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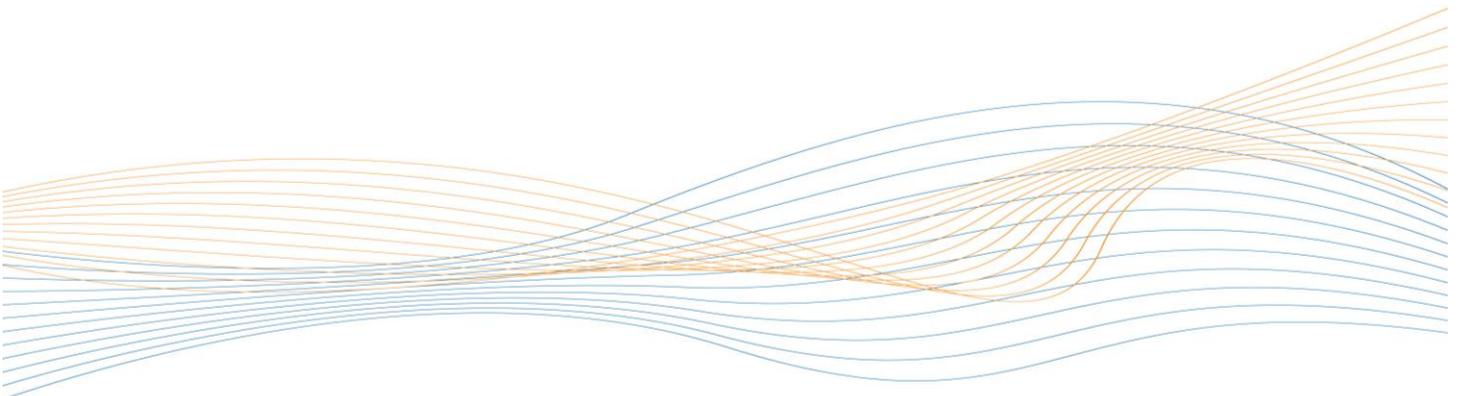
Use of the DTS in Support of Faster and more Reliable Switching

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1 Executive Summary

The Ofgem faster and more reliable switching programme has been instigated to reduce the time taken for a customer to change energy supplier. The aim is to increase engagement in a market where only 54% of customers have switched supplier since competition opened in 1998. Increasing switching rates will provide benefits for consumers and drive down costs through effective competition.

There are 4 reforms Ofgem will include in an industry consultation. These range from 'do nothing' through to implementation of a Central Switching Service and a Market Intelligence System. The introduction of new systems will require an XML based connectivity solution from market participants to the central service. This paper describes how the existing infrastructure of the Data Transfer Service (DTS) can be used to support the introduction of reforms with low-risk and low-cost.

The DTS provides dual fuel messaging services that support the current energy market operation. The network delivers fast, secure, low-cost data transfer between market participants. Recent changes in the energy market have seen significant increases in both the number of users connected to, and the volume of data delivered by, the DTS. The infrastructure underpinning the DTS has delivered this increase in scale whilst reducing data charges to users.

In addition to scale, the scope of the DTS is increasing through the addition of new gas data flows to the service. Any change to the DTS is governed by the users of the services in accordance with the Data Transfer Services Agreement. This model ensures that the DTS delivers the needs of the market participants who use it, as it is flexible and supports the rapid introduction of new industry processes.

The DTS supports the introduction of switching reform in 2 ways:

1: By building on the existing service to support the connectivity requirements of the switching programme. The DTS already delivers XML messaging solutions for industry data-flows and the switching programme could utilise the existing infrastructure to provide near real time connectivity. This would be implemented at a fraction of the cost/risk of a new network solution, and delivered on a regulated cost recovery basis.

2: By using the flexible governance model of the DTS to facilitate implementation of the code changes required for the switching Programme and retain Ofgem's oversight of the service. The provision of data from the service could be used to provide performance assurance and additional value to the energy industry.

The Ofgem Faster Switching Programme will deliver increased customer benefits and has the potential to be complex. Re-use of existing secure infrastructure such as the DTS will reduce this complexity and ultimately reduce the cost to market participants.

2 Introduction and Summary

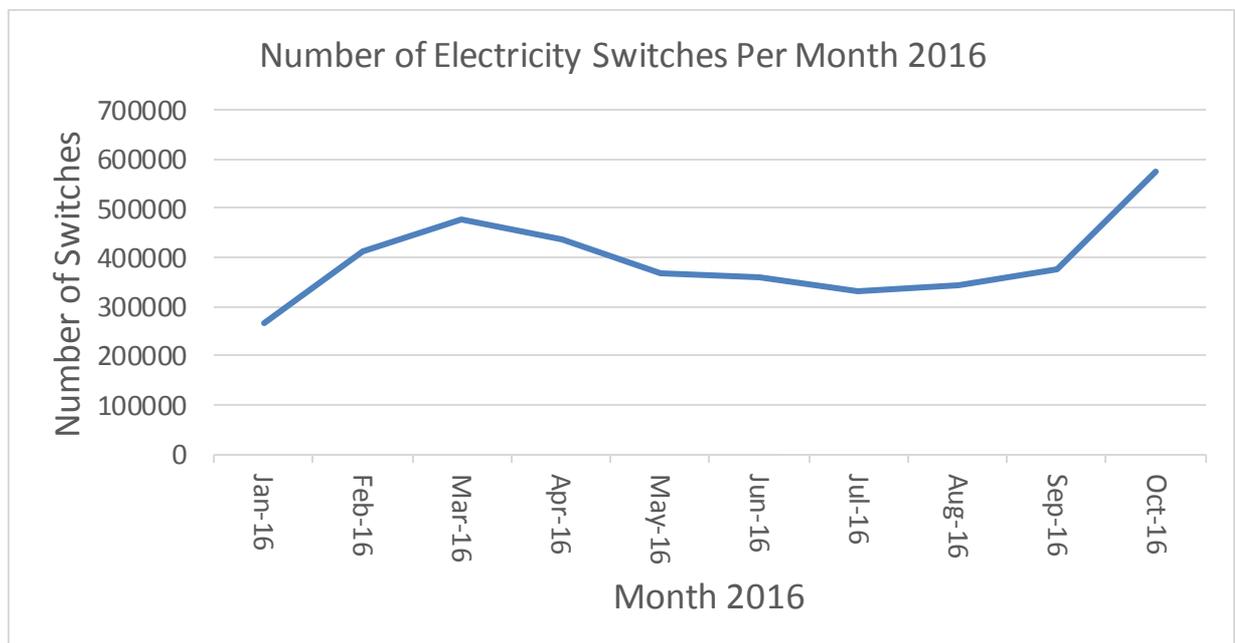
2.1 Background

In February 2015 Ofgem published its decision to implement a programme to radically overhaul the mechanisms by which consumers switch gas and electricity suppliers. This was followed in November 2015 with the launch of a Significant Code Review by Ofgem into the implementation of new industry processes. The objective of Ofgem's Switching Programme, is to encourage more consumers to switch supplier by harmonising registration services, to simplify the switching process and to provide a common platform for reliable and fast switching for all customers¹.

The mechanisms that are currently in place to enable consumers to switch are distinct between gas and electricity and are supported by completely separate central and distributed systems and processes. Current processes facilitate the completion of a switch in gas and electricity in around 21 days. Ofgem has benchmarked this switching timeframe against other industries, such as banking and telecoms, which can conclude a customer switch in periods ranging from 2 to 10 days. The aspiration of the Ofgem Switching Programme is to enable next day switching for most consumers² and to provide a near real time confirmation that a switch will complete for all.

Its ultimate aim is to increase overall consumer engagement with the energy market and allow more consumers to access the benefits of competition through greater access to reduced prices, and innovation in products and services. Although switching rates are increasing in 2016 (fig1), studies such as the Competition and Markets Authority (CMA) report into the energy market have shown historically that low levels of customers are accessing savings through either switching supplier or changing tariff with their existing supplier.

Fig 1 2016 Electricity Market Switching Rates – data from the Data Transfer Service (DTS).



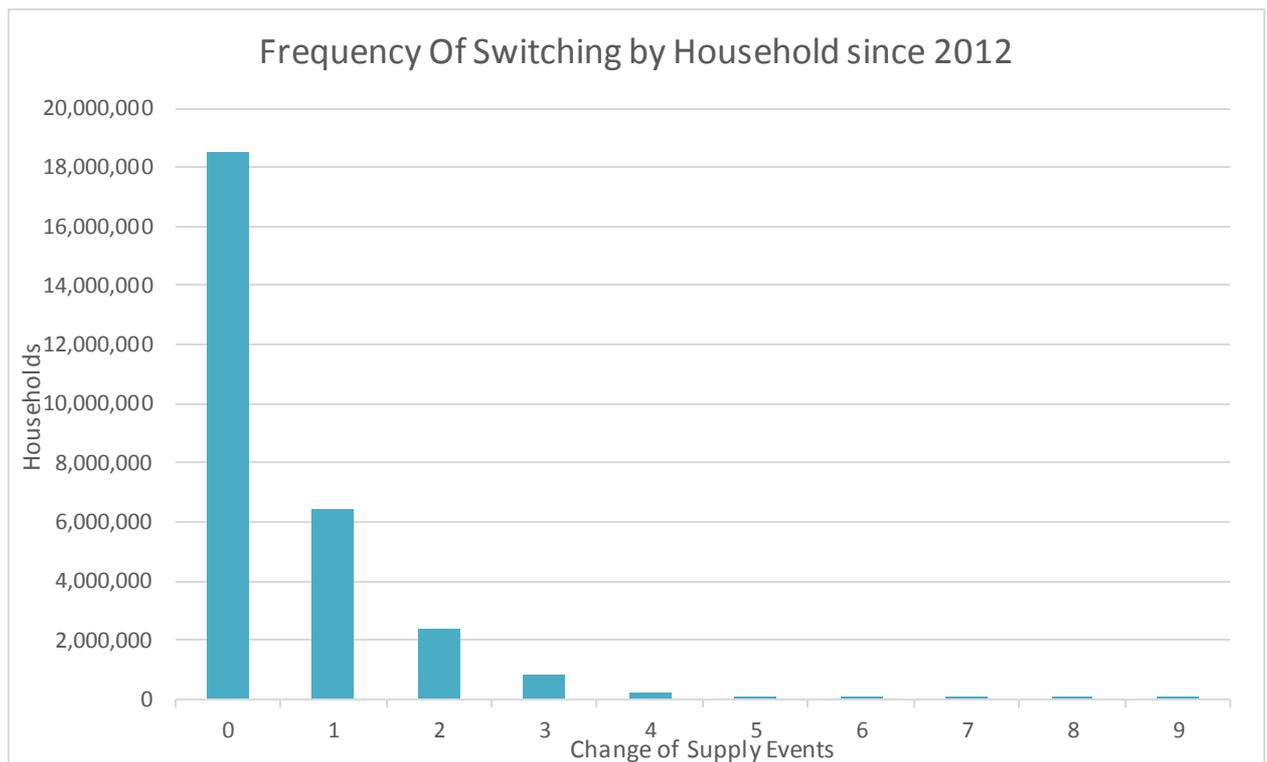
¹ https://www.ofgem.gov.uk/system/files/docs/2016/05/dcc_statcon_decision_publication_final.pdf

² Certain customers may prefer to have switch dates in the future to coincide with change of tenancy. There may also be some circumstances where the identity of the customers supply point requires further verification necessitating longer timeframe.

A survey by the Competition and Markets Authority (CMA) found that 54% of respondents have never changed supplier and 70% of the 'big six' customers remain on the standard variable tariff, indicating a lack of engagement³.

Analysis of DTS data since April 2012 reveals all of the switching events by domestic households (MPANs) over that period. Fig 2 below summarises this analysis. There is a total market of 28 million MPANs in GB and our analysis shows that over the past 4 years and 6 months there have been a total of 15.1 million switching events. However, this analysis also shows that over the same period 18.5 million MPANs (or 65% of the total) have never switched, indicating a lack of engagement in the market.

Fig 2 Number of electricity market switches by domestic household (MPAN) since April 2012. – data from the DTS.



Enabling consumers to interact quickly and enact a faster, more reliable switch will facilitate an increase in engagement and allow customers to feel more connected to their energy supply.

³ <https://assets.publishing.service.gov.uk/media/5773de34e5274a0da3000113/final-report-energy-market-investigation.pdf>

2.2 The Ofgem Switching Programme

The Ofgem Switching Programme has presented an outline of the reform packages including a range of options for delivery of faster, more reliable switching. These are summarised as follows:

Ofgem Reforms

- 0: Do Nothing:** no system or process changes, no improvement to reliable switching. This will retain the current 21 day switching timeframe.
- 1: Minimal Reform:** use existing systems with a one off data cleanse to improve reliability. Key process changes will deliver switching in a 3-7-day timeframe.
- 2: Major Reform:** the introduction of a new central switching service (CSS) for the provision of core data. Reliability will be provided through improvement to MPXN and address data. Switching will be delivered on a next day basis. Access to the CSS will be via XML messaging.
- 3: Full Reform:** delivery of the CSS alongside a Market Intelligence System (MIS) delivering a full Central Registration Service (CRS). This will provide enduring reliability improvements and improved access to a broader range of switching data. As per major reform switching will be delivered on a next day basis and access will be via XML messaging.

As can clearly be seen from the reform package definitions, the complexity of the implementation of the Ofgem Switching Programme increases with options 2 and 3 as these require the introduction of new systems and processes. The energy industry is being given the opportunity to respond to these options. Firstly, through a request for information (RFI), and secondly through a consultation based on the responses from the RFI. The consultation is currently scheduled for August 2017.

For market participants, responding to a major change programme such as this is a complex task. It is important that the requirements for the reform packages are clearly defined so that the responses provided are consistent and reliable and allow Ofgem to make a clear evaluation of the impacts of the different reform packages. The Ofgem Switching Programme will be transforming industry processes alongside the full operation of the Data Communications Company (DCC). The DCC has introduced a dedicated network to support the security requirements of smart implementation. This is distinct from the requirement to support the Ofgem Switching Programme.

There is an opportunity to reduce the complexity and cost of the implementation of the Ofgem Switching Programme through the extended use of existing industry data transfer mechanisms. Within this paper we provide clarity around the capabilities of the Data Transfer Service (DTS) in supporting the reform packages. We also aim to provide respondents to the RFI with more information to back up the illustrative assumption provided. The assumption is that the DTS will be the communications

mechanism to support XML messaging between market actors and the Central Switching System (CSS) / Central Registration Service (CRS).

3 What is the Data Transfer Service (DTS)?

The DTS is used by electricity and gas market participants to communicate business critical data, providing a secure transfer mechanism for both the electricity and gas industries, and facilitating the processes that underpin the operation of the competitive energy market. The DTS supports structured messages and delivers them to any connected market participant whilst maintaining a full audit trail. The messages are delivered against an industry defined set of SLA's ensuring DTS users maintain adherence with current defined processes.

DTS Core Principles

- 1: Security:** Security is inherent in the design of the DTS.
- 2: Connectivity:** The DTS is connected to 100% of participants in the electricity market and 100% of domestic gas suppliers.
- 3: Innovation:** The DTS has been transformed into a fast, modern data transfer service supporting real time, XML messaging.
- 3: Cost:** It costs as little as £480 p.a. to connect to the DTS. ElectraLink provides the DTS on a cost recovery basis. With a fixed cost base the more the DTS is used, the lower the unit price.
- 4: Governance:** Governance of the DTS is provided through a single, multiparty agreement overseen by an industry panel, the DTS User Group.
- 5: Access to Data:** ElectraLink has been granted permission by the Users of the DTS to store and analyse the data transferred by the service.

3.1 Security

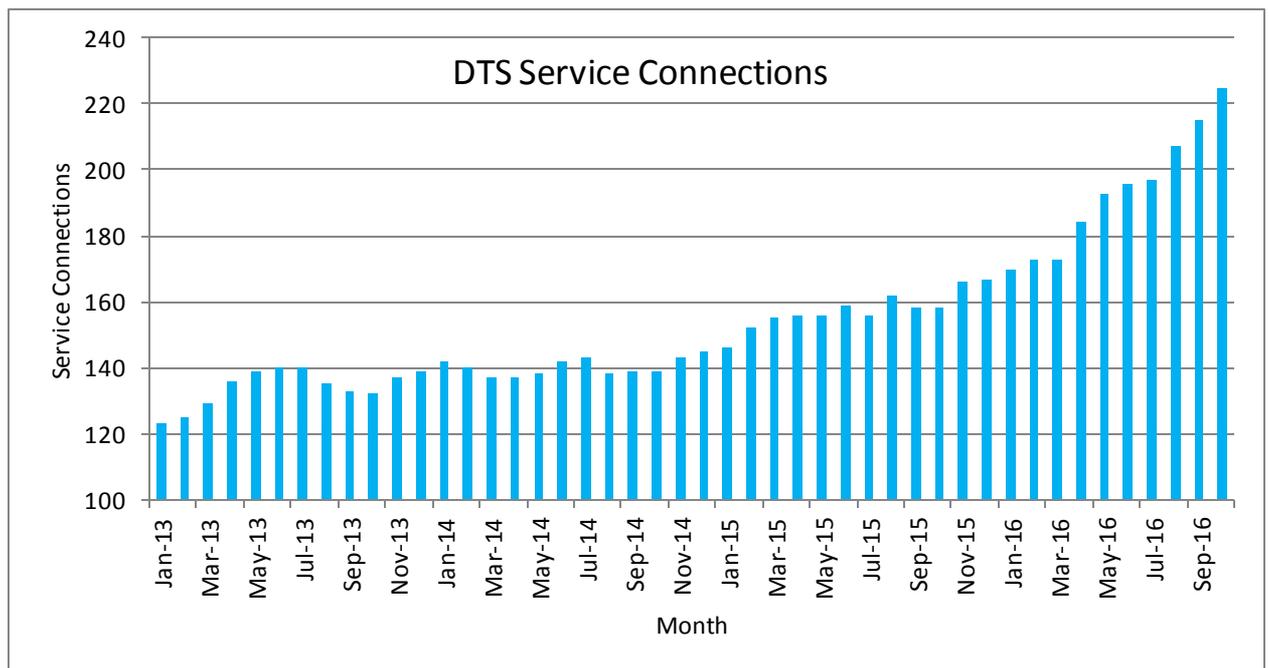
The DTS provides a secure communication channel for industry data. All messages are encrypted and transmitted across a dedicated virtual private network using modern, open source middleware. Security is inherent in the design of the DTS. There have been no known security breaches of the DTS since it started operation in 1998.

3.2 Connectivity

The DTS is connected to 100% of participants⁴ in the electricity market and 100% of domestic gas suppliers. ElectraLink has tried and tested processes for adding new customers to the DTS. Fig 3 shows the increase in DTS connections since 2010.

There are a number of connection options to the DTS. These range from physical links into data centres to very low cost remote connections over the public internet. The latter are ideal for new market entrants and smaller organisations, providing the flexibility of an internet solution with the added security and auditability of the DTS. The number of parties connected to the DTS has grown consistently over the recent years, as demonstrated in Fig 3 below.

Fig 3 Number of DTS connections since 2010.



3.3 Innovation

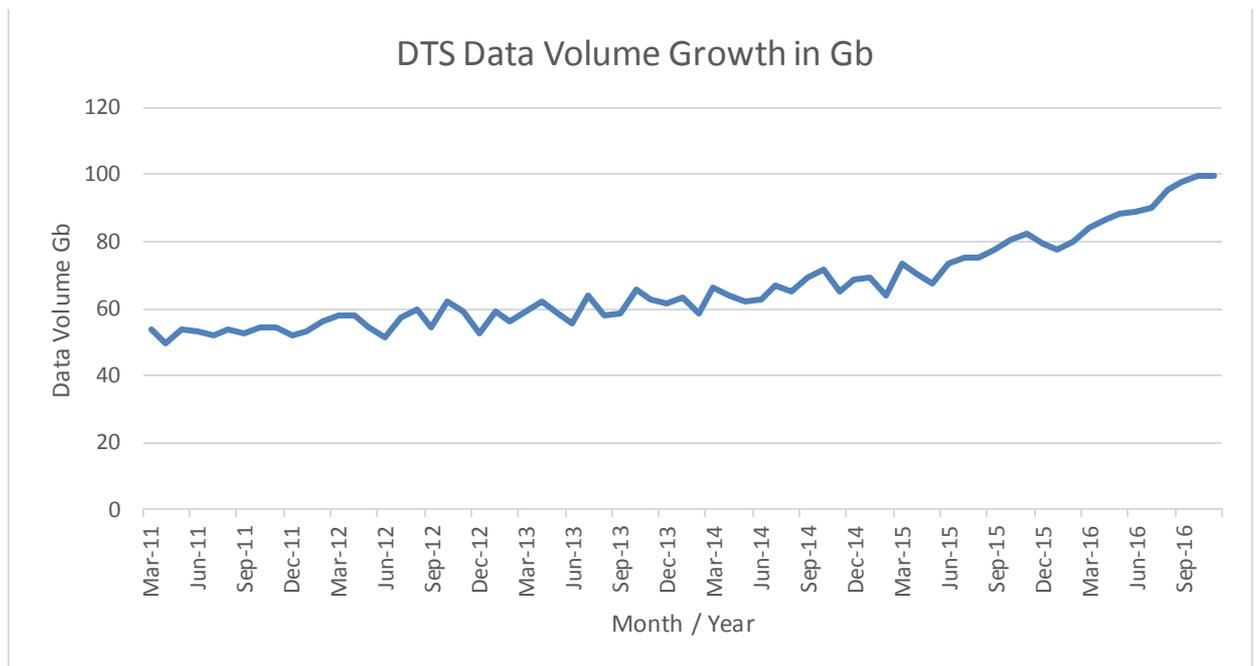
ElectraLink completed a technology transformation programme of the DTS over the period 2013 to 2015. The service is now based on the following technology components:

- A virtual private network (VPN) running over leased lines and the public internet,
- Open source middleware (JBoss Fuse),
- Support for gas market flows,
- A custom built messaging application which supports both flat and XML file formats,
- Improved data delivery speeds, and
- Virtual private cloud data centre infrastructure.

The DTS has met the changing needs of industry in terms of data volumes, message delivery speeds and message formats. The volume of data being transferred by the DTS is increasing (see Fig 4) and over the last 4 months this growth has accelerated with the expansion of half hourly settlement under P272.

⁴ Except for generators which do not currently take part in the retail market.

Fig 4 Growth of data on the DTS



Although many market participants use the DTS in support of batch processes, the DTS is also delivering near real time services supporting XML messaging and web services. New market entrants and existing market participants are using these capabilities to provide flexible integration and data transfer.

3.4 Cost

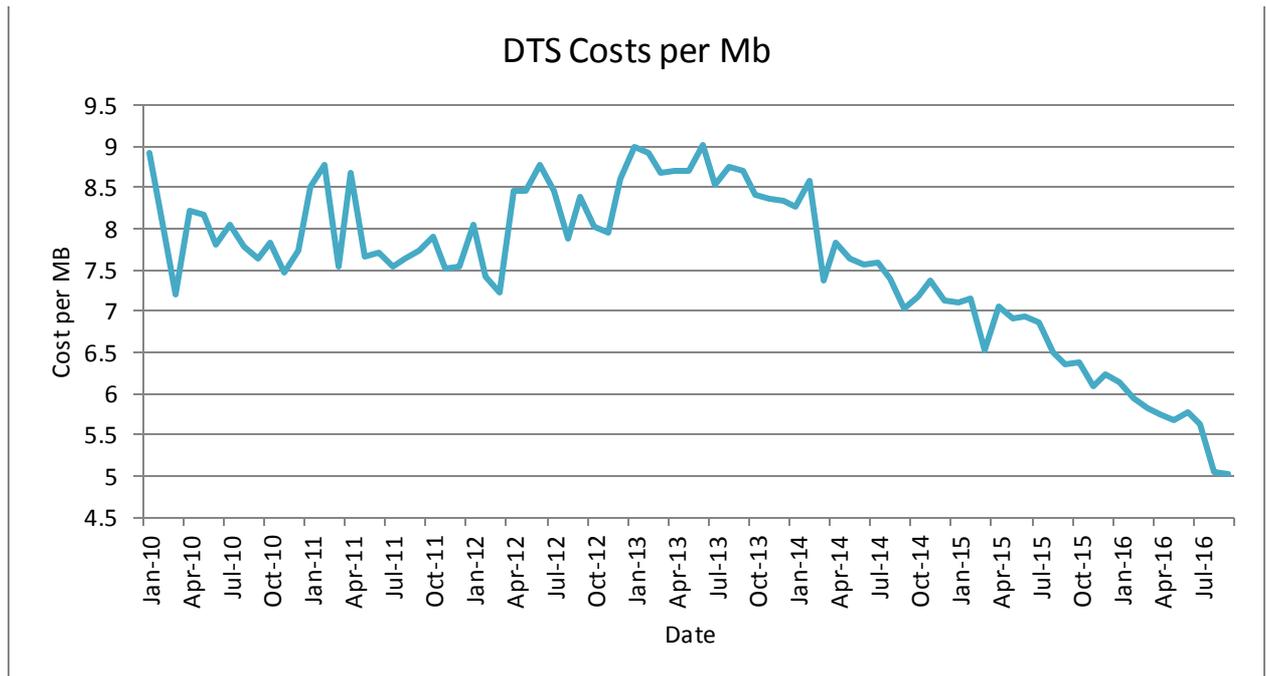
Users can connect to the DTS for as little as £480 per year⁵.

The DTS is provided by ElectraLink to the energy industry on a cost recovery basis with the total annual cost to the energy industry of £5.7million in 2015.

The technology transformation described above means that the DTS can support additional traffic with very low incremental cost. This point is illustrated by Fig 5 which shows the monthly cost of the DTS recovered by ElectraLink from market participants divided by DTS traffic volume.

⁵ Based on a Remote User Connection.

Fig 5 Monthly DTS Cost by Volume



3.5 Governance

ElectraLink is a private company owned by the Distribution Network Operators (DNOs) which was established in 1998 to deliver the DTS, discharging the DNO's standard licence condition SLC 37. ElectraLink is a party to the DTS Agreement in the role of Service Controller.

ElectraLink is governed through normal corporate measures, including a shareholders' agreement and a board of directors nominated by the shareholders. ElectraLink's business is made up of the regulated DTS as well as commercial services, permitted by Ofgem through a derogation to the DNOs' licences.

Energy market participants contract to use the DTS through the DTS Agreement. The governance of the service is exercised by industry through this agreement which defines the role of the Service Controller and the DTS User Group. The governance arrangements of the DTS are overseen by Ofgem. In the event of a major failure of the DTS, which is likely to impact all data flows supported by the service, Ofgem has the option to take enforcement action against the DNOs under SLC 37.

The DTS User Group consists of the following representatives each of which represents a constituency of Users:

Distribution	
Walter Hood	Scottish Power
Leanne Cavagan	Northern Power Grid
Terri Hamilton	SSE Distribution
Suppliers	
Kevin Woollard	British Gas
Matt Keen	N-Power
Helen Fosberry	EON UK
Bill Gray	Utility Zone
Adeniyi Oladeji	Iresa Limited
Other Users	
Roy Tomkinson	Solarwise Renewables
BSC	
Matt Wood	Elexon

In aggregate all users of the DTS are represented via a representative on the DTS User Group.

Any DTS users can propose a change to the service or the composition of the DTS User Group. These changes are impact assessed by ElectraLink in its role of Service Controller, and then voted on by the DTS User Group representatives. ElectraLink does not have a vote. A simple majority is required to approve a change which then must be implemented by ElectraLink. Further approval is required from Ofgem for changes in the charging principles outlined in the DTS Agreement or the constitution of the User Group.

The extension of the service to incorporate data flows defined in the Supplier Point Administration Agreement (SPAA), relating to the change of supply process in the gas market is a recent example of the DTS change process in action. ElectraLink issued an impact assessment to all DTS Users on 6 November 2015 and the change was formally approved by the DTS User Group on 07 December 2015. New gas-only suppliers were subsequently connected to the DTS over a three month period and the service went live on 1 April 2016.

The governance of the DTS is designed to ensure that the service is operated under the direction of its users, not the shareholders of ElectraLink. The DTS now supports the transfer of a variety of energy market data, the format of which is defined by three energy industry codes, the Master Registration Agreement (MRA), the Balancing and Settlement Code (BSC) and SPAA.

3.6 Access to data

In April 2012 the DTS User Group granted ElectraLink permission to store the data sent across the DTS⁶ and provide data analytic services using this important industry asset. The DTS dataset includes valuable information regarding industry processes and has a range of uses from market monitoring to process tracking. The DTS dataset could play a role in the delivery of new processes, such as the reforms being proposed by Ofgem, through performance assurance and the facilitation of data cleansing. ElectraLink is bound by strict rules within the DTS Agreement regarding the use of this industry dataset.

⁶ With the exception of sensitive information relating to special needs codes.

4 How the Data Transfer Service Can Support the Programme

In this section we explore how the DTS is technically able to support the Ofgem reform options detailed in section 2.2 above.

4.1 Reform 0: Do Nothing

By default, the DTS would support this option. In a 'do nothing' scenario the existing industry process would remain as is and switching would be facilitated by DTC flows for electricity and the Notification of Supply Information (NOSI) for gas. The DTS currently supports in excess of 500,000 dual fuel switches a month.

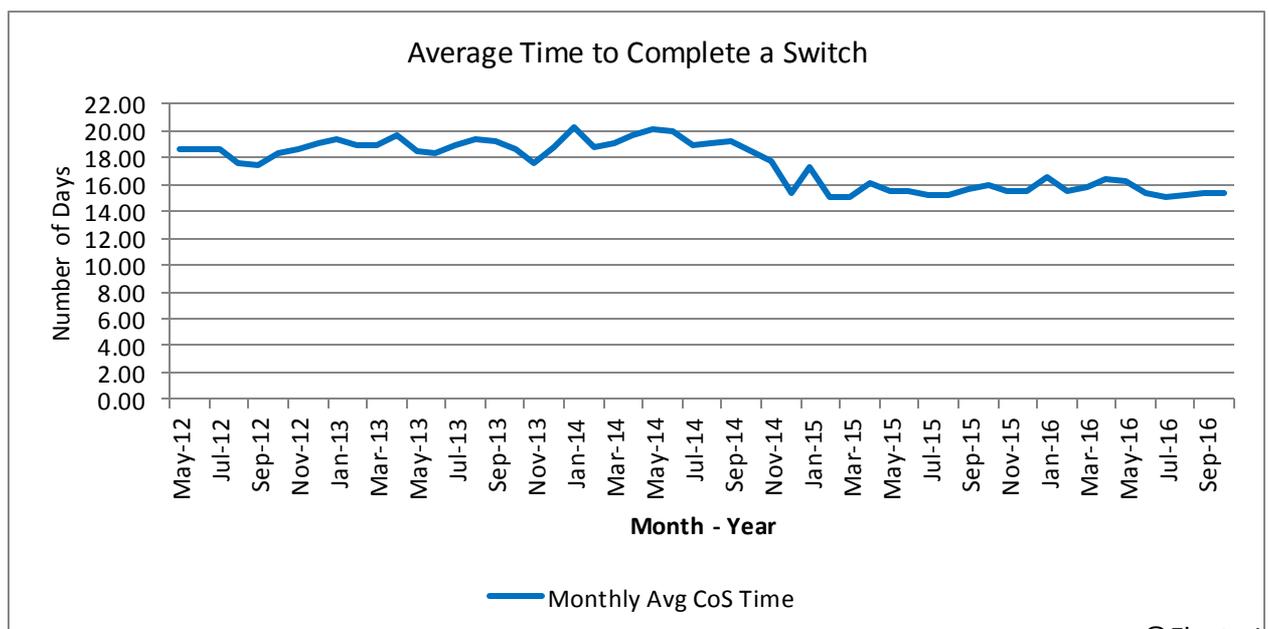
4.2 Reform 1: Minor Reform

As above, the DTS would support this reform by default. The reform package highlights the requirement to speed up the existing processes, including the requirements to move to 1 calendar day for batch processing of data, the 24*7 operation of the registration services and the same day response in the event of an objection query. Any new data flows required could be defined in the relevant energy industry code.

The current design and infrastructure of the DTS would support the changes required within this reform option with no further investment required. The increased volumes of messages and data associated with this option would be well within the current scaling of the DTS and it would be expected that 99.6% of messages would be delivered in under 5 seconds.

In addition, the DTS could provide performance assurance data to demonstrate the effectiveness of the new processes and confirm that faster switching has been achieved. This could be delivered as central reporting which would reduce the overhead of performance reporting for market participants and create a consistent view of industry switching performance in terms of volumes and speed / reliability of response. Fig 6 shows the current duration of change of supply events in the electricity market produced by analysis of DTS data.

Fig 6 Current Duration of Electricity Switching Process⁷



⁷ Completion based on registration process date and the effective from date of the registration.

4.3 Reform 2: Major reform

This reform option requires the creation of the central switching service CSS. For clarity, it is not envisioned that the DTS or ElectraLink would provide this system, rather that the DTS would be used as the mechanism to transport the XML messages that will transfer data between market participants and the CSS.

The requirements of this reform package mean that the DTS would need minimal investment to accommodate the additional traffic and prioritise near real-time messages required for registration and objection confirmation. Our initial high level impact assessment indicates that this would be achieved through the separation of switching flows from legacy traffic using prioritisation and V P N layering techniques, introducing an additional dedicated virtual private network and application on the same physical infrastructure as the existing DTS.

ElectraLink estimates that this change would require an investment in the order of £500k to guarantee the data flow delivery times required by the programme. This investment would be recovered through the cost recovery mechanisms detailed in the DTS Agreement and represents a fraction of the cost to industry of setting up a new communications network whilst retaining the key successful proven elements of the DTS detailed in Section 3. The programme would not bear any costs in relation to the use of the DTS as the communication solution for this reform.

4.4 Reform 3: Full reform

Building on the solution for reform package 2 above, the DTS would support full reform through the capture of data from the XML messaging to populate the Market Intelligence Service MIS. It is not yet understood if the MIS would be a single database or a view of data created from multiple sources. Either way, the existing ability of the DTS to extract and present data could provide a low-cost route to the creation of the MIS that could drive real improvements in the reliability of the switching solution.

5 Changes Required to the Governance of the Data Transfer Service in Support of the Programme

In this section we explore how the governance of the DTS would need to be changed to support the Ofgem reform options detailed in section 2.2 above.

5.1 DTSA Governance

The governance of the DTS (as described in section 3.5) is flexible and is proven to accommodate industry change. The scope of DTS governance change is dependent on the reform package to be implemented, the potential for changes to industry codes and the addition of new parties to the DTS Agreement.

Reforms 0 and 1 would require no governance changes as they utilise existing processes and can be delivered through the DTS Agreement as it exists today.

Reforms 2 and 3 would require changes to the DTS Agreement in order to enable the DCC, as the operator of the CSS/CRS, to accede to the agreement. Similarly, a change may be required to enable message formats to be defined by codes such as the Smart Energy Code (SEC). As outlined in Section 3.5 above the DTS Agreement change process was tested successfully in 2015/16 with the introduction of gas flows, managed by the Supply Point Administration Agreement (SPAA), and the accession of gas only suppliers to the DTS Agreement.

Fig 7 illustrates the changes to DTS Governance to support Reforms 2 and 3 assuming that the CSS/CRS will be operated by the DCC and governed by the SEC.

Governance of the DTS in support of CRS

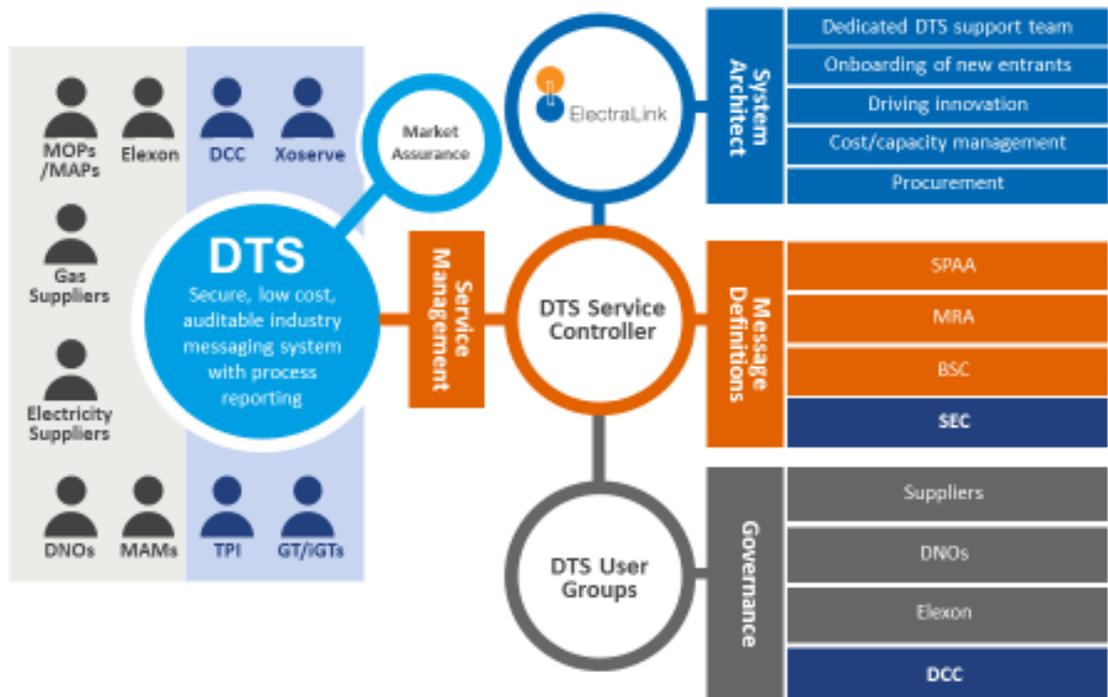


Fig 7 Future Governance

Fig 7 shows an expansion of the governance of the DTS to include the DCC within the DTS User Group. It also shows a new source of message definition, assumed to be the Smart Energy Code (SEC). This is in line with other message definitions from the Master Registration Agreement (MRA) and Balancing and Settlement Code (BSC) and the Supply Point Administration Agreement (SPAA), all which currently define messages used by the DTS.

Ofgem would retain oversight of the DTS Agreement and therefore would have direct visibility of any DTS performance, service or governance issues.

5.2 DNO Licence Obligations.

The possible use of the DTS to support the Programme would build on the existing dual fuel capability of the DTS. Although the DTS currently delivers both regulated electricity and gas data flows, the standard licence condition 37 of the DNOs' licences refers only to electricity data transfer. As DTS Users the DNOs are engaged in the DTS governance process and they have supported the extension of the DTS to the gas market with the introduction of the Notification of Supplier Information flow (NOSI) in 2016 and the planned introduction of additional gas flows (RET and SAR) in 2017. The board of ElectraLink is fully supportive of the use of the DTS to assist with the delivery of the Programme and has instructed the company's management team to consult on this matter directly with shareholders. This consultation process should be completed by the end of the year.

6 Summary

In summary, the Ofgem reforms aim to deliver faster, more reliable switching to enhance customer engagement with the energy industry and to enable consumers to access savings through the competitive market.

Some of the reforms have the potential to be complex, with the DCC having a license condition to procure systems to support the major and full reform packages if they are taken forward by Ofgem.

ElectraLink believes that the use of the DTS to provide connectivity between industry participants and the new systems envisaged in reforms 2 and 3, will deliver value by reducing the complexity, risk and cost of the programme.

The existing proven connectivity, security, scalability, flexibility and cost effectiveness of the DTS can provide the basis for the communication mechanism between market participants and the CSS / CRS.

The technology deployed by the DTS, coupled with its governance structure and cost recovery mechanism makes it the ideal solution to deliver the communication requirements of the switching programme whilst avoiding significant investment in new networks.