

# New Power

## REPORT

AUGUST 2019

'Renewables is becoming a competitive edge and a necessity to grow your economy'

*Andy Kinsella, group chief executive,  
Mainstream Renewable Power*



### 2050

Flexibility is key to net zero

## CAPACITY MARKET

All to play for in three auctions and two reviews



## ENERGY CARRIER

Are we ready to deploy hydrogen?

## GAS PLANS

The future could look very different

'Innovation doesn't come from building consensus, it comes from lots of trying and failing'

*Stuart Lacey, chief executive, Electralink*



To build a diverse, innovative industry, 'look at the data... fund what is working'

*Jess Britton, University of Exeter*

## RAB

Is it the answer to funding big-ticket low carbon power?

# The New Power Interview



## STUART LACEY, ELECTRALINK

Electralink is a ‘central body’ that provides some of the data services that the energy industry depends on. Janet Wood spoke to chief executive Stuart Lacey about leveraging the industry’s data to provide better services and enabling innovation from existing and new players

**W**hen Stuart Lacey joined Electralink in 2010, it seemed as though company’s major activity on behalf of the industry might be about to fall away. The company was one of a handful of ‘central bodies’ set up at the time of energy privatisation to carry out services required by the new industry. In Electralink’s case, that meant the data transfer service (DTS), managing many of the key data flows across the industry – more complicated than it might appear, as they are up to 30 data flows in a change of supplier between parties as diverse as the meter owner, network and supplier.

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With the start of the smart meter rollout that seemed likely to change and, Lacey says, people were saying that the DTS was ‘yesterday’s technology’. But in fact, uses of the DTS have increased from 60 to 275 since his arrival (and Lacey insists that because upgrades have made it more scalable, the individual cost to users has remained the same as the numbers rise). “A lot of these use cases frankly should have been done years ago and they have been kicked down the road,” he says.

We talk about a few of the new ‘use cases’. Some are simple extensions, such as using switching data to find unengaged customers who have never switched.

Some are much more complex and represent a step change towards an ‘Energy Data Hub’ that enables previously separate data sources to be interrogated.

For example, system operator National Grid is not a DTS user but it needed information on embedded generation because as SO it only sees embedded generation as reduction in demand at each Grid Supply Point (GSP). Lacey explains: “National Grid are trying to do a demand forecast and ...they are feeding energy into a GSP, into a demand area, and suddenly demand starts fluctuating in a way that they can’t understand.”

Accurate forecasting reduces the need for contingency so it cuts costs.

Small generators “export data, because they have to do that to get paid – it is part of the settlement process – and we take a copy of it. We can see where you have embedded generation and we can see how much it is generating because it is half hourly data,” Lacey says. “It’s a really strong use case. We said you have to go through the governance process and they did.”

“Although you are not meant to give people personal information unless they have a right to it, there is a provision in GDPR which says that if you have a legitimate use for that information that >

information can be provided to you. So we were able to establish a legitimate use for the system operator." Electralink had previously given National Grid aggregated data, which was not informative, but now the SO has generation data at the customer meter point level on a daily basis.

### NETWORK REVOLUTION

That is just the start. For example, Lacey highlights information about connections to the network. He says network companies have realised that they have to exchange data and they need a secure method to do that. The data they can all access should include "where all the assets are, so they don't dig up each other's stuff".

He says that has "been a long, long programme

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### HOW IT WORKS: DATA FROM THE DTS

The data moved across Electralink's DTS is governed by the data transfer services agreement.

Stuart Lacey explains how that has become the seed for innovation: "What we agreed with them back in 2012 is that we can take a copy of all the data that is crossing the network. Then the scope was just electricity. We expanded into gas, because now we do the change of supplier [data] flows in gas markets and as the scope of the data transferred increases, the amount we can copy goes up."

Electralink is not the holder of industry databases, for example meter point data, which are held by other bodies. But it can create information from data flows. "If they change [supplier] it reveals where they live and what kind of meter they have and it enables us to populate this database from these data flows. It is settlement information; it is the change of supplier information; it is anything to do with meters – we have all of that," Lacey says.

Electralink works to a set of processes defined in the DTS, which is "how, what and when we can reveal that information. If you are a DTS user and you are asking for customer information that you have a right to, then there is no governance issue and it just goes to you."

There are limits. Lacey says: "If you are a DTS user and you want information about other market participants we can't give it to you, but we can give it to you in an aggregated form." For example a company could ask to be benchmarked on the mistakes it makes in switching consumers against the market.

There is more: "If you are a non-DTS user you can still access the data. If you are an innovator in the switching space you can come to us and say with the customer's permission we want some of the information."

When it is established that the innovator has the right permissions and processes on customer permissions, the request goes to the user group. "Virtually all cases they have gone through," Lacey says. That's partly because "it's not an approval, it is an objection process", so unless there is an objection approval is given in 15 working days.

of digitising network assets. I don't know if they're there yet, but they are in a much better shape than they used to be and you have all these assets in a standard form that you can transfer."

But this is old school. In fact, when it comes to data there is a quiet revolution under way.

Lacey says: "The UK is quite unusual in that we have unbundled distribution. In most parts of the world you have a vertically integrated organisation, so you supply and you distribute [power and gas] and you know who your customers are and how much they consume, so there is a complete link between the retail world and the distribution network world."

In GB, Lacey says: "At the moment the only link between the retail world and the distribution world is the details of the number of customers on your network," which is used to apportion 'use of network' charges. "Historically we have managed [network] as a physical asset without really using customer level information. [Networks] weren't interested and they were not incentivised to have customer information."

That is not good enough when the network has to respond to what customers are doing – adding PV, EVs, heat pumps or batteries, or offering demand response, as well as using different amounts of power across the day. Networks need that data to understand when and where they can speed up or delay reinforcement, use demand response, or simply schedule maintenance. For networks, even knowing which meter points are on which element of the network would be a step forward and "extremely powerful" but linking it with information from the retail side is game-changing.

In one example Electralink used this capability alongside WPD to see how consumption has changed over time in specific areas. The changed pattern of use revealed where domestic consumers had EVs, PV or heat pumps (new assets that are not always reported to the networks as regulations require).

Electralink is now working with the Renewable Energy Association on a more ambitious variation on this initiative – and one that uses machine learning. Lacey notes that the DNOs do see where activity is happening on their network but they do not necessarily process that information in the same way as a national organisation or one with an innovative approach. But using machine learning and bringing in additional datasets makes it easier to work out what is going on in the system, which should allow more distributed generation to be connected and reduce costs for all users.

Lacey says: "Our dataset is how consumption has changed over time and if you are a business customer it will be on a half hourly basis. Then you can add in Google maps and see if they have solar panel on panels on the roof. You can add in other >

datasets – you might be able to say that for this particular property or meter this is a bit odd and it will highlight one that needs further investigation. The key point is [networks] can link what is going on physically, including which phase of the distribution network it is connected to, and link that physical

world – which they own and control – with the customer world, which they don't."

That raises all kinds of possibilities as regards new customer propositions that may be pan-utility or have a completely different basis. "Our dataset is not going to solve everything, but it is a key piece of the jigsaw that

you need to put together in order to work this stuff out. When you have a market that is in transition and requires a fairly fundamental level of transformation, making data available is going to be a key part of that," says Lacey.

#### NEW GOVERNANCE

Collectively, Electralink refers to this as the Energy Data Hub. I ask whether it is available to new entrants and Lacey explains that the company wants to do more than just open that box of data. It wants innovators to be able to change industry rules.

That is possible because among Electralink's services alongside running the DTS is governance of several of the dozen or more 'codes' (or sets of rules) by which different parts of the industry are governed.

Once innovators are proven legitimate, Electralink can open up a 'sandbox' of information. "We allow them to play around with it and they see whether there is an opportunity for innovation," Lacey says.

He believes firmly that innovation doesn't come from a process of building consensus, it comes from lots of trying and failing: "I think we as a central body have to move to a 'try and fail' model ... as opposed to a consensus-building detailed market design model, which given

the pace of change doesn't really work.

"We see that not just with central systems but with the codes and with everything else. 1998 created these codes and then put in a change process net. Where we are is way over here and that pace of change is not going to get you there."

#### AGILE OR CENTRALLY DRIVEN

I'm struck by a potential mismatch between Lacey's view of an agile industry, without too much hierarchy, and the Labour Party's plans for regional, local and national energy boards. Lacey says: "I'm not going to pick one side or another in the nationalisation debate."

But more broadly he recalls his time in the telecoms industry while it was moving from monopoly wires to smartphones. "It was a free-for-all, with many new players and a massive transformation. It's a similar transition to the energy market, where you are going from incumbents with big technology, to decentralised generation – batteries, heat pumps etc – and you have the added complexity of climate change," he says.

"You have to embrace the change and you have to operate in a way that means that you are relevant in the new world. Not everyone is going to be relevant."

In 1998, the original deregulation, was a very clear move from monopoly to competition and government could ask the industry to work out how to do it. The result was lots of detailed design and lots of codes.

"That's not the change process we are looking at now – it's lots messier and there is lots more ambiguity. It relies on data transparency and incumbents are going to be challenged," Lacey says.

It seems to me that fears for incumbents could apply as much to institutional incumbents – central bodies, Ofgem, etc – as to companies. Lacey says: "As a general comment you just have to be agile, you have to move quickly and you have to continually reassess which direction you are going..."

"I'm not going to say what Ofgem's role should be, but from a central body perspective that's what we should do and that is what codes should be doing."

Rather than defining every step in a complex process, codes should provide 'bumpers' within which there is plenty of freedom of action and using live data to flag up the unexpected or undesirable outcomes – such as a rise in one company's switching errors.

Lacey does believe there is still a 'code administrator' role so there is some element of coordination and control, but he says: "I would view any change from the perspective of the people who have to use the code. So if I use the code I don't mind if there are 34 or 10, so long as they are transparent and easy to use and simple that's fine." >

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Actually, he says, they are neither. So, "there are too many codes. It is not just a question of banging them together, because that will give you three horrendously complicated codes. If you are going to consolidate you have to do it in a way that makes them much more transparent, with less micromanagement and more around principles and data so that you can see what is going on in the market."

The new Retail Energy Code is a good start, he believes.

On the network side, the technical and economic distinction between transmission and distribution should not trouble new entrants: "We should be looking to create something so that innovators in the market don't have to distinguish between transmission and distribution,

but they just know what they have to pay for use of the network."

To come through any changes in central bodies Electricalink is focusing on making its data services more agile and open. As well as the Energy Data Hub it is using Amazon Web services to combine data with analytics. It is regulated by Ofgem and all of its charges are cost recovery, agreed by its industry stakeholders. Lacey says: "We had public procurement and we were procuring a platform for industry. Now because the platform is in the public cloud it is scalable."

He wants to take on other industry services and claims: "If Ofgem said we would do half hourly settlement tomorrow it would be [scalable] like Amazon at Christmas. All the industry systems might fall over but ours wouldn't."

Even without that being in Electricalink's portfolio, "clearly there's going to be much more data transfer", believes Lacey.

"I can guarantee that's going to get really really complicated: I can see a situation where there are many more participants coming into the market that will need to exchange information. There could be thousands of users."

He is referring to the expansion from a 'big six' of energy companies with "all these people popping up, like concierge or switching services or aggregators. What I do know is that in order to be able

to operate in the market they will have to exchange information." The company has already recruited extra staff to serve EV charging companies.

New entrants do not have to use the DTS – it is a voluntary system – but data in one place is undoubtedly easier. Electricalink is working hard to add to its options.

The latest, 'Flow Builder', is under development. It upends the usual change process, because "what you don't do is start with the code when you don't have a clue what you want to do. You don't want to have to do a change process to get a new flow onto the system, because by the time you've done it the market will have moved on," Lacey says.

Instead, without necessarily knowing how it might be used or what structure of information you need for your innovation, "you can create the flow, publish it, exchange information – so you might have a little ecosystem, say of demand-side aggregators". It is the type of option that responds well to a hackathon approach. If the flow works and has support, "then you go into the codes and you say we've tested it and it works. We want everyone in the industry to exchange information in this format in order to facilitate the following process."

### PROCURE OR REPURPOSE?

Electricalink is competing for the industry's data business and it has missed out on some opportunities. One was the faster switching service. It is a procurement that has been run by the DCC, which will now add a central registration service (which records which meter is being used by which supplier) to its responsibilities.

Currently gas meter registration is in Xoserve and for electricity meters it is split between the DNOs. The DCC will consolidate all that.

Lacey argues that Electricalink could do that job and use existing interfaces: "We had a big argument with Ofgem and we lost the argument. They went into competitive procurement and now you have to buy that interface on a commercial basis and it has proven to be a very expensive proposition."

Now a central switching service is being procured and Electricalink had a very similar discussion with Ofgem. "This time they were listening and they went to consultation on this ... The DTS will be used as an interface into the CSS and we are working with the DCC programme to provide that." It will go live in 2020-21.

There are options for a change in data use. In finding a new use case, Lacey says: "Some people that we speak to will go bust, but that's the nature of the innovation process: try, fail, try, fail.

"The fundamental is that underpinning it all is the customers have a right to their data and customers give permission to an organisation to use their data." **NP**

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