DCC Interim Interoperability - Information Request

Seeks information about the likely costs, benefits and timescales associated with the interim interoperability options currently being examined.	From To cc Date	Ofgem CoTEs members, Energy Suppliers, Network Operators, Central Bodies and Metering Agents 27 October 2010

Contents

1. Context

1.1. The Smart Meter Implementation Programme (the Programme) Prospectus[1] proposed a 'Staged Implementation' approach under which, subject to the consultation process, energy suppliers would commence the rollout of smart meters prior to DCC being operational. For the purposes of this Information Request only please assume that rollout would start in July 2012 and that DCC would become operational in October 2013.

1.2. In the course of stakeholder engagement, the Programme is examining various options that might facilitate customers switching supplier during this period. These options are referred to in this Information Request as the 'Interim Interoperability Arrangements (IIA) Options'.

1.3. The Programme is continuing to work with stakeholders to undertake cost/benefit analysis of the IIA Options. The purpose of this document is to request information on costs and benefits in respect of each of these options.

1.4. Respondents to this Information Request will comprise two groups:

a. members of the DCG and SMDG CoTEs panels who might develop and operate arrangements that form 'central services' within some of the IIA options;

b. industry parties (energy suppliers, network operators, 'central bodies'[2] and metering agents) whose existing systems and processes would be impacted by the IIA Options.

1.5. The information being sought will be used in the Programme's cost benefit analysis model. This model examines the economic costs and benefits associated with smart metering and running the model under a number of scenarios will assist the Programme Team in its assessment of options. In addition to costs and benefits, the

[1] Smart Meter Implementation Programme Prospectus, July 2010, www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/Smart%20metering%20-%20Prospectus.pdf

[2] The term 'Central Bodies' refers to xoserve, Electralink, [and] Gemserv [and Elexon]

Programme Team will consider the merits of each option against further criteria, including:

a. Timeframe

b. Consumer impact

c. Risk

1.6. The objectives of developing IIA (thus allowing rollout to commence at an early stage to maximise the early delivery of benefits) include:

a. To allow customers to change their behaviour in response to consumption information presented by their smart metering system, thus enabling customer benefits to be realised;

b. To facilitate early realisation of industry benefits from smart metering, thus allowing savings to be passed on to customers;

c. To enable energy suppliers to invest in smart metering with confidence as a result of being able to install smart meters that comply with the technical specification.

2. Principles

2.1. The guiding principle is the long term interest of consumers. Consistent with this guiding principle, so far as is practicable, IIA should aim to reduce the risk of the consumer experience being compromised during the interim period. A key element of this is the customer experience on Change of Supplier (CoS).

2.2. The IIA Options should support licence holders (e.g. energy suppliers) to achieve compliance with their licence conditions and related regulations. These include compliance with new regulations or codes of practice relating to remote disablement of supply.

3. Nature of this Information Request

3.1. This information request is not part of any procurement process and is specifically being used to inform the Programme Team of the broad costs and benefits, and timescales required, to deliver the various IIA options currently being assessed.

3.2. The objective is to assess the incremental costs and benefits associated with the IIA Options. The current (i.e. 2010) industry arrangements should be taken as a baseline. In responding to this information request, respondents should recognise that the Programme Team needs strategic estimates for input to a cost benefit analysis, not detailed prices that might form part of a service contract. Accordingly the relative cost of each scenario – and the drivers of cost differentials – are of significant importance.

3.3. For each industry participant each of the IIA options is likely to imply different costs and benefits. Respondents are therefore requested to state which party their response relates to (i.e. provider of central services, energy supplier, network operator, 'central body' or metering agent) and confine their cost and benefit estimates to the impact on that party. Members of the CoTEs panels should respond under the 'central services provider' category.

4. Information Requested

4.1. The IIA Options to be analysed by respondents to this Information Request are summarised in Appendix [B] and described more fully in Appendix [C]. These are high level descriptions which set out assumptions to be used for the purposes of responding to this Information Request only. The option descriptions do not represent complete sets of business or functional requirements. To the extent that respondents require base data (e.g. numbers of sites and meters, roll-out profile), the Prospectus and the DECC Impact Assessment[3] should be used as the primary points of reference.

4.2. The attached spreadsheet has been developed for respondents to use for the submission of costs and benefits. In addition, respondents are requested to add commentary for each option in relation to the following:

a. A breakdown of the timetable required to develop and implement the interim arrangements, including procurement activities;

b. The risks inherent in each option and the comparative risk as between options;

c. The assumptions made when analysing each option; and

d. Organisations are requested to comment as to whether they would interested and able to provide these services. This will not be considered a formal expression of interest and is asked purely to help us to start to assess the market interest for providing Interim Services.

4.3. The spreadsheet contains tabs marked 3M, 6M and 9M (i.e. 3 million, 6 million, 9 million) representing different assumptions as to the number of smart meters that might be installed by the end of the interim period (i.e. when DCC becomes operational). Respondents should assume that the installation 'ramp up' rate would not be linear, but would proceed as presented in the Impact Assessment. If a respondent does not expect costs and benefits to vary with volume, they should complete one worksheet and include a comment to confirm that values are not expected to vary with volume.

4.4. For the purposes of this Information Request only, it should be assumed that during the interim period the 'churn' rate (i.e. the number of customers switching supplier each year) would be 20% and that this rate applies to customers with both smart and traditional meters.

4.5. The benefit tables presented in the spreadsheet reflect the benefit areas identified in the Impact Assessment. Respondents are asked to provide details of the realisation of benefits under each of the different options being considered and are requested to complete the tables in a consistent manner across all options.

4.6. As described in Appendix A, the IIA options assume that some smart metering services (as defined in the Services Catalogue in the Statement of Design Requirements) would not be provided under all circumstances.

4.7. The spreadsheet has been pre-populated with Yes or No to indicate where, in the opinion of DCG Sub-Group 2, a response should be provided. These are indicative to aid completion and may be over-written with data at the respondent's discretion.

[3] DECC Impact Assessment of a GB-wide smart meter roll-out for the domestic sector http://www.ofgem.gov.uk/e-serve/sm/Documentation/Documents1/DECC%20-%20Impact%20assessment%20-%20Domestic.pdf

4.8. Respondents are also invited to comment on issues that were raised during DCG Sub-Group 2 meetings and recorded in the issues log, as follows:

a. Security and access control (where arrangements operate differently between Options 1-3 and Options 4-6): please indicate the security and access control arrangements that might be implemented and the impacts on costs and timescales.

b. Communications contracts: please indicate how contracts might best be transferred from the energy supplier who installs the smart meter to a central service provider or DCC, without compromising the customer experience.

c. Competition issues: please indicate any competition issues that might arise under one or more options and any mitigation actions that have been identified in your work to date.

d. Funding and cost recovery: please describe the funding and cost recovery arrangements that you consider would be most appropriate for each option. Note that the possible charging options identified in Appendix C are for information only and need not constrain your responses.

e. Transition to DCC: please indicate how transition to DCC might best be achieved under each option, including transfer of any Intellectual Property Rights (IPR), and any variations between options.

f. Standard protocols between meters and 'head ends': please comment on the practicality, particularly in terms of timescales, of standardising protocols (e.g. by using a single standard for DLMS, COSEM and OBIS codes) and on any associated benefits.

g. What opportunities exist for re-use of systems, processes and/or services from interim into any possible enduring DCC arrangements, including the identified potential transfer of Intellectual Property Rights referred to in paragraph 4.8e? Please only assess services, systems and/or processes. It can be assumed that all devices at the premises (e.g. meters, WAN Communications boxes, In Home Displays) will be compliant with the relevant specifications under all IIA options.

h. PPM/PAYG: please provide your views on the practicality of introducing interoperable PPM/PAYG arrangements into interim options in terms of costs, benefits, timing and risks.

i. Satisfaction of requirements: Do you consider that any of the options do not meet the essential requirements set out in Appendix A and if so, why?

4.9. In addition to the general issues identified above a specific set of issues was identified relating to governance of the interim arrangements and a set of options was proposed. Respondents are invited to comment on these options, as follows:

a. Mandated instruments: should the interim arrangements be governed by formal instruments which all licence holders are obliged to accept (e.g. changes to existing codes, an early/interim version of the Smart Energy Code, licence conditions)?

b. Voluntary instruments: should voluntary – or self-governing – arrangements be established for the interim period (e.g. memorandum of understanding between suppliers, multi-lateral contract with a central service provider, standard set of bilateral agreements)?

c. Should a combination of mandated and voluntary instruments be established?

5. Background Information

5.1. More background information can be found on the Smart Metering stakeholder area of the Ofgem website under DCG at the following location:

http://www.ofgem.gov.uk/e-serve/sm/Stakeholder/DCG/Pages/DCG.aspx

6. Process for responding

6.1. Responses should be submitted in Microsoft Word or PDF format to dcg@ofgem.gov.uk.

6.2. If you have any queries in relation to this Information Request please send an email to dcg@ofgem.gov.uk.

A. Overview of options

A.1. Introduction

A.1.1 This appendix provides details of:

a. Assumptions relevant to the IIA options;

b. The proposed requirements for any IIA Options;

c. The services that the IIA options would need to support.

A.2. Assumptions

A.2.1 The following assumptions are identified for the purpose of responding to the Information Request only:

a. The IIA would be temporary arrangements that would be superseded by the enduring DCC arrangements and would therefore have a finite lifetime.

b. The volumes being processed by any IIA would be significantly lower than the full operational volumes that would be expected under enduring DCC operations.

c. IIA would only apply to compliant smart meters and associated equipment.

d. If smart meters and associated equipment were installed in advance of the technical specifications and were subsequently certified as compliant, then they should be allowed to be included in interim arrangements.

e. IIA would begin at the latest from the mandated start date of smart meter roll-out.

f. IIA would not embody PAYG/prepayment functionality as a nationally provided service. Prepayment/PAYG services would be implemented by individual suppliers on a commercial basis at their risk. On Change of Supplier (CoS), the Losing Supplier[4] would set the prepayment meter to credit mode for the Gaining Supplier.

g. Compliant smart meters and associated equipment would remain in place after CoS by default, but Gaining Suppliers might choose to replace assets if they wish to do so at their cost.

h. Responsibilities for smart meters and associated devices (e.g. IHDs) would be the same in the IIA as for any enduring arrangements.

i. IIA would be available for use for both domestic and smaller non-domestic customers and would be available for Automated Meter Reading arrangements on a voluntary basis at proportionate cost.

j. The technical specifications will have been published and will have completed all national and European regulatory notification and/or approval processes.

k. Any required accreditation or certification arrangements will be in place.

[4] The following supplier roles are used for the purposes of this Information Request. The Installing Supplier is the supplier that initially installs a smart meter (either directly or via an agent). On Change of Supplier, the Losing Supplier is the supplier that was supplying the customer prior to CoS and the Gaining Supplier is the supplier that takes over responsibility for supplying the customer after CoS. The Losing Supplier on first CoS will be the Installing Supplier.

l. Compliant smart meters and associated equipment would have been developed, manufactured, accredited/certified and purchased by suppliers.

m. IIA will be capable of supporting the number of meters identified in the roll-out plans.

n. Value added services need not be transferred to or supported by the Gaining Supplier on Change of Supplier.

A.3. Interim Interoperability Requirements

A.3.1 The following high level requirements have been identified for the purposes of the Information Request only for any IIA option.

Requirement identifier	Requirement
1	The IIA shall apply to gas and electricity meters
2	The IIA shall be common for all Suppliers
3	The IIA shall use existing industry dataflows and processes wherever possible
4	The IIA shall seek to reduce any requirements for site visits or meter exchanges
5	The end-to-end IIA infrastructure shall be secure in its design and operation
6	The IIA shall protect customer privacy in its design and operation
7	The IIA shall enable Suppliers to bill customers correctly and automatically
8	The IIA shall be commercially accessible and implementable for any Supplier who considers participating
9	All smart meters and associated equipment under IIA shall be identifiable within industry arrangements and particularly at Change of Supplier (CoS)
10	The same CoS reading should be used by the Gaining and LLosing Supplier
11	Parties shall only be able to access data if they are authorised to do so.
12	The Gaining Supplier should only have access to the metering system/data from its Supplier Start Date (SSD)
13	The Losing Supplier should not have access to the metering system/data from the Gaining Supplier's SSD
14	The customer shall choose in which way consumption data shall be used and by whom, with the exception of data required to fulfil regulatory duties
15	If the Losing Supplier is operating the smart meter in Prepayment/PAYG mode, then it must switch the smart meter to credit mode on Change of Supplier
16	Following Change of Supplier, it must be possible for the Gaining Supplier to communicate with the meter, either directly or via another party.
17	Appropriate security arrangements must be embedded into interim arrangements.

A.4. Potential IIA Services

A.4.1 The Statement of Design Requirements (SODR) supporting the Prospectus identifies a number of services that it is currently proposed would be required for the enduring solution. For the purposes of this Information Request only, Table A-2 shows which services are essential, desirable or unnecessary for the IIA.

A.4.2 The 'Ref' column refers to the paragraph number in the SODR in which the service is defined. The last two services (New 1 and New 2) have been identified by the subgroup developing the IIA and do not appear in the SODR.

Ref	Service	Status for IIA
1.53	Registration of smart meter	Unnecessary
1.54	Check accuracy of master clock data	Desirable
1.55	Tamper alarm triggered	Desirable
1.56	Meter fault alarm triggered	Desirable
1.58	Diagnostics	Desirable
1.57	Firmware / software upgrade	Essential (for security upgrades)
1.59	Test communication line	Essential
1.60	Service life notification	Unnecessary
1.61	Message to consumers (IHD)	Unnecessary
1.62	Download / clear existing data	The ability to download and/or clear existing data is either Desirable or Essential depending on the solution at CoS
1.63	Remote configuration of settings	Service needs better definition
1.65	Meter read	Essential
1.66	Energisation status check	Unnecessary
1.67	Remote enablement / disablement of supply	Desirable
1.68	Consumer interaction	Essential if 1.67 included Otherwise Unnecessary
1.69	Switch between credit and prepayment	Unnecessary, on assumption switch to credit at CoS
1.70	Prepayment	Unnecessary – Supplier specific solutions
1.71	Credit balance update	Unnecessary – Supplier specific solutions
1.72	Tariff update	Desirable
1.73	Supply fault alarm triggered	Desirable
1.74	Maximum demand read	Essential
1.75	Notification of failure to obtain reading	Essential
1.77	Calorific value	Unnecessary
1.79	Read distributed generation and storage data	Unnecessary
1.80	Feed in tariff update	Unnecessary

Ref	Service	Status for IIA
1.83	Electricity quality read	Unnecessary
1.89	Load management	Unnecessary
New 1	Audit records of all meter interactions shall be kept	Essential
New 2	It must be possible to obtain the current software and firmware version for any device	Essential (may be covered by 1.58)

B. Derivation of the Options

B.1. Introduction

B.1.1 This appendix describes the derivation of the IIA options at a high level. Further details on each of the options are provided in Appendix C.

B.1.2 Two broad architectures have been considered:

a. Introducing a new centralised service for suppliers to use to communicate with smart meters;

b. Using the existing supplier hub arrangements for direct Supplier/Agent communication with smart meters.

B.1.3 There are then variations within both of those architectures, as described below.

B.1.4 It should be noted that:

a. These option definitions should be considered in light of potential changes to gas market operations that might be needed to make IIA operational, particularly because there is no concept of accredited agents in gas. It would be important to ensure that the gas arrangements are robust to this process and it has been suggested that a common file format might need to be agreed.

b. All of these IIA options would require changes to existing industry registration systems and processes (MPAS/xoserve/iGT) to provide data to the interim options (e.g. storing a smart meter indicator, providing Supplier ID for access control, potentially Supplier responsible for the WAN module and/or the Installing Supplier ID).

B.2. Centralised Service

B.2.1 For the purposes of this Information Request, it is assumed that suppliers would communicate with a new Interim Body providing centralised services using existing industry data flows (DTN, UK Link Files) and potentially new web-services.

B.2.2 The following variations for the delivery of connectivity from the Interim Body to smart meters have been identified:

a. **Option 1**: Using Supplier/Agent owned HE systems; therefore the new Interim Body is acting as the custodian of access control and provides data translation services from HEs to DTC/UK Link Files or potentially common web service formats.

b. **Option 2**: As for Option 1, but with standardisation of the interface between the Interim Body and the Supplier operated HE systems so that the Interim Body does not have to support all HE languages.

c. **Option 3**: The Interim Body includes access control and all necessary HE services and communications and therefore provides end to end connectivity to meters from industry messages.

B.2.3 For Options 1, 2 and 3 there are further sub-options varying in respect of the time at which compliant smart meters are introduced into the IIA:

a. **Options 1all, 2all and 3all**: All suppliers, including Installing Suppliers, could access smart meter data and functions via the Interim Body from the date at which the Interim Body comes into operation, or from the point at which smart meters are installed if after the Interim Body Go Live date.

b. **Options 1CoS, 2Cos and 3Cos**: Installing Suppliers could initially access their smart meters directly using their own head ends and communications systems. It is only after the first CoS that the smart meter would be transferred to the IIA and accessed by the Gaining Supplier via the Interim Body.

B.2.4 However, Option 3 sub-options can be identified, depending on the implementation of HE services:

a. **Option 3all-MHE and 3CoS-MHE**: With these sub-options multiple HE (MHE) systems would be operated to support different meter types.

b. **Option 3all-UHE and 3CoS-UHE**: With these sub-options a single, unified HE (hence UHE) system would be implemented that would be able to communicate with all meter types.

B.3. Using Supplier Hub Services

B.3.1 Suppliers would operate their own smart metering end to end service chain until there was a Change of Supplier. There would be two ways of delivering connectivity to smart meters for Gaining Suppliers at CoS:

a. **Option 5**: The Losing Supplier and its agents would continue to provide smart metering data services at CoS and the Gaining Supplier would send existing industry data flows (DTC/UK Link Files) and potentially new supplier specific messages to the Losing Supplier to gain access to smart meters. The Losing Supplier would need to provide access control to the Gaining Supplier based on MPAS/xoserve/iGT registration data or the Gaining Supplier could get it directly once registered. On subsequent CoS, the Gaining Supplier would interact with the Installing Supplier of the smart metered customer.

b. **Option 4**: Similar to Option 5, but with an Interim Body providing a repository of meter readings and access to those meter readings to Gaining Suppliers. Therefore, following CoS, Gaining Suppliers would interact with the Interim Body for meter readings and would not interact directly with the Installing Supplier of the smart metered customer.

c. **Option 6**: The Gaining Supplier would request all necessary technical and commercial data from the Losing Supplier, identify the requisite HE and configure that HE to communicate with the smart meter. The Losing Supplier would need to provide access control to the new supplier based on MPAS/xoserve/iGT registration data.

C. IIA Options

C.1. Introduction

C.1.1 This appendix provides further detail on the IIA options, and any option specific assumptions, for the purposes of this Information Request.

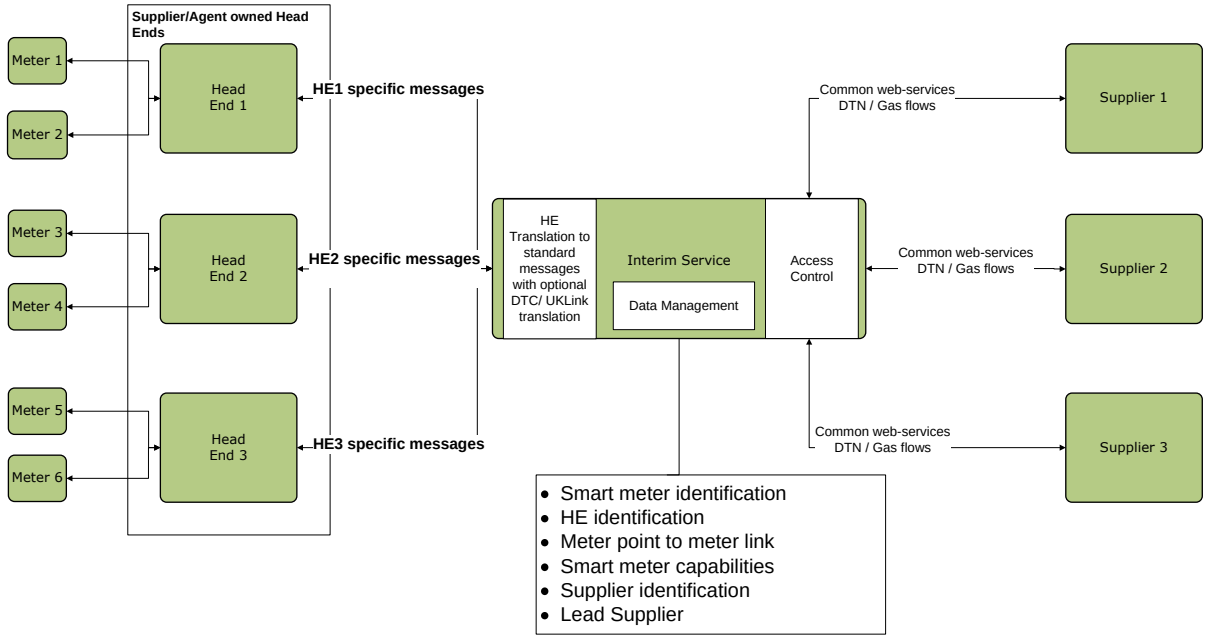
C.1.2 It should be noted that:

a. Any discussion of potential charging options in this appendix is for information only and should not constrain responses to the question in the body of this Information Request at paragraph 4.8d.

b. Colours in the figures in this appendix do not have any significance.

C.2. Option 1all - Central Translation from Go-Live for all Compliant Smart Meters

Figure 1: Central Translation for All

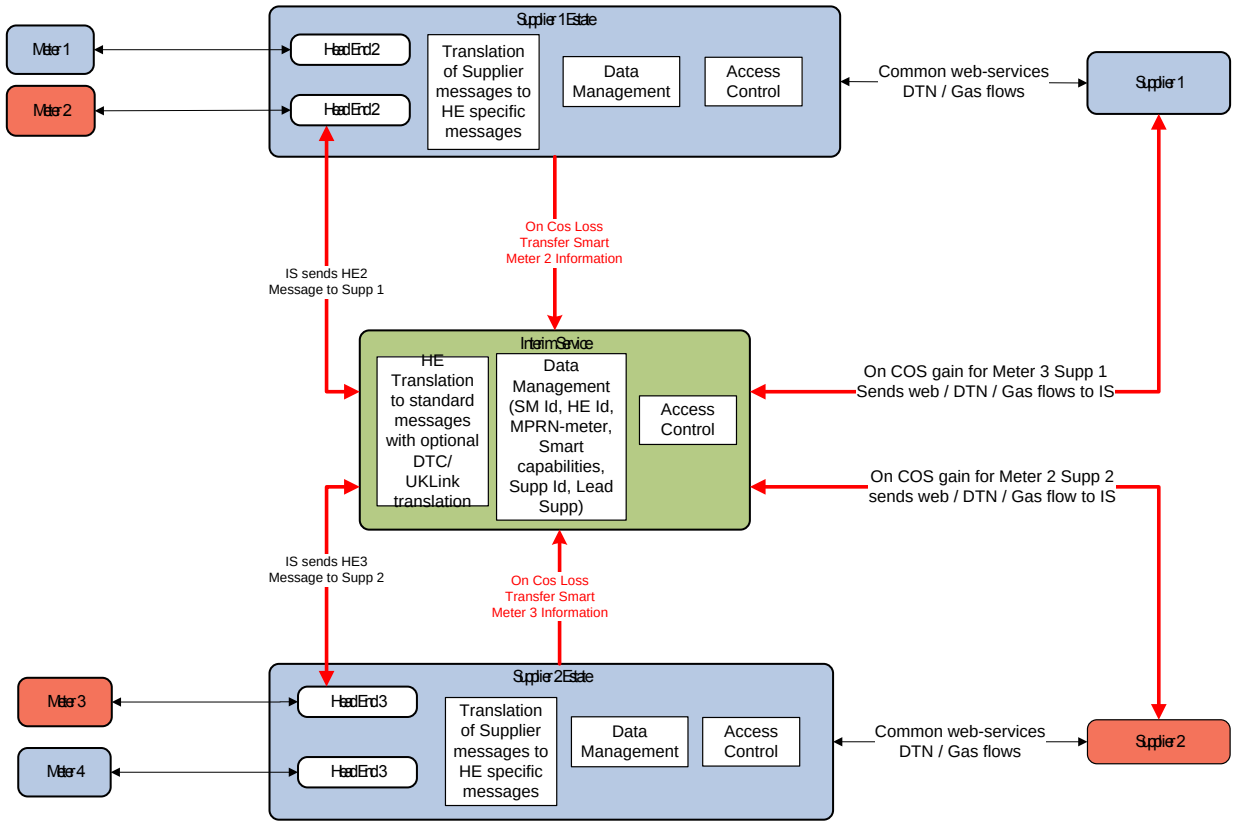


Parameter	Approach
Overview	Installing Suppliers roll out meters and put in place appropriate communications and HE provision. All access to meters for all suppliers, including Installing Suppliers, is via the Interim Body
HE provision	Installing Supplier or its agent
Communications provision	Installing Supplier or its agent
Access control	Interim Body provides access control, based on industry registration systems
Installing Supplier responsibilities	Maintain and operate HEs and communications arrangement for installed smart meter base, both before and after any CoS event

Parameter	Approach
Gaining Supplier responsibilities	Gaining Supplier interacts with Interim Body for smart metering services
Interim Body responsibilities	Single Point of Access to meter Translation services for a defined set of meter interactions: • Web service requests to HE specific formats • HE specific formats to web service response • DTN/UkLink to HE specific formats • HE Specific format to DTN/UKLink Access Control • Determines who the registered supplier is and restricts access on the basis of registration data Data Management • Interim Body holds installed smart meter details and provides this information to appropriately authorised current and prospective suppliers. • Also enables identification of HE and communications requirements • Identifies the HE owner
Information required from industry systems	Industry registration services provide information as at present with an additional data item for smart meter identifier and a means to provide that and the Supplier ID to the Interim Body to support Access Control. The assumption is that the remainder of the data identified in the diagram is stored and mastered at the Interim Body only.
Other Interactions	Supplier to Interim Body: DTN/IX and/or web services Interim Body to HE: HE Specific messages/protocols defined by HE provider Interim Body to Registration Services: DTN/IX (less likely to be web services from existing systems) – identify whether a meter is smart and who the relevant suppliers are
Charging/Contracting Options	Interim Body charges end users, Installing Supplier charges Interim Body for its retained communications contracts Bi-lateral churn arrangements between Suppliers on CoS
Other comments	

C.3. Option 1CoS - Central Translation at CoS

Figure 2: Central Translation at CoS

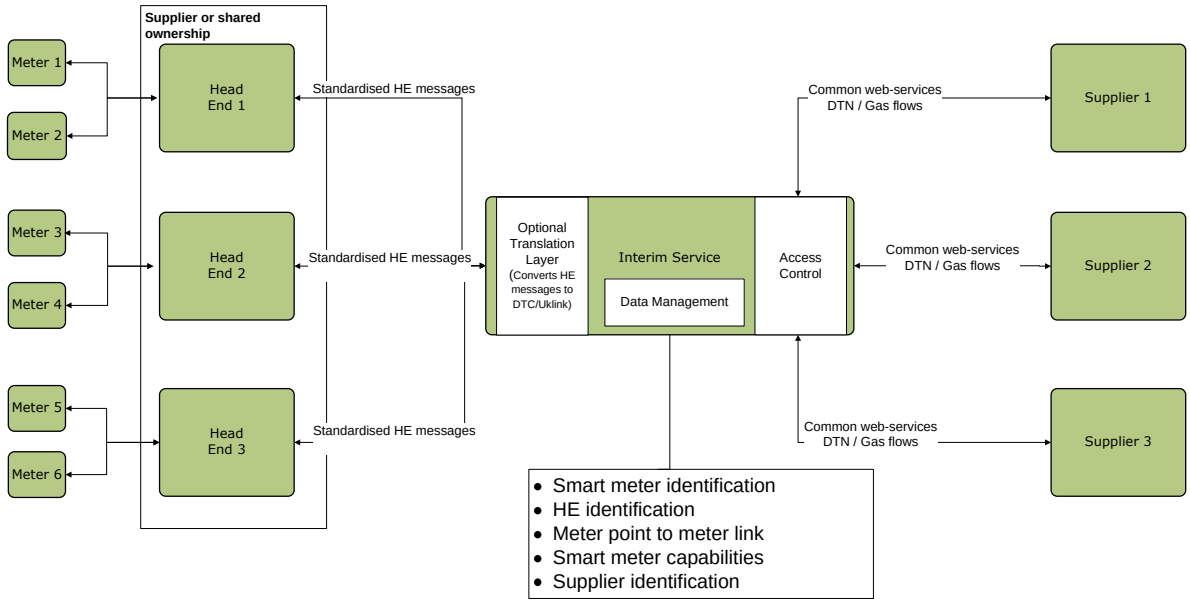


Parameter	Approach
Overview	Installing Suppliers roll out meters and put in place appropriate communications and HE provision. Pre-CoS, the Installing Supplier accesses its meters directly via its own HE and communications networks. Post-CoS, the Gaining Supplier accesses meter readings via the Interim Body, with the HE and communications facilities continuing to be provided by the Installing Supplier.
HE provision	Installing Supplier or its agent
Communications provision	Installing Supplier or its agent
Access control	Post-CoS, Interim Body provides access control, based on industry registration systems
Installing Supplier responsibilities	Installing Suppliers would be required to procure their own complete end to end service chain/estate for smart metering to service their smart meters up to the point of CoS. At CoS, smart meters would be migrated to the Interim Body, with the Installing Supplier retaining responsibility for communications contracts and HE services.
Gaining Supplier responsibilities	Gaining Supplier interacts with the Interim Body for smart metering services.

Parameter	Approach
Interim Body responsibilities	Single Point of Access to meter post-CoS Translation services for a defined set of meter interactions: • Web service requests to HE specific formats • HE specific formats to web service response • DTN/UKLink to HE specific formats • HE Specific format to DTN/UKLink Access Control • Determines who the registered supplier is and restricts access on basis of registration data Data Management • Interim Body holds installed smart meter details and provides this information to appropriately authorised current and prospective suppliers. • Enables identification of HE and communications requirements • Identifies the HE owner
Information required from industry systems	Industry registration services provide information as at present with an additional data item for smart meter identifier and a means to provide that and the Supplier ID to the Interim Body to support Access Control. The assumption is that the remainder of the data identified in the diagram is stored and mastered at the Interim Body only.
Other Interactions	Supplier to Interim Body: DTN/IX and/or web services Interim Body to HE: HE Specific messages/protocols defined by HE provider Interim Body to Registration Services: DTN/IX (less likely to be web services from existing systems) – identify whether a meter is smart and who the relevant Suppliers are
Charging/Contracting Options	Interim Body charges end users, Installing Supplier charges Interim Body for its retained communications contracts Bi-lateral churn arrangements between Suppliers on CoS
Other comments	

C.4. Option 2 - Standardise HE Services

Figure 3: Standardise HE Services



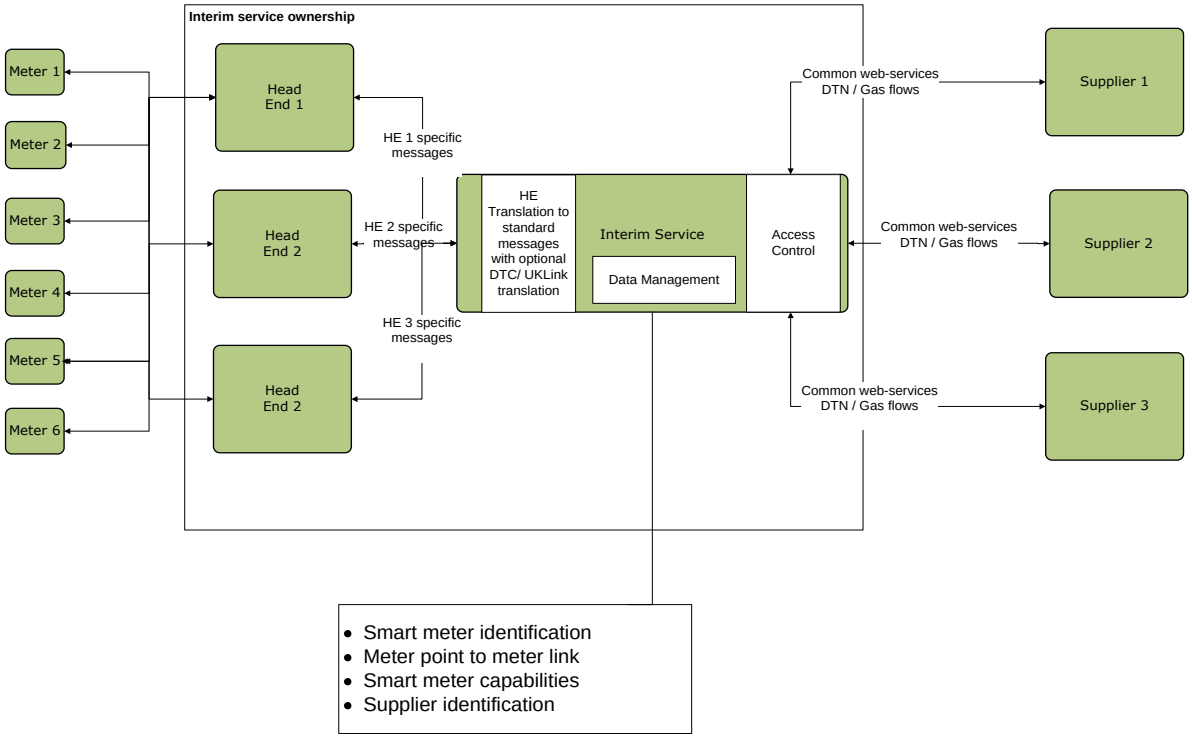
Parameter	Approach
Overview	Suppliers roll out meters and put in place appropriate communications and HE provision. Two sub-options: • **Option 2All**: IIA are mandatory from their Go-Live date for all compliant smart meters and all smart meters are registered into IIA at Go-Live and installation, whichever is the later. All suppliers access meters via the Interim Body. • **Option 2CoS**: Installing Suppliers operate their own smart metering end to end service chain until such time as they lose a smart customer, at which point those smart meters are transferred into IIA to retain interoperable (possibly reduced) smart functionality at CoS. Gaining Suppliers access gained meters via the Interim Body.
HE provision	Installing Supplier or its agent
Communications provision	Installing Supplier or its agent
Access control	Interim Body provides access control, based on industry registration systems, either for all meters under Option 2All or after CoS event for Option 2CoS.
Installing Supplier responsibilities	**Option 2All**: IIA are mandatory from their Go-Live date for all compliant smart meters and all smart meters are registered into IIA at Go-Live and installation. The Installing Supplier maintains and operates HEs and communications contracts for installed smart meter base, both before and after any CoS event. Before CoS the Installing Supplier interacts with the meter via the Interim Body. **Option 2CoS**: Installing Suppliers operate their own smart metering end to end service chain until such time as they lose a smart customer, at which point those smart meters are transferred into IIA to retain interoperable (possibly reduced) smart functionality at CoS. The Installing Supplier continues to be responsible for HE and communication services.

Parameter	Approach
Gaining Supplier responsibilities	With either variant, Gaining suppliers access meters via the Interim Body.
Interim Body responsibilities	Single Point of Access to meter • 2all – from installation or meter or IIA go-live, whichever is the later • 2CoS – from CoS Translation services for a defined set of meter interactions: • Web service requests to standardised HE services (adopted and supported by all HE providers using a common message format) Standard HE services to web service response • DTC/UK Link Files to standard HE services • Standard HE services to DTN/UKLink Access Control • Determines who the registered supplier is and restricts access on the basis of registration data Data Management • Interim Body holds installed smart meter details and provides this information to appropriately authorised current and prospective suppliers. • Also enables identification of HE and communications requirements • Identifies the HE owner
Information required from industry systems	Industry registration services provide information as at present with an additional data item for smart meter identifier and a means to provide that and the Supplier ID to the Interim Body to support Access Control. The assumption is that the remainder of the data identified in the diagram is stored and mastered at the Interim Body only.
Other Interactions	Supplier to Interim Body: DTC/UK Link Files and/or web services Interim Body to HE: Standard HE specific messages/protocols defined by HE providers Interim Body to Registration Services: DTN/IX (less likely to be web services from existing systems) – identify whether a meter is smart and who the relevant Suppliers are
Charging/Contracting Options	Interim Body charges end users, Installing Supplier charges Interim Body for its retained communications contracts Bi-lateral churn arrangements between Suppliers on CoS
Other comments	

C.5. Option 3All - Consolidated HE with Common Services

Figure 4: Consolidated HEs

C.5.1 The diagram shows the MHE sub-option; with the UHE sub-option there would be a single HE system connecting to multiple meters.



Description

Parameter	Approach
Overview	Interim Body hosts and operates all HEs and provides wide area communications. All supplier access meters via the Interim Body. There are two sub-options: • 3all – MHE, with multiple HE types • 3all – UHE, with single unified HE
HE provision	Interim Body
Communications provision	Interim Body
Access control	Interim Body provides access control based on Industry registration systems
Installing Supplier responsibilities	Installing Suppliers roll out meters but Interim Body provides Heads Ends and wide area communications network Installing Suppliers access meters via the Interim Body.
Gaining Supplier responsibilities	Gaining Suppliers access meters via the Interim Body.
Interim Body responsibilities	The Interim Body provides smart metering services to all relevant Suppliers pre and post-CoS. Single Point of Access to meter

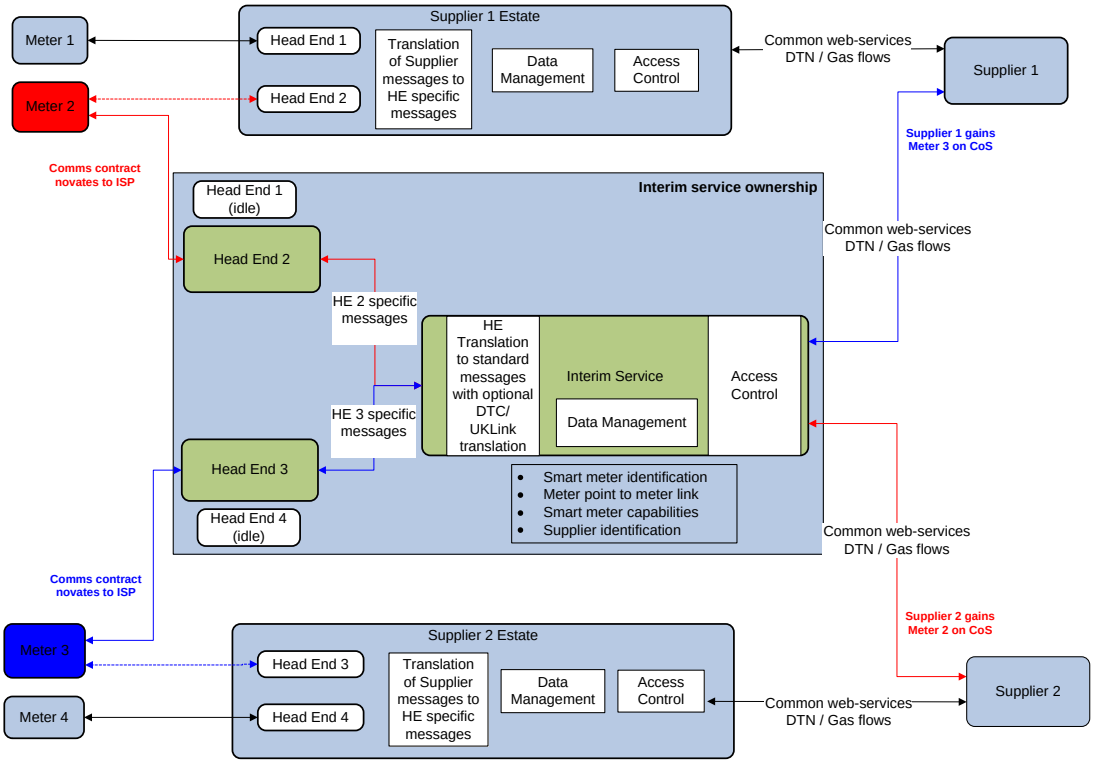
Parameter	Approach
	• Connectivity to meters using HEs • HE specific messages/protocols as defined by HE manufacturers Translation services for a defined set of meter interactions • Web service requests to HE specific formats • HE specific formats to web service response • DTC/Uklink to HE specific formats • HE Specific format to DTC/UKLink Note that with the UHE option there is only one HE format to translate to/from, whereas with MHE there are multiple formats to translate to/from. Access Control • Determines who the registered supplier is and restricts access based on registration data Data Management • Interim Body holds installed smart meter details and provides this information to appropriately authorised current and prospective suppliers. • Enables identification of HE and communications requirements • Enables charging and fault resolution by identification of Suppliers
Information required from industry systems	Industry registration services provide information as at present with an additional data item for smart meter identifier and a means to provide that and the Supplier ID to the Interim Body to support Access Control. The assumption is that the remainder of the data identified in the diagram is stored and mastered at the Interim Body only.
Other Interactions	Supplier to Interim Body: DTC/IX or web services Interim Body to Registration Services: DTN/IX (less likely to be web services from existing systems) – identify whether a meter is smart and who the relevant Suppliers are
Charging/Contracting Options	Interim Body is responsible for charging users and holds communications contracts.
Other comments	Option 3all would be a mandatory service from the Go-Live date for all compliant smart meters and all smart meters are registered into IIA at Go-Live or installation, whichever is the later. The Interim Body may offer additional services to Suppliers to deliver additional functionality (e.g. PAYG/PPM).

C.6. Option 3CoS - Consolidated HE with Common Services at CoS

C.6.1 On change of supplier the meters are migrated onto a centrally run version of the HE software. Once a meter is managed through the Interim Body it remains so until the DCC is operational.

C.6.2 The figure shows the Multiple HE sub-option; the Unified HE sub-option would have a single head end at the Interim Body.

Figure 5: Consolidated HEs with common services on CoS



Description

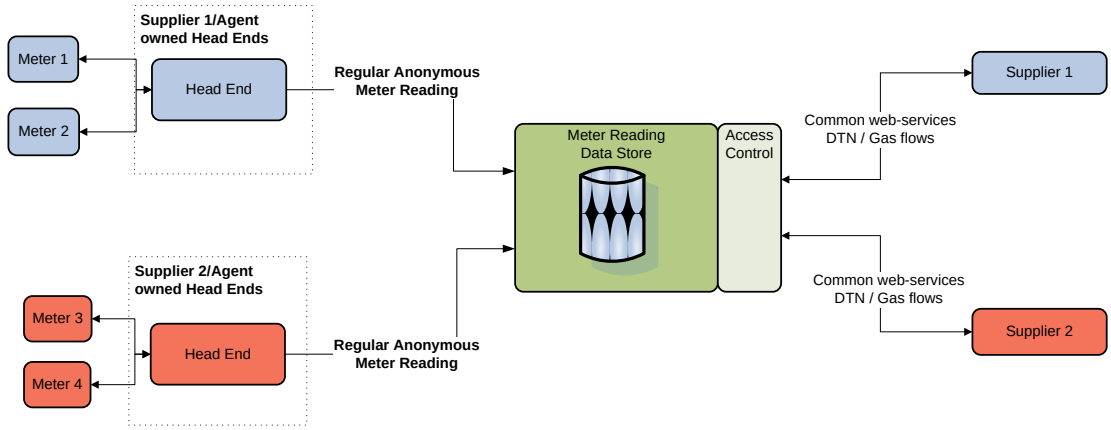
Parameter	Approach
Overview	The Interim Body operates a single HE (UHE sub-option) or multiple HE (MHE sub-option). Meters are transferred to the Interim Body on CoS, with the Installing Supplier effecting a transfer of the wide area communications arrangements for the meter to the Interim Body. Thereafter all Supplier access to the meters is via the Interim Body
HE provision	Interim Body
Communications provision	Interim Body
Access control	Interim Body
Installing Supplier responsibilities	Installing Suppliers operate their own smart metering E2E service chain until such time as they lose a smart customer, at which point those smart meters are transferred into IIA to retain interoperable (possibly reduced) smart functionality.

Parameter	Approach
Gaining Supplier responsibilities	Gaining Supplier obtains access to the meter via the Interim Body
Interim Body responsibilities	The Interim Body provides smart metering services to all relevant Suppliers post-CoS. Single Point of Access to meter through Interim Body • Connectivity to meters using HEs • HE specific messages/protocols as defined by HE manufacturers Translation services for a defined set of meter interactions • Web service requests to HE specific formats • HE specific formats to web service response • DTC/Uklink to HE specific formats • HE Specific format to DTC/UKLink Access Control • Determines who the registered Supplier is and restricts access based on industry registration systems Data Management • Interim Body holds installed smart meter details and provides this information to appropriately authorised current and prospective suppliers. • Enables identification of HE and communications requirements • Enables charging and fault resolution by identification of Suppliers
Information required from industry systems	Industry registration services provide information as at present with an additional data item for smart meter identifier and a means to provide that and the Supplier ID to the Interim Body to support Access Control. The assumption is that the remainder of the data identified in the diagram is stored and mastered at the Interim Body only.
Other Interactions	Supplier to Interim Body: DTC/IX or web services Interim Body to Registration Services: DTN/IX (less likely to be web services from existing systems) – identify whether a meter is smart and who the relevant Suppliers are
Charging/Contracting Options	Interim Body is responsible for charging users and holds communications contracts.
Other comments	Suppliers could optionally transfer all their meters to the Interim Body from interim rollout negating the need for the Supplier to run their own E2E service.

C.7. Option 4 – Suppliers or Agents Provide Data Services via central Data Store

C.7.1 The below figure represents the exchanges between Suppliers on CoS.

Figure 6: Suppliers Provide Data Services via central data store



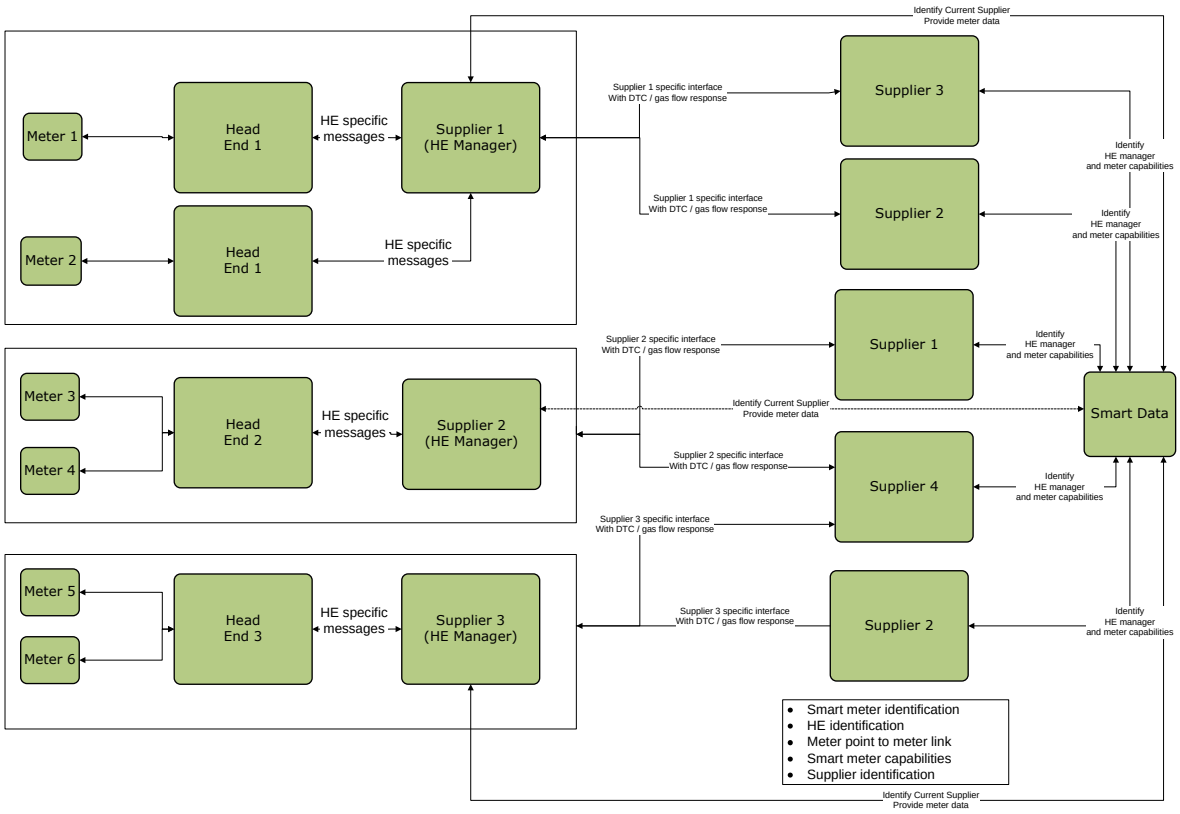
Description

Parameter	Approach
Overview	Installing Supplier operates meter from installation to disposal. Following CoS, Installing Supplier provides meter reads to a central repository operated by the Interim Body, from which the Gaining Supplier can obtain the information.
HE provision	Installing Supplier or its agent
Communications provision	Installing Supplier or its agent
Access control	Interim Body provides access control based on information from industry registration systems
Installing Supplier responsibilities	Installing Suppliers perform their own rollouts of smart meters and WAN Communications Devices and operate smart meters using their own complete end to end service chain/estate. From CoS, the Losing Supplier and its agents provide meter readings to the Interim Body.
Gaining Supplier responsibilities	The Gaining Supplier sends existing industry read data flows (DTN, gas flows) to the Interim Body to obtain meter readings.
Interim Body responsibilities	Single Point of Access to meter data Access Control • Determines who the registered supplier is and restricts access to meter readings based on registration data Data Management • Provides smart meter lookup • Enables identification of Installing Supplier and its agents. • Enables identification of Gaining Supplier Meter Reading Data Management

Parameter	Approach
	• Store Meter Readings
Information required from industry systems	Industry registration services provide information as at present with an additional data item for smart meter identifier and a means to provide that and the Supplier ID to the Interim Body to support Access Control. The assumption is that the remainder of the data identified in the diagram is stored and mastered at the Interim Body only.
Other Interactions	Interim Body to Registration Services: DTN/IX (less likely to be web services from existing systems) – identify whether a meter is smart and who the relevant Suppliers are Installing Supplier to Interim Body: meter reads
Other comments	Basic meter readings will be taken, probably to a pre-determined schedule set out in industry. There is no two-way communications from the Gaining Supplier to the metering system. This is important as it means that there is no support for the sending of any information to the meters or receiving information other than meter readings (e.g. no change of tariff to the meter). This is likely to introduce inaccuracies in data at the meter and at the customer. It is assumed that meter security continue to be the responsibility of the Installing Supplier or its agent.

C.8. Option 5 – Suppliers/Supplier Agents Provide Data Services with no Change of Agent

Figure 7: Suppliers/Supplier Agents Provide Data Services



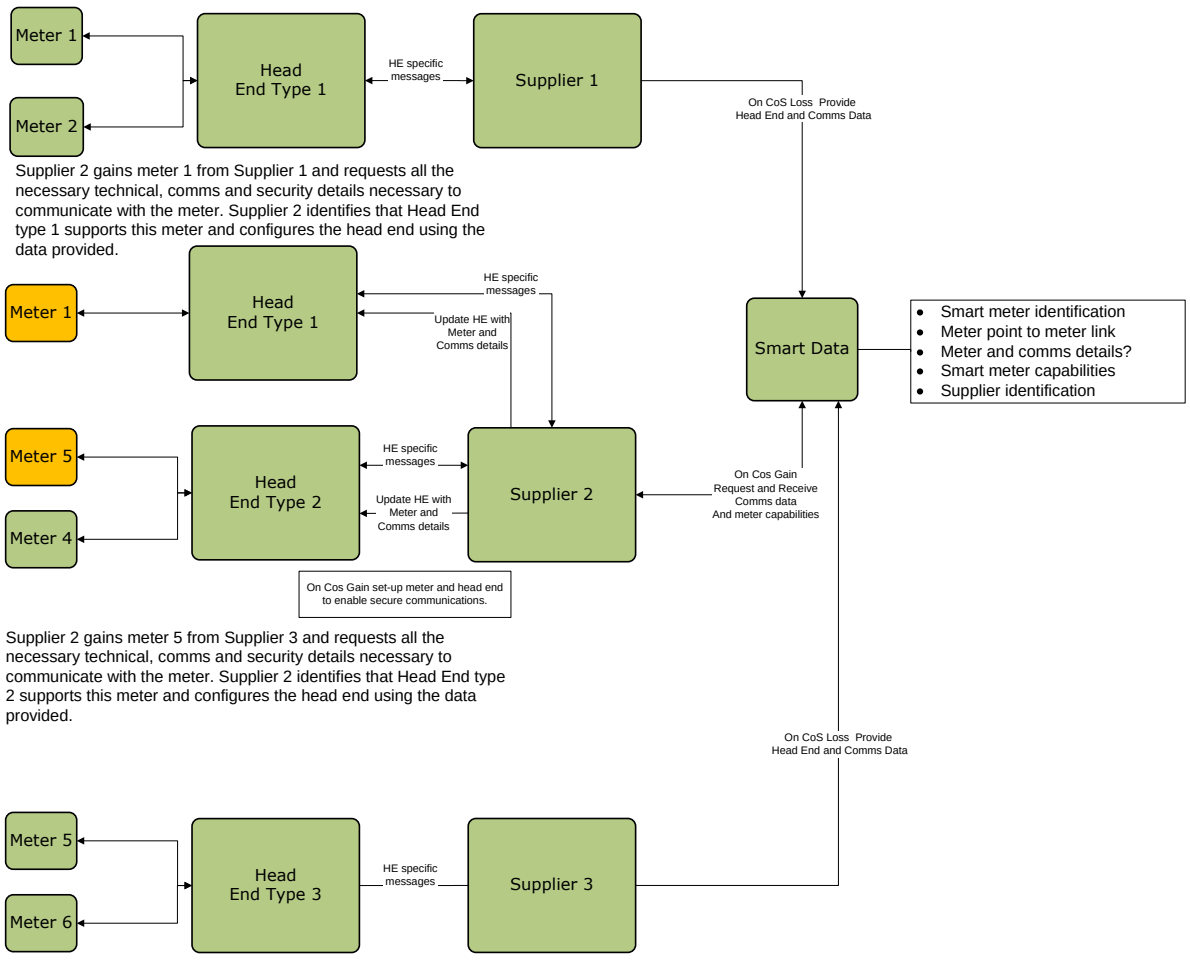
Parameter	Approach
Overview	Installing Supplier operates smart meters from installation to disposal, providing smart metering services to Gaining Supplier following CoS
HE provision	Installing Supplier or its agent
Communications provision	Installing Supplier or its agent
Access control	Undertaken by the Installing Supplier based on information from industry registration systems
Installing Supplier responsibilities	Installing Suppliers perform their own rollouts of smart meters and WAN Communications Devices and operate smart meters using their own complete end to end service chain/estate until there is a Change of Supplier. Following CoS the Installing Supplier provides smart metering services to the Gaining Supplier, based on the use of existing industry data flows (DTC, UK Link Files) and potentially new Supplier specific messages
Gaining Supplier responsibilities	The Gaining Supplier obtains smart metering services from the Installing Supplier, probably based on the use of existing industry data flows (DTC, UK Link Files) and potentially new Supplier specific messages.
Interim Body responsibilities	No Interim Body

Parameter	Approach
Information required from industry systems	• Smart Metered Supply Points • HE manager/agent • Meter Id It is assumed that this data is provided by changes to existing industry processes and systems, progressed through existing industry governance and change requests. Changed industry systems would have to provide a lookup facility for this information and limit access to the smart metering data to authorised parties. Suppliers are likely to require access to registration data to access agent details.
Other Interactions	Installing Supplier to Registration Services: DTC/UK Link File Formats (less likely to be web services from existing systems) – identify whether a meter is smart and who the relevant Supplier is Installing Supplier to HE: HE specific messages/protocols defined by HE manufacturer
Charging/Contracting Options	Bi-lateral arrangements between suppliers Charges for registration/data management assumed to be delivered through existing registration mechanisms
Other comments	Appropriate security mechanisms will be required to control access to information flows to and from the meter

C.9. Option 6 - Supplier Configures Meter/HE on CoS

C.9.1 The below figure represents the exchanges between Suppliers on CoS. The Smart Data repository is assumed to be delivered under existing registration systems.

Figure 8: Supplier Configures Meter/HE on CoS



Parameter	Approach
Overview	Each supplier operates its own HEs. Following CoS, the control of the meter is transferred to the Gaining Supplier's HE.
HE provision	Suppliers operate their own HEs. On CoS the meter is transferred from the Losing Supplier's HE to the Gaining Supplier's HE. To achieve interoperability, each supplier would either need a HE for each meter type or a universal HE capability.
Communications provision	Suppliers operate their own communications networks. On CoS, the Gaining Supplier is responsible for arranging whatever communications services are required to enable the HE and meter to communicate. Ideally the change in communications provision should not require a visit to the premises or a change of communications equipment.

Parameter	Approach
Access control	Each supplier will be responsible for controlling access to the meters that it operates. Industry registration services would be required to hold meter communications and security data and to make it available to the Gaining Supplier.
Installing Supplier responsibilities	Suppliers perform their own rollouts of smart meters and WAN Communications Devices and operate smart meters using their own complete end to end service chain/estate until there is a CoS. After CoS the Installing Supplier has no responsibilities for the meter.
Gaining Supplier responsibilities	At CoS, the Gaining Supplier obtains all technical, security and commercial data necessary for it to transfer the meter to its own HE and communications facilities and thereafter has complete control of the meter. The technical, security and commercial information required by the Gaining Supplier at CoS could be obtained in two ways: • Directly from the Losing Supplier; • Via an industry registration system. The second of these options is assumed. Mandated provision of this data would require changes to the rules governing CoS to place the obligation on the Losing Supplier to provide this data.
Interim Body responsibilities	None
Information required from industry systems	There is a requirement for industry systems and processes to manage and provide details of: • Smart Metered Supply Points • HE manager/agent • Meter Id • Meter technical, communications and security data It is assumed within this option that this data is provided by changes to existing industry processes and systems, progressed through existing industry governance and change requests. Changed industry systems would have to provide a lookup facility for this information and control access to the Smart Metering data to authorised parties (i.e. suppliers).
Other Interactions	Supplier to Registration Services: DTC/UK Link Files (less likely to be web services from existing systems) – identify whether a meter is smart and registration data Supplier to HE: HE specific messages
Charging/Contracting Options	Charges for registration/data management assumed to be delivered through existing registration mechanisms
Other comments	