



**ElectraLink**

Energy Innovation

# Agenda



10:00 Introductions. Delivering innovation in the UK energy market.

**Stuart Lacey**  
Chief Executive, ElectraLink

10:20 Governance and Regulation: An enabler for the future Energy Market

**Alexandra Moore**  
Consultant, ElectraLink

10:30 Market Sandboxes: The benefits and how we can do more

**Elizabeth Lawlor**  
Senior Consultant, ElectraLink

10:40 Beyond the Supplier Hub Model: Establishing Best-Practice Governance Within the Energy Broker Market

**Mark Olliver**  
Senior Specialist Consultant, ElectraLink

10:50 Breakout session

11:20 Value of Industry Data (EMDH)

**Dan Hopkinson**  
Director of Data and Transformation,  
ElectraLink

11:30 Market Sandboxes: The benefits and how we can do more

**Gill Nowell**  
DSO Lead, ElectraLink

11:40 Electric Vehicles

**David Richardson**  
Innovation Lead, Innovate UK



# Agenda



12:00 Breakout session: 3 simultaneous working group sessions

12:30 Networking Lunch

13:40 Flow Builder

13:50 What will the UK energy market regulatory framework look like in 2030 and what is the roadmap to get there

14:05 Industry Data

14:30 Breakout session: 3 simultaneous working group sessions

14:55 Closing Remarks

**Mark Pearce**  
Head of Digital Services, ElectraLink

**Stefan Leedham**  
Director of Governance Services,  
ElectraLink

**Greg Jackson**  
CEO, Octopus

**Stuart Lacey**  
Chief Executive, ElectraLink

# ElectraLink Engagement Day Introduction

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Stuart Lacey  
Chief Executive, ElectraLink

[Stuart.Lacey@electralink.co.uk](mailto:Stuart.Lacey@electralink.co.uk)

## Governance Services

Governance Services manages 'rule books' in the gas and electricity sectors, ensuring that the industries work efficiently and all parties have access to a level playing field. These encompass commercial, process, settlement and technical agreements.

## Data Transfer Service

The DTS expanded to include commercial data flows, such as supporting metering competition in gas, and now operates at the centre of energy markets, carrying data on multiple industry processes for both fuels.

## Energy Market Insight

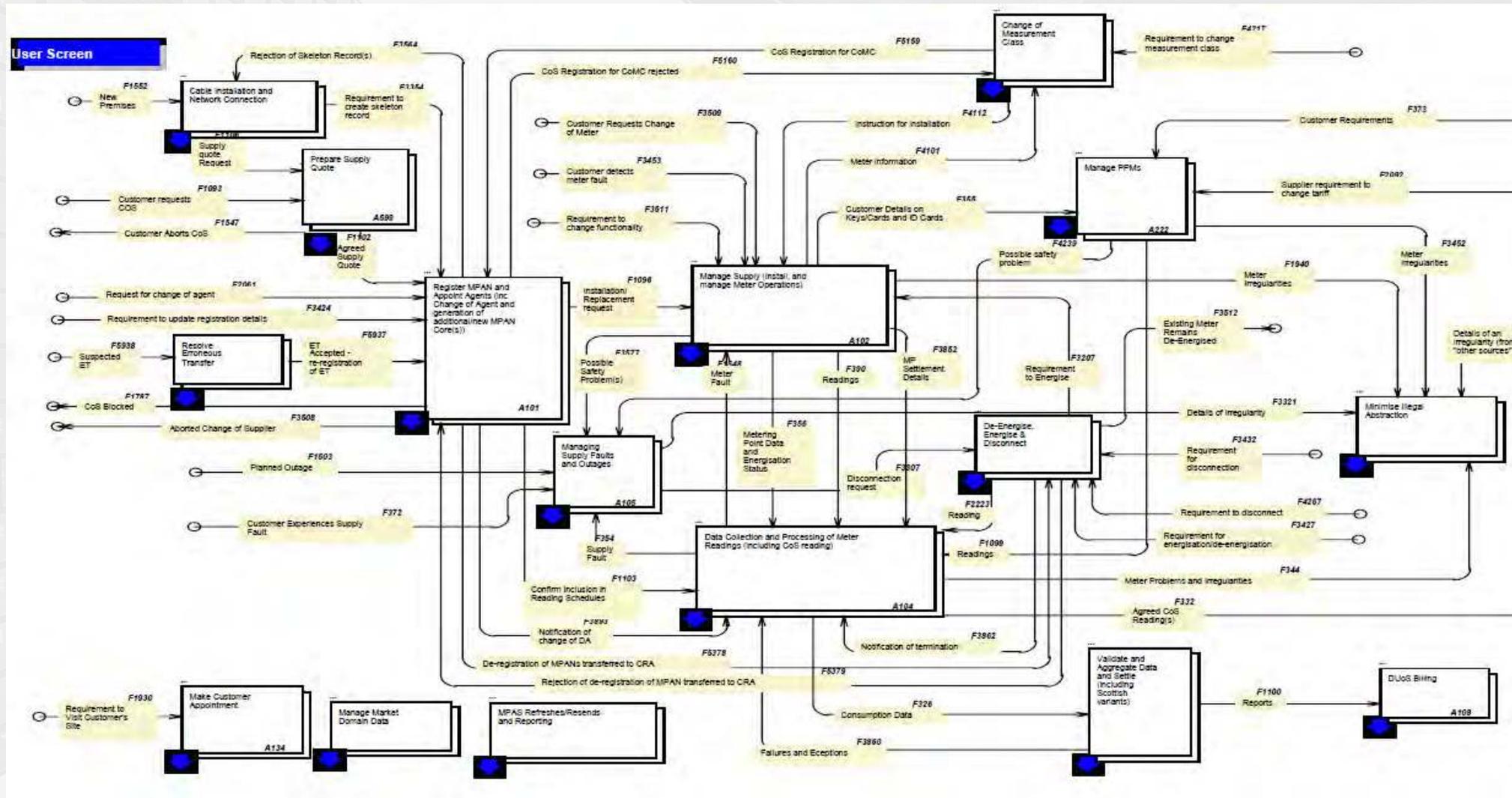
Our Energy Market Insights team provides data analysis that is specifically tailored to your commercial needs, helping to direct your marketing and retention campaigns to increase revenue year-on-year.

ElectraLink was founded in 1997 by the energy industry to provide regulated Data Transfer Services and has now evolved into a dual fuel solutions business with Governance Services and Energy Market Insights, all geared to solving industry problems.

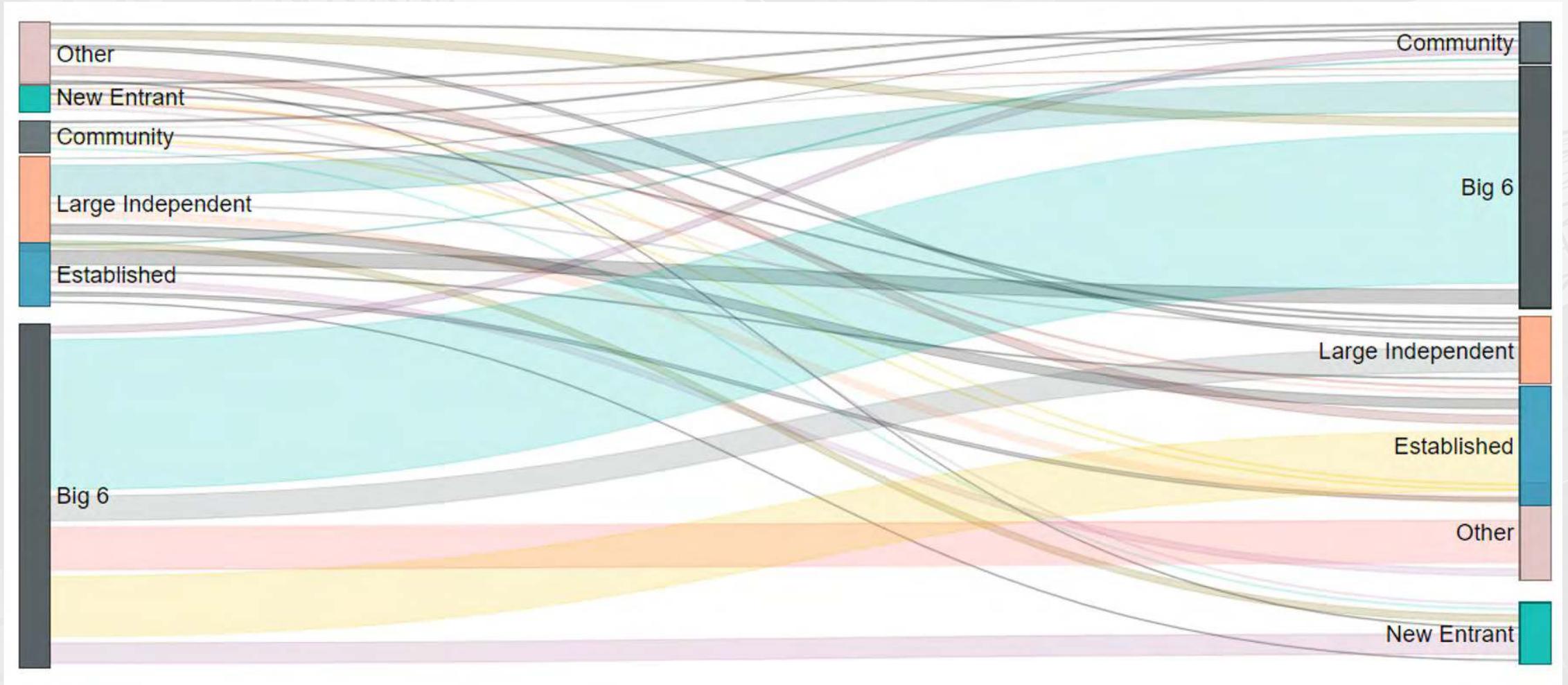
# Unprecedented Levels of Industry Change



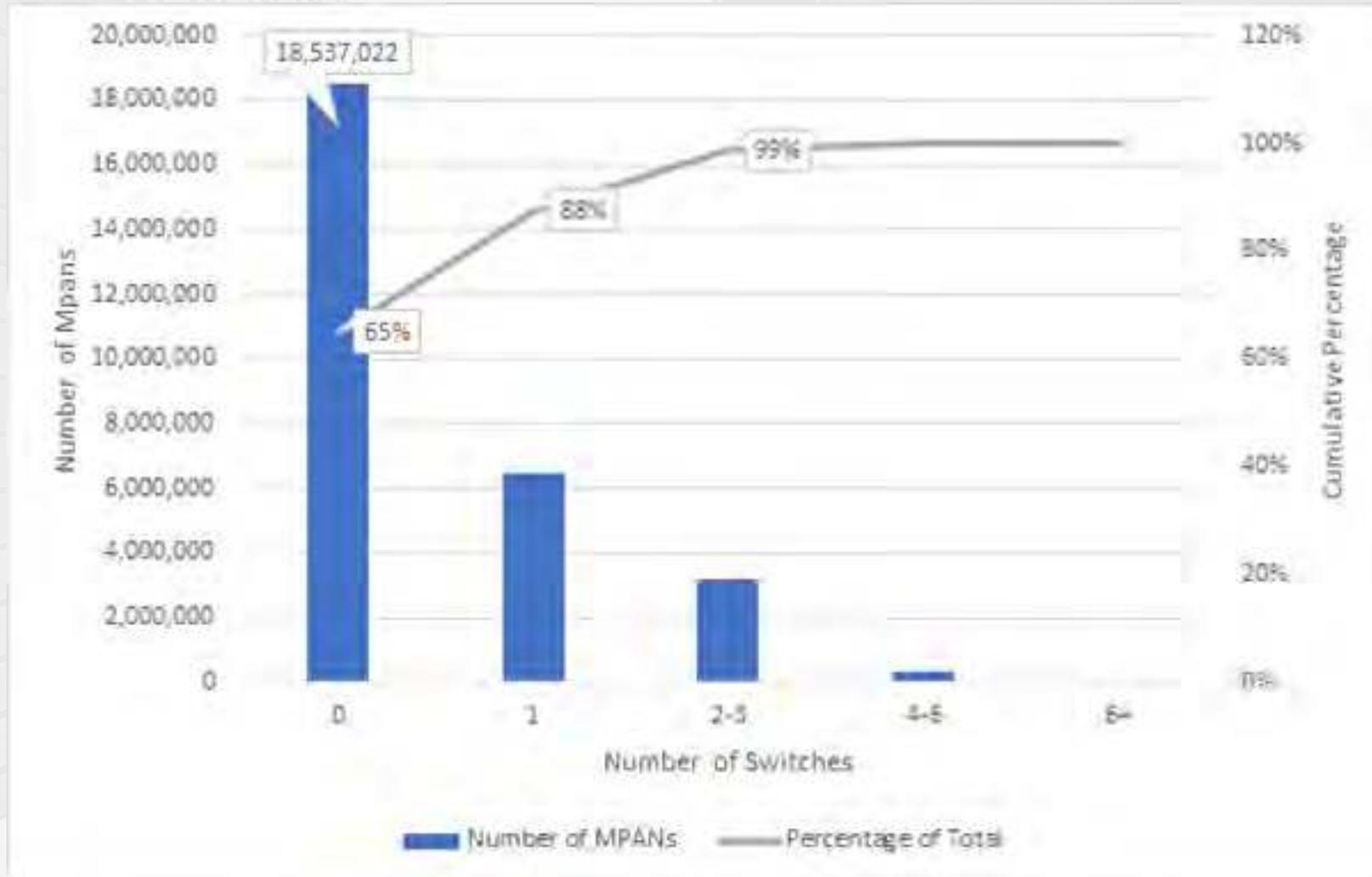
# ...but the Energy Market Is Very Complex



# ...and is Rapidly Fragmenting



# ...but With Low Levels of Customer Engagement



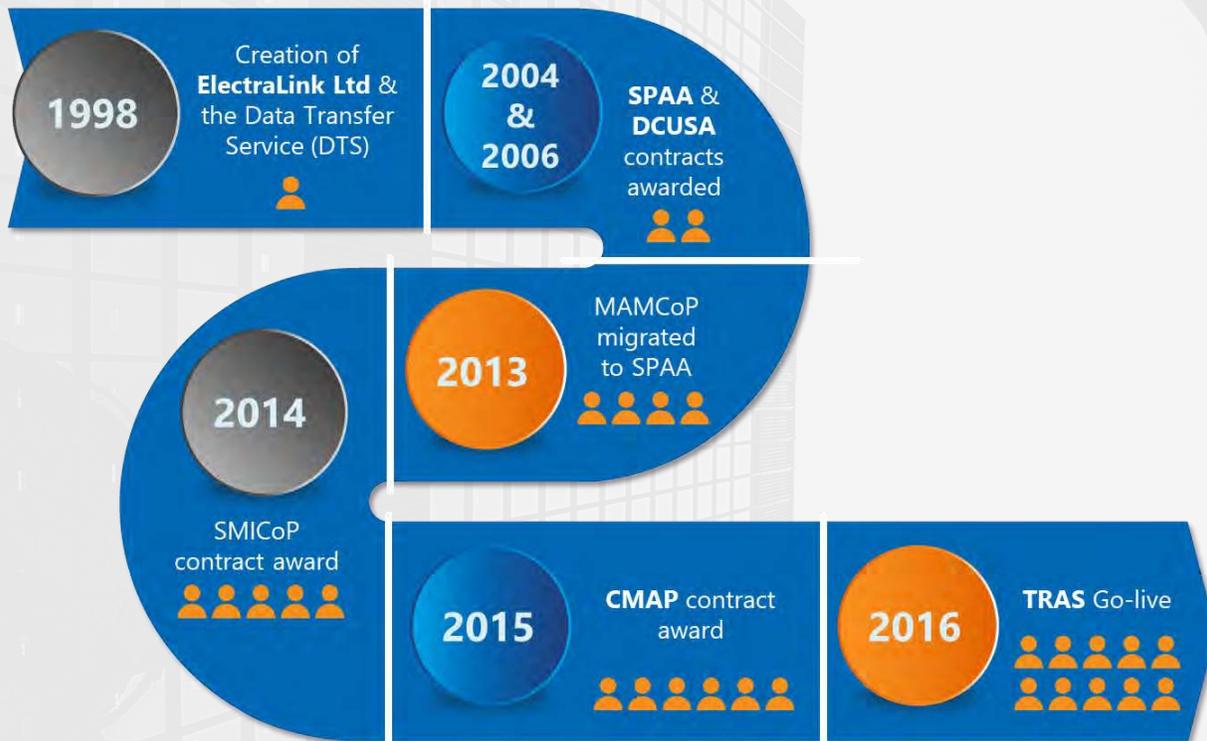
# Governance and Regulation: An enabler for the future Energy Market

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Alexandra Moore  
Consultant, ElectraLink

[Alexandra.Moore@electralink.co.uk](mailto:Alexandra.Moore@electralink.co.uk)

# ElectraLink – Code Experts



- An experienced specialist service provider to the gas and electricity industry since 1998
- Governance Services manages ‘rule books’ in the gas and electricity sectors, ensuring that the industries work efficiently and all parties have access to a level playing field. These encompass commercial, process, settlement and technical agreements
- Our services received the highest Net Promotor score of all code administrators in Ofgem’s recent Code Administrators Survey



Delivering a Secure DCUSA Agreement



# Regulation: Times are changing

Ofgem have discussed a move towards principle based regulation:

*“The retail energy market is undergoing far-reaching and exciting changes. Our regulation needs to stay ahead of market developments and in a way that does not distort them. It must enable diverse approaches so we can foster more competition and innovation and support new market participants, while offering effective protection to all consumers.”*

Ofgem

- How does this effect our regulated codes?
- Can we be doing more to encourage innovation?
- Do we need more forward planning?
- Less reactive and more proactive?

# Case Study: DCUSA and Charging



## Case Study One: DCUSA Charging Models



### The Challenge:

Establishing a project team to manage the implementation of the new models within a five month timescale (by end of May 2018).

### Project Approach:

- Overall project management from ElectraLink;
- Creation of the 'Modelling Support Project Board';
- The creation of an 'Expert Panel'; and
- CEPA/TNEI holding open consultative workshops throughout the key stages of the model .

### Result:

Compliant models delivered within the timescale, with increased stakeholder engagement in the process from new Parties.



# Looking Forward: Charging Futures Forum

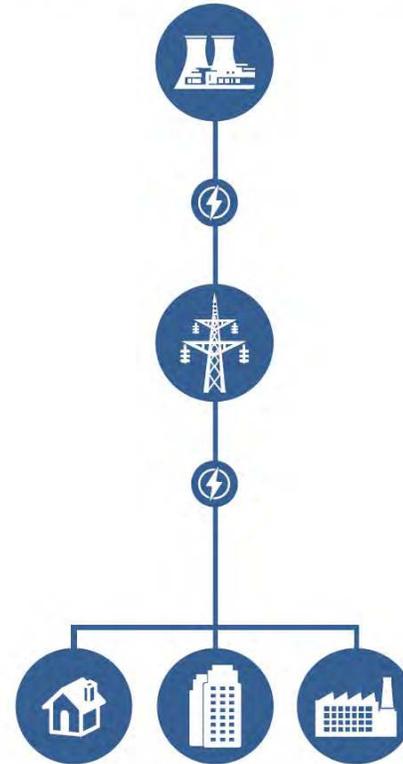


- Launched in 2017, the aim is to update charging for access and forward looking network change at both distribution and transmission.
- Focussing on collaboration across industry through a large stakeholder forum and a separate delivery body formed of Code Administrators and DNO representatives.

# Looking Forward: The Development of Open Networks

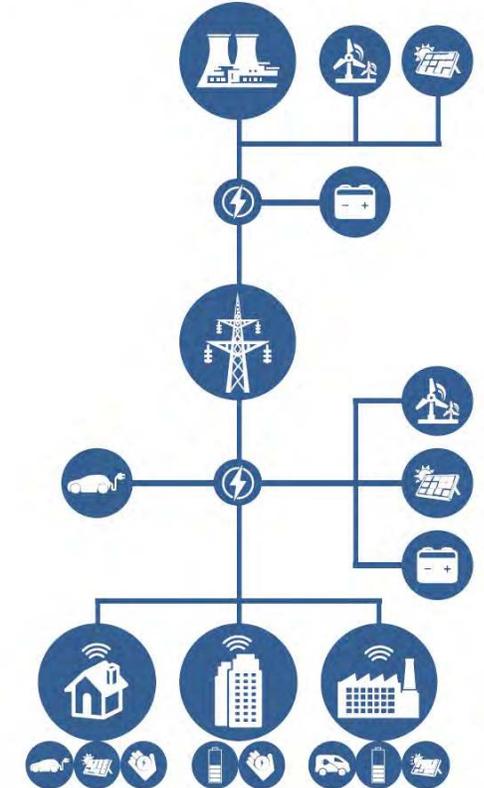
- Launched in 2017 providing the foundations for a smart energy grid
- Vision is to securely operate active distribution system with network infrastructure, generation, and other flexible DER
- Creating a market where customers are both consumers and producers
- Transfers reliance from centralised generation

## Distribution Network Operator World



Passive Network

## Distribution System Operator World



Reactive Network

Active Network

# Exploring the Proposed DSO Worlds



- World A: DSO coordinates
- World B: Joint procurement and/or dispatch
- World C: Price driven flexibility
- World D: ESO coordinates
- World E: Flexibility coordinators

Would these fit into current Distribution and Transmission regulation codes?

How will this be charged?

Do we need a new, combined code?

# Market Sandboxes: The benefits and how we can do more

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Elizabeth Lawlor  
Senior Consultant, ElectraLink

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# Industry Codes – a barrier to innovation



- The industry codes are the ‘rule books’ that set out prescribed standards and actions for the end to end energy market operations.
- They are structured and prescriptive, and applied consistently.
- Regulation provides certainty and stability on which a secure and reliable market has developed, but at the expense of innovation.

*“Market participants looking to innovate can have limited abilities to feed into and influence code changes that might enable new propositions or business models to work with industry processes”.*

June 2018, Ofgem

# Industry Sandboxes



- Code Managers have been working with Ofgem to support its innovation activities.
- They have developed a new CACoP principle requiring them to support prospective energy innovators, including guidance on codes to innovators and enabling trials of innovations.
- In August 2018 ELEXON launched its regulatory sandbox allowing parties to apply for derogations and temporary changes to parts of the BSC, enabling them to trial innovative products and services in the market.
- It is anticipated other codes will adopt similar models.
- Whilst clearly a step in the right direction, can these initiatives really achieve Ofgem’s desire for codes to “facilitate innovation”?

# Innovation within governance



- The sandboxes offer an opportunity to develop innovative solutions outside the boundaries of the existing code obligations.
- They don't address the governance issues that have created the barriers.
- They don't offer innovation from within the codes themselves.
- It is clear that innovation within the governance structures is necessary to truly remove the barriers.

To facilitate innovation, fundamental changes are needed:

- Review of the composition of Panels and Boards to ensure greater independence of members
- Obligate the Panels and Boards to deliver competition and innovation, and to report performance annually to Ofgem
- Leverage the inherent innovation nature of commercial Code Managers, procured through competitive tender, to drive change.
- Incentive Code Managers to support non traditional business models and drive innovation and empower them to deliver
- Ensure control of the Codes, and in particular the change mechanism, doesn't sit with incumbents, and that all parties have a balanced level of influence.
- Re-define how change is assessed – not least, ‘does this need to be codified?’ – and reduce unnecessary regulation

# Conclusions

The energy market is complicated and complex and there will always be a need for regulation.

1

But this complexity should not act as a barrier to change, competition and innovation.

2

Sandbox initiatives offer a part solution but don't address the root cause issues within the governance framework themselves.

3

Code Managers should be incentivised and empowered to change from within.

4

Only change within the governance structure itself can build a framework where truly innovative ideas can flourish.

5

# Beyond the Energy Supplier Hub Model: Establishing Best Practice Governance within the Energy Broker Market

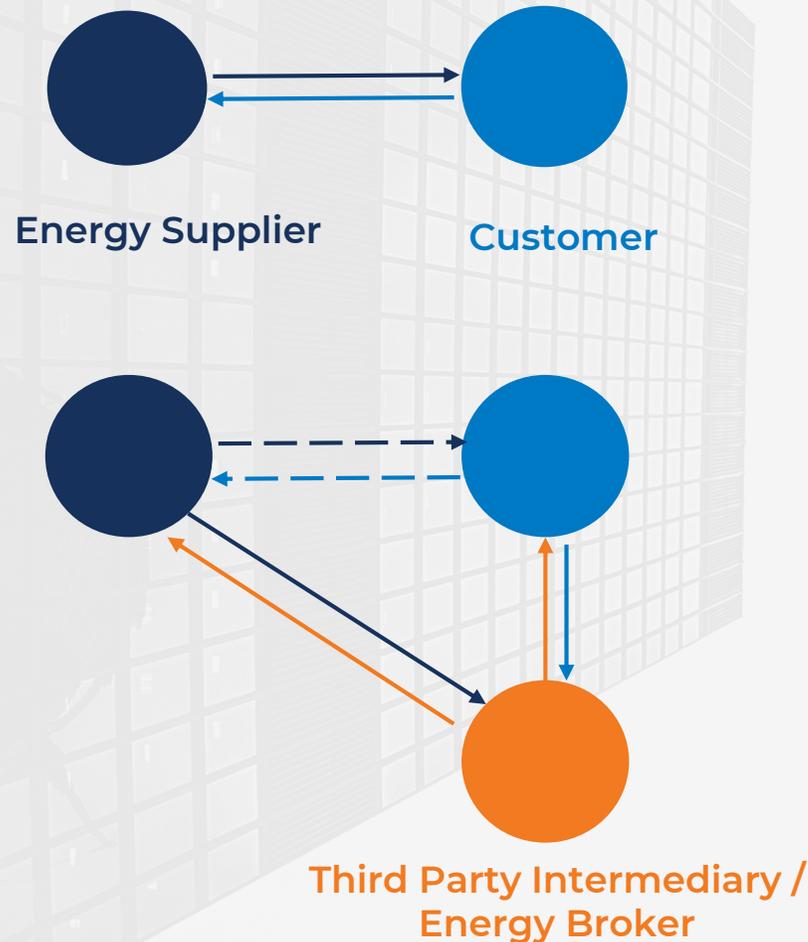
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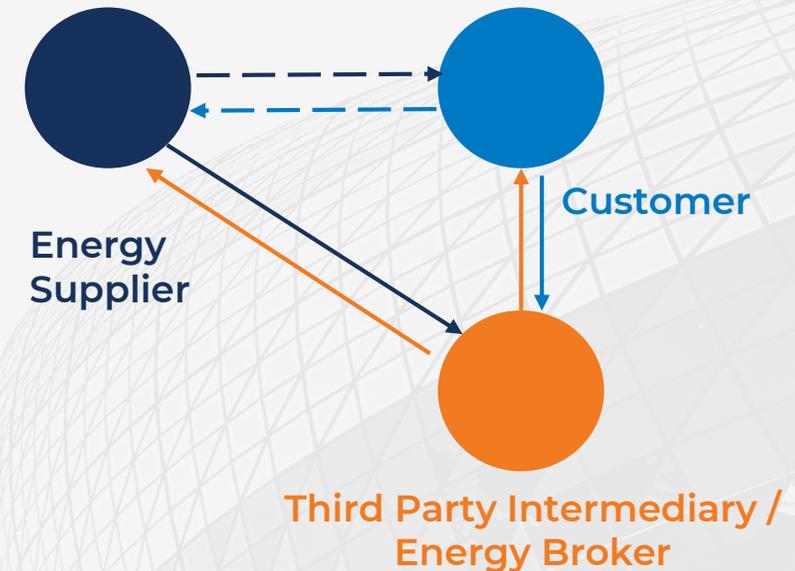
# Increasing Supplier-Hub Scrutiny



- There is much debate over the supplier hub model
  - Does it remain fit for purpose?
  - Does it appropriately consider and protect all energy retail functions?
  - Does it adequately protect customers looking to obtain the best energy contracts in an increasingly competitive market?
- Transition towards self-regulation built on existing and Licence Conditions future Retail Energy Code arrangements
- Have all elements of the retail market been given sufficient focus?
- Are there still controls that need to be fully established without constraining competition?
- Are best practice governance principles being applied?

# The Energy Broker / TPI Market

- TPIs establish the initial relationship with the customer
- TPI principles were set out by Ofgem in 2015 and more recently additional powers have been requested from BEIS
- The SME and micro-business market energy broker activities still remains unregulated
- Various attempts to establish a TPI Code of Practice have been undertaken
- Various initiatives are in place today however:
  - They are not independent
  - Assurance criteria are broad ranging
  - Re-dress is limited and managed through limited commercial measures



# What Should TPI Best Practice Target Be?



## Ofgem's principles set a good basis

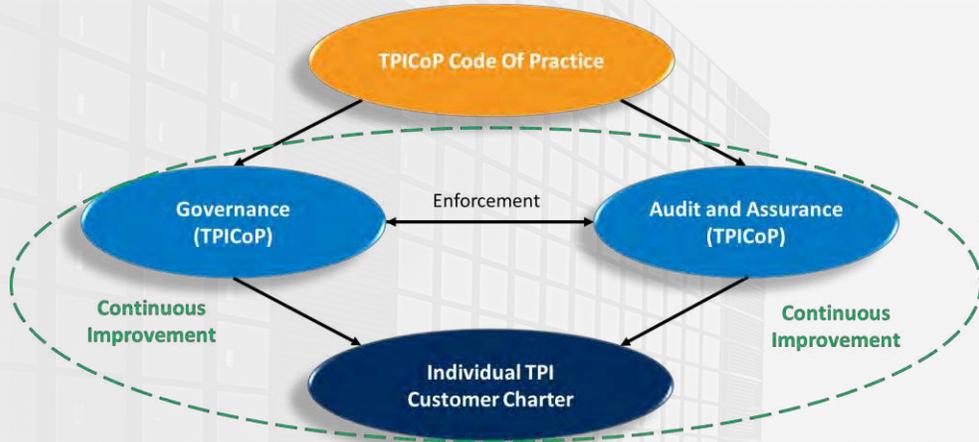
- Transparency
- Independence
- Fair and Appropriate
- Training
- Selling
- Accurate Information
- Prevention of Erroneous Transfers
- Dispute Resolution
- Data Protection

# Additional Best Practice Criteria and Measures



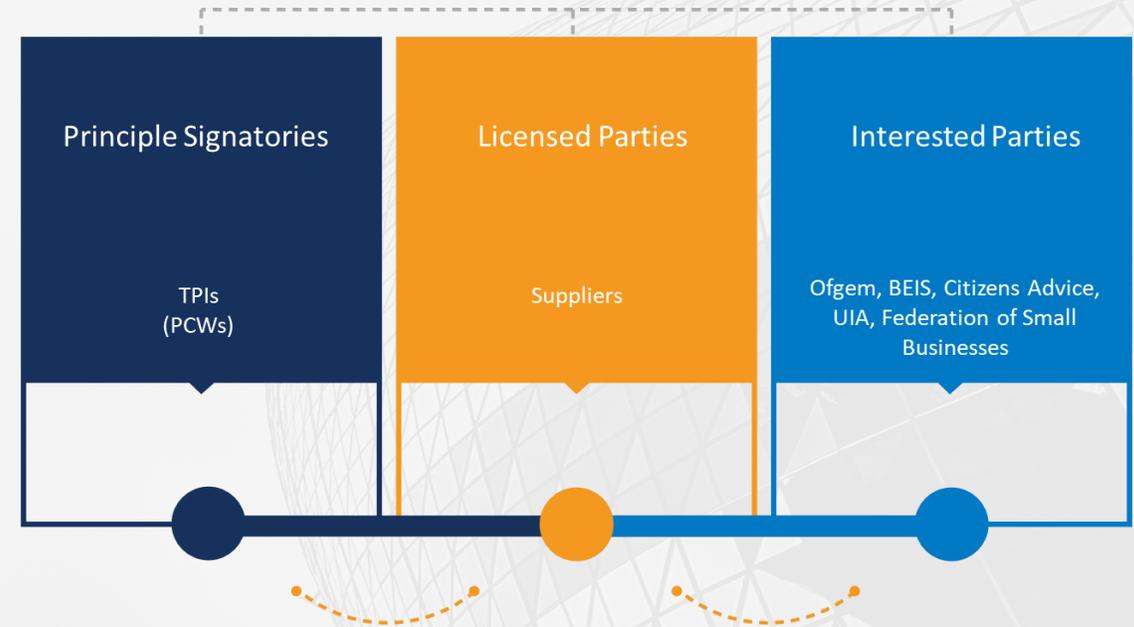
- Fully – independent
- Measurable
- Cost-effective
- Robust assurance (with re-dress)

# How Can Best Practice Be Delivered?



At ElectraLink we strongly believe so... and are actively working with TPIs, suppliers and engaging key independent third parties to establish.

- A fully independent Code of Practice
- Appropriate governance arrangements including company and board arrangements and defined Code signatories
- An audit and assurance framework



TPICoP launch targeted for January 2019

# TPI Code of Practice Working Group

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**Next workshop:**

**09 October 2018**

**ElectraLink Bloomsbury Office**

ElectraLink's TPICoP can be contacted at  
[tpicop@electralink.co.uk](mailto:tpicop@electralink.co.uk)

# Breakout session:



## Topics:

- Governance and Regulation: An enabler for the future Energy Market
- Market Sandboxes: The benefits and how we can do more
- Beyond the Supplier Hub Model: Establishing Best-Practice Governance Within the Energy Broker Market

## Host:

Alexandra Moore

Elizabeth Lawlor

Mark Olliver

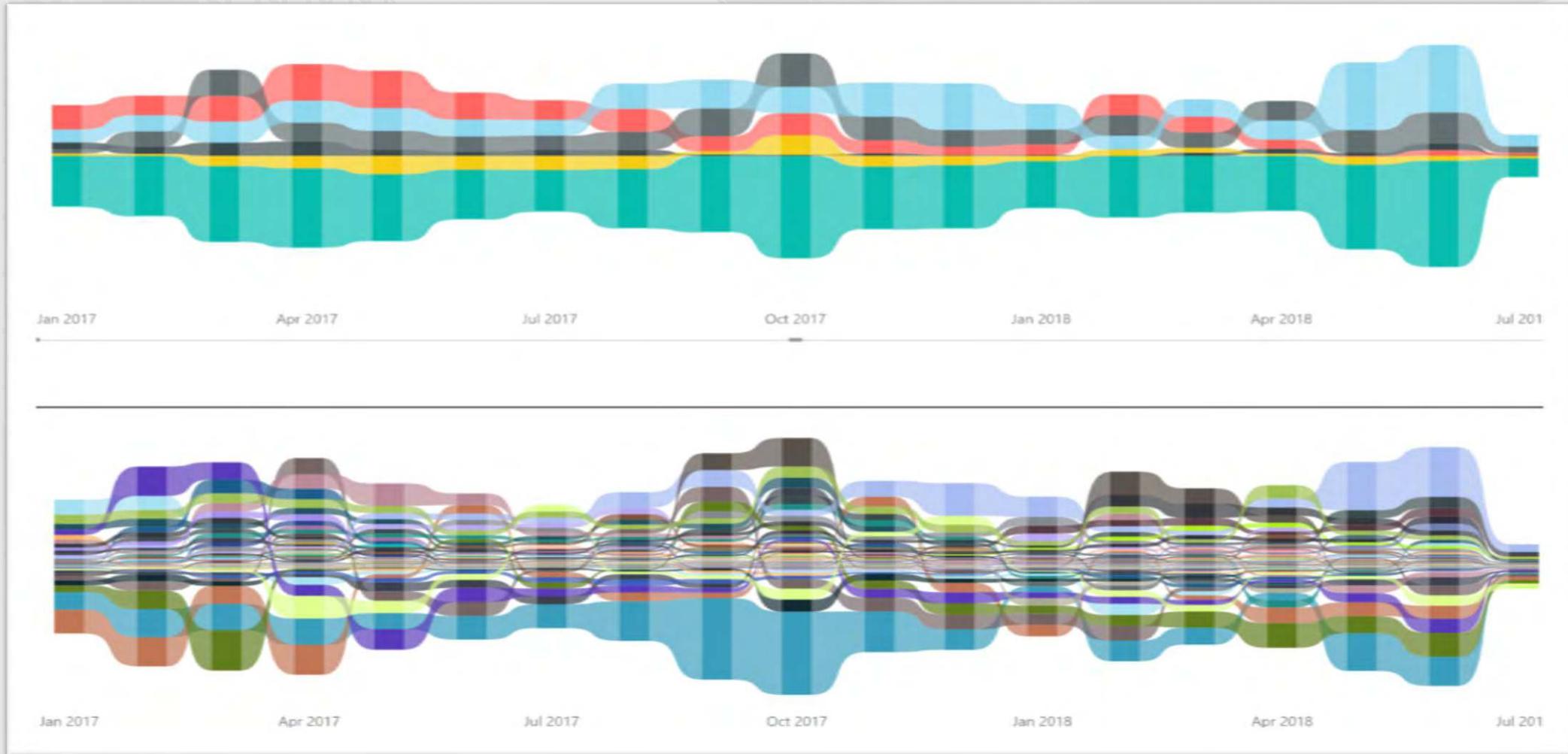
# Value of Industry Data (EMDH)

Dan Hopkinson

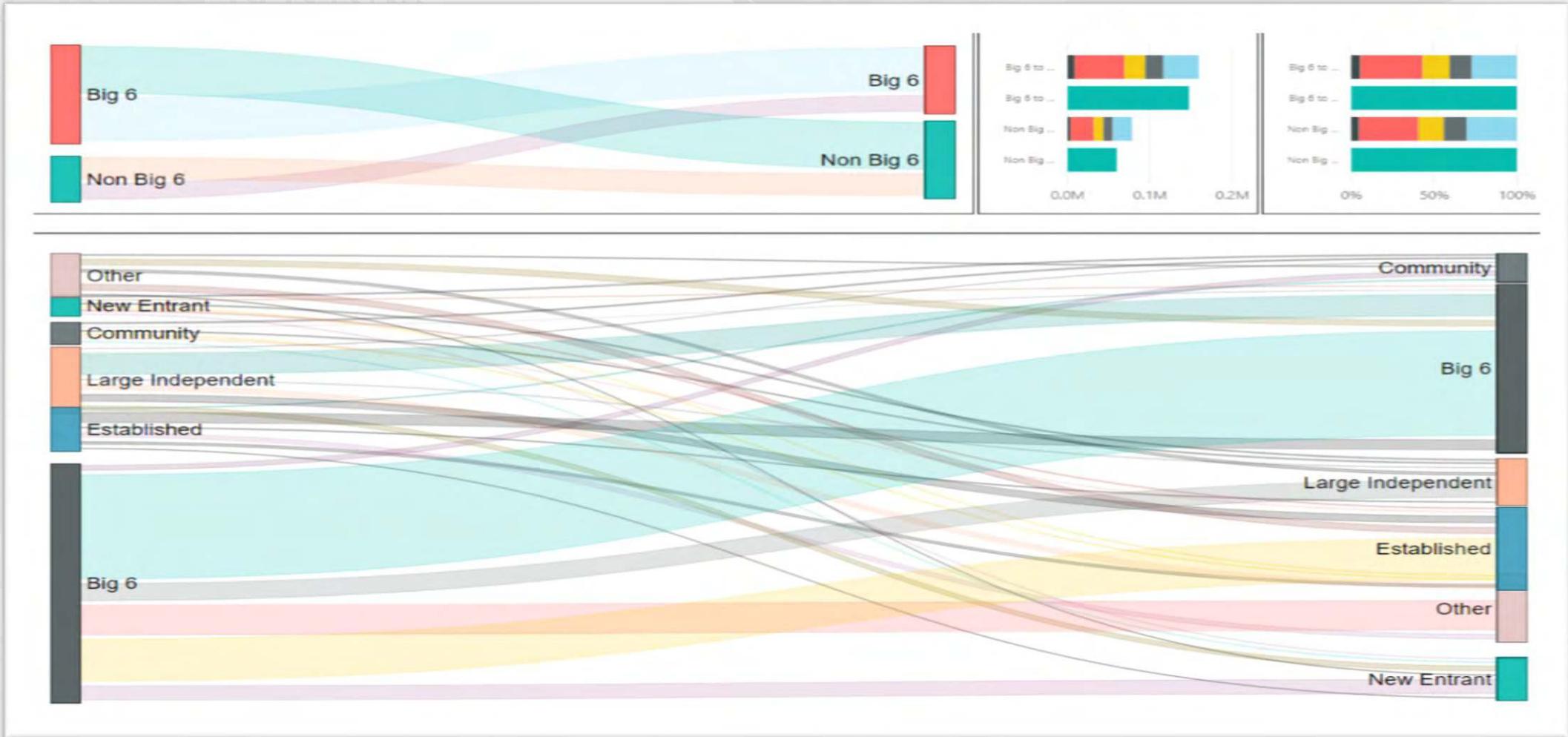
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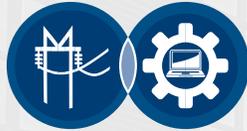
# The retail market has changed



# Retail fragmentation



# Distribution is changing



DNO/DSO



Settlement Agent



Flexibility Coordinator



Supplier



Aggregator



Independent Distribution SO



Distributed Energy Resource



Local Energy Systems



Local Market Operator



Electricity SO



Customer



Transmission Connected Generation



Transmission Connected Demand



Transmission Owner



Independent Distribution Network Operator



Heat



Gas



Consumer Protection Party



Supply Chain



North East West South Area Consortium



Regulator



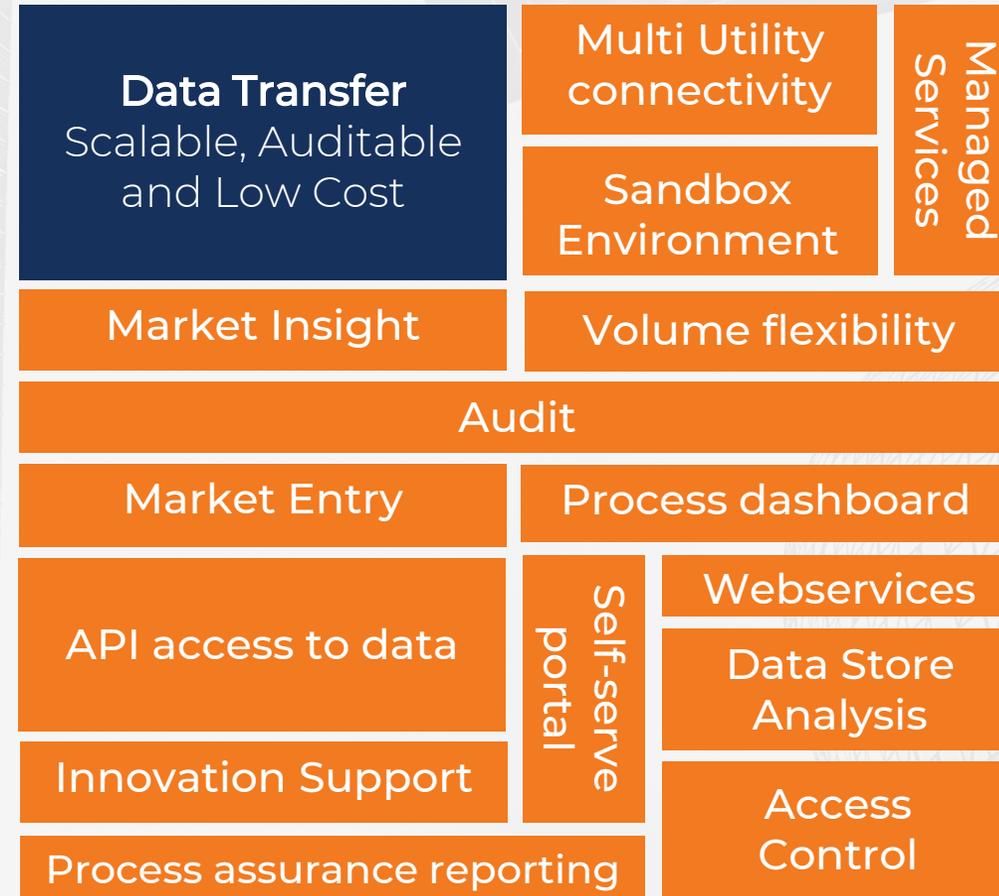
Government



Data Communications Company

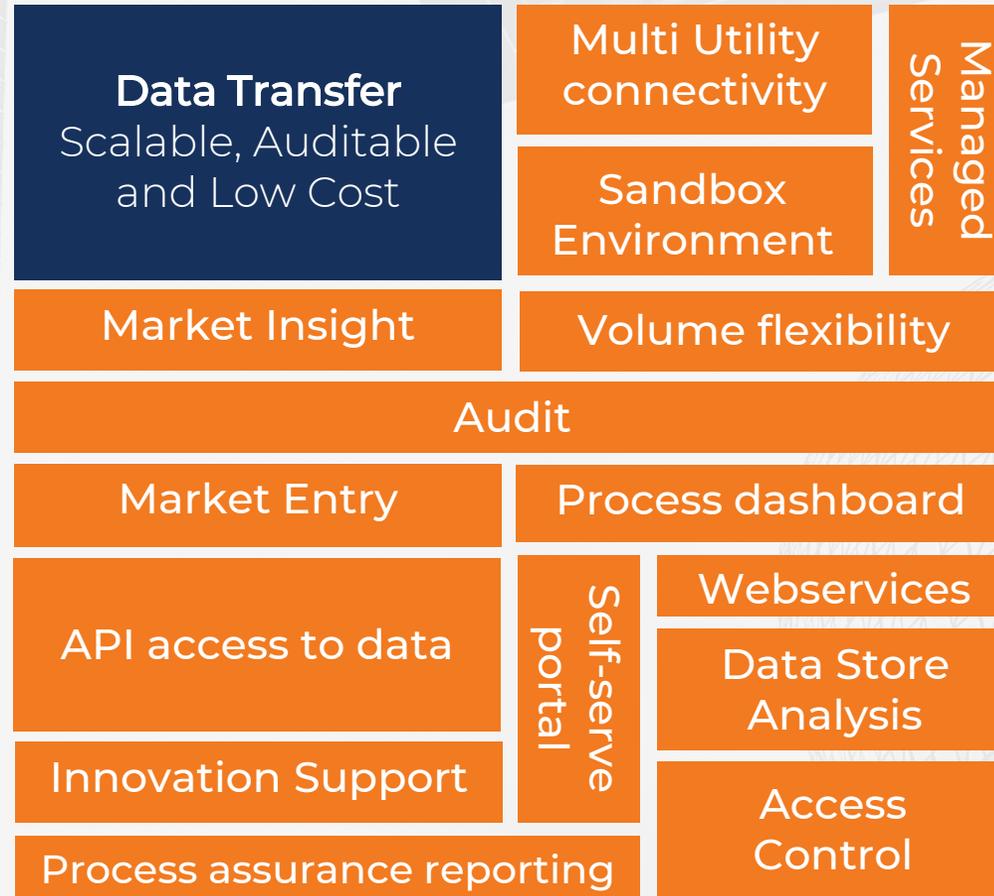
# Services delivered for the now

## Energy Market Data Hub



# Services we will be supporting

## Energy Market Data Hub



- Flexibility co-ordination
- Data market place
- Network monitoring
- Trading
- Managed services
- CSS
- Future settlement
- EV registration

# Data in the changing energy landscape

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Gill Nowell

DSO Lead

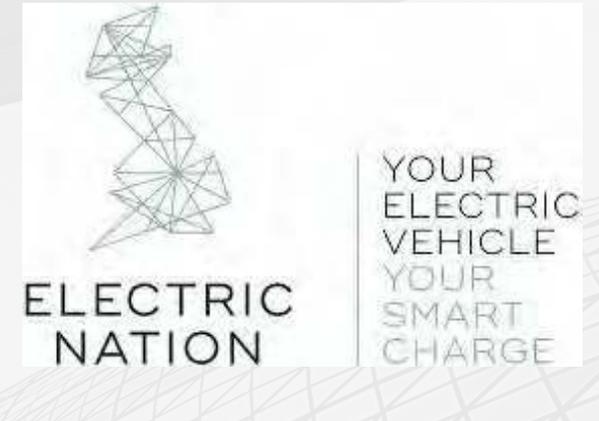
[gill.nowell@electralink.co.uk](mailto:gill.nowell@electralink.co.uk)

# DNO innovation projects



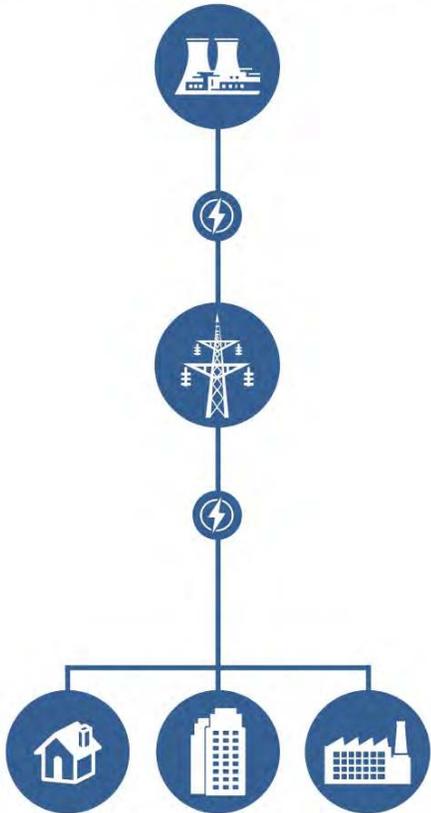
## Network innovation projects 2012 - 2018

- Electric vehicle – grid impact
- Smart charging
- Open access to local electricity data



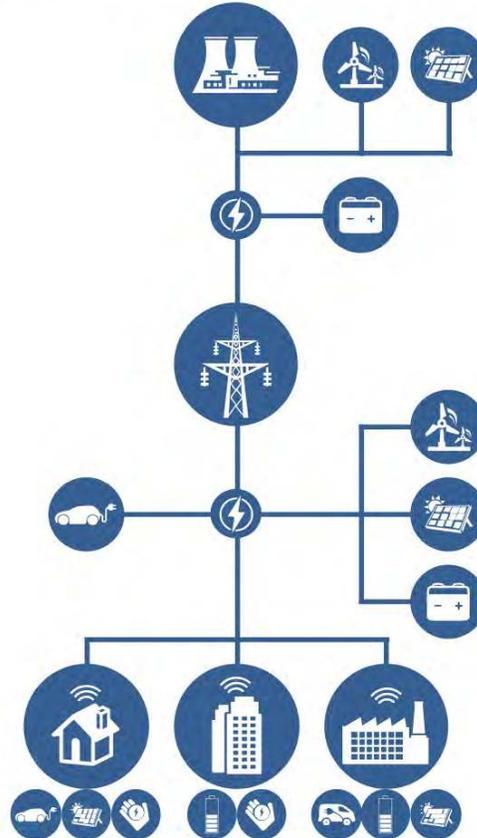
# The role of data in the DSO transition

## Distribution Network Operator World



Passive Network

## Distribution System Operator World



Reactive Network

Active Network

The Distribution System Operator (DSO) challenge

Leveraging flexibility in a decentralised energy market

The Electricity System Operator ESO (TSO) challenge

Balancing the network due to increased volatility

The role of data

Greater exchange of data and close collaboration between DSO and ESO is key to managing these challenges

# Innovation in data methods to support network planning



- Working with a DNO to develop an NIA project to identify electric vehicles, solar PV, and other Distributed Energy Resources on local electricity networks
- Extracting previously inaccessible data from ElectraLink's dataset using IBM's advanced analytics capability
- Output: a virtual monitoring tool to remove need for monitoring in low risk areas / identify need for monitoring in areas of high proliferation

# Data-driven approach to support electric vehicle uptake

- Poor visibility of electric vehicles at the household level
- Potential to extract relevant customer data from the DTS to streamline the EV charge point installation process
- Better visibility will support network planning, forecasting etc. as we move towards smart charging under the Automated and Electric Vehicles Act 2018
- Centralised data hub for recording, populating customer data, and managing domestic EV charge point installations / central EV registry



Courtesy of Electric Nation

# Electric Vehicles and data

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David Richardson  
Innovation Lead, Innovate UK

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@David\_AB\_Rich

# What/who are Innovate UK?

Innovate UK drives **productivity and growth** by supporting businesses to realise the potential of new technologies, develop ideas and **make them a commercial success.**

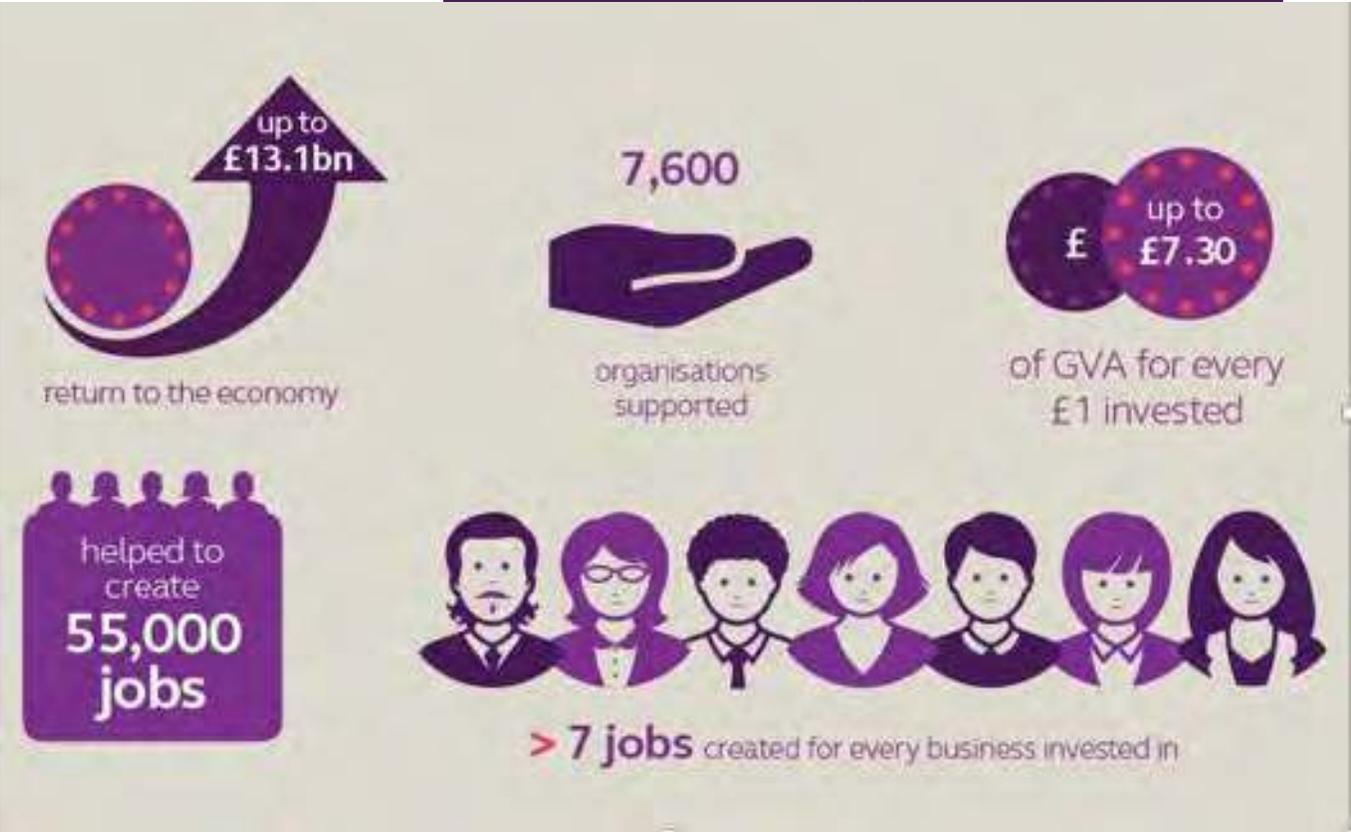
## Innovate UK

### Connect

- Catalyse
- Tackle Barriers
- Champion business

### Fund

- Open Funds
- Challenge Competitions
- De-risking



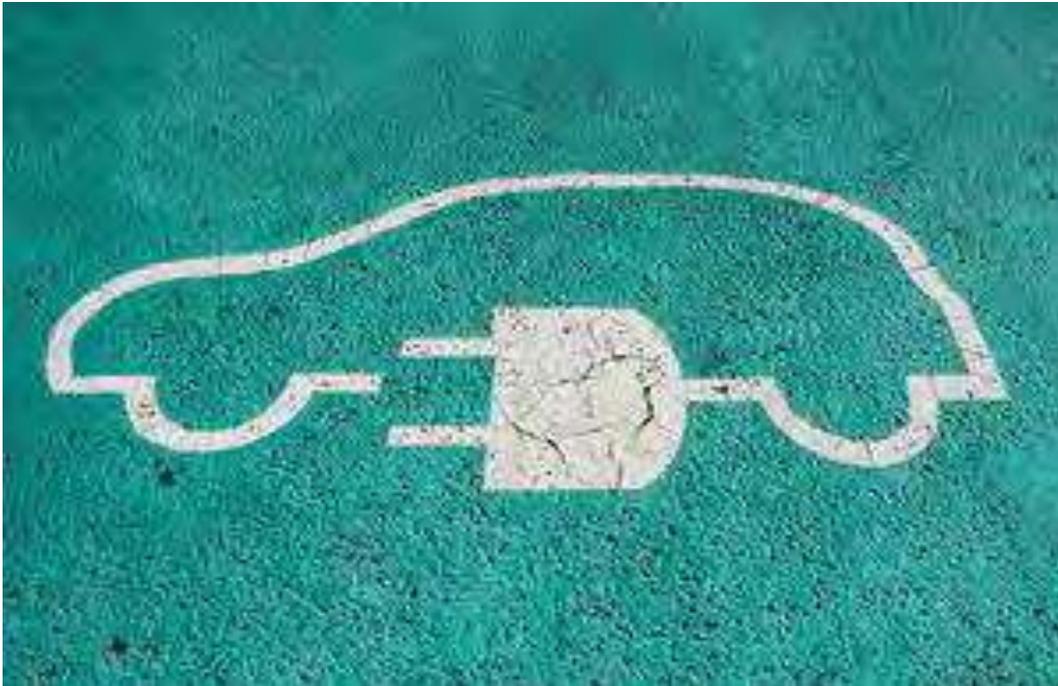
# Chapter 1

What are Innovate UK doing in the electric vehicle area?

# Vehicle to Grid (V2G) projects

Innovate UK

- £30m of Government funding award across 3 competitions in 2018
- **21 projects**
- 17 projects already **live**, with the remaining starting in October



## Impact

- UK becoming the world leader on V2G, in terms of the scale of active V2G projects
- Commercial V2G customer offerings already being offered
- Stimulated growth in the supply chain. EV charger manufacturers developing V2G units and technology providers developing energy services platforms integrating V2G functionality

# Vehicle to Grid (V2G): a snapshot of projects

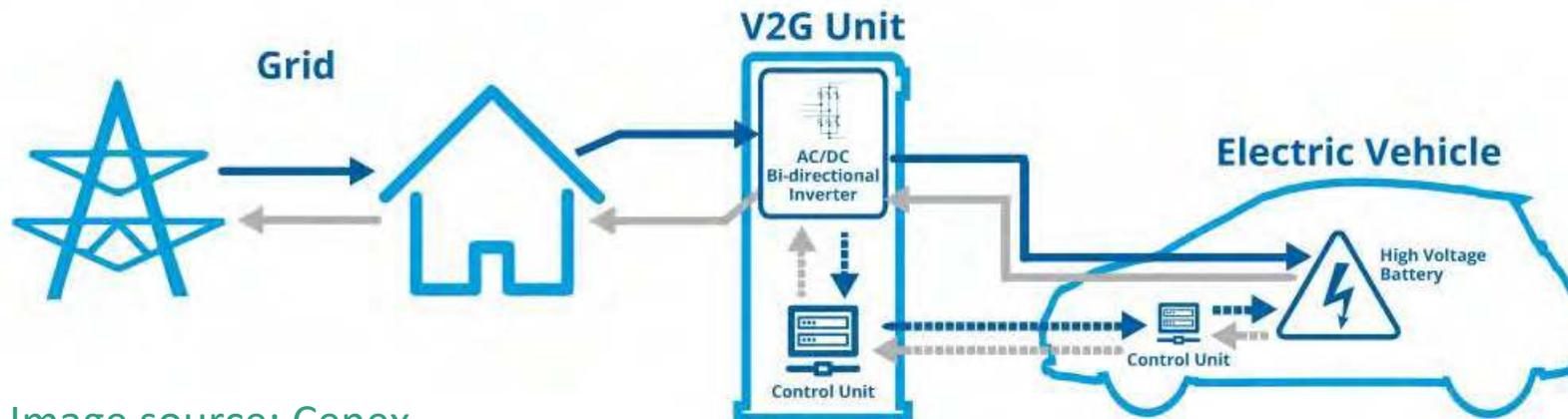
Innovate UK

**150 V2G** enabled EVs on a commercial site to demonstrate service revenues from EVs for businesses

**200 EVs** from a diverse range of urban fleets (parcel delivery, car share etc) investigating **scheduling against user demand.**

**30 e-buses** engaging in **multi-megawatt V2G charging** in London to demonstrate business models.

Aggregated portfolio of projects involves around **3000 vehicles** with largest single projects involving **100s of EVs.**



[Image source: Cenex](#)

[Full list of funded projects published online here](#)

# Electric vehicle charging for public spaces

Innovate UK

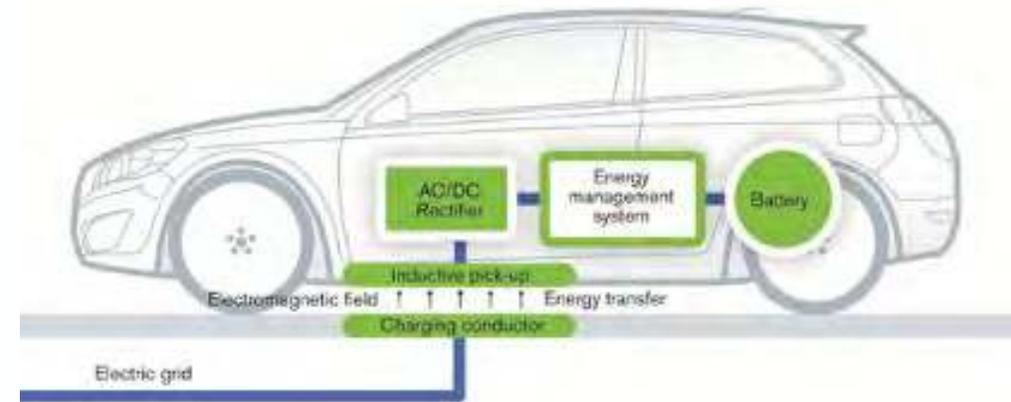
- Up to £20 million for feasibility studies and demonstrator projects
- Competition closed in August. Applicants notified end of September



# Wireless electric vehicle charging for commercial users

- Up to £20 million for feasibility studies and demonstrator projects
- Competition closed in August. Applicants notified end of September
- Focussing on taxis and light commercial vehicles
- Reducing pollution
- Minimising disruption to business

Innovate UK



Static Wireless Power Transfer



Semi-dynamic Wireless Power Transfer

# Industrial Strategy Challenge Fund: Prospering from the Energy Revolution

*£102m to prove that intelligent, local consumer-centric energy approaches can create prosperous clean energy communities across the UK.*

All projects must incorporate Heat, Power and **Transport**

Full details [available online](#)

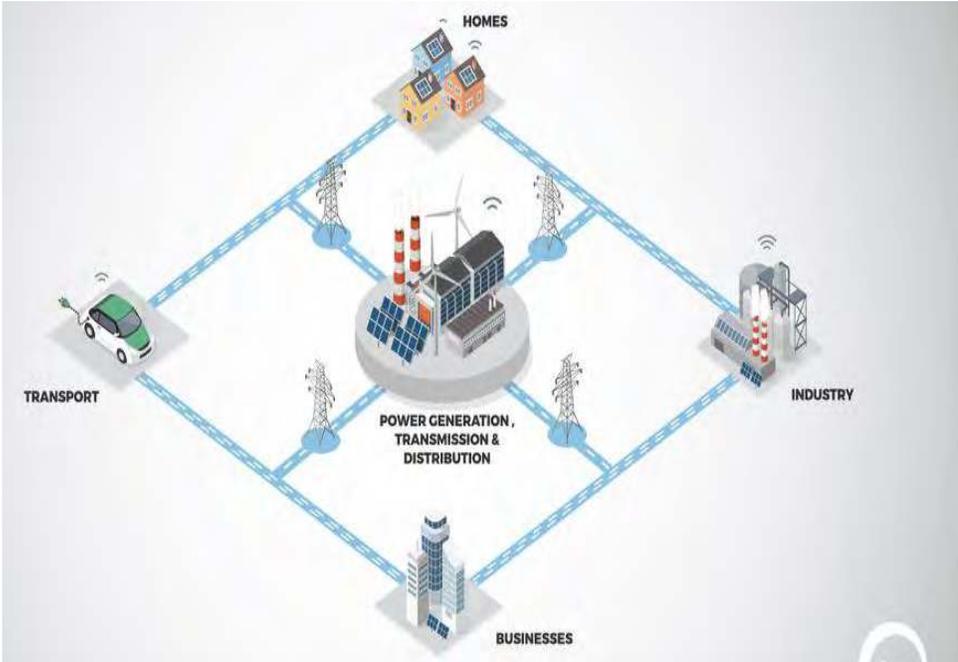
<p>Practical Demonstrators</p>  <p>£40m</p>	<p>Future Designs</p>  <p>£30m</p>	 <p>£10m</p>
<p>Future Energy Model Proving</p>		<p>Innovation Development</p>
 <p>£22m</p> <p>Research, Expertise, Capability, Coordination.</p>		

## Innovate UK

### Concepts and Designs insights

>90% of eligible project applications proposed incorporating Electric Vehicles as part of their local energy system design

>50% proposed incorporating V2G in to their design



# Chapter 2

The importance of data to a  
successful electric vehicle transition

# Charge point registry - an analogy to the smart meter rollout

- Lack of incentives to keep data up-to-date and accurate as meters were replaced, moved, damaged, built around etc.
- Results in more repeat site visits than anticipated which inflates the costs of the roll-out
- Increases dissatisfaction amongst consumers because they didn't get what they wanted, when they were promised it. Also causes inconvenience.
- Could facilitate better services for users, but **must be done it the right way**



How do I know....

Where exactly a charge point is?

Is it working (not broken)?

Will it be compatible with my vehicle?

Does it charge in the way I want to charge?

Will it be available when I want to use it?

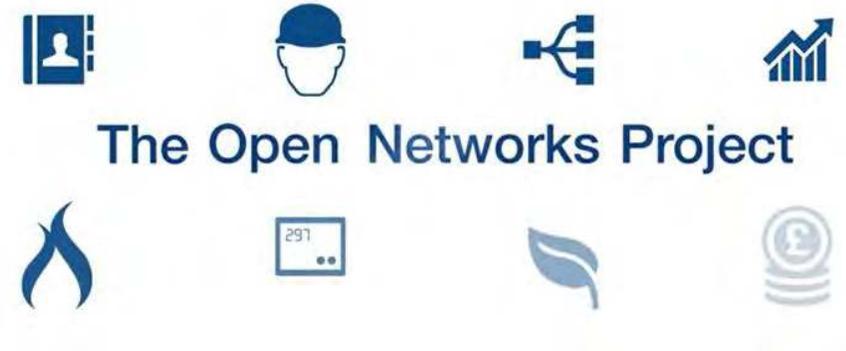
# The interface between distribution networks and vehicle charging data

**Data enables predictability in an increasingly unpredictable environment.**

Data needed:

- Areas of grid constraints
- Areas of grid capacity
- Predictions of both of the above
- Predictions of energy demand (by EVs and otherwise) and generation
- Weather predictions
- Real-time reporting of vehicle movements as well as supply and demand
- Incident reporting (both on roads and network infrastructure)
- Where can we charge/discharge to? Are vehicle owners ok with this?
- And on, and on.....

Innovate UK



**CATAPULT**  
Energy Systems

**LowC<sup>VP</sup>**  
Low Carbon Vehicle Partnership

 Office for Low  
Emission Vehicles

Electric Vehicle Energy Taskforce



# Bundling of service offerings, it's not just about EVs

Further opportunities to bundle energy service offerings with:

- Security
- Healthcare
- Healthy ageing
- Entertainment
- Telecoms



Innovate UK

**Octopus**  
Electric Vehicles

1



**CAR**

Choose your vehicle from our range of 100% electric vehicles

2



**CHARGING**

Be ready to charge your car at home and on the road from day one

3



**INSURANCE**

Insurance included to save you both time and money

4



**BREAKDOWN**

We've got your back with breakdown cover. Plus we'll throw in free tyre replacements too!

**Combining data sources to better understand consumer behaviour and the availability of local microgeneration or storage will help to inform dynamic pricing and transactional relationships for smart charging and V2G/V2H**

# Data accessibility and empowering consumer choice

Innovate UK

## A range of (potentially) competing interests:

- Maintaining, or improving grid resilience
- Minimising vehicle battery degradation
- Maximising revenues, for instance from rapid charging
- Charging as cheaply as possible
- Getting from A to B as quickly as possible
- Having confidence of being able to complete a journey on a single charge

**Consumers will need clear data to make informed decisions, balancing all these conflicts.**

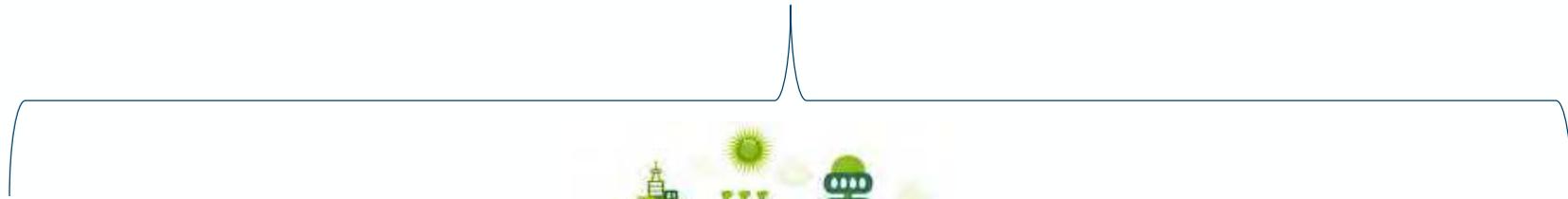
**And, their preferences are likely to change.**

**Data accessibility in a post-GDPR world is all about delivering value to the consumer**

Understanding the needs of all stakeholders  
who use our system

Innovate UK

## Cross-catapult Electric Vehicles 'lenses' project



# Breakout session:



## Topics:

- Value of Industry Data (EMDH)
- Data in the changing energy landscape
- Electric Vehicles

## Host:

Dan Hopkinson  
Gill Nowell  
David Richardson

# FlowBuilder

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Mark Pearce

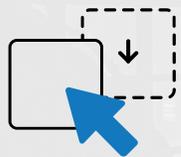
Head of Digital Services, ElectraLink

[Mark.Pearce@electralink.co.uk](mailto:Mark.Pearce@electralink.co.uk)

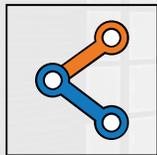
# What is FlowBuilder?

- A graphical 'drag and drop' tool
- Share designs with defined industry parties
- Design new message templates in real time
- Publish new message templates to the DTN – leverage existing DTN features

## Features



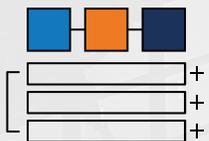
Drag & drop



Share designs with partners



Integrated with the Data Transfer Service



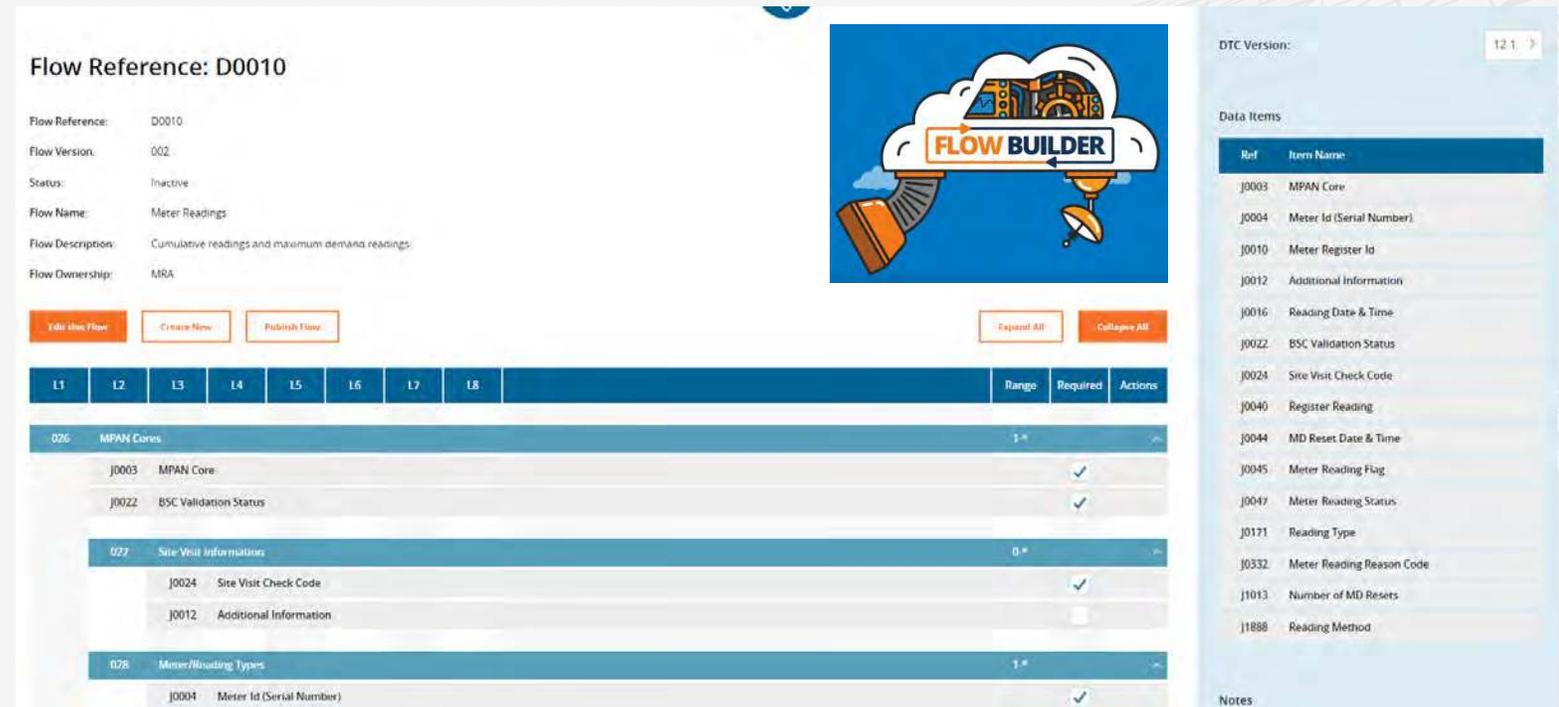
Design new Data Items and Groups



Version control



Download documentation



**Flow Reference: D0010**

Flow Reference: D0010  
Flow Version: 002  
Status: Inactive  
Flow Name: Meter Readings  
Flow Description: Cumulative readings and maximum demand readings  
Flow Ownership: NRA

[Edit this Flow](#) [Create New](#) [Publish Flow](#) [Expand All](#) [Collapse All](#)

L1	L2	L3	L4	L5	L6	L7	L8	Range	Required	Actions
026	MPAN Cores							1..*		
	J0003	MPAN Core							✓	
	J0022	BSC Validation Status							✓	
027	Site Visit Information							0..*		
	J0024	Site Visit Check Code							✓	
	J0012	Additional Information								
028	Meter/Reading Types							1..*		
	J0004	Meter Id (Serial Number)							✓	

**Data Items**

Ref	Item Name
J0003	MPAN Core
J0004	Meter Id (Serial Number)
J0010	Meter Register Id
J0012	Additional Information
J0016	Reading Date & Time
J0022	BSC Validation Status
J0024	Site Visit Check Code
J0040	Register Reading
J0044	MD Reset Date & Time
J0045	Meter Reading Flag
J0047	Meter Reading Status
J0171	Reading Type
J0332	Meter Reading Reason Code
J1013	Number of MD Resets
J1888	Reading Method

DTC Version: 12.1

Notes

# Why do we need FlowBuilder?

FlowBuilder is intended to support and, where possible, expedite existing industry change management processes.

- Currently a change to a DTC flow can take up to 18 months

1

Create messages to mimic upcoming changes for end to end testing

2

Prototype new industry messages

- Support innovation
- Reduce design time
- Fast to test, fast to fail

3

Create new bi-party communications

- Support innovation
- Expedite business processes

# What can FlowBuilder be used for?

## 1 Missed Meter Exchanges

- Suppliers can use a new template to notify MOP's of meter exchanges not previously recorded. Industry records can then be rectified and updated, reducing supplier overheads.

## 2

### Misdirected payments

- Suppliers and PPMIPs can create new messages to notify each other of relevant MPANs and to support process based rectification.

## 4

### Crossed meters

- Suppliers can share information with each other and MOPs to ascertain correct site information and resolve.

## 5

### Customer complaints

- Suppliers can share complaint information securely to aid timely resolution and improve customer experience.

## 3

### Read validation

- Suppliers could create a new message template to respond to a read validation failure notification stating that the reading is correct with justification, or providing a replacement read. This would expedite the solution of valid reads issued subsequent to a failed read being rejected.

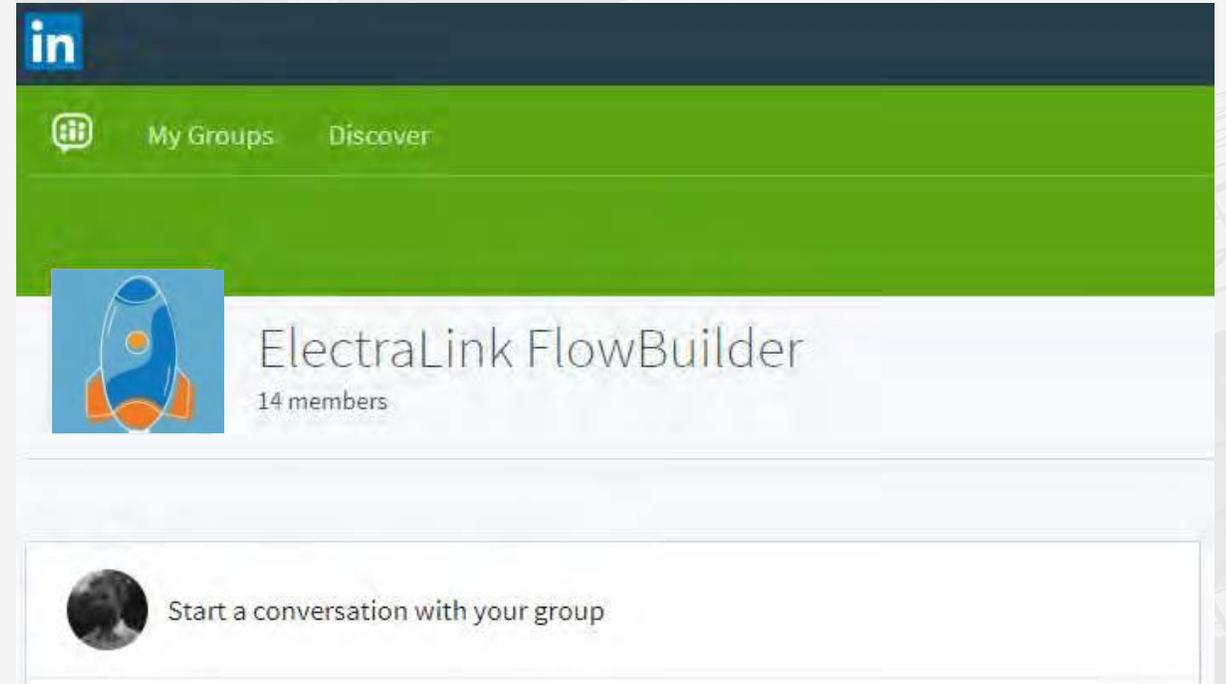
# FlowBuilder: Next steps



FlowBuilder will be launched in October

We'd love to hear your ideas about where FlowBuilder can be used.

Join the conversation by subscribing to our LinkedIn group.



# What will the UK energy market regulatory framework look like in 2030 and what is the roadmap to get there?

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1998

Energy Acts



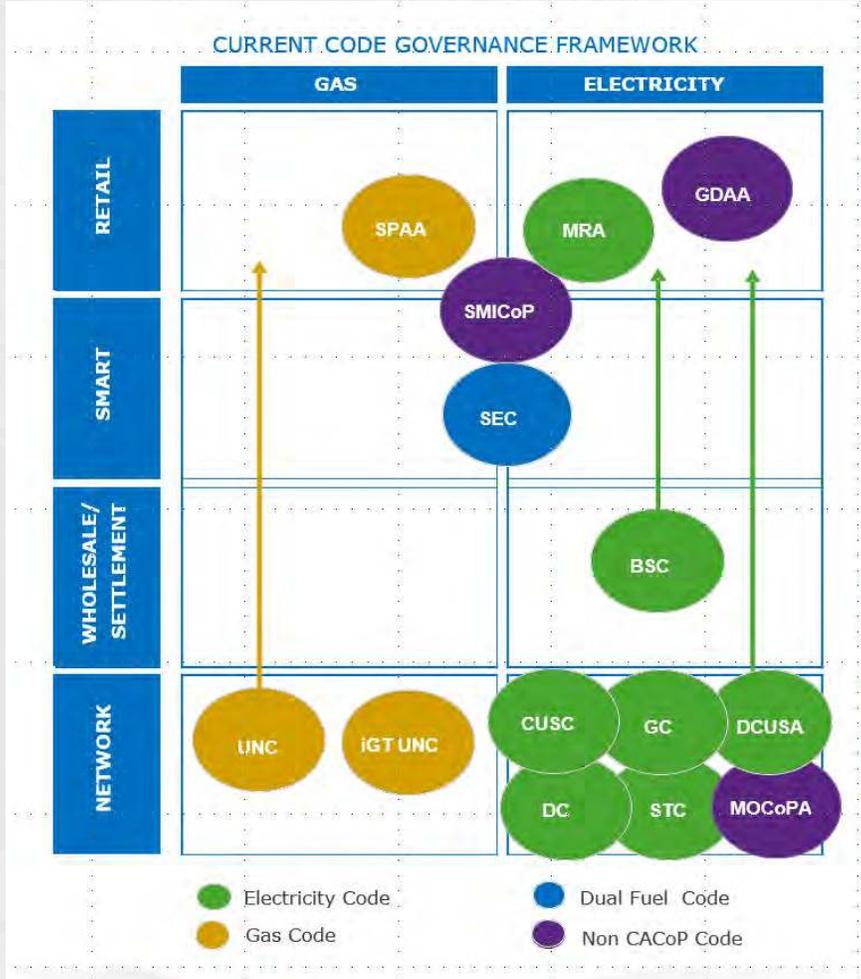
Licences



Codes



# Today



## Customers

Regulate for how customers consume energy  
Principle based regulation  
Focus on outcome rather than process

### Back Office:

- What must happen to deliver customer experience
- What information must flow and where
- Performance levels

## Market

- Regulate to deliver the most efficient operation of the system
- Market should be open, accessible and transparent
- Regulation should only apply to the activities being undertaken
- Flexible to support a range of participants
- Enable innovation and new business models

## Networks

- Outcome based regulation
- Delivery of a reliability standard at the lowest cost
- Allow networks to determine how best to deliver for their networks
- Oversight from Ofgem to ensure costs are efficiently incurred and reward leaders
- Charging regime developed to reward those who minimise the demands of the network

*What is now proved was once only imagined - William Blake*

# The Regulatory Architecture

## Customer

### Retail Licence

- Service
- Needs
- Fairness
- Accuracy
- Rectification

## Customer Code

## Market

### Trading

### Generation

### System Operators

### Demand Side Response

## Market Code

## Network

### Network Licences

- Reliability
- Access
- Efficiency / cost

## Network Code

What information has to flow and where  
Assurance  
Back office

# How do we get there?



*“You can’t just ask customers what they want and then try to give that to them. By the time you get it built, they’ll want something new.”*

**Steve Jobs**

# Industry data

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CEO, Octopus

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# Breakout session:



## Topics:

- Flow Builder
- What will the UK energy market regulatory framework look like in 2030 and what is the roadmap to get there?
- Industry data

## Host:

Mark Pearce

Stefan Leedham

Greg Jackson