

WESTERN POWER 
DISTRIBUTION

Serving the Midlands, South West and Wales

DISTRIBUTED GENERATION
STAKEHOLDER WORKSHOP

November 2014

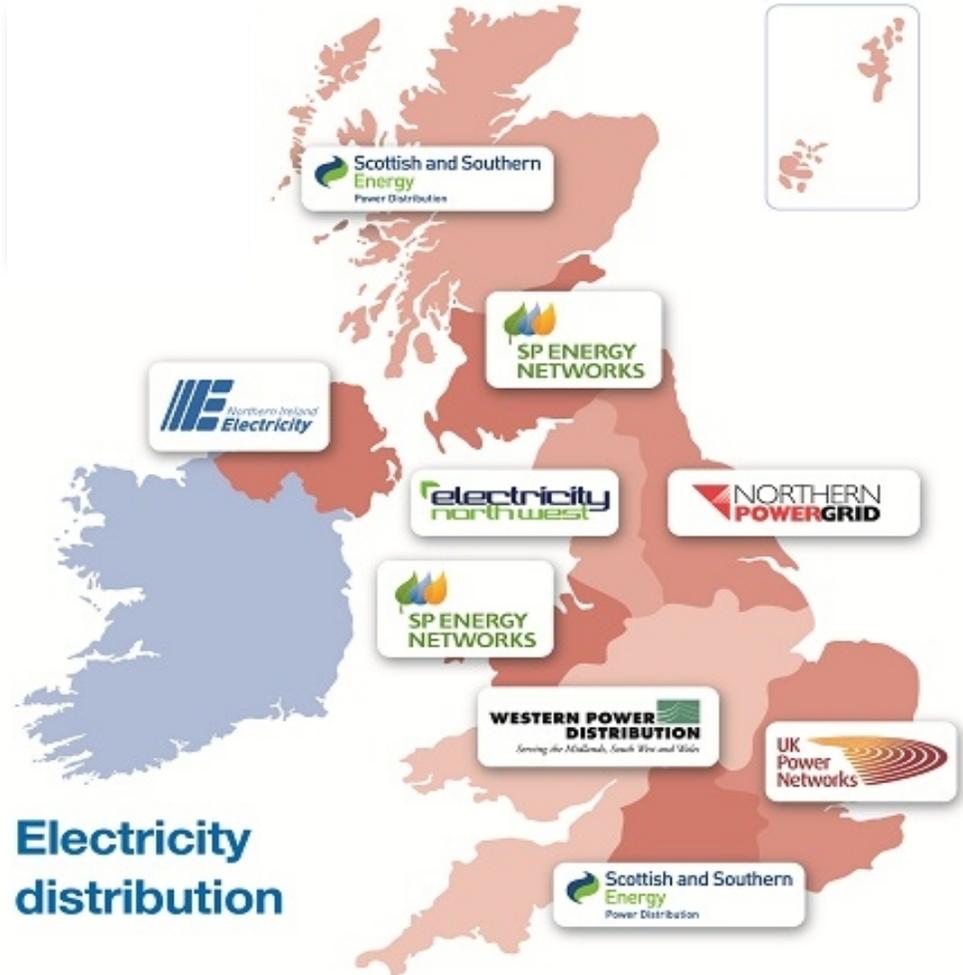
Housekeeping

- Building Evacuation
- Facilities
- Introductions

Western Power Distribution

KEY FACTS:

- Wholly owned by Pennsylvania Power & Light (PPL - NYSE listed)
- 4 UK Distribution Licences
- 7.8 million customers
- 55,000 sq km area
- Largest length UK network
216,000 km of overhead lines and underground cables, and 184,000 substations



Our Activities



Restore power quickly when problems occur

Customer contact centre



Deliver a reliable supply

Connect new customers (demand) and generation

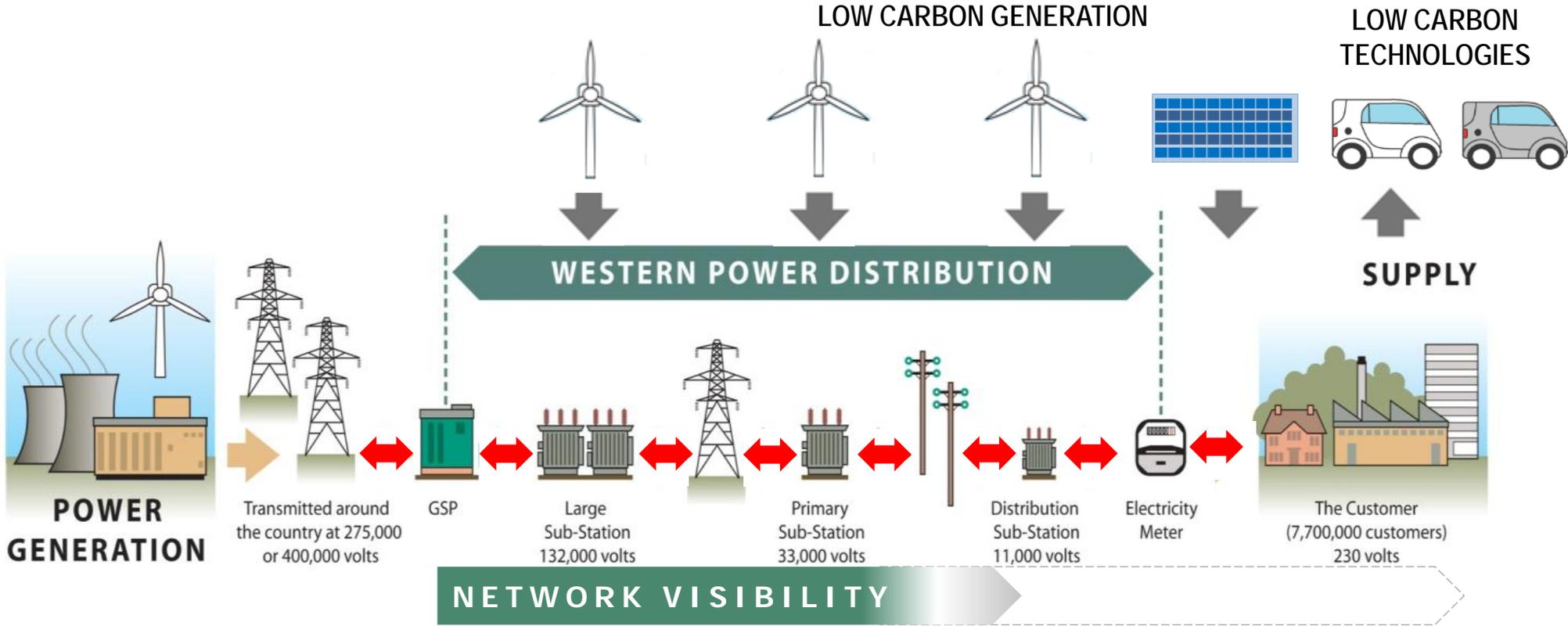


Maintain the network

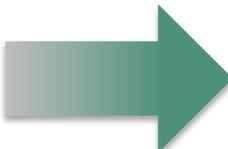
Reinforce the network to cope with changes in demand

- WPD does not buy, sell or market energy
- Our revenue comes from charges that we make to suppliers for use of the electricity network
- Typically we account for around 20% of the final electricity bill for domestic customers, who therefore pay c.£100 per year for our services

The Evolving Electricity Network



- Centralised Generation
- Passive design / operation
- Limited Visibility
- One-way power flow
- Load centric design



- Distributed Generation
- Increased Intelligence / Active Management
- Need for increased visibility
- Two-way power flows
- Utilisation centric design

Scale of DG activity

Total Agreed Maximum Export Capacity			
Generation Type	Connected	Accepted but not yet connected	Offered but not yet accepted
Biomass & Energy Crops (not CHP)	86,093	149,922	213,919
Hydro	4,048	6,698	100
Landfill Gas, Sewage Gas, Biogas (not CHP)	443,140	81,834	25,631
Medium CHP (>5MW, <50MW)	83,200	56,000	0
Micro CHP (Domestic)	422	0	0
Mini CHP (<1MW)	18,292	4,195	6,891
Offshore Wind	180,000	18,000	0
Onshore Wind	502,410	1,402,600	351,616
Other Generation	1,100,517	671,794	617,497
Photovoltaic	1,416,044	5,866,116	4,754,097
Small CHP (>1MW, <5MW)	71,447	2,500	0
Tidal Stream & Wave Power	0	12,320	0
Waste Incineration (not CHP)	230,154	208,850	132,750
Grand Total	4,135,766	8,480,829	6,102,501



Number of connection Offers during 2013/14
(Small DG notifies after connection)

To the EHV network	1,488
To the HV/LV network	4,758
Total	6,246

WPD Max and Min Demands (MW)

Maximum	14,092
Minimum	5,104

Agenda

Welcome & WPD overview	10:00 – 10:10
Our plan to improve DG connections performance - WPD presentation	10:10 – 10:25
Understanding our plan in detail – Information & Application	10:25 - 10:45
Workshop 1 –	10:50 – 11:25
Coffee Break	11:40 – 11:55
Understanding our plan in detail – Quotation & Agreements/Construction & Connection	11:55 - 12:15
Workshop 2 –	12:15 – 12:55
Summary & Lunch	
Workshop 3 – Choice of: 1. Statement of Works 2. Alternative Connections 3. Consents and Legals 4. Design Approval/Standard Designs	14:05 – 15:00
Close	



Serving the Midlands, South West and Wales

Our plan to improve DG connections performance

Phil Swift

Operations Director

WPD RIIO-ED1 Business Plan

- WPD submitted its Business Plan to Ofgem for 2015-2023 as part of the RIIO-ED1 price review process
- The Business Plan covers our investment proposals for the network and sets out what we will deliver for customers
- WPD's plan was supported by stakeholders and fast-tracked by Ofgem in February 2014
- Our focus is now on delivering the Business Plan, including the ten connection outputs
- We have taken the connection outputs from the Business Plan and developed a detailed connections improvement plan – the “ICE” plan
- Today is an opportunity to review the detail behind the DG elements of the ICE plan and to provide us with feedback to ensure we deliver in line with stakeholder requirements

WPD's RIIO-ED1 Business Plan

Connection Outputs

Provide a faster and more efficient connections service

1. 20% quicker connections
2. Remain number one in customer satisfaction surveys
3. Conduct bespoke surveys with distributed generation customers

Improve communication with customers

4. Develop and enhance online connections processing and progress tracking
5. Ensure information provided in documentation and online is effective

Enhance engagement with major customers

6. Host quarterly 'surgeries' for connection customers to better understand processes
7. Work with major customers to identify process improvements

Guaranteed Standards of Performance

8. Zero failures of the connection GSOPs

Facilitation of competitive market

9. Improve awareness of third party connection providers
10. Extend the scope of contestable work for third party connection providers

Ofgem Incentive of Connections Engagement (ICE)

Introduced by Ofgem under RIIO–ED1, with the aim to:

Replicate the effects of competition

Incentivise DNOs to improve the overall customer experience

Enable customers to influence a DNO's high level strategy and work plan of activities

- The Incentive comes into force 1st April 2015
- ICE requires DNOs to submit evidence (for different connection market segments including DG) that they have:
 - Engaged with a broad range of customers
 - Responded to the needs of their customers
 - Set relevant performance indicators
 - **Developed a forward-looking work plan to improve performance**
 - Reported actual performance against indicators and work plan

Preparing our ICE plan

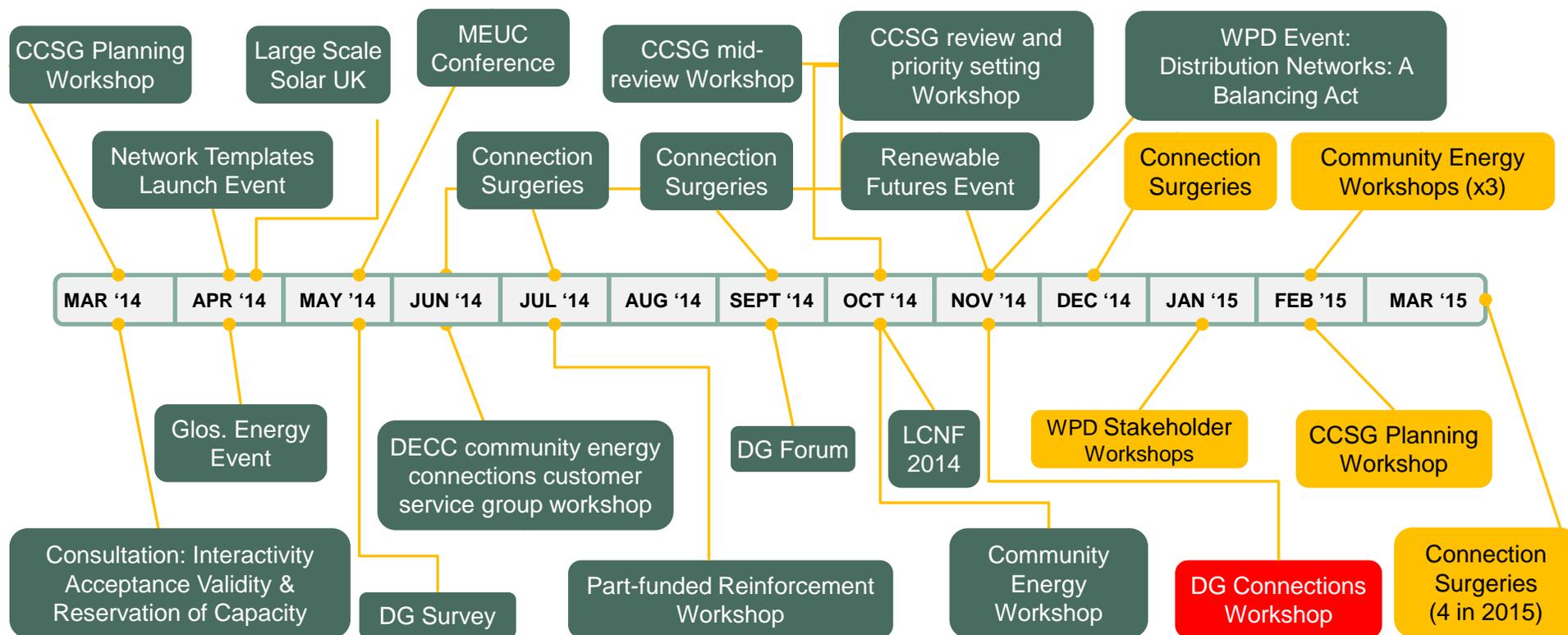
Connection Customers Steering Group (CCSG)

- In 2013 WPD established a CCSG ahead of RIIO-ED1 and the ICE incentive
- The group meets 3 times a year (next meeting is February 2015)
- The terms of reference for the group are to drive the development of our overall connections service including development, delivery and monitoring of the ICE plan
- There are 21 permanent members representing every connections market segment, including:
 - DG developers
 - Utilities
 - Public lighting authorities
 - Connection consultants
 - Large commercial customers
 - Independent Connections Providers (ICPs)
 - Community energy schemes
 - Independent Distribution Network Operators (IDNOs)
- Feedback leads to action – we have created the ICE plan which going forward will be signed off annually by CCSG members

Preparing our ICE plan

WPD's Connections Engagement Activity 2014/15

- The timetable below shows the various engagement events we have undertaken and have planned into next year:



Preparing our ICE plan

Distributed Generation survey 2014

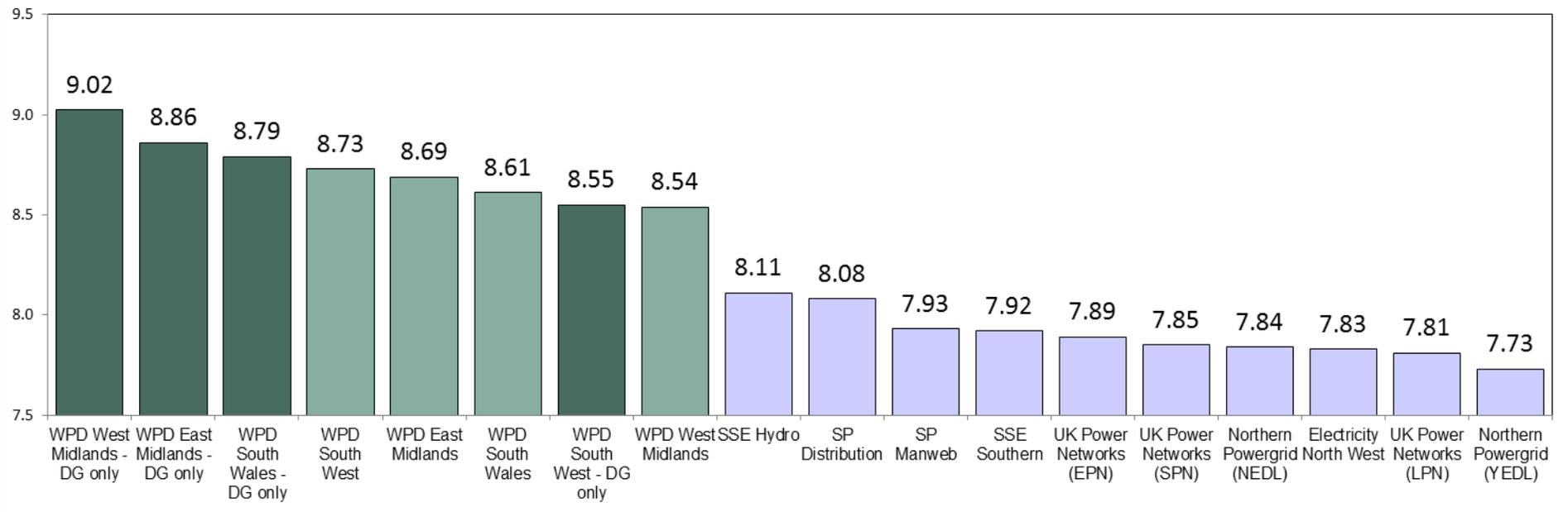
- For the third consecutive year we have commissioned research
- A minimum of 400 customers are surveyed in four categories:
 - LV – quote
 - LV – completed work
 - HV/EHV – quote
 - HV/EHV – completed work
- Questions mirror the Ofgem Broad Measure of Customer Satisfaction survey to allow for direct comparison to wider connections

Quotations	Completed work
Ease of initial contact	Promptness of contact to arrange dates for work
Time taken to receive a quote	Arrangements before work began
How well we understood your requirements	Professionalism of the workforce
How clearly the process was explained	Time taken for work to be completed
Amount of communication provided	Overall satisfaction
How clearly the costs were explained	
Overall satisfaction	

Distributed Generation survey 2014 Results

- WPD again ranked 1-4 relative to the industry Broad Measure connections survey
- DG satisfaction generally remains higher than satisfaction for all connections work

Ofgem Broad Measure - 2013/14
DG vs DNO all connections



- WPD – DG only
- WPD – all connections
- Other DNOs – all connections

Distributed Generation survey 2014

Key findings

Overall

- Satisfaction is very high – top 4 compared to rest of industry
 - Generally DG satisfaction is slightly higher than satisfaction for all connections work
- WPD have improved in every breakdown area for third consecutive year

Applications

- Least improvement has been made at the very initial stages of applications (all customers)
- EHV satisfaction is lower than LV & HV with regards to:
 - Time to provide a quotation
 - Amount of communication
 - Amount of information available before applying

Completed work

- Very high satisfaction. Promptness of contact to arrange work is greatly improved
- Overall excellent consistency of process (64% had previous experience applying for a connection)
 - Least consistency is for EHV connections
 - Amount of communication and speed are biggest discrepancies

Bringing it all together

WPD's ICE plan – DG elements

- As a result of the survey and consultation with the CCSG, DG Forum and others, we have identified the following key areas of focus for DG customers

INFORMATION AND APPLICATION
1. Improve online application functionality
2. Improve awareness of website services including updates and changes
3. Improve availability of network information
4. Improve assistance for customers wishing to apply for connections
QUOTATION AND ACCEPTANCE
5. Improve information provided in formal offers and consistency
6. Consult on processes regarding interactivity, acceptance validity, payments and reservation of capacity
7. Acceptance of e-signatures
8. Improve the process of gaining legals and consents
9. Extension of contestability - connection reinforcement
CONSTRUCTION AND CONNECTION
10. Improve consistency of process
11. Improve and consolidate inspection and monitoring (I&M) processes

Bringing it all together

Purpose of today

- We will share with you our latest ICE plan highlighting some of the key actions we have identified to improve service for DG customers
- The first annual ICE plan will be submitted to Ofgem in 2015
- Today we will discuss the DG elements of our ICE plan
- We commit to translating your feedback into positive action and keeping you up to date with our progress
- We will present an updated version of the plan to the CCSG in February 2015



Serving the Midlands, South West and Wales

Understanding the ICE plan in detail Information/Application

Nigel Turvey

Design & Development Manager

Introduction

- Based on the feedback received to date we have produced an ICE work plan for improvements to benefit all connections customers
- We have split the activities in the ICE work plan into three sections:

Information and Application

Quotations and Acceptance

Construction and Energisation

- This session focuses on information and application and the actions that specifically apply to DG customers
- We want your views on whether we have correctly captured the feedback in this area, your views on how we monitor our progress and whether there are any additional steps that we could take to improve service further

Information and Application Overview of service provided

- The WPD website provides information and guidance for customers, developers and connection providers seeking connection services
- There is a suite of application forms available on our website to cater for the needs of a range of connection applications
- Our Contact Centre teams handle initial enquiries received by telephone
- Online applications can be made by ICPs via the CIRT system (online application and tracking system for competitive connection enquiries)
- Applications for connections are processed by our Records teams in Bodmin, Ffynnon Menter and Tipton
- All applications are processed and managed on WPD's CROWN system

Information and Application Feedback from DG customers

WPD DG survey – top priorities

- More information available before applying (preferably on website):
 - 13% want clearer contact details for the local office/a single point of contact
 - 13% want information on boundaries/site maps/network diagrams
 - 16% want information on capacity
- Ease of initial contact needs improvement with more assistance provided in the initial stages
 - 27% want more communication and faster response
 - 23% want us to make it easier to find who to contact
 - 17% want a better website design

Information and Application Feedback from DG customers

From the ENA DG forum and our Customer Connection Working Group

- More communication of what help we can offer and of new processes as they become available – e.g. many customers unaware of online information, alternative offers, connections surgeries
- Need to improve engagement with DG customers in order to have better input into our ICE work plan

Information and Application

Recent Developments – website

- We have redesigned our website to provide a clearer explanation of the connections process
- We have published extensive information and guidance:
 - Connections guidance including an overview of the process of connecting in accordance with G59/3 (national engineering recommendation covering the connection of larger generators)
 - Long term development statements
 - Charging statements
 - Information on legal permissions and consents
 - Information on Competition in Connection
- We have developed a website specifically for ICPs to provide detailed technical information
- We have introduced online connections applications

Information and Application Planned Developments - website

Based on the feedback received we plan to focus on the following initiatives

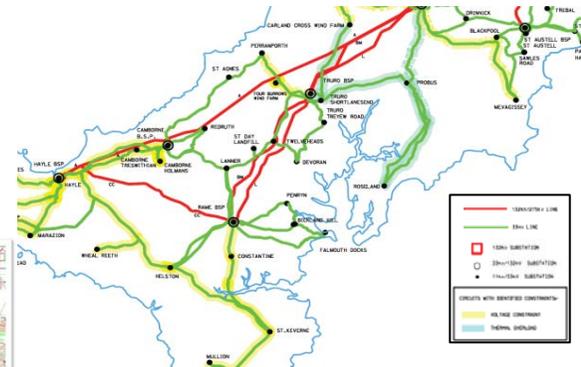
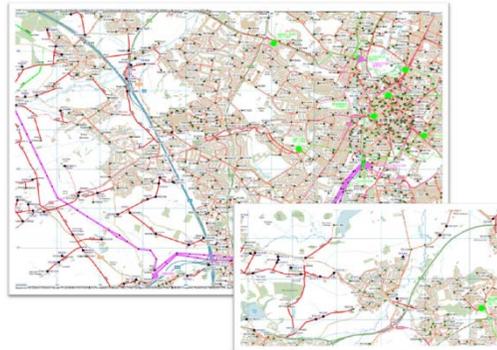
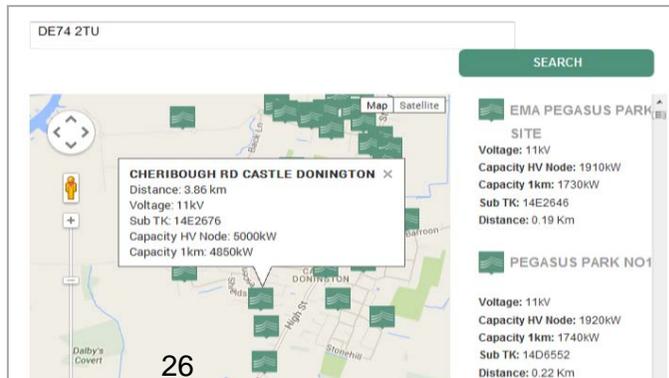
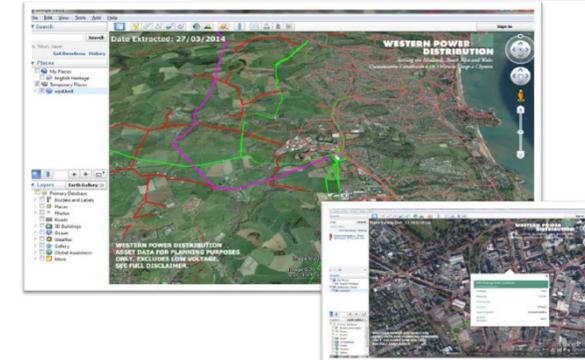
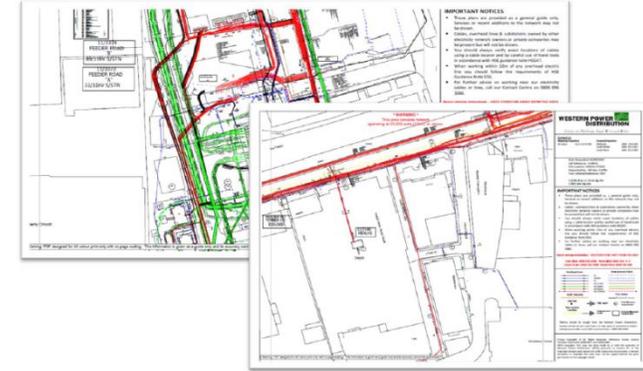
- Online connections applications
 - Implement job tracking functionality for large/high volume schemes
 - Implement the ability to accept and pay online
- Provide a tailored email alert service to supply automatic updates when new documents or functionality is added to the website

Information and Application

Recent developments – availability of network information

The following have been made available on our website

- WPDWebMap – site specific PDF of assets
- Small scale mapping – 1:25,000 PDF of 132kV down to 11kV assets
- EHV system map – high level map of 132kV, 66kV and 33kV networks
- Estimated capacity on 11kV/LV substations
- Constraint map - highlighting 33kV with voltage or thermal issues



Information and Application

Planned developments – availability of network information

- We are working on the development of a KML version of our asset data. This enables users to view our distribution network assets in the free Google Earth application (and other applications capable of importing KML data)

The benefits of this data and application are:

- O/H conductors and U/G cables from 6.6kV upwards
- Locations of overhead support structures (poles/towers/gantries)
- Position of BSP, GSP and distribution substations (overhead and ground mounted)
- Users can interrogate WPD Assets to view connectivity and asset information
- Users can print maps of user defined areas (Google Earth tool)
- Tools for measuring distances and areas (Google Earth tool)
- Tools for adding annotations and planned works to maps (Google Earth tool)
- Can be viewed against aerial photography (supplied by Google Earth)
- Ability to load other data sources simultaneously (Google Earth tool)

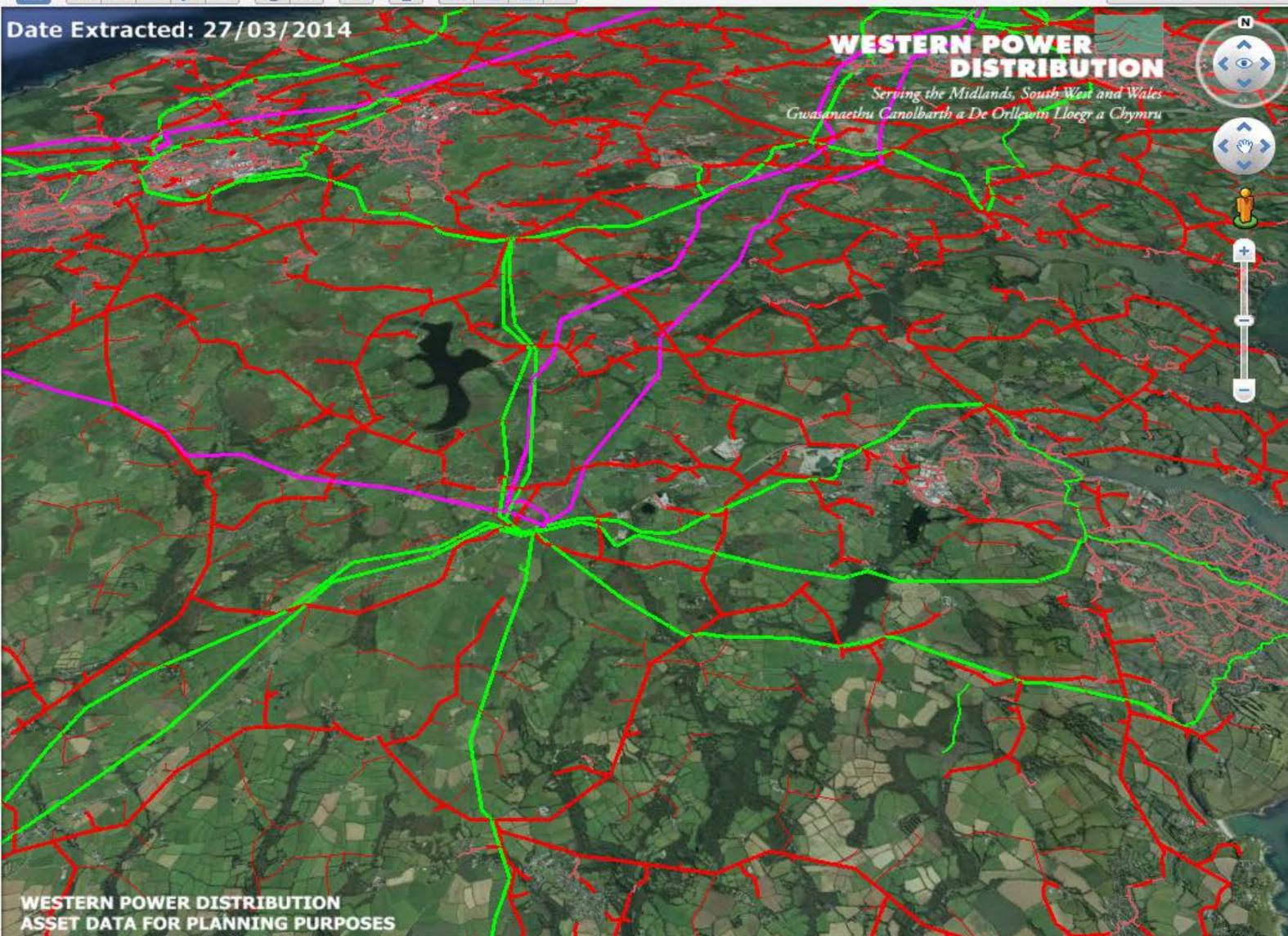
- My Places
 - Sightseeing Tour
 - Make sure 3D Buildings layer is checked
- Temporary Places
 - wpd.kml

- Primary Database
- Earth Pro (US)
- Borders and Labels
- Places
- Photos
- Roads
- 3D Buildings
- Ocean
- Weather
- Gallery
- Global Awareness
- More
- Terrain

Date Extracted: 27/03/2014

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales
Gwasanaethu Canolbarth a De Orllewin Lloegr a Chymru



WESTERN POWER DISTRIBUTION
ASSET DATA FOR PLANNING PURPOSES
ONLY. EXCLUDES LOW VOLTAGE.
SEE FULL DISCLAIMER.

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WPD Network over Google Aerial Photography

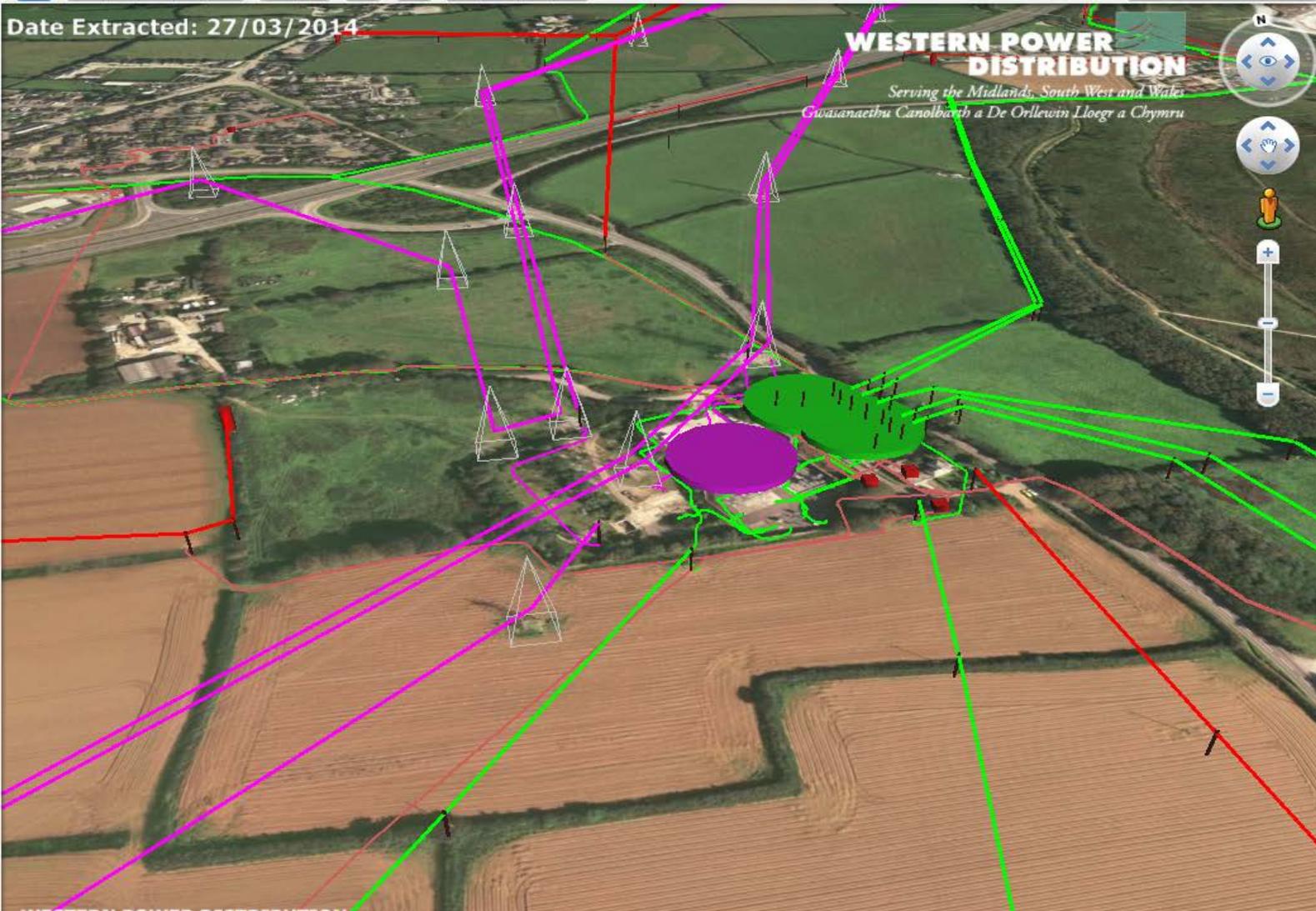
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WESTERN POWER DISTRIBUTION
ASSET DATA FOR PLANNING PURPOSES
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WPD Network around a 132/33kV Substation

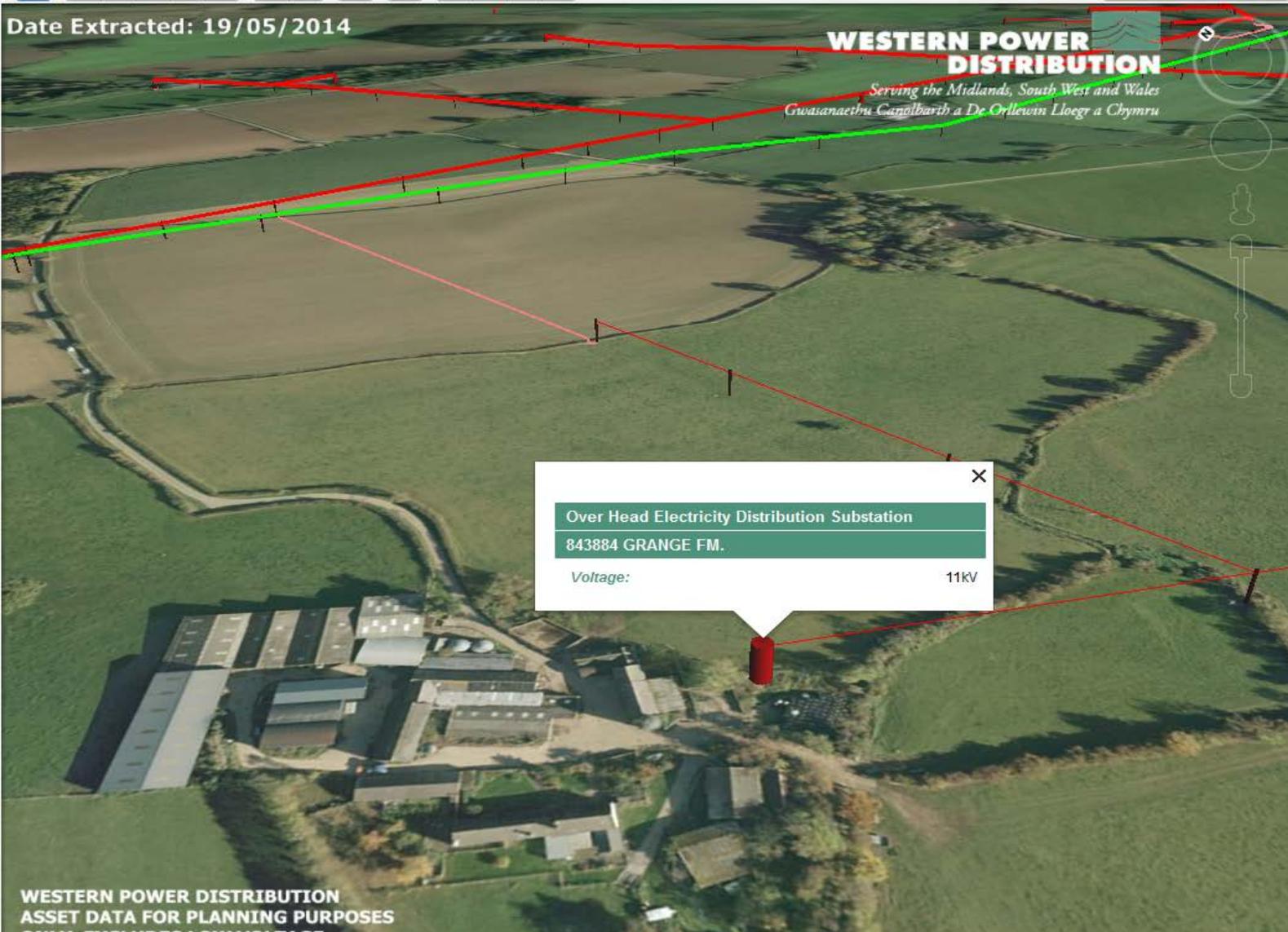
- My Places
 - Sightseeing Tour
 - Make sure 3D Buildings layer is checked
- Temporary Places
 - wpd.kml
 - WPD Overlay
 - WPD Documents
 - South West
 - South Wales
 - East Midlands
 - West Midlands

- Primary Database
- Earth Pro (US)
- Borders and Labels
- Places
- Photos
- Roads
- 3D Buildings
- Ocean
- Weather
- Gallery
- Global Awareness
- More
- Terrain

Date Extracted: 19/05/2014

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales
Cwasanaethu Cynnalbarth a De Orllewin Lloegr a Chymru



Over Head Electricity Distribution Substation
843884 GRANGE FM.
Voltage: 11kV

WESTERN POWER DISTRIBUTION
ASSET DATA FOR PLANNING PURPOSES
ONLY. EXCLUDES LOW VOLTAGE.
SEE FULL DISCLAIMER.



Viewing Pole Mounted Transformer Information

Information and Application

Planned developments – availability of network information

- WPD are also working to export our distribution network assets to the following common GIS/CAD File Formats:
 - ESRI ShapeFile
 - MapInfo TAB
 - AutoCAD DWG/DXF
 - Microstation DGN
- The benefits of this data and application are:
 - Overhead conductors and underground cables from 6.6kV upwards
 - Locations of overhead support structures (poles/towers/gantries)
 - Position of BSP, GSP and distribution substations (overhead and ground mounted).
 - Supplied as attributed data, which when loaded into a suitable application will enable querying of connectivity and asset information

Information and Application

Recent developments – customer engagement

- Stakeholders told us they wanted WPD to make it easier to discuss their options before submitting an application
- After successful trials in 2013 we have rolled-out an annual programme of surgeries
- Customers can visit their local office and speak face-to-face with a WPD engineer
- At these events we explain:
 - *The connections process*
 - *Timescales*
 - *Costs*
 - *Technical requirements*
 - *Possible network constraints*
- Over 300 people have attended these events in last 12 months
- We will host these events quarterly in 2015



NETWORK CONNECTION SURGERIES

Western Power Distribution (WPD) is the electricity distribution network operator (DNO) for South Wales, South West England and the Midlands.

We operate the regional electricity network and provide New Connections to homes, businesses and generation sites at voltages from 230 volts to 132,000 volts.

We understand that ahead of applying to WPD for a quote for a new connection and particularly for generation connections, people often have questions and want to understand more about the process, timescales, technical requirements and possible constraints of making a connection to the network in a particular area.

We are therefore running 'Connection Surgeries' where our engineers will be able to assist you.

The surgeries will run on the specified days below and enables interested parties (eg landowners, developers and community groups) to make a 30 minute appointment with an engineer to discuss their requirements and the connection process ahead of making an actual application for a connection to the network.

Connection Surgery DATES

To run at various regional offices in our distribution area. Surgeries will be held at office locations as close as possible to where most participants live.

9th JULY 2014
24th SEPTEMBER 2014
10th DECEMBER 2014

To find out more or to book an appointment, please call:

SOUTH WEST & WALES: 0800 028 6229
MIDLANDS: 0800 121 4909

e-mail:
wpdconnectsurgeries@westernpower.co.uk

Please mention that your enquiry is for **CONNECTION SURGERIES** when you call.

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Information and Application

Planned developments – customer engagement

- Customer engagement events
 - Continue existing connection surgeries but expand them to include specific Competition in Connection sessions
 - Facilitate a series of workshops focused on Community Energy Schemes
 - Hold a specific DG workshop
- Continue annual DG survey with separate results for major (EHV) schemes

Workshop 1 – Discussion questions

Presentation 1 – Our plan to improve DG performance

1. WPD has identified a number of areas of focus to address the key DG issues. Do you think the areas are appropriate?
2. WPD set up a Connection Customers Steering Group in 2013. What do you think of this initiative?
3. WPD consistently scores highly in terms of customer satisfaction. Does that tally with your experience of dealing with WPD?

Presentation 2 – Information and Application

1. Do you think that WPD has fairly captured the issues?
2. Do the proposed initiatives adequately address the issues WPD has identified?
3. Are there any initiatives you would like to see which have not been included?
4. Are there any other points you would like to make with regard to the Information and Application process?

COFFEE BREAK

Please remember to sign up for afternoon surgeries



Serving the Midlands, South West and Wales

**Understanding the ICE plan in detail
Quotation and Acceptance
Construction and Connection**

Alison Sleightholm

Regulation & Government Affairs Manager



Serving the Midlands, South West and Wales

Quotation and Acceptance

Overview of service provided

- WPD operate a geographic “team based model”
- Quotations up to 33kV (<5MW) are produced by localised Network Service teams
- Quotations at 33kV (>5MW) and above are produced by four Primary System Design Teams in Bristol, Cardiff, Tipton and Castle Donington
- Within the teams, planners are responsible for a section of the network and therefore have valuable local knowledge when discussing and designing connections for customers

Feedback from DG customers

Quotation and Acceptance

From the WPD DG survey

- 'Time to quote' and 'amount of information available before applying' are the lowest satisfaction areas
- Improvements therefore required specifically with regard to:
 - Time to provide a quotation
 - Amount of communication during the process

From the ENA DG forum and CCSG

- Our ICE plan should include actions to prevent capacity being held on schemes which are not/will never be progressing
- Our ICE plan should include innovative actions to avoid reinforcement

Quotation and Acceptance

Recent developments

- We consulted on the process for interactivity, acceptance validity, payments and reservation of capacity
- Increasing volumes of DG applications mean it is increasingly common for applications to become interactive with one another
- This can become complicated, with multiple proposals and options considered by customers at the same time
- In June 2014 a WPD action plan was published in response including collaborative reinforcement/consortia type connections to fund large reinforcement

Quotation and Acceptance

Planned developments

- Business Plan commitment to improve “time to connect” by 20% for types of connection over ED1
- Improve information in Offer letters
 - Consultation completed
 - Update letter in line with responses received to improve clarity and structure of the document
 - Clearer cost breakdowns
- Implement actions following consultation on interactivity and management of the DG queue
 - Introduce a contracted capacity register
- New connection agreements being developed for innovative connection offers where connections can be curtailed

Quotation and Acceptance

Planned developments – innovative connection offers

- Customers can receive a conventional offer and one or more “smart” solutions:

TIMED	SOFT-INTERTRIP	ACTIVE NETWORK MANAGEMENT
<p>Generation curtailed within specific times</p> <ul style="list-style-type: none"> Connection offers based on enhanced seasonal and time-of-day factors Generally best suited to smaller DG (up to 1MW) No comms Non-optimised 	<p>Releases pre-fault capacity with trip facility</p> <ul style="list-style-type: none"> Logic based intertrip schemes using Enmac 11kV and 33kV Real-time monitored values Triggers DG constraint in the event of minimum system demand coinciding with maximum DG export Existing monitoring & local control 	<p>Fully optimises capacity based on all constraints</p> <ul style="list-style-type: none"> Variable connection offers depending on dynamic network conditions (e.g. dynamic line rating) Real-time granular control of output Requires new Active Network Management control and monitoring systems

Now available in all WPD areas

Now available in all WPD areas

- Specific BSP – Skegness & Corby
- 9 more by 2018 – see Bus. Plan
- Locations reviewed in line with stakeholder feedback and any government policy changes

Construction and Connection

Overview of service provided

- WPD operates a geographically organised Network Service team-based approach where each team is responsible for the delivery of network activities including connections
- Structure allows coordinated approach to all activities to ensure most efficient delivery for customers
- These Network Service teams handle all competitive and non-competitive connection enquiries up to 11kV for unmetered, metered demand and generation schemes
- 33kV and above connections are managed and delivered by Major Projects in each region

Feedback from DG customers Construction and Connection

From the WPD DG survey

- There are still areas for continued improvement:
 - 14% would like to see better overall communication (33% stated this in 2013)
 - 10% would like to see faster response/process times

From the ENA DG forum and our Customer Connection Working Group

- Consistency of service and policy between areas
 - Different service received at different voltages and between different teams/regions/DNOs
 - Post acceptance/signature service – challenged that our service drops off after acceptance and there is often “radio silence”
 - Single point of contact/”account manager”

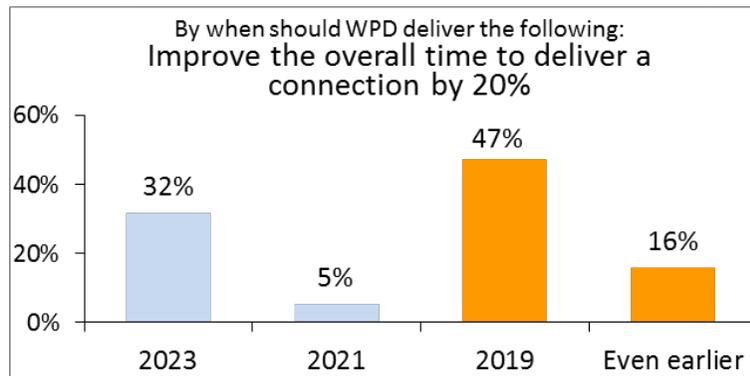
Construction and Connection

Recent developments

- We have introduced internal contact standards to contact customer
 - To discuss connection after application
 - After sending connection offer to customer
 - After quote is accepted
- We have reviewed policy and refreshed staff training specifically in the area of gaining legals and consents. Further initiatives planned to better integrate the process

Construction and Connection Planned developments

- Investigate service post-acceptance and implement improvements identified along with staff training
- Continued focus on improving delivery timescales – ED1 commitment to improve the overall time to provide a connection by 20%



- Continue to improve customer awareness of third party connection providers and carry out regular checks with customers so that they understand the options available to them
- Work with other DNOs to collaborate on industry processes

Workshop 2 – Discussion questions

Presentation 3 – Quotation and Acceptance

Presentation 4 – Construction and Connection

1. Do you think that WPD has fairly captured the issues?
2. Do the proposed initiatives adequately address the issues WPD has identified?
3. Are there any initiatives you would like to see which have not been included?
4. Are there any other points you would like to make with regard to the Quotation and Acceptance or Construction and Connection processes?

Workshop 3 – this afternoon

A choice of four sessions:

Table 1: Statement of Works

Table 2: Alternative Connections

Table 3: Consents and Legals

Table 4: Design Approval/Standard Designs

INFORMATION FOR STAKEHOLDERS

Thank you for attending

- Slides and feedback will be posted on the website www.westernpower.co.uk
- We would appreciate feedback on any of the areas discussed today. Please contact:

Alison Sleightholm, Regulation and Government Affairs Manager

✉ email: asleightholm@westernpower.co.uk

☎ phone: 0117 933 2175