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Switching Programme

The current (as is) End to End Switching Arrangements

19 February 2018

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Introduction

The document describes the 'as is' gas and electricity switching arrangements:

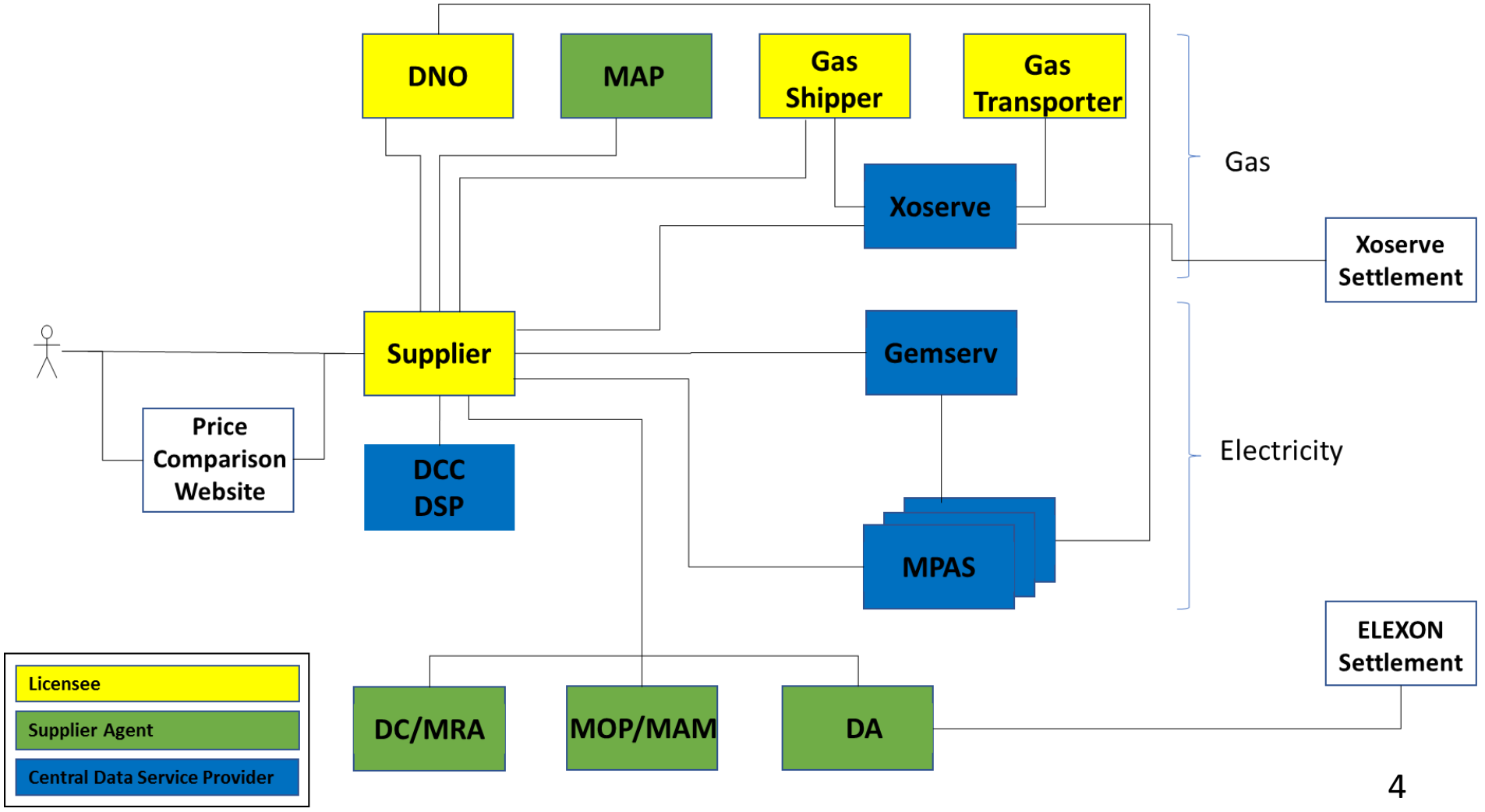
- The key organisations that are involved in the switching process
  - Energy Suppliers, Supplier Agents, Networks, Shippers, Gas Transporters, MAPs
  - Supporting Services
- The existing Governance arrangements
  - Industry Codes
  - Licence Conditions
- Existing Service Providers
  - Xoserve, Gemserv, MPAS (DNOs), Electralink, DCC DSP, RDPs, ELEXON,
- The current business architecture for switching electricity and gas supplier
- The switching process from a customer perspective
- The key systems, interfaces and data flows involved in the switching process

A list of useful supporting information, with links to useful websites is also provided.

Parties Involved in the Switching Process

Parties Involved

A summary of the different parties involved in the Switching Process is shown below.



Parties – Energy Suppliers

Energy Suppliers

The Energy Supplier is the party that bills its customers for the energy that is supplied to them. A customer may have a different supplier for its gas and electricity.

A customer can decide to switch its energy supplier via a Price Comparison Website (PCW) or directly with an Energy Supplier. The tariff that will apply will be agreed between the customer and the supplier.

When the new Energy Supplier agrees to supply a new customer, it will register the date that the new arrangement will commence, by sending a request to the gas registration system or the relevant electricity registration system, or both for a dual fuel contract.

This switch is notified to the losing supplier, who may object to and block the switch, if the customer has debt (domestic), or has not met a contractual requirement (non-domestic).

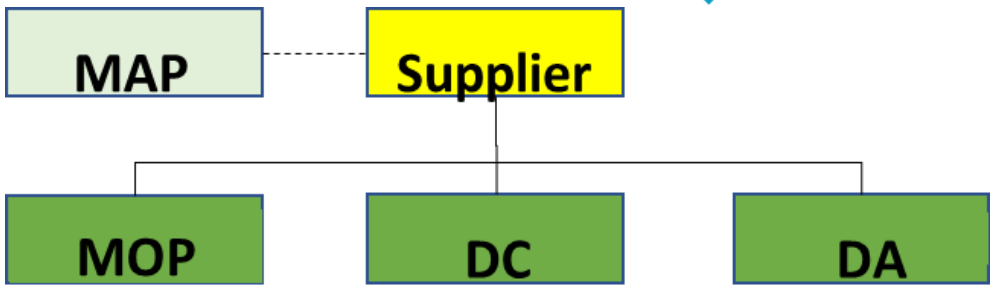
The gaining supplier will take over responsibility for the metering equipment that is installed in the customer's premises and will be required to pay rental for this to the Meter Asset Provider (MAP) for the equipment.

The Energy Supplier is also responsible for choosing and appointing the Electricity Supplier Agents that it wishes to use to maintain metering assets, collect readings and for aggregating data for settlement. For gas, these are appointed automatically.

The Electricity Supplier Hub

The Supplier Hub

The electricity industry operates a 'supplier hub' principle that works together to service a meter point.



For each meter point that a supplier is responsible for, it must appoint a set of agents and register these on the relevant registration system. These include:

Agent	Role
Meter Operator (MOP)	install and maintain metering assets and provide meter technical details for accessing the meter
Data Collector (DC)	retrieve and process meter readings, estimating readings where no actual data is available
Data Aggregator (DA)	aggregate reading data for similar meter points and sending this to ELEXON for settlement

For gas the metering agent is called a Meter Asset Manager (MAM) and the readings are collected by a Meter Reading Agent (MRA).

Gas Shippers and Suppliers

Gas Shippers and Suppliers

There are two parties involved in the supply of gas to customers:

	Role
Gas Shipper	• Contracts with a Gas Transporter for the quantity of gas required to be shipped through the gas transmission and distribution system • Sells the gas to its Gas Suppliers for their customers • Updates the gas registration system when a customer changes its gas supplier.
Gas Supplier	• Buys gas for its customers from its associated shipper • Manages the customer relationship and bills the customers • Installs and maintains gas meters • Notifies the Shipper when it gains a customer so that the Shipper can update the Registration system.

Network Operators

In electricity, the network operator is responsible for the web of cables and transformers that are used to distribute and convert power from the high-voltage national grid, to the low-voltage electricity at the customers' premises. They are also referred to as Distribution Network Operators (DNOs) and are licensed by Ofgem.

Each of the 14 Great Britain regions has a separate DNO.

In addition to these 14 DNOs, there are a number Independent DNOs that also distribute electricity using their own embedded private networks. These are known as Independent DNOs (IDNOs) and are also licensed by Ofgem.

Each DNO/IDNO is responsible for maintaining a Meter Point Administration Service (MPAS) that providers a register of all meter points that are connected to its network, including the current supplier, its appointed agents, its location and technical data about the meter point. All DNOs use a separate instance of the Meter Point Registration System (MPRS) software provided by St Clements Services.

DNOs create new meter points as soon as a new supply is created e.g. when a new premises is built, or converted.

Gas Transporters

Gas Transporters

In the gas industry, the parties that own the pipes that deliver the gas from the National Transmission and distribution systems to the customers' premises are called Gas Transporters (GTs). There are 5 regional GTs plus a number of Independent GTs (iGTs) embedded within the regions.

GTs and iGTs are also licensed by Ofgem.

Unlike electricity, each GT does not maintain its own meter point registration service; instead there is a consolidated Gas Registration Service called Sites and Meters, operated by Xoserve for the whole of the gas industry.

Registration Data Providers

Registration Data Providers (RDPs)

Each DNO and IDNO is obliged to provide a Meter Point Administration Service (MPAS) as part of its licence.

DNOs are required to exchange registration data daily to the DCC Data Services Provider (DSP) in respect of SMETS2 smart meters so that the DSP can ensure that only the Registered Supplier and its agents can communicate with the smart metering equipment at the premises.

Many DNOs have contracted with a separate organisation to provide this service, referred to as the 'Registration Data Provider' (RDP) by the Smart Energy Code.

There are currently 3 electricity RDPs: Scottish Power Energy Networks, Western Power Distribution and C&C.

Xoserve is the sole RDP for the gas market.

When a DNO creates a new supply point, this is added to the registration data as an unregistered meter point. Once a supplier takes responsibility for the site, it is registered for the first time. ELEXON is notified of its energisation for settlement purposes.

DCC Data Services Provider

DCC Data Services Provider (DSP)

The DSP uses registration data from RDPs to ensure that only authorised suppliers and supplier agents can communicate with smart meters and communications hubs that are installed at a customer's premises.

The key DSP data for Switching, is the Change of Supplier reading that is used to created the final customer bill for the losing supplier and the opening bill for the gaining supplier, although the DSP data is also used to identify who the Meter Operator is.

Registration data is exchanged between RDPs and the DSP across a dedicated DCC network provided by Gamma that is secured by the DCC Key Infrastructure.

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Summary of Actors

Actor	Description
Energy Supplier	A company licensed by Ofgem to supply gas and / or electricity to consumers in Great Britain. The Supplier bills its customers for energy supplied to them.
Gas Shipper	A licensed company that buys gas from producers/ importers and arranges for it to be conveyed to supply points and then sells it to gas suppliers for them to supply to customers.
Gas Transporter	A gas transporter develops, operates and maintain local gas transportation networks for the delivery of gas from the national transmission and distribution systems to customer premises.
Distribution Network Operator	A DNO is a licensed company that owns the networks and cables and is responsible for the delivery of electricity to customers' premises.
Meter Asset Provider	A MAP finances the metering assets in the gas and electricity markets. The MAP is the owner of the meter and receives rental from the Supplier or the Supplier's Agent.

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Summary of Actors

Actor	Description
Third Party Intermediary	A TPI interacts with and provides services to energy consumers. TPIs include price comparison websites, energy brokers and energy efficiency advice providers.
Price Comparison Website	A PcW compares the energy prices of a number of energy suppliers to enable customers to find and easily switch to cheaper gas and electricity plans
Data Collector/ Meter Reading Agent	A company that collects and validates readings from meters and estimates data where no actual data is available. DC - electricity, MRA – gas.
Meter Operator /Asset Maintainer	A company that installs and maintains the physical metering asset. MOP – electricity, MAM – gas.
Data Aggregator	A DA aggregates the data for all meter points that it is appointed to and sends it to Settlement.
Registration Data Provider	An RDP provides the Supply Meter Point Administration System (MPAS) data to DCC DSP on behalf of one or more Network providers.

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Summary of Actors

Actor	Description
ELEXON	ELEXON is the Code Administrator for the Balancing and Settlement Code (BSC) that covers the electricity industry. It compares how much electricity generators and suppliers said they would produce or consume against actual volumes, works out a price for the difference and transfers funds accordingly.
Xoserve	Xoserve is the Central Data Service Provider for Great Britain's gas market. Its services include: the provision of the gas registration system, managing customer gas supplier switches and handling data enquiries. It also manages the gas settlement systems to ensure that all users of the Gas Transporter networks are billed accurately.

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Supporting Services

In addition to the actors previously mentioned, there are a number of additional services that support Switching:

- Enquiry Services
- Registration Services
- Communications Networks

Further details are provided in the tables on the next slides.

Enquiry Services

	DES and ECOES
Business Activity:	Assists the customer transfer process by allowing the look-up of meter point information including the current energy supplier and providing core information about each meter point. Used by Suppliers, Price Comparison Web Sites and Supplier Agents
Details:	1. Electricity Central Online Enquiry Service (ECOES) for electricity 2. Data Enquiry Service (DES) for gas
Notes:	ECOES is provided by Gemserv but was developed and is supported by C&C. DES is provided by Xoserve as part of UK Link.

Registration Services

	Supply point databases: UK Link, MPAS
Business Activity:	Maintains lists of supply points on a network and certain information for each supply point, which has a unique id: • Meter Point Administration No.(MPAN) in electricity • or Meter Point Registration No (MPRN) in gas IDs are known collectively as MPxNs.
Details:	1. MPAS 2. Sites & Meters
Notes:	MPAS (electricity) provided by each DNO using the MPRS software provided by St Clements Services. MPAS data is provided daily to DCC DSP for smart meter access control. Sites & Meters (gas) provided by UK Link Known collectively as the Registration Systems.

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Communications Networks

	Communications Networks
Business Activity:	Messaging and communications networks between suppliers, settlement, network operators, metering agents, shippers, generators, traders and wider energy market stakeholders.
Details:	1. Information Exchange (IX) 2. Data Transfer Network and Service (DTN, DTS) 3. DCC User Gateway (DUIS) – Smart only
Notes:	IX connects participants in the GB gas market and is provided by Xoserve. The DTN facilitates data flows for both gas and electricity, and is provided by Electralink. DCC User Gateway provides the means by which Service Users can send and receive Service Requests and Responses to/from Smart Metering Equipment including collecting meter readings. There is a separate connection for MPAS to provide data to ECOES.

Governance and Regulation

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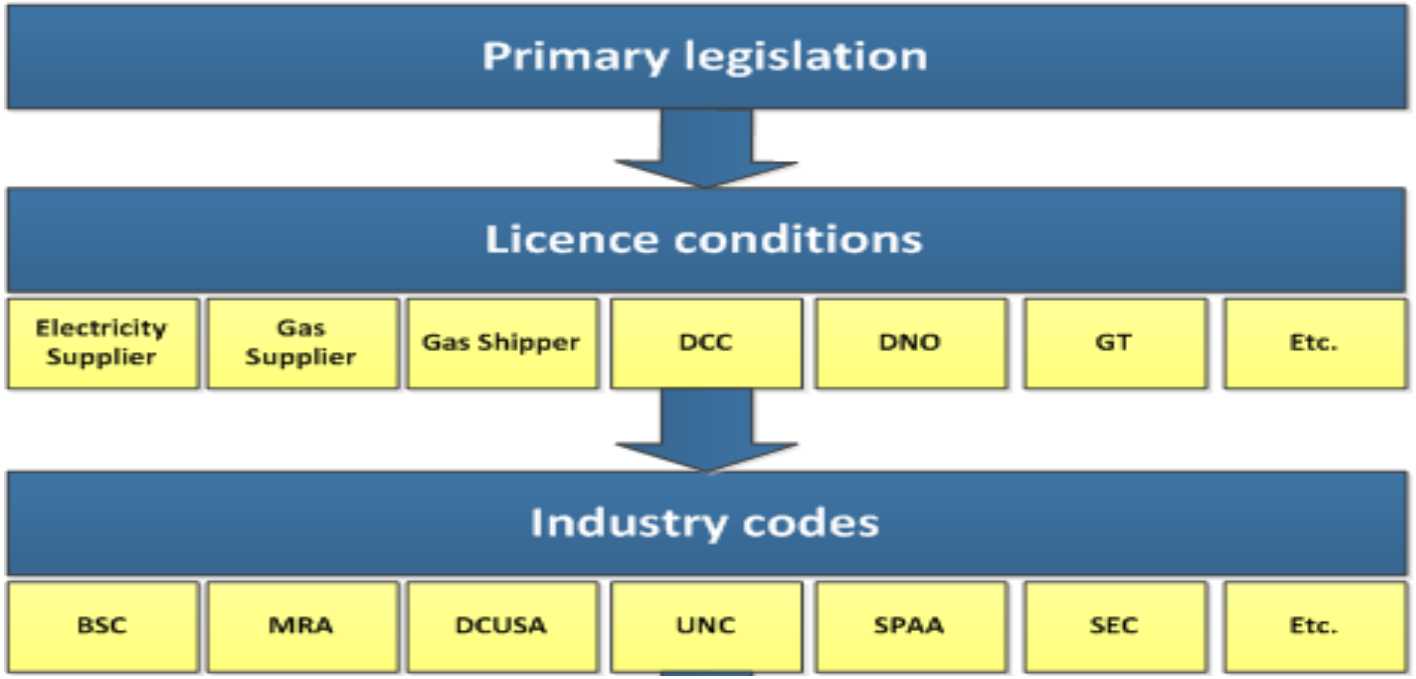
Governance and Regulation

The switching arrangements are governed via a series of codes and licence obligations that are overseen by **Ofgem** (Office of Gas & Electricity Markets).



Each industry code is managed by a Code Administrator and has its own respective website.

Governance - Codes

Key Industry Codes are:

Master Registration Agreement (MRA)

- This is an industry-wide agreement that provides a governance mechanism to manage the processes established between electricity suppliers and distribution companies to enable electricity suppliers to transfer customers.
- Gemserv fulfils the role of MRA Service Company (MRASCo) and administers the MRA and its associated products, and also provides secretariat functions to the MRA Executive Committee.

Supply Point Administration Agreement (SPAA)

- The (SPAA) is a multi-party agreement that all domestic gas suppliers and all gas transporters are required by their Licences to accede to as set out by the Utilities Act. Industrial & commercial suppliers can voluntarily accede.
- It sets out the inter-operational arrangements between gas suppliers and transporters in the UK retail market.
- Electralink provides the Secretariat for the SPAA Executive Committee.

Governance - Codes

Uniform Network Code (UNC)

- The Uniform Network Code (UNC) is the industry code, comprising a legal and contractual framework to supply and transport gas. It has a common set of rules which ensure that competition can be facilitated on level terms.
- The Joint Office of Gas Transporters is the Code Administrator for the UNC on behalf of the UNC Committee.

Balancing and Settlement Code (BSC)

- The Balancing and Settlement Code (BSC) contains the governance arrangements for electricity balancing and settlement in Great Britain.
- It also covers the definition and maintenance of market domain data that is used across the industry.
- ELEXON is known as the Balancing and Settlement Code Company (BSCCo) and administers the BSC on behalf on the BSC Panel.

Governance - Codes

DCUSA

- The Distribution Connection and Use of System Agreement (DCUSA) is a multi-party contract between licensed electricity distributors, suppliers and generators in Great Britain concerned with the use of the electricity distribution system.
- **DCUSA Ltd** is a company established, owned, and funded by parties to the DCUSA, mainly to administer the governance of the DCUSA for the DCUSA Panel.

Smart Energy Code (SEC)

- The Smart Energy Code (SEC) came into force in September 2013, when the Data Communication Company's (DCC) licence was granted.
- The SEC is a multi-party contract which sets out the terms for the provision of the DCC's services and specifies other provisions to govern the end-to-end management of smart metering in gas and electricity.
- It is administered by SECAS (Gemserv) for the SEC Panel.

Governance - Codes

Retail Energy Code (REC)

- Ofgem has proposed that a new Retail Energy Code (REC) will be created, covering both electricity and gas.
- A RECCo will be created to administer the code which will be overseen by a REC Panel.
- Transitional obligations will be placed on parties to require them to support Design, Build and Test activities of the Switching Programme.
- These obligations may be applied via the new REC or changes to the existing codes or licences.

The next slide provides a summary of the codes relating to the current switching process

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Governance - Codes

	Managed By	Owned By *	Signatories/ Parties	Other Affected parties
Primary Legislation	Department for Business, Energy & Industrial Strategy	HM Government Department	HM Government	All of Industry, Ofgem, consumers, citizens
Licences	ofgem	Non-ministerial Govt department	Licencees	Agents, consumers
BSC	ELEXON	nationalgrid	Suppliers, DNOs, Generators, Trading Parties	ELEXON, Metering Agents
MRA	Gemserv	Subset of elec suppliers & DNOs	Suppliers, DNOs	Metering Agents
DCUSA	ElectraLink	DNOs	DNOs, suppliers & generators	Connected customers
UNC	Joint Office of Gas Transporters	Large GTs	GTs	Shippers, Xoserve
iGT UNC	Gemserv	Subset of elec suppliers & DNOs	iGTs	Shippers [Xoserve?]
SPAA	ElectraLink	DNOs	GTs, iGTs, Suppliers	Metering Agents, Shippers
SEC Smart Energy Code	Gemserv	Subset of elec suppliers & DNOs	Suppliers, DNOs, GTs, iDNOs, iGTs, other DCC Users	DCC, CSPs, DSP, other SPs, Equipment Manufacturers

Licence Conditions: Suppliers

Licence conditions are set by Ofgem to set standards that each organisation is required to meet. These can be found on its website: Licence Conditions.

For switching, the key licence holders are Energy Suppliers and Network Operators.

Energy Suppliers

Licence Obligations placed on **Energy Suppliers** include:

- Customer protection
- Continuity of supply
- Industry activities and procedures
- Compliance with Codes
- Customer Transfer (or Switching)
- Provision of Information
- Reporting
- Tariffs

Licences: Network Parties

Network Parties

Licence Obligations are also placed on **Network Parties** including:

- Public services requirements
- Charging Methodologies
- Connection policy
- Provision of Metering Point Administration Services
- Compliance with Industry documents and Codes
- Network Integrity
- Provision of Regulatory Information
- Its special position as the regional provider of certain non-contestable services

Existing Service Providers

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Existing Service Providers

The organisations on the next slide provide systems and services to support the switching process.

The following slides provide further information about each system:

- what it is
- who it is used by
- its key interactions.

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Service Provider Summary

Provider	Service	Description
Xoserve	UK Link:	
	• Sites & Meters	The gas registration system for all meter points
	• Gas Settlement	Manages the settlement processes, and payments from Suppliers to GTs for gas supplied to consumers
	• DES	Data Enquiry Service (gas)
	• IX	Gas communications network
Gemserv	ECOES	Electricity Central Online Enquiry Service
Electricity DNOs	MPAS	An electricity registration service for each DNO, covering all meter points that it delivers electricity to. Operated by each DNO's RDP
Electralink	DTS/DTN	Network for electricity and some gas flows
DCC DSP	Smart Meter Data Service	Responsible for controlling access to/from Smart Metering Equipment. The DSP receives, processes and responds to Service Requests from SEC
ELEXON	Electricity Settlement	Manages the payments from Suppliers to Generators for electricity supplied to its consumers

Xoserve: UK Link

UKLink	Sites and Meters, Gas Settlement
Business Activity:	A suite of systems that support the: competitive gas market; commercial balancing of the gas network; and transportation and energy charging to shippers. From 2016 this also includes iGT points. The Sites & Meters system covers registration data management.
Used By:	Predominantly shippers and GTs
Interactions:	Various messages pass between shippers and GTs. Since Oct 2016 iGT supply points are also managed by UK Link.
Operations and Development:	Xoserve operates the system and has recently updated it as part of the Nexus UK Link replacement programme.
Notes:	The UK Link System provides facilities to update sites and meters information in a controlled manner. Batch files flow from shippers and GTs to and from UK Link. Currently files are sent via IXN.

Xoserve: DES

DES	Data Enquiry Service
Business Activity:	A web-based tool designed for interrogating certain data relating to gas supply meter points. DES provides basic information about > 22m gas meter points.
Used By:	Authorised users (e.g. Suppliers, Shippers) can access further details relating to supply meter points that are within their supply meter point portfolio. Other authorised users can view details of particular supply meter points associated with properties they own.
Interactions:	DES is updated from UK Link's Sites and Meters. Data should be no older than 24 hours. Once provided with the details of a new MPRN, UK Link is updated within 24 hours. After UK Link has been successfully updated, the changes will be visible in the Data Enquiry Service within 24 hours.
Operations:	Xoserve launched DES in January 2012.
Notes:	DES is not available during the daily maintenance window 00:00-03:00.

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Xoserve: IX Network

IXN	Information Exchange Network
Business Activity:	Allows the communication between UK Link System and UK Link Users and vice versa.
Used By:	Gas market participants who have suitable Gateways and Network Access Points at their premises.
Interactions:	A controlled file transfer mechanism controls the sending and receiving of batch files between the UK Link System, UK Link Users, MAMs and suppliers over the IXN. The software resides on each of the IXN Gateways and maintains audit trails of all batch file traffic (including failed transmissions) over the IXN.
Operations:	Owned by Xoserve.
Notes:	The term 'Network'' is used to refer to both the network hardware and also the software and services which control and support it.

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Gemserv: ECOES

ECOES	Electricity Central Online Enquiry Service
Business Activity:	Assists Electricity Suppliers in the customer transfer process by allowing the triangulation of data held by the supplier, the DNO and the registration/enquiry systems; it is also used by MRA parties in other key areas.
Used By:	Access to ECOES is available to suppliers, distributors, supplier agents (e.g. Meter Operators and Data Collectors) and non-domestic customers. Other parties may be granted access if approved by the MRA Executive Committee (MEC) in line with the principles set out in MAP15.
Interactions	Updated daily by all 19 DNO/iDNOs and every GB Meter Operator. ECOES supports around 100,000 interactive users plus 2.2 million interactive, 30 million batch and 10 million web service enquiries / month. ECOES processes 10,000 pre-payment meter transactions per second. A free form address search takes 20ms. Searching using the MPAN takes <1ms.
Operations:	Designed, built & operated by C&C Group. Hosted at ISO27001 data centres.
Notes:	Developed in 2002. ECOES has an SFTP connections to all DNOs & iDNOs which securely, reliably and efficiently transfers large or small amounts of data. It uses DTN and can receive any or all available DTC flows. ECOES is web service (XML) published and enabled.

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DNOs: MPAS

MPAS	Meter Point Administration Service (DNOs)
Business Activity:	Manages MPAN registration/change-of-supplier in the GB electricity market. MPAS provides a master database of Metering Point and registration data and processes data flows between market participants.
Used By:	All fourteen Distribution Network Operators (DNOs) and five Independent Distributor Network Operators (IDNOs) for their own meter point portfolio, in accordance with the Master Registration Agreement (MRA).
Interactions:	The majority of industry changes are received via electronic data flows, which are validated, processed and result in the MPAS being updated. Depending on the type of instruction, MPAS notifies Market Participants, e.g. suppliers, supplier agents in accordance with outbound flows required under the MRA. MPAS processes interface files by an overnight batch process. All of the batch functionality is also provided as manual input functions through a GUI interface.
Operations:	All RDPs (see RDP slide) use the Meter Point Registration System (MPRS) software that was written by and is maintained by St. Clements Services. It was constructed in accordance with Part IV of the Master Registration Agreement.
Notes:	MPRS runs on an IBM System P Server with an Oracle 11g Release 2 database. It uses Oracle's Application Server to allow web browser access.

Electralink: DTN

DTN	Data Transfer Network, DTS, Data Transfer Service
Business Activity:	The Data Transfer Network (DTN) helps facilitate data transfer in the electricity (de facto) and gas industries (optional).
Used By:	The DTN connects all retail electricity Market Participants to facilitate Data Transfer Catalogue (DTC) data. Some gas Market Participants are also connected.
Interactions:	Files are received and sent in batches. 100% of files must be processed in 4h. 99% of should be processed in 2h and 90% in 10m.
Operations:	Operated by Electralink. A significant amount of bespoke software development has gone into the DTN.
Notes:	The DTN is a message-orientated middleware application supporting over 100 data flows.

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DCC: DCC User Gateway

DCC	DCC User Gateway, Gamma Network
Business Activity:	Primarily provides the means by which Service Users can send and receive Service Requests and Responses to/from Smart Metering Equipment, using the services of the Data Service Provider (DSP) and Communication Service Providers (CSPs). This is also the method by which RDPs exchange data with the DSP.
Used By:	SEC Parties and Registration Data Providers. For example Suppliers and Network Operators and Other Parties.
Interactions:	There are various patterns of interaction. The most pertinent being: Non-Critical Service Requests, Critical Service Requests, Service Responses and Alerts.
Operations:	Developed and operated by the DSP and their appointed providers.
Notes:	The live DCC Gateway Connection ordering process as defined by the Smart Energy Code section H15 started in January 2015. DCC Connection Guidance, is publicly available documentation that describes the connections and connection types that are required to connect to the DCC Service.

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DCC: Data Services Provider

DCC	Data Service Provider
Business Activity:	Responsible for controlling access to/from Smart Metering Equipment. The DSP receives, processes and responds to Service Requests from SEC Parties, validating user access to each SM using the daily registration data received from RDPs, and the Smart Meter Key Infrastructure (SMKI).
Used By:	SEC Parties - Suppliers and Network Operators and Other Parties. Exchanges data with Registration Data Providers.
Interactions:	DSP processes: Non-Critical Service Requests, Critical Service Requests, Service Responses and Alerts from SEC Parties and SMs. For Switching, the key data is the meter reading data obtained when the registered Supplier to a meter point, changes.
Operations:	Developed and operated by the DSP and their appointed providers.
Notes:	Commenced Live Operation in November 2016. Operates under Smart Energy Code and Subsidiary Documents. Access to DSP services is using the DCC Gateway Connections (Gamma Network) and secured by DCC Key Infrastructure.

Current Switching Processes: Summary Overview

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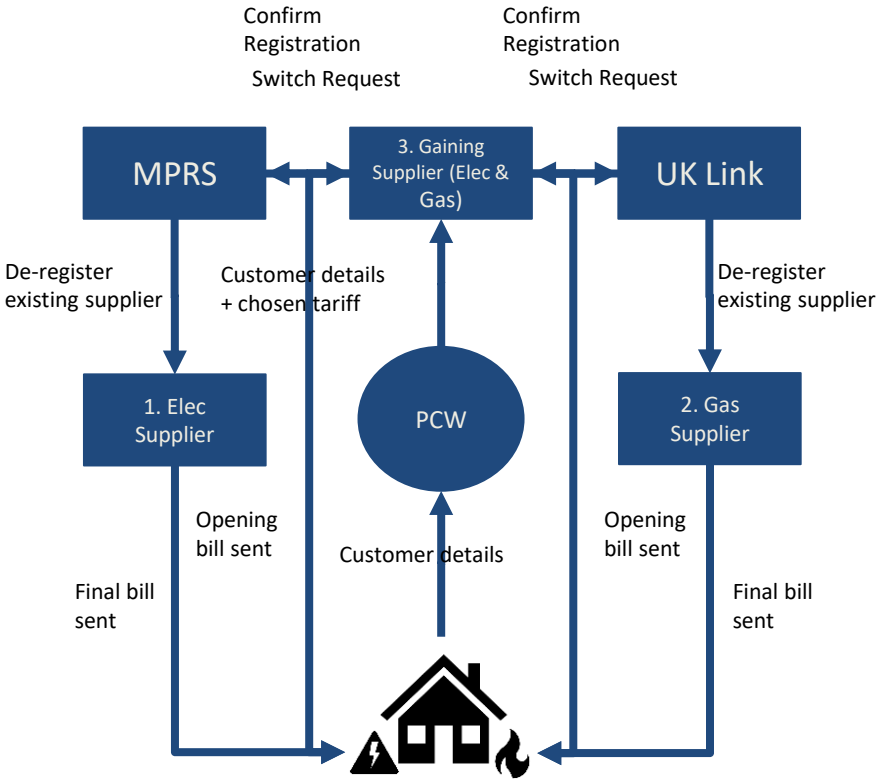
Current Switching Overview

- Customer requests quote from Energy Supplier (either directly or via PCW) and quote is provided
- Customer accepts quote, returns contract and provides reading
  - *Cooling off period (14 days)*
- Gaining supplier registers MPxN on registration system (or withdraws the registration if the customer changes its mind)
- DES/ECOES updated
  - *Objection period for losing supplier to object to switch (around a week)*
  - *If objection raised, MPxN registration reverts to original supplier*
- New supplier appoints new agent(s)
- Meter Technical Details and Reading History sent to new Agents
- Change of Supplier reading obtained
- Losing Supplier issues final bill to customer
- Gaining Supplier issues opening bill to customer

Customer Switching Journey

- Current average switching time are between 15 and 16 calendar days but can be longer.
- Each switch request is independent.
- No capability to create dependency between switch requests.
- Some erroneous transfers
- Losing supplier has circa 1 week to register an objection; if it does, the switch is cancelled.



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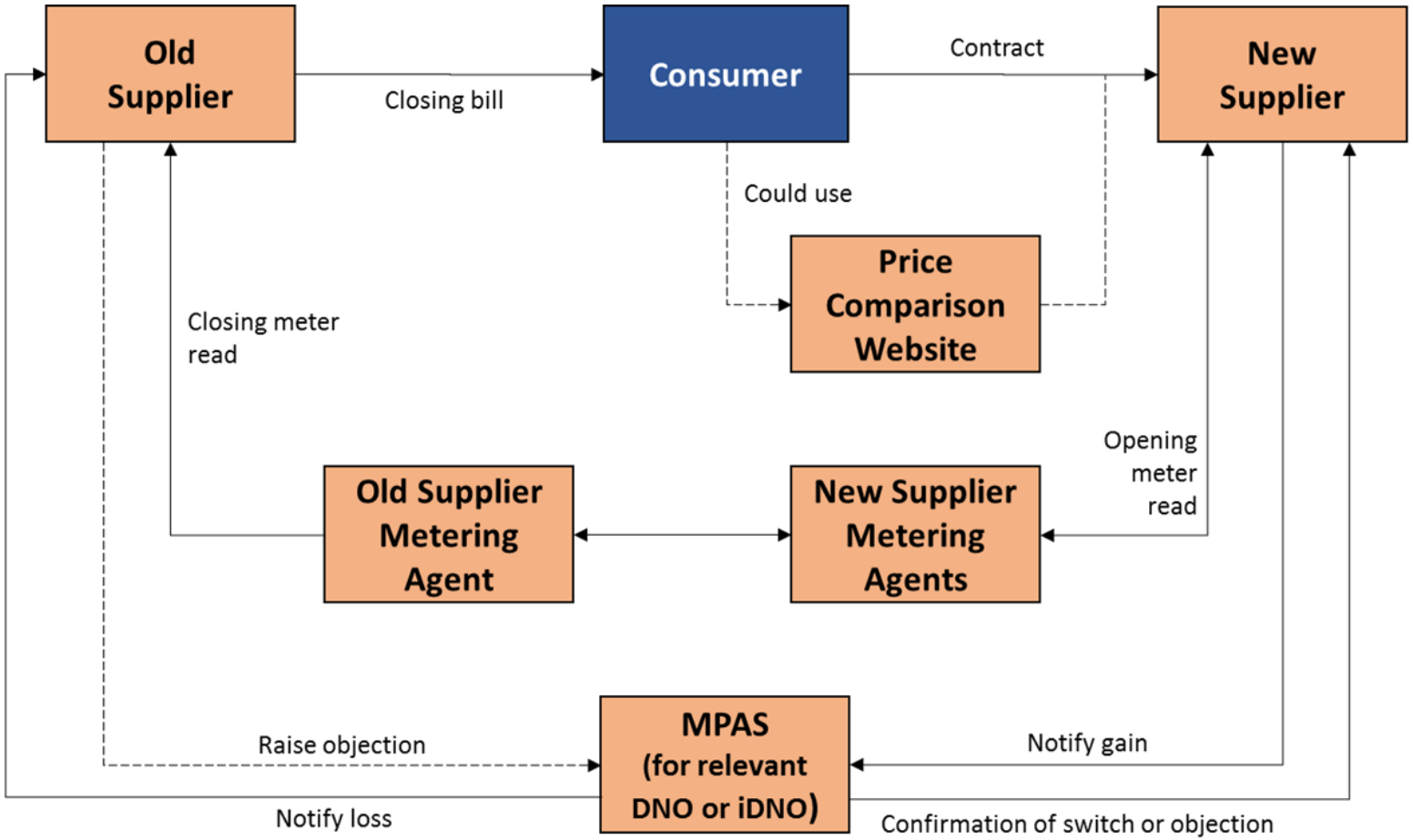
Change of Supplier - Electricity



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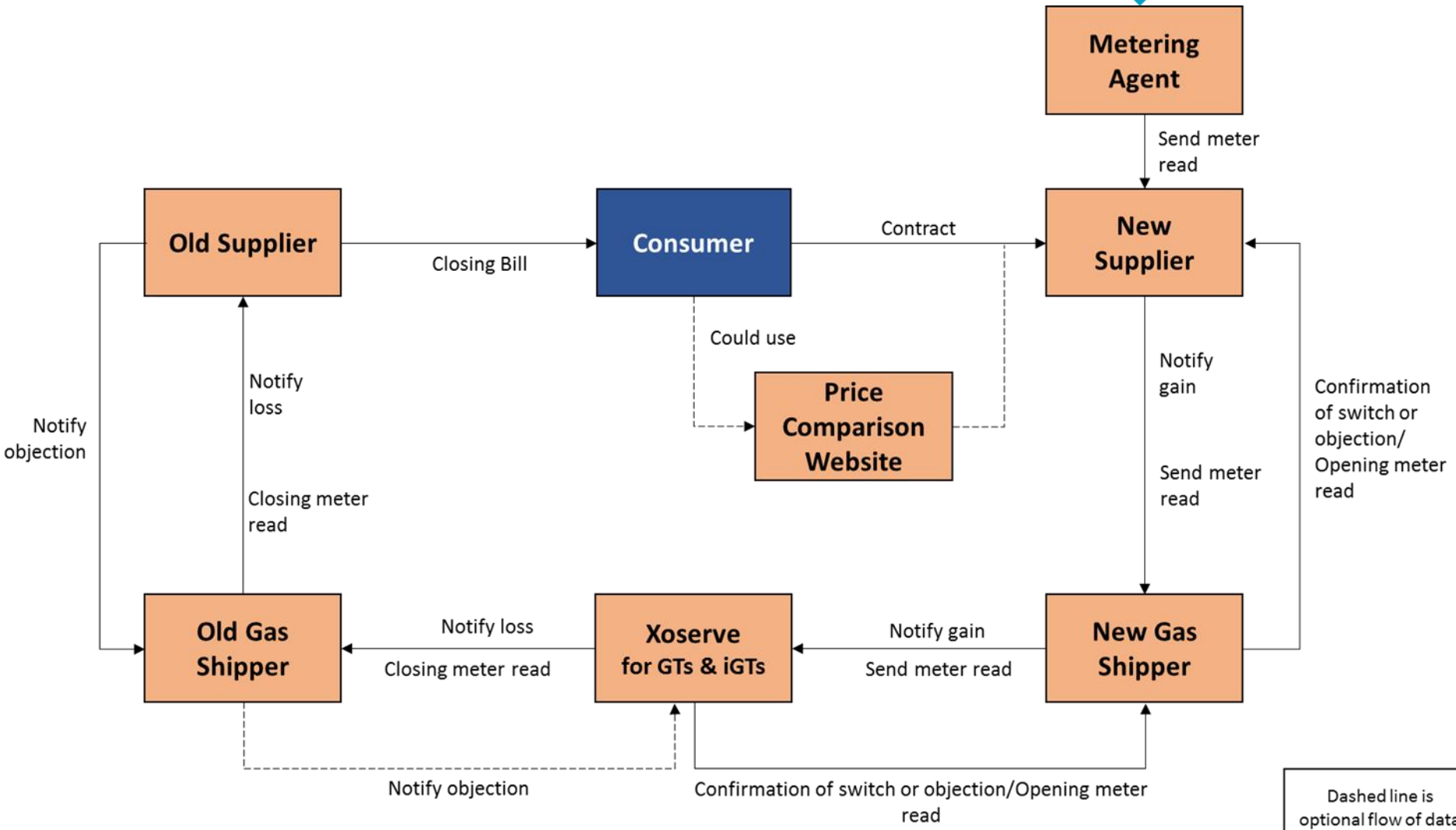
Change of Supplier - Gas



Current Business Architecture

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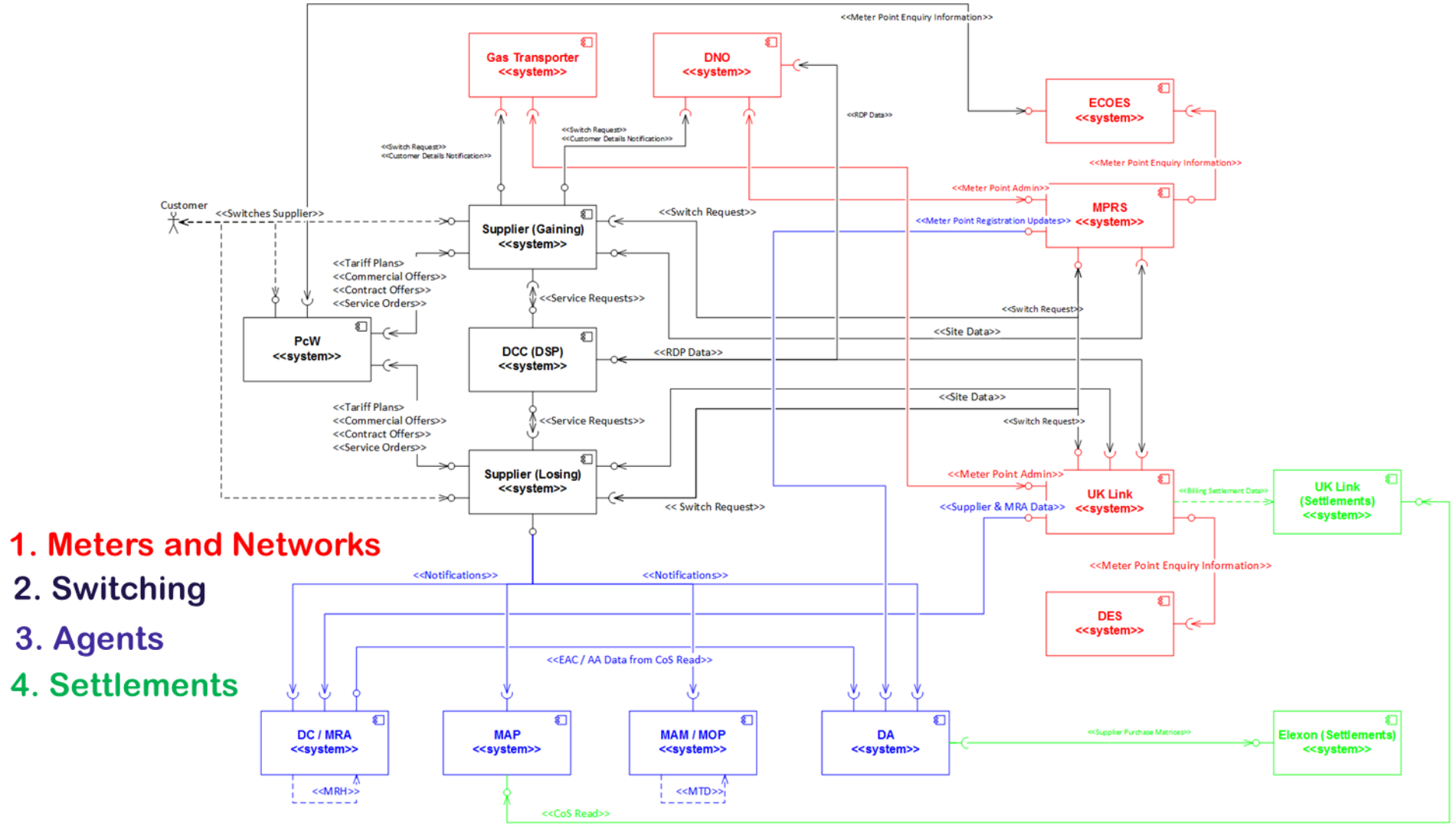
Logical Architecture



Data Flows

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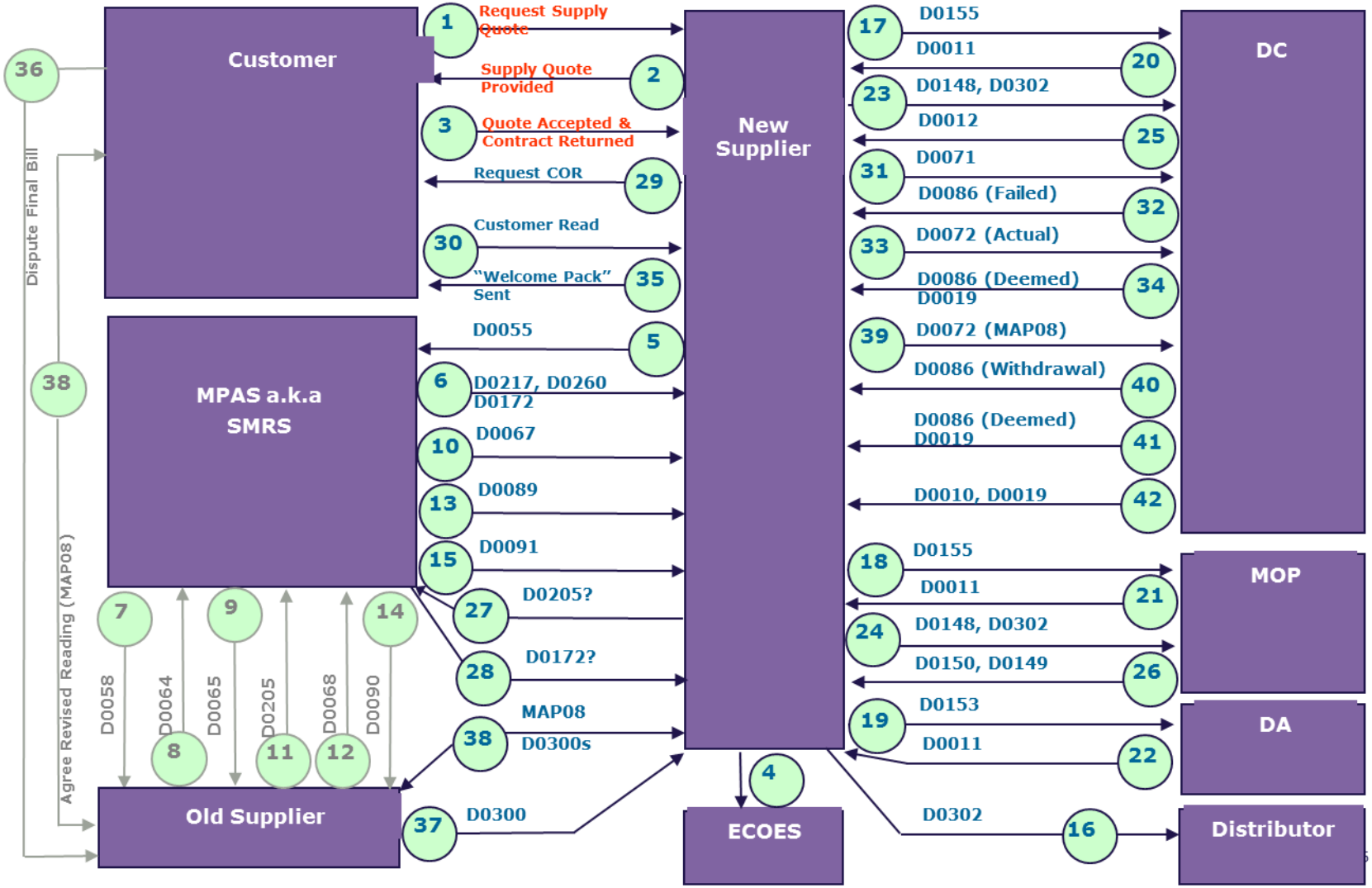
Electricity Data Flows



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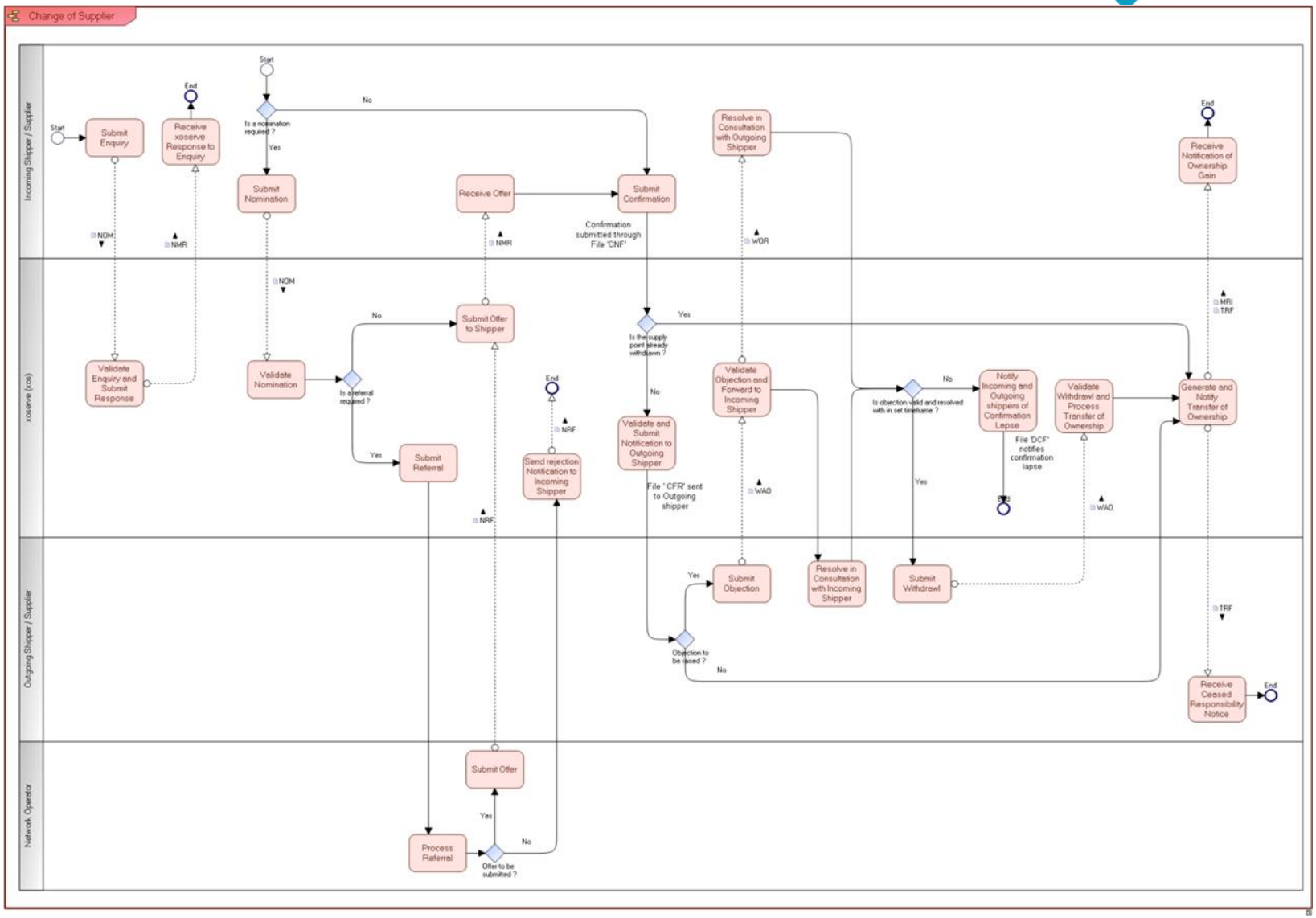
Gas Data Flows



Useful Links

OfGEM: www.ofgem.gov.uk

Licences and Codes www.ofgem.gov.uk/licences-industry-codes-and-standards

MRASCo: www.mrasco.com

ECOES: www.mrasco.com/ecoes

Data Transfer Catalogue: www.mrasco.com/mra-products/data-transfer-catalogue

End to End processes: end_to_end_diagrams

SPAA: www.spaa.co.uk

RGMA Data Flow Cat: www.spaa.co.uk/RGMA-Data-Flows

ELEXON: www.elexon.co.uk

BSC: www.elexon.co.uk/bsc-and-codes

BSC Panel: www.elexon.co.uk/group/the-panel

UNC: www.gasgovernance.co.uk/UNC

DCUSA: www.dcusa.co.uk

SECAS: smartenergycodecompany.co.uk

SEC: the-smart-energy-code

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We work effectively with, but independently of, government, the energy industry and other stakeholders. We do so within a legal framework determined by the UK government and the European Union.

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