



Serving the Midlands, South West and Wales

Subsidy free solar developer forum

30th May 2019

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DSO Development Manager

DSO Transition Progress

With over 9.5GW of generation and energy storage connected to WPD's distribution network and a further 6GW of capacity offered, we are well on the way to moving to an active system.



Western Power Distribution
A British Energy company

WPD is still the only DNO to have published a costed DSO Transition Strategy, since we launched this in June 2017.

Following a period of consultation with stakeholders, we updated this DSO Strategy in December 2017 and are driving the changes within the business.

1



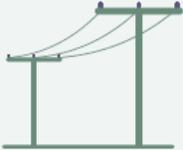
**OPTIMISE INVESTMENT
IN HIGHER VOLTAGE
NETWORKS**

2



**CONTRACT WITH
CUSTOMERS FOR NON-
NETWORK SOLUTIONS**

3



**CO-ORDINATE AT
TRANSMISSION/
DISTRIBUTION
INTERFACE**

4



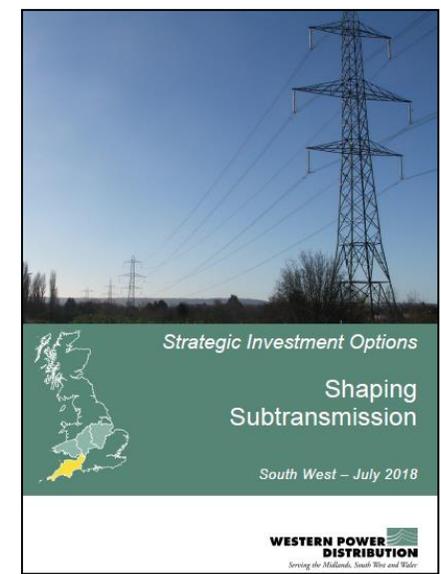
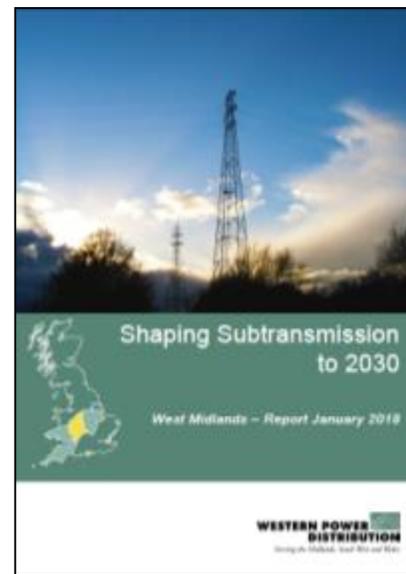
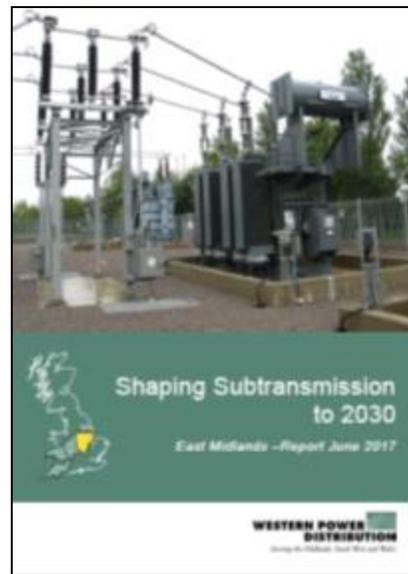
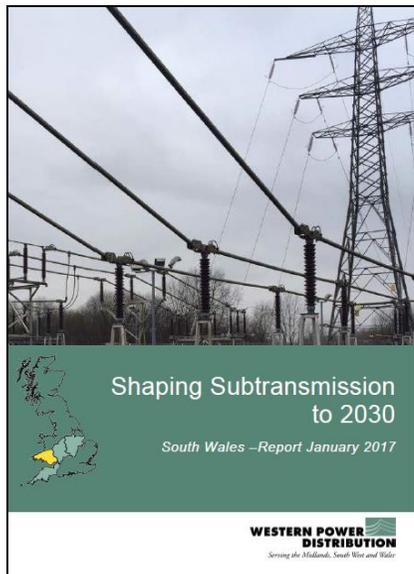
**PROTECT THE
INTEGRITY & SAFETY
OF LOWER VOLTAGE
NETWORKS**

**Our DSO Transition plan
will support our ambition
to be the N°1 UK DNO**

Optimise Investment in EHV Networks



WPD is the only DNO to have published **Distribution Future Energy Scenario (DFES)** information on the expected growth of demand and generation expected across our region. We have aligned our methodology with that of the System Operator and developed complex analysis techniques to understand the impact on our network. We also publish these outcomes in our **Strategic Investment Options reports**, demonstrating our commitment in the transparency of subtransmission investment.

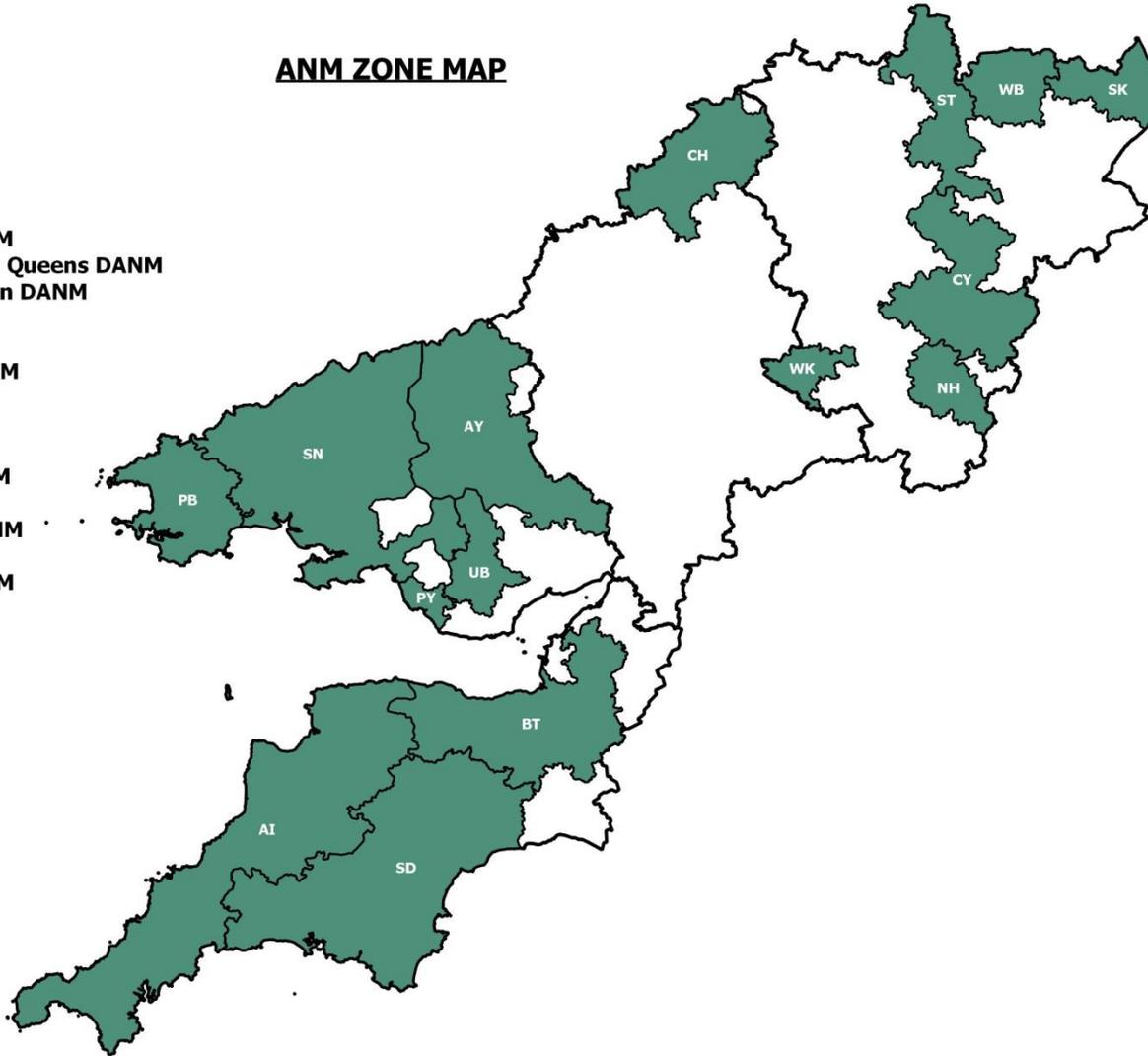


Optimising EHV networks through ANM



ANM ZONE MAP

- AY - Abergavenny DANM
- AI - Alverdiscott Indian Queens DANM
- BT - Bridgwater Taunton DANM
- CH - Cellarhead DANM
- CY - Corby DANM
- NH - Northampton DANM
- PB - Penbroke DANM
- PY - Pyle TANM
- SK - Skegness DANM
- SD - South Devon DANM
- ST - Staythorpe TANM
- SN - Wansea North TANM
- WK - Warwick DANM
- WB - West Burton DANM
- UB - Upper Boat TANM



WPD has a stated goal of having whole-system coverage of Active Network Management by the end of 2021.

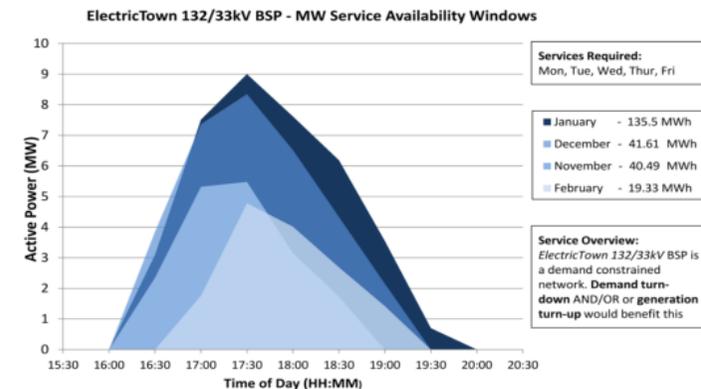
To date our ANM systems cover the following areas, with interim Soft-Intertrip connections available everywhere.

Contracting with Customers for Flexibility



Operating a smart and flexible system will bring benefits for WPD and its customers, enabling us to provide capacity quickly and efficiently to meet the changing needs of consumers and allowing us to target investment where we are certain it will be required.

We have an important role as a facilitator of neutral markets for Distribution System Flexibility and we are placing ourselves in the centre of these markets, providing transparent indications of future system needs through our **Signposting & Forecasting** work. With Signposting, we describe our potential system wants for a 5 year future window using Future Energy Scenario data to inform the market. With Forecasting, we predict the needs of our network on a 1-2 year window in order to contract services and create markets.



Contracting with Customers for Flexibility



WPD is leading the way on Flexibility through its Flexible Power brand. To date we have issued expressions of interest across 32 zones, leading to contact with over 380MW of interested flexibility.

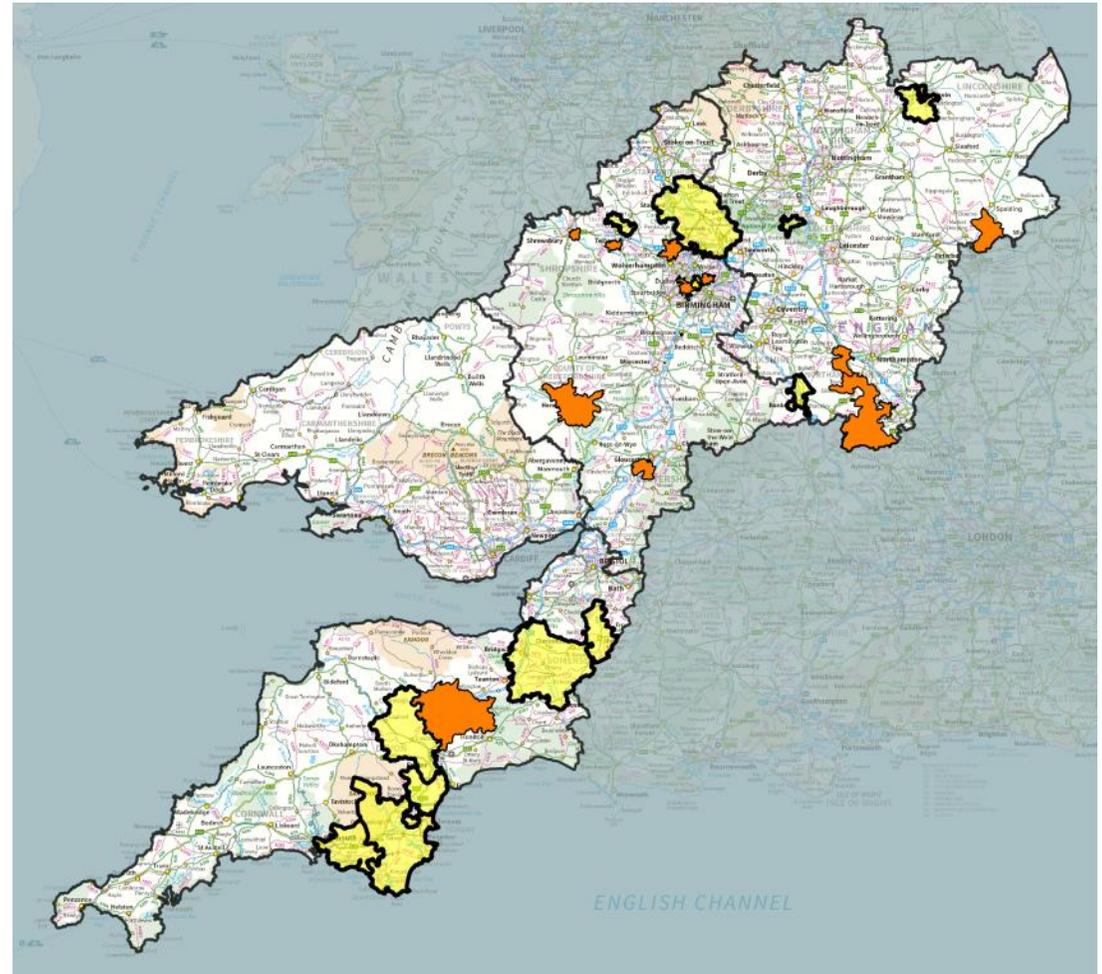
Flexible Power Technical Requirements

- Site within a management zone
- Site has minute – by – minute metering
- Respond within 15 minutes and hold response for 2 hours
- Able to receive dispatch signals
- Not in breach of other agreements struck



Procurement in 2019

- 12 constraints across 80 primary substations
- 93.4MW required
- ITTs out for March
- To operate over the summer and winter of 2019
- Affects over £25m of reinforcement
- Second round in July/August
- **Additional zones** signposted with future requirements over 5 years





Products

Secure

Dynamic

Restore

Industry
Aligned

Pre-Fault Constraint Management

Post-fault Constraint Management

Restoration Support

Our **Secure** service is used to manage peak demand loading on the network and pre-emptively reduce network loading.

It offers a higher availability payment and lower utilisation payment.

Our **Dynamic** service has been developed to support the network in the event of specific fault conditions, such as during maintenance work.

It offers a low availability payment and higher utilisation payment.

Our **Restore** service supports power restoration following rare fault conditions.

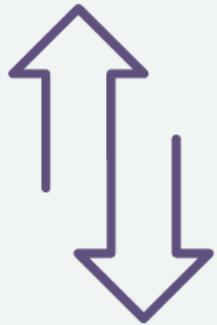
No availability payment, instead it offers a premium utilisation payment.

	Arming	Availability	Utilisation
Secure	£125/MWh	N/A	£175/MWh
Dynamic	N/A	£5/MWh	£300/MWh
Restore	N/A	N/A	£600/MWh

Maximising the benefits of Flexibility



Throughout the rest of ED1 we will assess **90%** of our load related reinforcement investment for a more economic delivery by flexibility services.



90%

LRR investment assessed against Flexibility

For the remaining 10%, which is predominately at LV, we will continue to develop, test and evaluate other markets.

WPD believes flexibility can provide wider benefits to all customers within either our region, either through using it to **increase resilience**, or enabling a **reduction in socialised reinforcement** costs or as a method of providing **more efficient connections**.

We are pushing forward with the first two as they aligned with the current charging methodology and have committed to assess comparable flexibility options for **90% of our LRR investment**.

The third benefit requires a modified approach to how we charge for connections and we are developing proposals to take this forward to trial with customers.

We are also developing innovative solutions to access **LV flexibility**.

Co-ordination across the Whole System



In April 2018, WPD and NG jointly published the outputs of the first **Regional Development Programme** in the South West. This study of work analysed the growth of DG out to 2030 under a number of scenarios and conducted a cost benefit analysis of potential build and operational solutions. The recommendations of this study have changed the Connection Offers made by WPD and enabled quicker, more efficient connections, fast-tracking the process otherwise held up by transmission constraints.

This Autumn, WPD will be publishing an addendum to our South West Strategic Investment Options report which includes a study of the Axminster area in collaboration with **SSEN**, whose distribution network is fed from our EHV system.

WPD is the only DSO to have published a **Distribution System Operability Framework** document, under which a series of articles describe the latest challenges facing network and system operators. This was originally published in September 2017 and has been updated with new content in June '18. A further joint whole system article on fault level is planned for December.

WPD and NG are now commencing a further **RDP** in the West Midlands.