Customer Connections Steering Group - CCSG

3rd February 2022

CCSG - Introduction

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

Agenda

Introduction to CCSG	Kester Jones	10:00 – 10:10
Director's Update	Alison Sleightholm	10:10 – 10:40
LCT EV update	Peter White	10:40 – 11:00
Refreshment / Comfort Break		11:00 – 11:10
Trigger Point - EV hubs	Vanessa Buxton	11:10 – 11:30
Trigger Point - 33kV and above	Andrew Akani	11:30 – 11:50
Budget Estimate - Charging	Andrew Akani	11:50 – 12:05
Summary & Feedback - ICE Actions 2022/2023	Kester Jones	12:05 – 12:15
Finish		12:15pm

CCSG – Our RIIO ED2 Business Plan

Alison Sleightholm

Resources and External Affairs Director

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What we have published

www.westernpower.co.uk/RIIO-ED2BusinessPlan

6 core documents

- RIIO-ED2 Business Plan
- RIIO-ED2 Business Plan Fact Sheet
- Business Plan Overview
- Navigating our Plan
- Board Assurance Statement
- Redaction Explanatory Statement

13 supplementary annexes

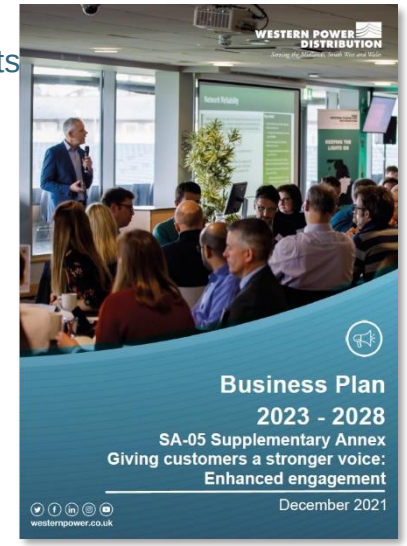
1. Governance
2. Our commitments

2a. Justification

3. Smart and flexible network
4. Keeping promises
5. Engagement

6/6a. Expenditure

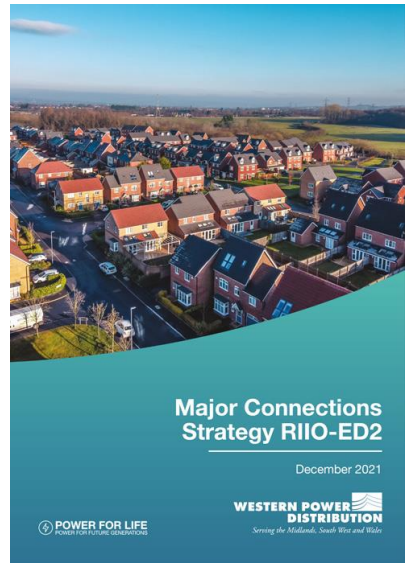
7. Uncertainty
8. Competition
9. Financing
10. Glossary
11. Investment appraisal



22 key strategies

Including:

- Innovation and efficiency
- Customer vulnerability
- Digitalisation
- DSO
- Electric Vehicle
- Environment
- Environmental Action Plan
- Major connections
- Social contract
- Workforce resilience



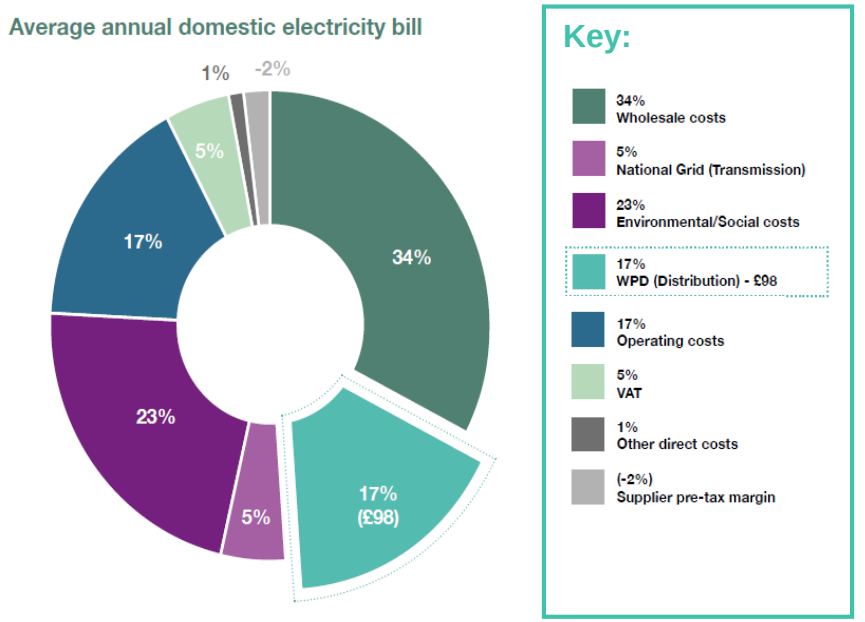
Expenditure

- **We propose to invest around £6.7 billion** in the network across the period 2023-2028
- **This is an increase of around £1.4 billion** from current levels

Average current annual expenditure
£1.05 billion

Average annual expenditure proposed for RIIO-ED2
£1.34 billion

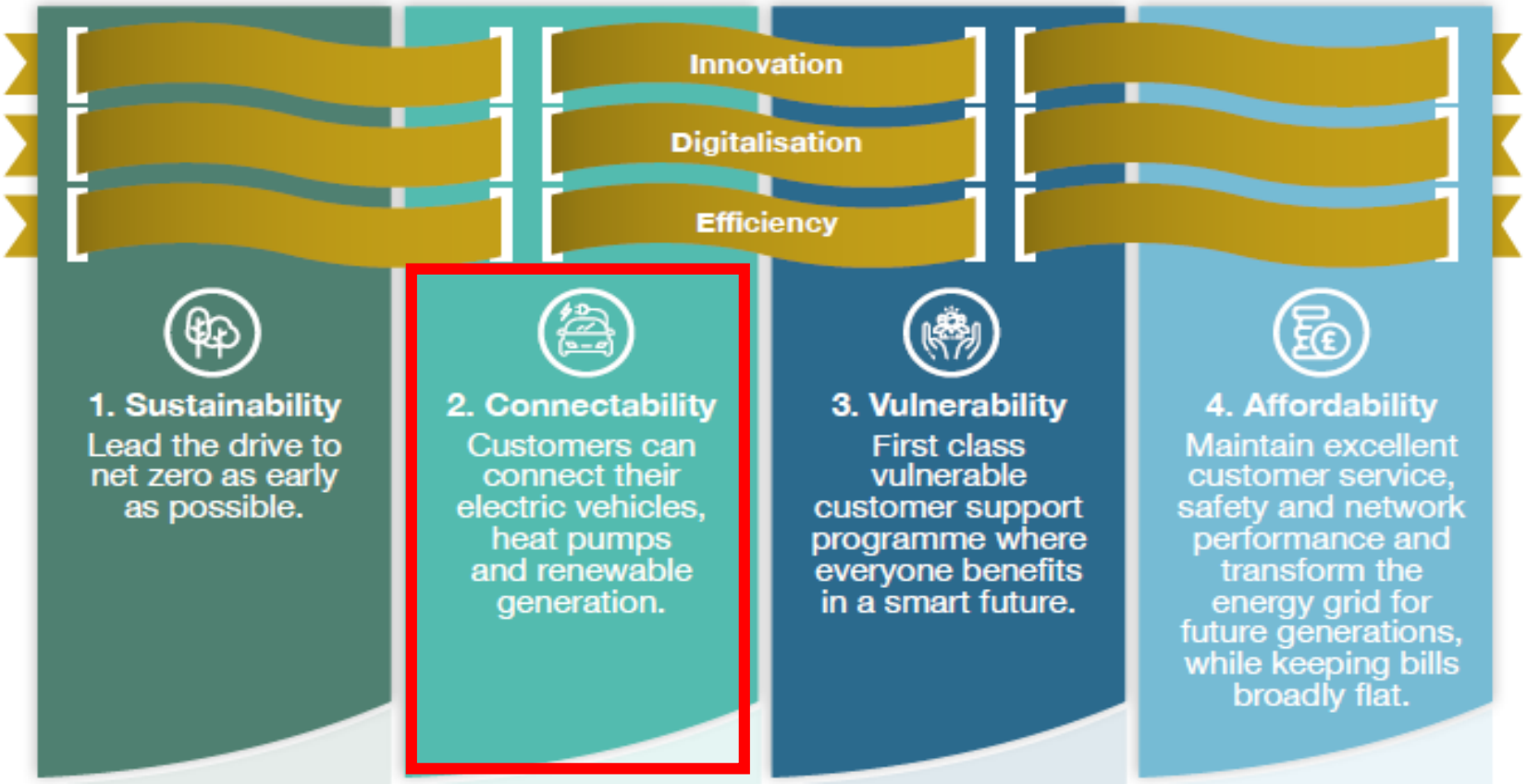
- **We expect the bill to remain broadly at the same level in RIIO-ED2 despite significant increases in expenditure and stretching service improvement targets.**



An ambitious vision for the future

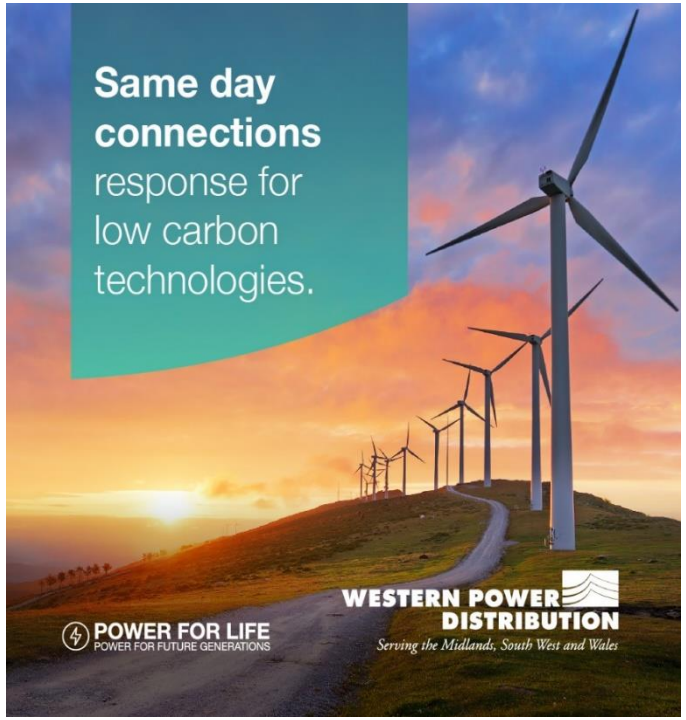
Our Business Plan contains 42 core commitments and over 400 wider commitments that we will deliver in RIIO-ED2 while keeping bills broadly flat

- We will achieve the key deliverables based on four strategic outcomes, which have three ‘golden threads’ running through each:



Connectability

Customers can easily connect their EVs, heat pumps and renewable generation



Plus an ambitious set of core commitments, including:

Ready for at least an additional 1.5 million electric vehicles and 600,000 heat pumps by 2028.

- Ensure customers are able to connect low carbon technologies quickly and easily

Huge uplifts in community energy with 30 new schemes a year

- Actively support the expansion of green, renewable energy generation
- Help communities to decarbonise and lower bills

Innovative uncertainty mechanisms ensure our plan is highly adaptive

- We will deliver a network to meet the evolving needs of our customers
- Align our future energy forecasts with the plans of local regions and the ESO.

Whole systems approach to drive best outcomes for customers

- Three regional collaboration trial schemes by 2025 involving gas, electricity, water, waste, transport and heating sectors.

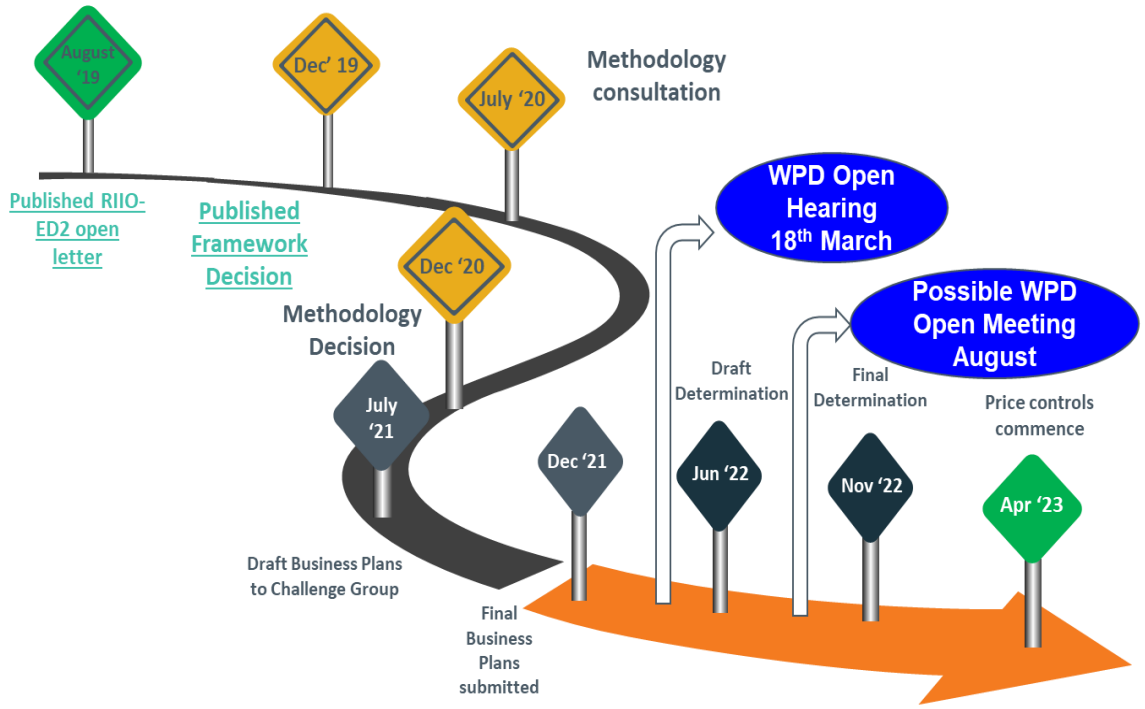
Connectability

Customers can easily connect their EVs, heat pumps and renewable generation

2.4 Connections					Justification method	
	Core commitment	Commitment Type	Change from RIIO-ED1	Positive impact for customers	Annex 2a - Detailed Justification	Annex 5 - Stakeholder Justification
31	**Make it as easy as possible for customers to apply to connect individual domestic low carbon technologies by providing a same day connections response via an online self-assessment tool**	Bespoke ODI-R	New	Enable customers to receive a rapid response to their connection applications for potentially high volume connection types.	✓	✓
32	**Provide quicker and cheaper connections options for customers by increasing the number of flexible connection offers made, ensuring 100% of schemes receive a flexible alternative to reinforcement where the reinforcement cost is >£75k for LV, 11kV and 33kV connections and >£100k for 66kV or 132kV connections and/or where works will take more than 12 or 18 months respectively to complete.**	Bespoke ODI-R	Significantly lowered threshold (from >£125k)	More customers can choose between a conventional reinforcement solution, or a cheaper and quicker flexible solution.		✓

OFGEM's Timeline for RIIO-ED2

- CEG & CG Reports to be published Monday 7th February
- Call for Evidence closes 7th February
- WPD Open Hearing:
  - **Friday 18th March 2022 10.00hrs – 12:00hrs**
  - Panel to be WPD Executive, Ofgem, GEMA, CG, CEG and stakeholder representatives - Citizens Advice etc.



Have you say

- **The Call for Evidence closes on 7th February**
- **You can feedback via the Open Hearing on 18th March**
- **The CCSG can feedback directly to us**
- **Individuals can have One to Ones with Kester to share your views and/or express your concerns**

Storm Arwen 26th – 30th November 2021

- Storm Arwen affected all 4 of WPD's networks from 26-30th November 2021 with exceptional weather including winds >92mph in South West and heavy snow falling in areas of the Midlands.
- A months' worth of faults in the period
- In total, WPD responded to over 1,600 incidents and restored supplies to over 240,000 customers
- ~99% of all WPD affected customers had supply restored in less than 48 hours
- Power was restored to all homes across UK after 12 days – 120+ WPD teams sent to help other DNOs
- BEIS and Ofgem investigations into DNO storm response are ongoing
- All customers have received the relevant compensation from WPD (>98% paid before Christmas)

Questions?

EV Update

Peter White
System Development Engineer

3rd February 2022

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Context for Low Carbon Technologies

- UK Governments ban on sale of cars and light van ICE vehicles by 2030 and ICE HGVs by 2040 will mean that all new vehicles will require charging facilities going forward.
- Our exposure would be roughly 500,000 low carbon connections per year
- ……or 2,000 for each working day.
- This prompted WPD to introduce the current Traffic light system for assessment of applications.
- The next step in the evolution is now in the process of being implemented by the introduction of the SPENs NIA funded iDentify App which is a digital transfer of data between all parties this will automate the application process and provide faster responses for installers and the customers.

Cars and light van charging

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Home Charging

- Electric Nation showed that EV drivers do not charge every night.
- EV drivers do react to price signals.
- Current EV tariff structures cause most EV charging to move away from charging at the peak times.
- WPD have changed our network design models to reduce the overall impact of EV chargers.
- WPD have changed the connection policy to allow all domestic (7kW) EV chargers to be accepted for connection, with any network upgrades being completed at a later date.

Cars and light vans

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Destination Charging

- Early stakeholder engagement with Local Authorities (LA's) showed they were more likely to offer car park based charging than on-street solutions.
- Consequently WPD have developed versions of our local substations which are specifically wired for EV charger connections.
- This will offer 1.5MW of charge capacity at each location.
- It can be used at any car park and takes up about two parking spaces.

Cars and light vans

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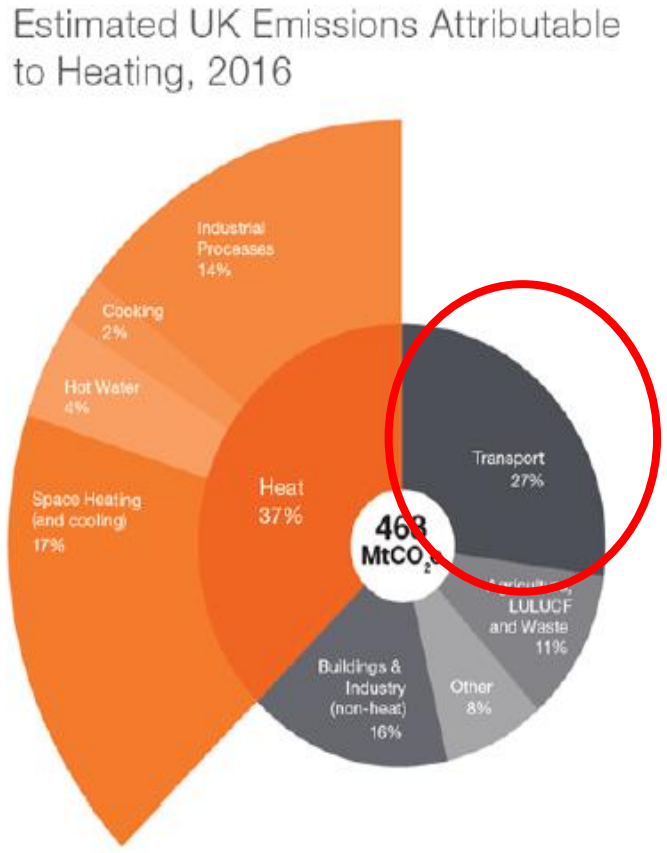
En-Route charging

- The Government's Project Rapid predicts that MSAs will require multiple Mega Watts of charge capacity for cars and light vans.
- In many cases the demand will be the same as a small town.
- Our "Take Charge" innovation project is developing a solution to the problem.
- We have shrunk a version of our 33/11kV substation into two shipping containers for use at MSAs.
- Our trial site at Moto Exeter is being built this winter and will have 12MW of capacity on site.

Setting the scene.

- In the UK, Transport according to BEIS creates some 27% of the UKs CO_2 emissions.
- Urban freight is responsible for one – quarter of urban transport emissions in most advanced economies.
- E-commerce has increased freight volume in cities and shifted logistics vehicles to local streets and A roads. As the EV market grows, electrification of logistics vehicles can play a significant role in reducing air pollution in cities.
- ULEZ zones will also drive adoption of BEV HGVs.
- Mature EV cities now operate procurement so that municipal fleets buy EVs in all but exceptional circumstances.



Where BEV HGVs can charge.

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- 1) **Depot charging:** is likely to be the first focus of electrification efforts as early adopter logistics companies can easily install the exact chargers they need for their use case. Typically for HGVs these will be 100 or 150kW. Understanding the use case would help give insight for network design.

- 2) **Destination or opportunity charging:** In all logistics use cases, loading and unloading cargo is an important scheduling component next to driving and resting times. If these timeframes were used for charging the vehicle, the vehicle would be able to do multiple trips without returning to the depot. It is important to note that opportunity charging requires a close cooperation between a logistics supplier and their customer, e.g. grocery stores or industrial plants.

- 3) **Public hub charging or On-Route charging:** When a scheduled trip exceeds the range of an electric truck, roughly 100-300km for early models, the dispatcher will have to schedule an additional stop for charging at a public fast charger. These will be a mixture of CCS2 and MCS

Background to HGV charging.

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- There is a variety of truck use cases and these differ significantly with respect to trip characteristics, vehicle types, their payload, and daily routines.

- Annual conventional ICE sales amounted to roughly 375,000 medium and heavy-duty trucks in 2018 in the EU and nearby relevant markets i.e. UK, Switzerland and Norway. Heavy-duty trucks make up the majority of the market, with the remaining portion comprising 12,000 light-duty trucks and 44,000 medium-duty trucks.

- The majority of vehicles are idle for over 9 hours per day, presenting a clear opportunity for vehicle charging at lower power levels. So understanding where and how many is critical.

- Depot charging is the key charging scenario for all use cases, although Long-haul will need reliable public charging as well. Installing an EV Charger network of currently up to 350kW CCS 2 chargers and provision of the new MCS charging system across UK in the Motorway Service Areas (MSAs) would allow more and more use cases to switch to electric HGVs. Understanding the two use cases for HGVs in MSAs is critical.

BEV HGV charging.

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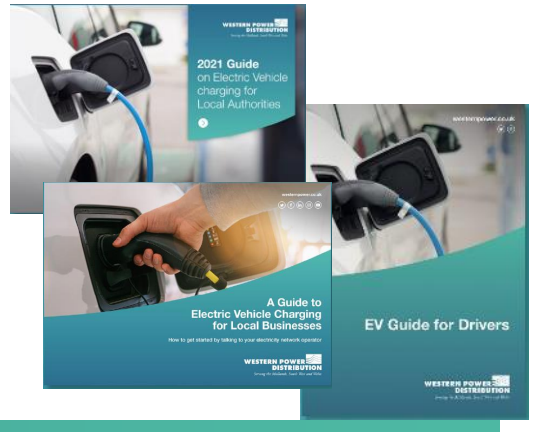
- The CharIn consortium which produced the CCS / CCS 2 standard used on most cars and light vans are in the process of type testing the Megawatt Charging System (MCS) for BEV HGVs.

- Fleet users who are charging vehicles overnight in a depot are going to need a relatively large electricity supply to meet their needs. But, as the majority of charging will take place overnight at times of low demand for the network, we'll be able to offer flexible solutions such as Alternative Connections to these customers to make the most efficient use of the network. Consideration also needs to be given to trailers which require charging i.e. refrigeration trailers, how are these charged at the same time as the horse?

- WPD have created various customer-specific guide documents for the different types of stakeholders involved with the charging of Battery Electric Vehicles (BEVs) and heat pumps. These guides can be found at: -
  http://www.westernpower.co.uk/smarter-networks/

- The guides are updated yearly and can be downloaded from the WPD website.



Making good use of the network.

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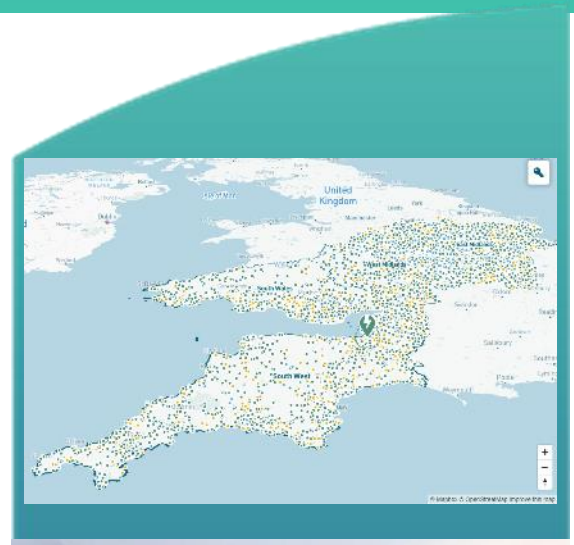
- WPD's website has a capacity heat map which covers the whole company area and provides data at the Primary substation level or at the Distribution substation level showing the capacity available to support EV charging or the connection of other Low Carbon Technologies (LCTs) from a Primary or Distribution transformer level.
- The WPD DFES is showing by 2030 there could be between 500k and 800k HGVs operating in WPD area.
- These vehicles can have batteries of 750kWh in size.
- Local Authorities like Nottingham are already running BEV HGVs and buses.



Connecting BEV HGV fleet depots.

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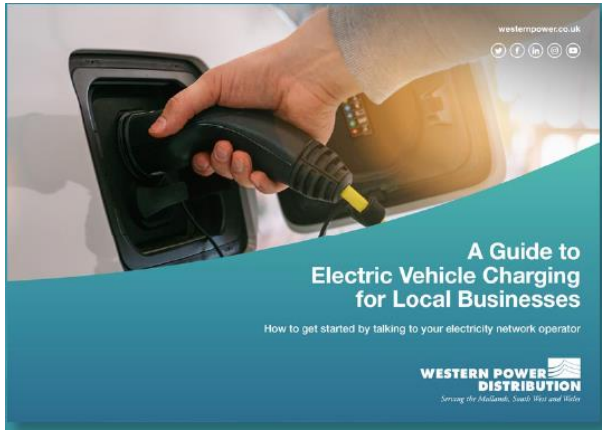
- WPD are in the process of producing a guide for HGV fleets and the journey they need to take to convert to BEV HGVs.
- WPD hold one to one surgeries with customers to help them in the de-carbonisation of HGV transport journey.
- We have a number of solutions to cater for the size of BEV HGV fleet, going from a single BEV HGV rapid charger to supplying + 20MVA capacity of anytime charging and all things in between.
- Or to using timed charging to make use of “lightly loaded” network periods. Because of all the alternatives that are available WPD suggest that the earlier you engage with WPD the easier the journey will be.



In summary

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- The drive to Net Zero is one of the biggest changes to electricity networks since rural electrification in the 1950s.
- WPD are already working to make future capacity available, both on existing networks and for newly installed networks.
- We want to make the process as simple as possible for all early adopters of cars, light vans and BEV HGVs.
- WPD have the options at all capacity sizes to support charger demands.
- With BEV HGVs the location of the charging port on the vehicle becomes critical this should be standardised so that chargers are in the correct position and the HGV is not blocking space.
- Though needs to be given to Interoperability, how long distance BEV HGVs plug in and charge when they are in the EU. Apps and RFID cards will not work!!
- Could PnC be part of the solution.

Questions?

Trigger Point

EV charging hubs

Vanessa Buxton
Connections Strategy Engineer

3rd February 2021

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CALL 105

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Trigger Point – EV charging hubs

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Background

- We are receiving increasing volumes of applications for dedicated charging hubs, both directly connected and through IDNO connections.
- Installers have stated that they may be able to constrain their energy usage if to do so would negate the need for reinforcement.
- We are seeking to establish a trigger point approach for EV charging hubs at 1MVA or greater, including those to be connected to the 11kV distribution system.

Trigger Point – EV charging hubs

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Relevant schemes

A relevant scheme will be one that meets the following criteria:

- Dedicated EV charging hubs for 1MVA or above;
- To be connected either directly to WPD network or via an IDNO embedded network; and
- Triggering reinforcement works.

For clarity, this process excludes schemes which are predominantly demand and/or commercial premises which require an element of EV charging capability.

Trigger Point – EV charging hubs

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Establishing the trigger point

- For relevant schemes, we will carry out additional studies to determine the trigger point. This is the capacity that may be provided without triggering the reinforcement works.

- If the study identifies that reinforcement work is required irrespective of the capacity, we will continue to provide a Connection Offer for the requested capacity.

Trigger Point – EV charging hubs

Providing the customer with a choice

- Where we establish that there is a trigger point, we will notify the Customer in writing.
- The Customer will be provided with 2 working days to decide whether to reduce their required capacity to the lower value or proceed with the offer for the full requested capacity.
- If no response is received within 2 working days, we will progress the Offer on the basis of the requested capacity.

Trigger Point – EV charging hubs

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Consideration

We want to ensure that what we offer is viable for the Customer.

Is there a lower limit we should consider prior to offering trigger point information?

For example, do we offer trigger point information for:

- All identified capacities?
- Capacities >50% of the original request?
- Other options?

Questions?

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EHV Reinforcement trigger point information

Andrew Akani

Primary System Design Manager

3rd February 2022

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Reinforcement trigger point level

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Objective

- Improve the application process for major connections at 33kV and above by providing the reinforcement trigger level, where applicable.
- Part of our ICE 2021/22 Plan initiative – Action 15.

15 Reinforcement Trigger Level	Create something that identifies 'tipping points' where connection costs change. Allow the planner/designer to be pro-active in contacting the customer giving feedback on the connection. (Tipping point).	Improve the application process for major connections at 33kV and above to provide the reinforcement trigger level for relevant customer applications. The process will allow WPD to inform a customer of the level of reduction in capacity required to not trigger reinforcement, so that a customer can make an informed choice as to whether to proceed with their full capacity and pay for reinforcement, or to reduce capacity and avoid reinforcement.	Positive feedback from stakeholders on the improvements completed.	Q4 Dec 2021

- Allow customers to make an informed choice as to whether to proceed with their full capacity and pay for reinforcement, or to reduce capacity and avoid reinforcement.

Reinforcement trigger point level

How it works

- Trigger point information included in Point of Connection (PoC) letter.
- Customers are given an opportunity to reduce their requested capacity to avoid or reduce the reinforcement costs, if they choose to.
- Customers have 2 working days to respond in writing (email) otherwise Offer is progressed on basis of initial requested capacity.
- Went live on the **6th December 2021**.

Reinforcement trigger point level

Feedback

- Trigger point information went live on the 6th December 2021.
- Still early days, but some customers are evidently taking the opportunity to revise their capacity and avoid reinforcement.
- We will seek formal feedback from relevant customers and carry out a review in due course, possibly after 6 months.
- There are quite a few constrained networks where any material capacity triggers reinforcement.
- Your comments and views on this are welcome.

Questions?

Multiple EHV Budget Estimates

Andrew Akani
Primary System Design Manager

3rd February 2022

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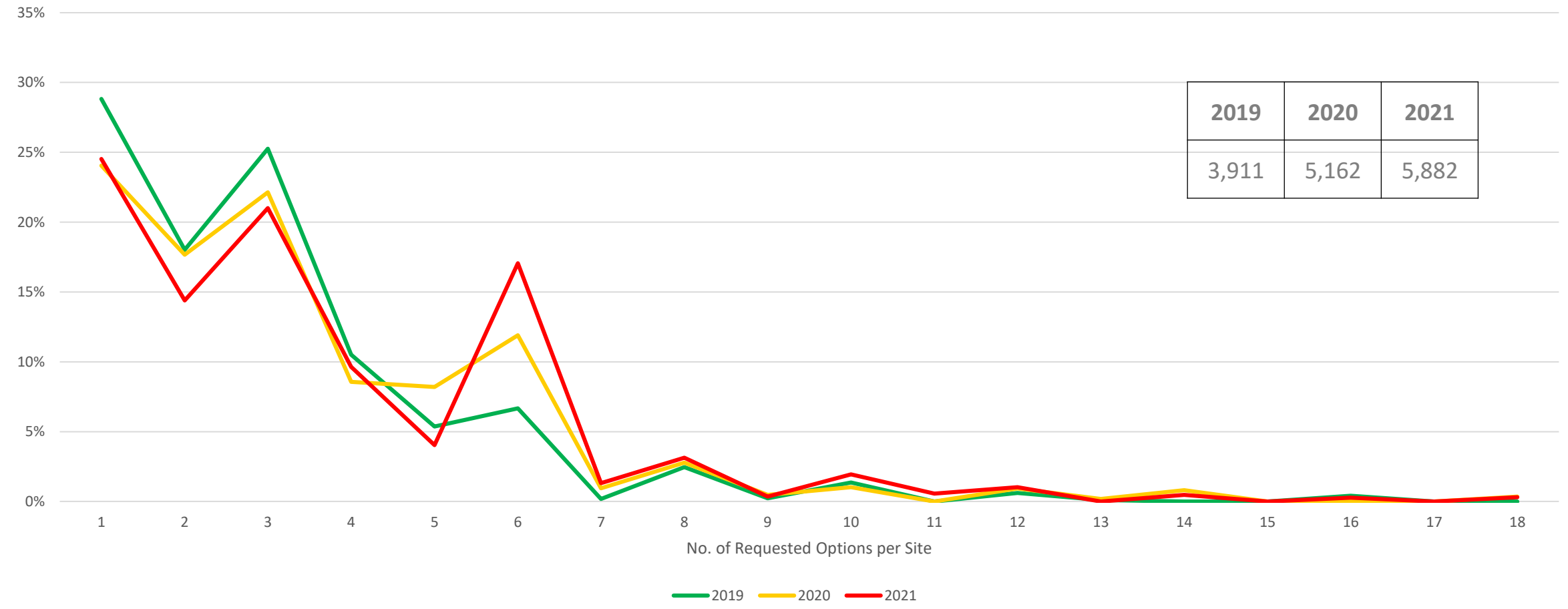
Current practice

Assessment & design fees

- Budget applications
  - LV - no charges
  - HV - no charges
  - EHV - no charges

- Formal applications
  - LV - no charges
  - HV - no charges
  - EHV - A & D fees applicable

Need case for change in approach



2019	2020	2021
3,911	5,162	5,882

Need case for change in approach

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Key items of note over the last 3 years

- Increasing volumes of options of up to 18 options.
  - 17% asked for 6 options last year.

- Top ten customers are responsible for over 40% of the total budget volumes.

Top ten Customers	2019	2020	2021
	1,957	2,214	2,579
	50%	43%	44%

Consultation & outcome

- **Q1**. Is the charge of £300 too high, too low or about right?

  The majority of respondents (40%) felt that this charge was about right.

- Q2. A restriction of six months will apply from issue of the budget estimate(s) for further free budget estimates to be issued at a site. Is the six months restriction for further free of charge budget estimates too short, too long or about right?
  - **The majority of respondents (45%) felt that the restriction of six months was about right.**

- Q3. A site will be defined as the closest network point or point of connection (POC) rather than a geographic point or address. Is it sensible to use a POC on the network as the location or should we use a geographic location (i.e. address)?
  - **The majority of respondents (55%) preferred a geographical location but a significant proportion of respondents (35%) preferred a POC. Some respondents stated that we should use both.**

Final proposal

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- Up to **2** free budget options per site (over a 6 month period).
  - An option is defined as either a different capacity or a different technology type.
  - A site will be defined as a geographical point or address within a radius of 1km, and/or the closest network point or point of connection (POC) if the land is owned by one landowner.
- A restriction of six months will apply from issue of the budget estimate(s) for further free budget estimates to be issued at a site.
- £300 charge per additional budget option afterwards (within the 6 months period).
- Only applicable to multiple budget estimates (22kV and above) from Monday **7th February 2022**.

Impact assessment

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- No changes proposed for LV and HV budget enquiries.

- For EHV budgets (based on the stats over the last 3 years):
  - Around **60%** of customers will continue to receive free budgets (2 options per year).
  - And up to **73%** customers based on 4 options per year but limited to 2 per interval.

- We will work with applicants to ensure that they (and us) apply this in the spirit of good faith.

Available “free” information

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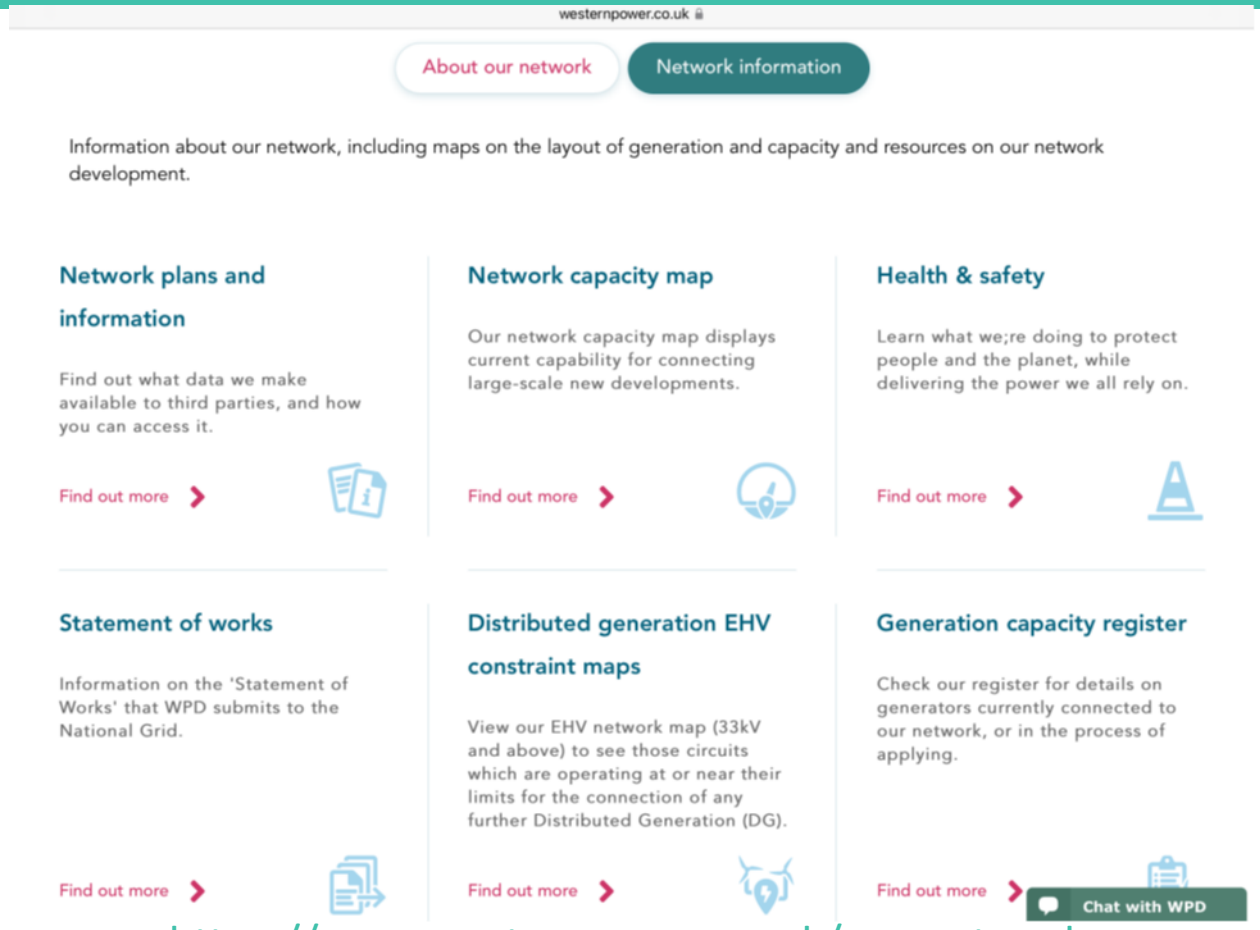
Pre-Application Information

- Website Information
  - Network Capacity Map
  - Generation Constraints Map
- Connection Surgeries
- Budgets*



**LV, HV and up to 2 EHV budgets (over any 6 months window) will remain free*

https://www.westernpower.co.uk/our-network

Questions?

Summary, feedback & close

Kester Jones– Connections Strategy Manager

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NEW ICE 2022/23 Plan

ICE Actions for 1st April 2022 Start – Final Plan

ICE has only 1 more year to run before we move into RIIO-ED2.

This year, the areas covered were: -

- ❑ Policy guidance
- ❑ Customer support
- ❑ Communication
- ❑ Process improvement
- ❑ Stakeholder engagement

We are in the initial stages of collating our actions for the ICE 2022/23 Plan.

We have some ideas on actions but any feedback/suggestions are welcome.

- Perhaps another DNO has an action we should consider.
- Getting ready for RIIO-ED2

CCSG – summary & feedback

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Summary & Next Steps

- We have captured feedback from today & we will send a feedback form to you via email.
- Any topics you may like us to cover in our future meetings?
- Minutes and slides will be uploaded onto our website
- Hold the date for the next CCSG 2022:

  Wednesday 29th June 2022 – hopefully face 2 face

If you would like to be up to date on our previous CCSG meetings, follow us at

https://yourpowerfuture.westernpower.co.uk/our-engagement-groups/connection-customer-steering-group

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Thank you