Alt HAN technologies installed and in use. As described above, technologies will vary in complexity from standalone devices to bespoke shared systems installed for individual buildings and premises within it. The Service Management Function will be responsible for the development, operation and maintenance of the Asset Management process.

It is expected that the provision and maintenance of data for the identification of Alt HAN candidates is a pivotal role to be provided by the Data Manager. Oversight of any additional data requirements will be within the scope of the Service Management Function in liaison with the Technology Providers, Building Surveyor and energy suppliers as buildings are surveyed, and equipment is installed.

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<sup>8</sup> <https://www.mocopa.org.uk/documents>

Energy suppliers will have access to the information managed by the Service Management Function. This will require access control and other measures to ensure competition, data protection and data integrity is maintained.

Energy suppliers see benefits if the data can be hosted under the DCC's existing infrastructure (e.g. DCC Self Service Interface) but maintained by the Data Manager, reporting to the Service Management Function. This will allow all smart metering wide area network (WAN) communications information and information on devices relating to the establishment of the home area network (HAN) is available in one place as they are intrinsically linked. Energy suppliers and other relevant market participants (e.g. Meter Operators) shall provide install and other relevant information to the Data Manager.

The ability to track Alt HAN equipment is a key input into the Alt HAN operation and will need to be designed to support change of supplier process.

Asset management requirements will be managed by the Service Management Function. Arrangements for undertaking necessary asset management tasks shall be determined as part of the ongoing project. The working assumption is that the energy supplier is responsible for Alt HAN equipment originally installed by it, or inherited at CoS, and will undertake necessary tasks. Where the Alt HAN was installed by a Technology Provider, under a contract with Alt HAN Co., the Technology Provider shall be responsible for undertaking the necessary asset management tasks.