

Smart Metering Implementation Programme

Phase 1A – DCC Project **DCC Scope & Services Workstream**

Meeting 1: 10 Sept 2010

Scope & Services Workstream - Subgroup Meeting 1

AGENDA

		Activity	Input	Output
10:00-10:30	Introduction, Context & Workplan	Personal introductions, experience sharing, overview of Phase 1A	List of members with contact details; overview slides	
10:30-11:15	DCC 'Initial Scope' option	Presentation of 'Initial Scope' option	Map of existing arrangements, material on 'initial scope' option	None
11:15-12:30	'Initial Scope' teamwork	Teamwork to identify implications of 'initial scope'	Draft context diagrams	Draft implications – work in progress
13:00-14:30	WAN Service Levels	Review Services Catalogue and start to define WAN service requirements	Services Catalogue and Traffic Model	Draft service requirements – work in progress
14:30-15:30	WAN Requirements - Scenarios	Teamwork to develop WAN functional and service scenarios	Illustrative scenarios	Draft scenarios – work in progress
15:30-15:45	Preparation for Next meeting	Timing, agenda, work tasks		Agenda for next meeting and allocation of work tasks

Agenda Item 1

INTRODUCTIONS, CONTEXT & WORKPLAN

Objective of the DCC Scope & Services Workstream

To provide input to our assessment of options in two key areas:

1. Scope of activities to be supported by DCC
2. Service and functional requirements of DCC's WAN

DCC Scope:

- Analysis to confirm and 'flesh out' the "initial DCC scope" as proposed in the Prospectus
- Examination of the implications of the "initial DCC scope" on existing systems and processes
- Definition of options for extending DCC scope to activities identified as "enabled by DCC over time" (principally supplier registration)
- Assessment of the costs, benefits, risks and other factors associated with the options
- Consideration of additional activities that might be included within DCC scope (e.g. data aggregation)

WAN Services:

- Definition of scenarios representing the range of options that might be adopted with regard to the service and functional requirements, and the timetable for their provision
- Presentation of evidence to assess the scenarios and delivery options including costs, benefits, risks and timing implications

Objective of the DCC Scope & Services Workstream

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1. Scope of activities to be supported by DCC
2. Service and functional requirements of DCC's WAN

Consultation questions – Scope:

Pros/Q9: should scope of DCC be limited initially to data access & scheduled data retrieval?

CBM/Q1: are access control, translation and scheduled data retrieval essential to DCC initial scope?

CBM/Q2: should registration be part of DCC scope, if so when?

CBM/Q3: should data processing, aggregation and storage be included in DCC scope, if so when?

CRF/Q13: are changes to electricity or gas settlement needed to realise the benefits of smart metering?

CRF/Q15: does programme need to take account of other industry processes that will be affected by smart metering?

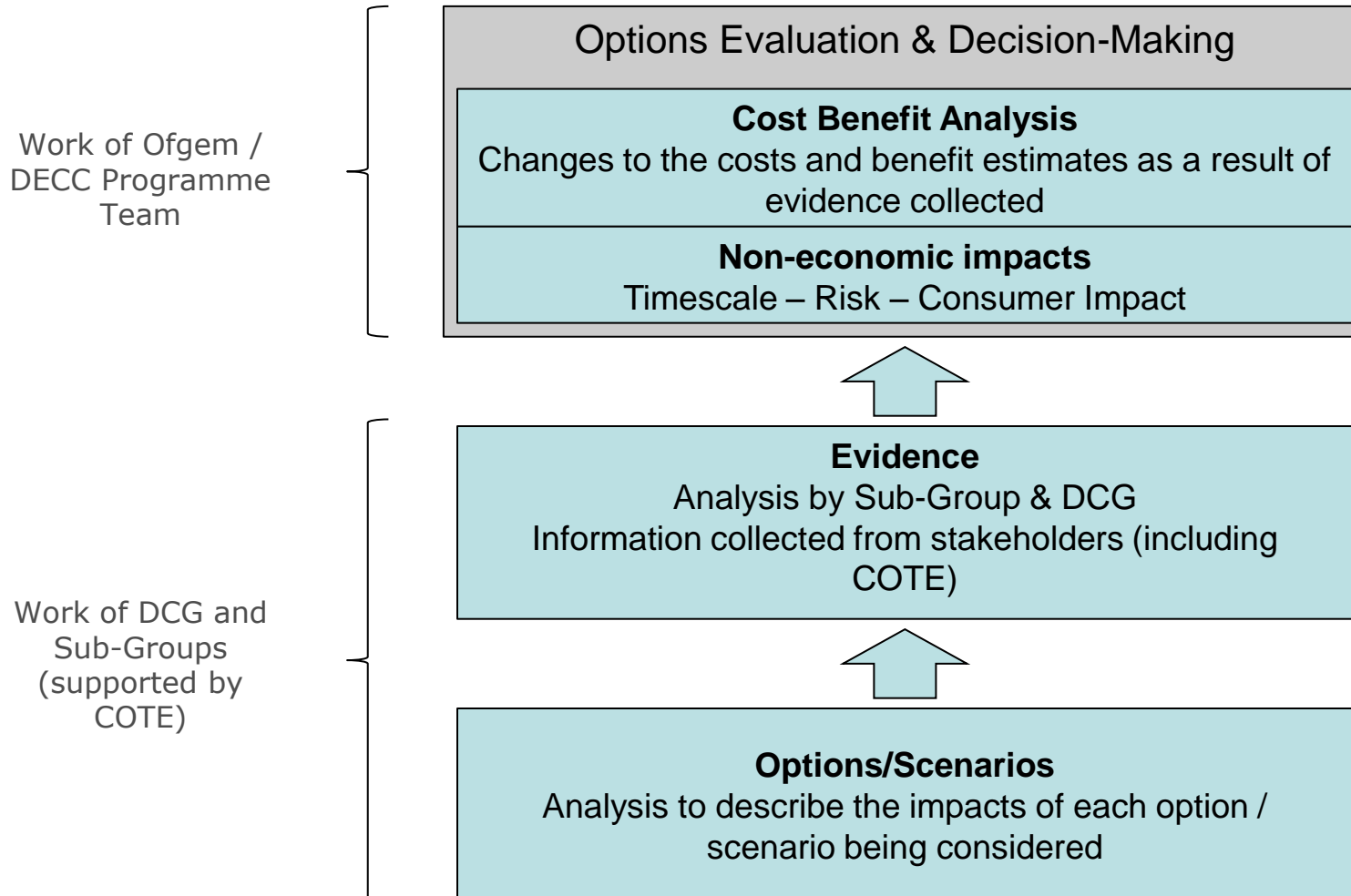
Consultation questions – WAN Services:

SODR/Q4: is services catalogue complete?

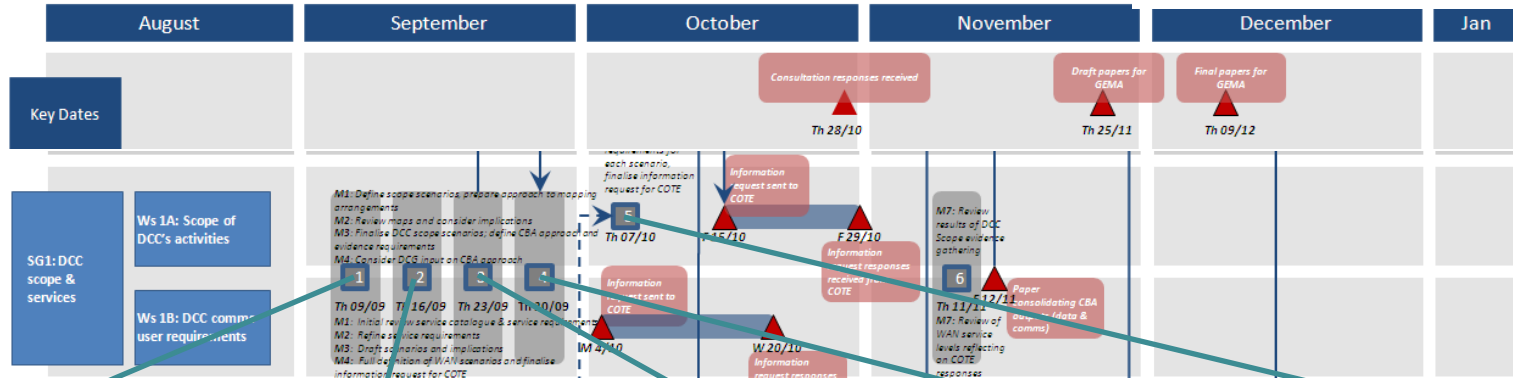
P&S/Q2: what level of data aggregation and frequency of access is needed to fulfil regulated duties?

NonDom/Q6: does proposed approach re non-doms present limitations for smart grids?

General approach



SSSG workplan



Meeting 1

Scope

- Review 'initial scope' and define options
- Agree mapping approach

Services

- Review services catalogue
- Define options to be analysed

Meeting 2

Scope

- Analyse options for bringing registration into DCC
- Define information to be requested

Services

- Analyse functional and service requirements
- Define information to be requested

Meeting 3

Scope

- Consider options linked to registration
- Prepare briefing for DCG

Services

- Document services scenarios for presentation to DCG

Meeting 4

Scope

- Consider inclusion of other activities (i.e. DP / DA)

Services

- Finalise information request

Meeting 5

Scope

- Prepare information request for approval by DCG

DCC Scope - we will build on the evidence gathering in April/May and the options presented in the Prospectus

		Comms & Access Control	Security Monitoring & Assurance	Translation	Initial Smart Grid Requirements	Scheduled Data Retrieval	Meter Registration	Data Storage on CoS	Data Processing	Data Aggregation	Smart Grids - Evolved Reqts	Consumer Value Added Services	Extra-Industry Services	Supplier Volume Allocation
Evidence Gathering - April	Option A	█	█											
	Option B	█	█		█	█	█	█						
	Option C	█	█										█	
Prospectus CBM	Initial Scope (Grey)	█	█	█	█									
	Additional Services (Black)	█	█	█	█	█	█	█	█					
	Further Possibilities (White)	█	█	█	█	█	█	█	█	█	█	█	█	█

The 'Initial Scope' in the Prospectus reflects Option A1/2 or A+ as presented by several respondents to the Evidence Gathering request – adding Scheduled Data Retrieval

Consumer Value-Added Services	Data Aggregation & Storage
Extra-Industry Services	Data Processing
Smart Grid (evolved requirements)	Change of Supplier Data
Smart Grid (initial requirements)	Meter Registration
Translation Services (Head Ends)	Scheduled Data Retrieval
Secure Communications & Access Control <small>A set of communication technology solutions and corresponding contacts enabling national coverage, coupled with a secure access control function</small>	

WAN functional and service requirements – we will build on the Prospectus and work within the programme to define scenarios for assessment

Performance

- Network Availability
- Latency

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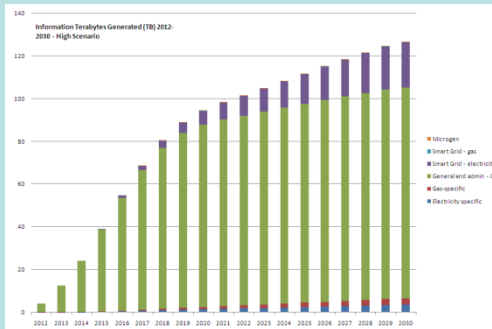
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- Other indicators

Traffic Volumes

- Message size
- Collection frequency
- Number of meters



Commercials

- Contract duration
- Risk allocation
 - Service performance
 - Credit risk

Agenda Item 2

DCC ACTIVITIES - 'INITIAL SCOPE' OPTION

Context Model 1 Electricity 'As Is'

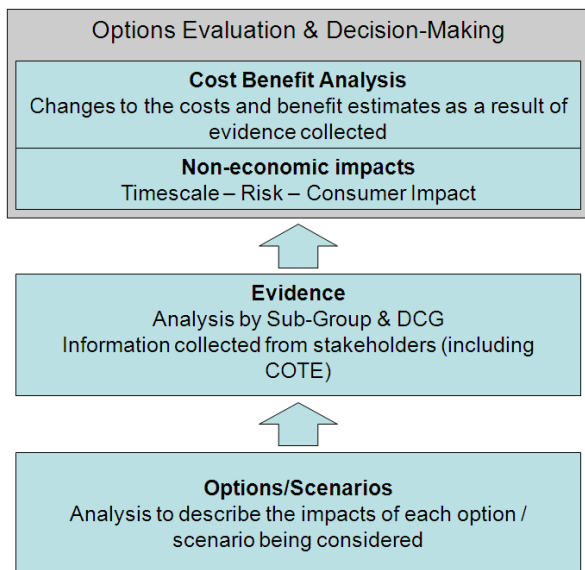
Context diagrams to be circulated on 7/8 Sept

Context Model 2 Gas 'As Is'

Context diagrams to be circulated on 7/8 Sept

Options must be described in a way that assists evidence collection – step one is to identify the affected parties

We need to estimate time, cost and other implications of each option / scenario on:

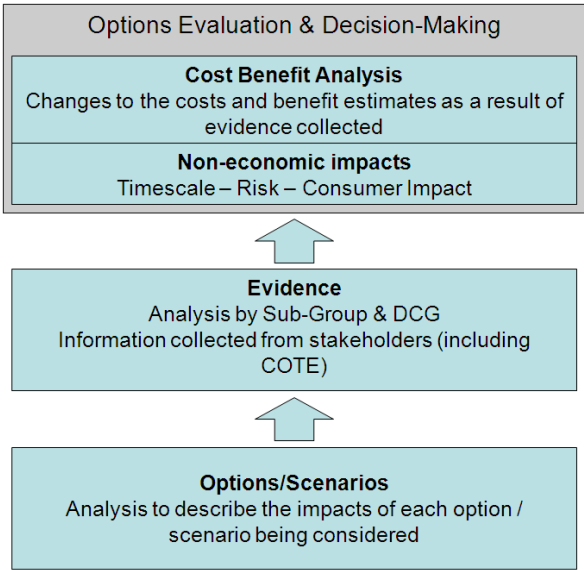


Party	Potential Implications under 'Initial Scope' Option
DCC (set-up)	Systems architecture, means of accessing MP registers
Suppliers	Changes to handle SM functions, processes for handling smart and traditional in parallel, CoS (including data exchanges with agents)
DNOs / GTs / IGTs	Changes to new connections processes, CoS and other registration activities, introduction of smart grid functions
Messaging Systems (DTN / UK Link)	Changes / additions to market messages, volume and service level changes, parallel handling of smart and traditional
xoserve	Changes to CoS and other registration activities
Elexon	Any changes?

Need to develop a common framework for describing the options

Initial scope – illustration for discussion

- Comms & Access Control
- Security Monitoring & Assurance
- Translation
- Initial Smart Grid Requirements
- Scheduled Data Retrieval
- Meter Registration
- Data Storage on CoS
- Data Processing
- Data Aggregation
- Smart Grids - Evolved Reqs
- Consumer Value Added Services
- Extra-Industry Services
- Supplier Volume Allocation



Initial Scope (Grey)	
DCC's systems portfolio?	As above (functions & data to be defined)
How will DCC access registration data for access control?	Mirrored version of SCOGES/ECOES (access arrangements to be defined)
Changes to change of supplier arrangements?	No changes other than to identify a MP as 'smart'
Changes to new connection procedures?	No changes
Method of message transfer between DCC & users?	Continued use of DTN & UK Link (changes to be defined)
Changes required to settlement arrangements?	No changes to gas. For electricity smart meters may be designated as HHM
Which smart grid services are to be supported?	Ad hoc power quality data and status alarms
Which data will be managed by DCC?	WAN configuration – nodes, devices etc and 'lead supplier' only. All other data managed as currently (see next slide)

To expand on some of the functions that were listed above ...

Access Control

- Authorised parties will be parties to SEC:
 - suppliers
 - network operators
 - energy service co's
- Each type of party will be restricted to a defined set of services
- DCC will authorise requests by reference to:
 - ECOES / SCOGES for suppliers (or MPAS/SPAS)
 - network area for NOs
 - accreditation records for ESCO's

Translation & Messaging

- Transformation between proprietary protocols used to communicate with meters and "standard messages" exchanged between DCC and parties
- Validation of requests (e.g. that a PAYG credit is being applied to a meter operating in PAYG mode)
- Storage of transaction metadata (for charging)
- Storage of other data to be analysed further

Scheduled Data Retrieval

- Executing a programme of scheduled meter reads
- Executing 'diarised events' received from parties (e.g. to update tariffs on a specified date)
- Managing the 2-way flows of transactions between DCC and HAN so as to optimise network performance

Preliminary analysis of data that DCC will need to manage

Data to manage comms network and transaction flows

- Node 'address' for WAN module (comms address not spatial)
- Meter point identifier (MPAN / MPRN)
- Device identifiers on HAN (meters, IHD, other equipment)
- Meter type (to identify protocol for transactions)
- Meter registers
- Comms Service ID (to identify WAN service provider)

Data identifying supplier responsible for WAN

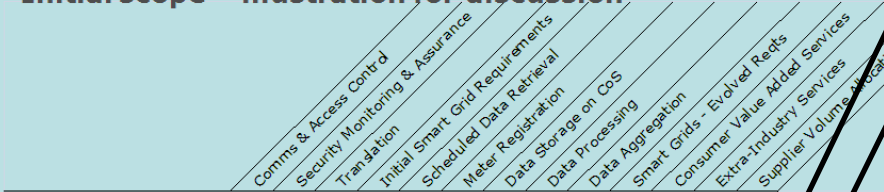
- Identifier showing gas or electricity as 'lead supplier' in event of fuels supplied separately

Other data

- All other data should be accessed from existing industry sources (for initial scope option)
- Meter reads and other private data will not be stored by DCC (except where 'buffering' is needed to improve operational efficiency)

Areas where analysis is required to flesh out option descriptions

Initial scope – illustration for discussion



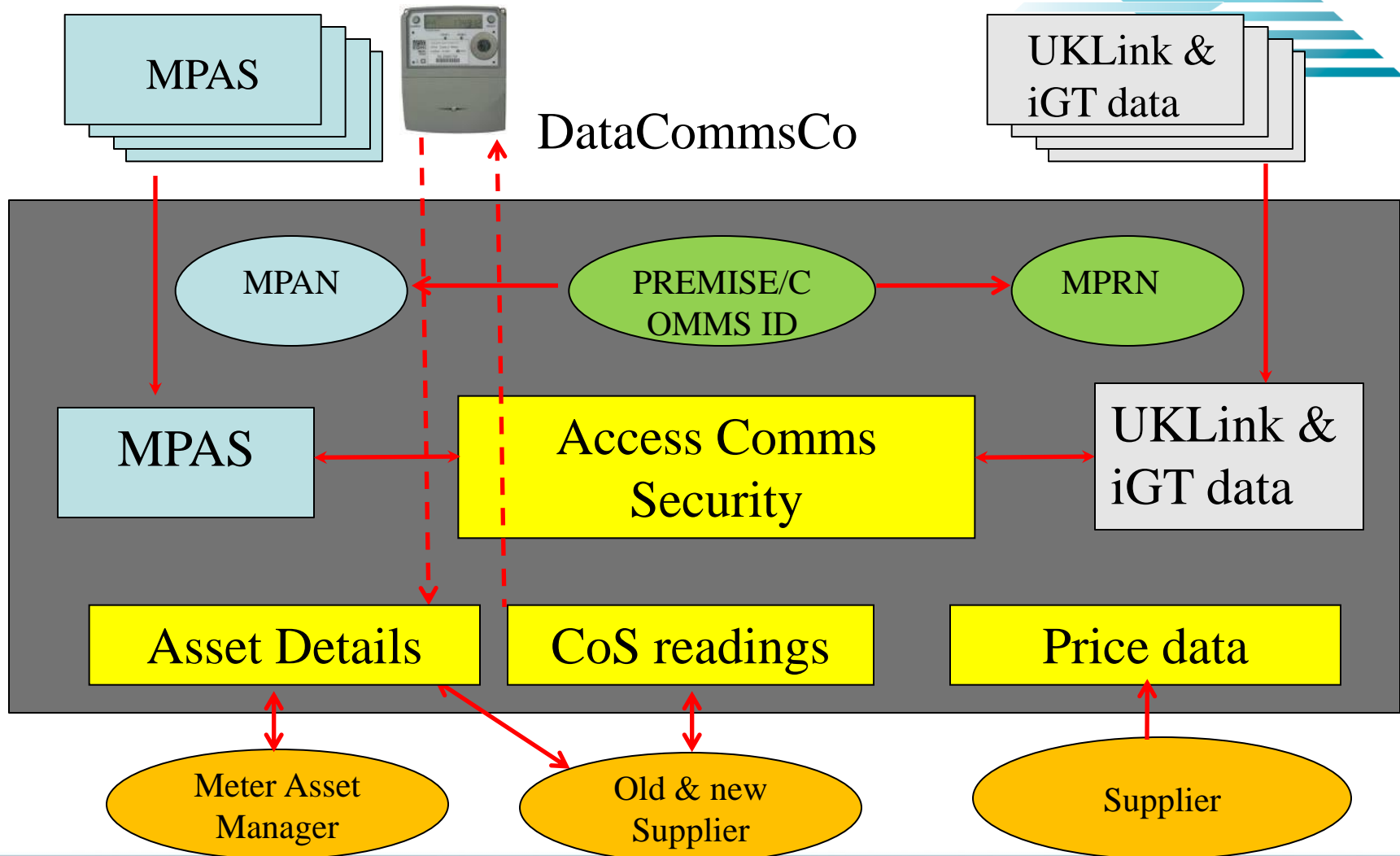
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Which smart grid services are to be supported?	Ad hoc power quality data and status alarms
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Systems architecture for DCC

Industry systems context diagrams (mapped against existing arrangements)
Impact analysis on existing market messages

Smart grid analysis – requirements (and benefits)

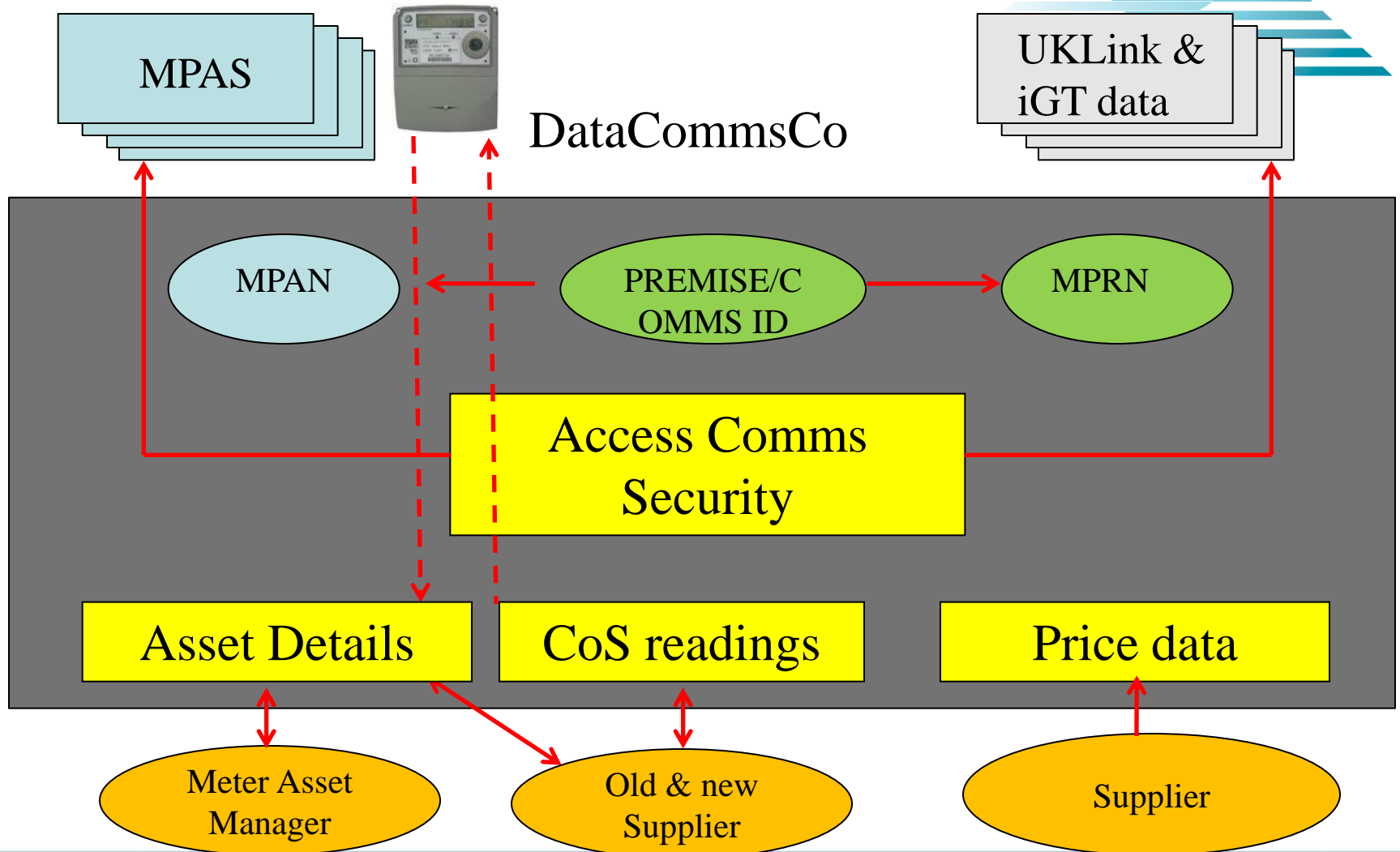
ELEXON model



Key features

- Just as ECOES provides a web-based window onto MPAS/SMRS data & IAD onto UKLink/iGT data, the DCC could provide a window onto MPAS and UKLink
- Registration data would be synchronised with legacy systems each night
- DCC would hold its own access & security and comms referenced by a Premise Id
- Premise Id would be linked to MPRNs and MPANs when smart meters installed.
- Access to meters and data would be controlled by Registration details
- Users would view all data (which they were entitled to view) via a web-based front end
- MPAS & UKLink data would still be viewable for dumb meters (searchable by MPAN or MPRN)
- Supports later migration from a “virtual” single database to an actual single database

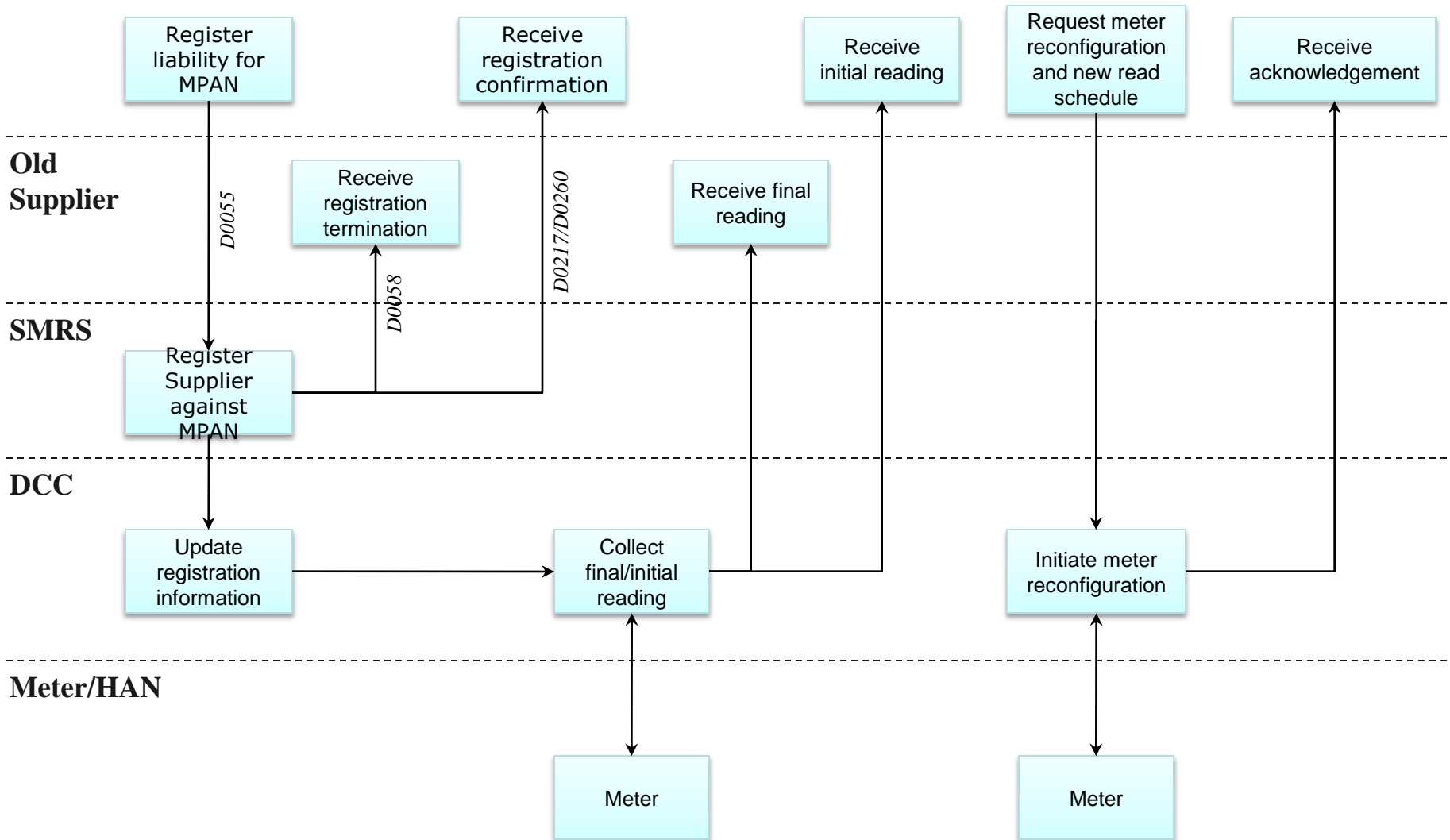
xoserve variant



Xoserve variant & gas issues

- DCC would have direct, read only, access to the gas & electricity registration databases
- same logical design, but a different physical implementation
- CoS readings are calculated centrally by xoserve
- Meter asset data is held centrally by xoserve
- UKLink doesn't currently contain sufficient data for iGT meters
- lack of actual CoS reads (Shipper Agreed Reads process) is a key issue in gas as it is for electricity

New Supplier



Context Model 3 Electricity under 'initial scope' option

Context diagrams to be circulated on 7/8 Sept

Context Model 4
Gas under 'initial scope' option

Context diagrams to be circulated on 7/8 Sept

Agenda Item 3

TEAMWORK – IMPLICATIONS OF ‘INITIAL SCOPE’

Time to start working – split into two teams (G & E)

Each team to consider draft context maps under 'initial option' and:

- **Review accuracy / completeness of maps at a 'strategic level'**
- **Identify where the most significant changes will be required to existing industry arrangements**
- **Prepare very high level 'architecture' diagram for DCC systems**

Agenda Item 4

WAN SERVICE LEVELS

We need to define a set of scenarios which represent plausible permutations of WAN requirements

Performance

- Network Availability
- Latency

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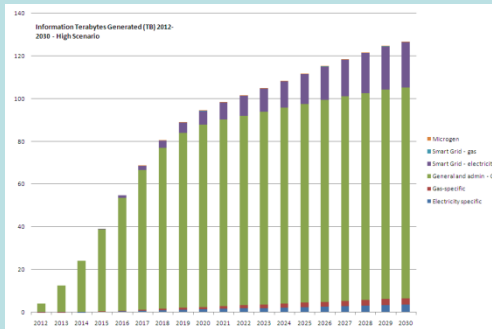
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- Other indicators

Traffic Volumes

- Message size
- Collection frequency
- Number of meters



Commercials

- Contract duration
- Risk allocation
 - Service performance
 - Credit risk

Services Catalogue

- Services Catalogue specifies the services that DCC will be obliged to support – to be set out in Smart Energy Code
- DCC performance will be measured against Service Level Agreements (SLAs) for each service
- SLAs will therefore influence the design of the WAN and the price that DCC charges for providing each service
- SLAs must be set at a level that can be justified in DECC's GB Impact Assessment

Our first task is to define WAN performance requirements

Time to start working (again)

- **Divide into 2 teams**
- **Each team to review the network performance levels specified in the Traffic Model (30 mins)**
 - **Identify minimum performance level required for smart metering**
 - **Identify an 'enhanced' service level and the rationale why such a level might be required and/or justified**
 - **Also, identify services which are missing or need clarification**
- **Feedback to group (15 mins)**

Agenda Item 5

WAN FUNCTIONAL & SERVICE REQUIREMENTS – SCENARIO DEVELOPMENT

We need to define a set of scenarios which represent plausible permutations of WAN requirements

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- Latency

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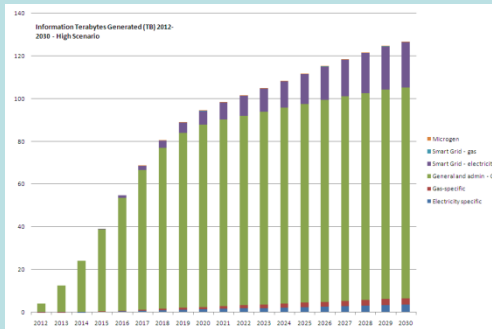
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Commercials

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Approach to scenario development

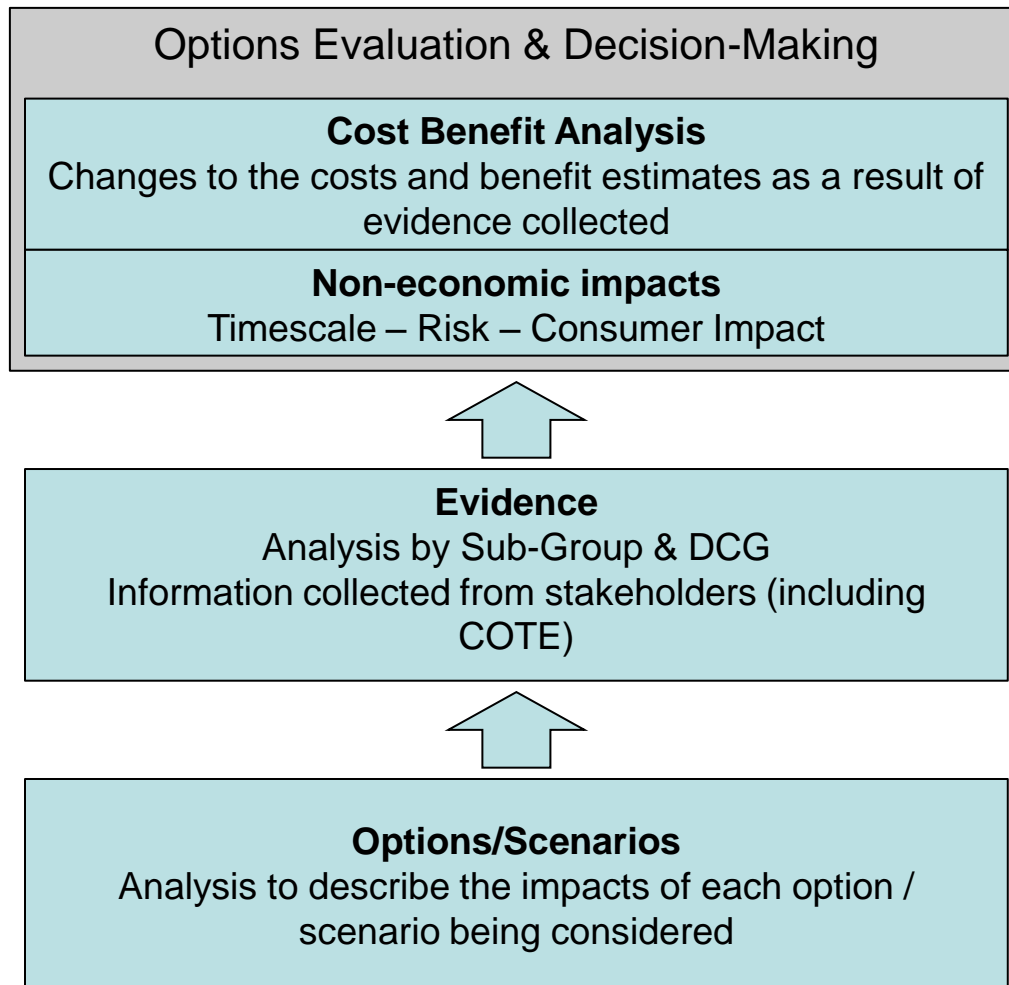
CBA must cover the full economic life of the solution (as per DECC IA)

For evidence to be useful it must:

- relate directly to the scenario being tested
- be comparable between 'experts'

Therefore the scenarios must be:

- realistic and meaningful
- clearly differentiated
- specified to a level of detail that will support evidence gathering



Illustrative WAN scenarios to promote discussion

WAN Services			
	Network Performance	Traffic Volumes	Commercials
1 Permanent 'smart metering' service level and minimum data volumes	'Low'	Monthly collection (unless requested by customer) and register read (unless TOU tariff)	5 year contract with 'soft' penalties for performance failures
2 Strategic network built to meet foreseeable requirements for Smart Grids (incl. DSM)	'High'	Daily collection of HH data for all meters	10 year contract with 'hard' penalties for performance failures
3 Start with 'tactical' network to meet first wave of rollout – then upgrade to 'smart grid' level	Low at Go Live – replaced with High in [2018]	Initial 'low' performance WAN procured on 5 year contract, replaced by 'high' performance WAN on 10 year contract (cost estimates must include visit to replace WAN module)	

Time to start working

- **Divide into 2 teams**
- **Each team to review the draft scenarios from previous slide**
- **Each team to develop 3-4 scenarios building on the drafts**

Agenda Item 6

NEXT MEETING

Agenda for second meeting (16 Sept)

