





Distributed generation and demand study

Technology growth scenarios to 2032

5 December 2017





Agenda



10.00	Welcome by chair Johnny Gowdy, director, Regen
10.05	Introduction and investment strategy overview Nigel Turvey, network strategy and innovation manager, WPD
10.20	Scenario development process Poppy Maltby, senior project manager, Regen
10.40	Future domestic and commercial developments study Amy Brimmicombe, analyst, Regen
11.00	Short break
11.10	Roundtable sessions – attendees join 2/3 of the sessions for 30 mins discussion around assumptions for 2032 scenarios: 1. Distributed generation (Regen – Poppy Maltby) 2. Demand and new developments (Regen – Amy Brimmicombe) 3. Storage and flexibility (Regen – Johnny Gowdy)
12.10	Roundtable feedback Johnny Gowdy, director, Regen
12.30	Summary, next steps & close Nigel Turvey, network strategy and innovation manager, WPD
12.45	Lunch and networking



Serving the Midlands, South West and Wales

Strategic Investment Options for the South West

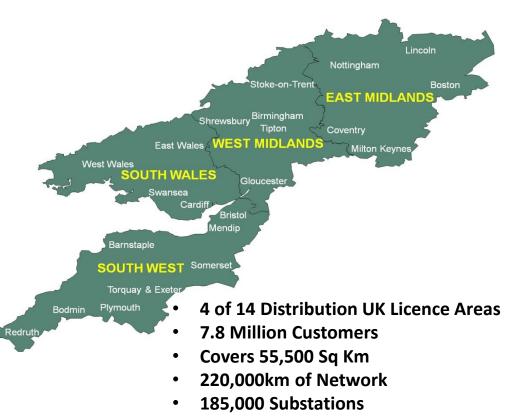
5th December 2017

Investment Strategy Overview

- Western Power Distribution Who are we?
- Drivers for the project
- Aim and approach of the study
- Timetable
- What else are we doing to help enable growth?



WPD - Our Area

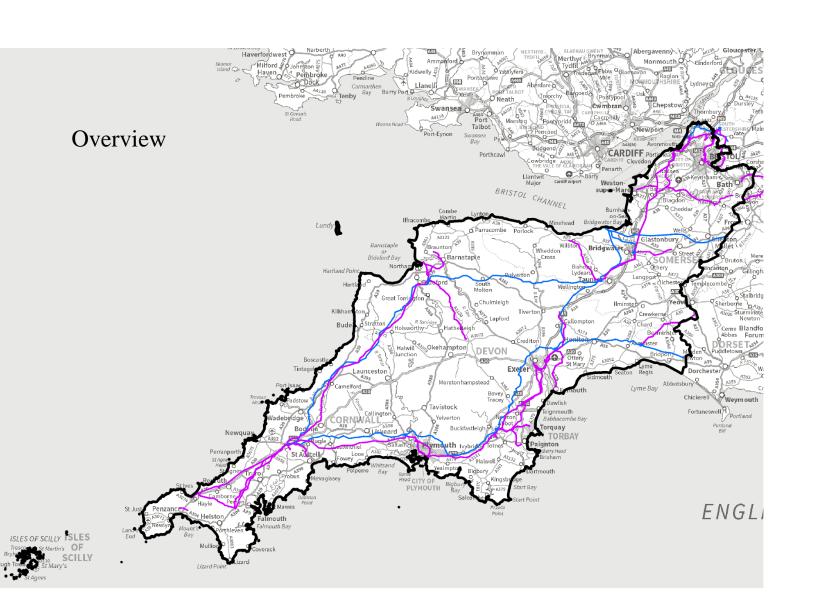


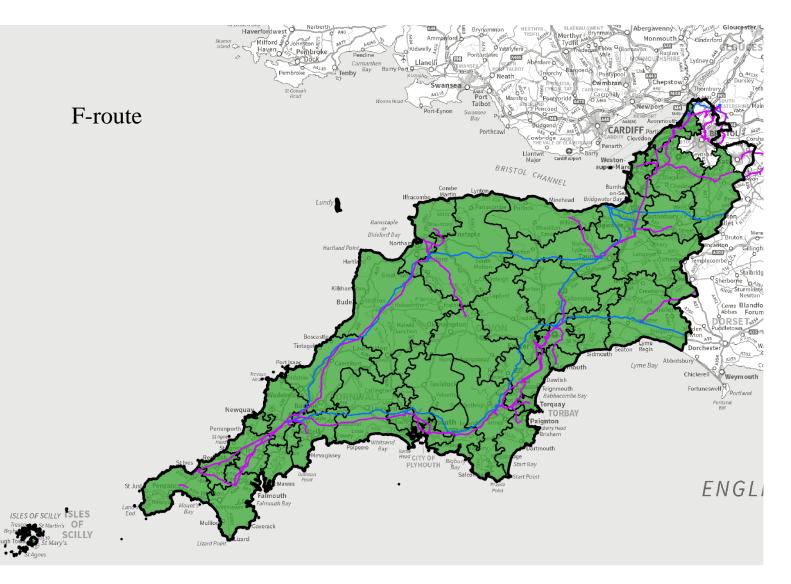




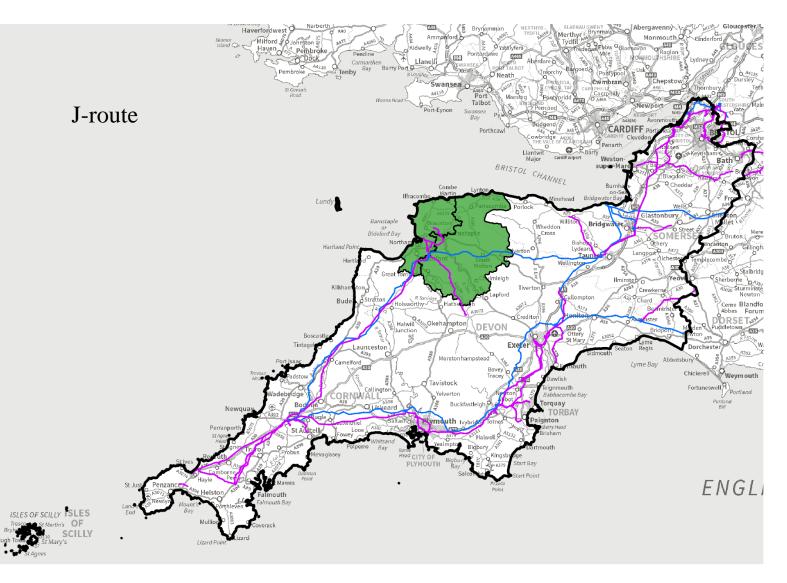
Drivers of the need for this project

- Uncertainty in the future path of demand & DG growth
- Variability and volatility in network flows increasing; usage patterns changing; new technologies
- 14GW Winter Peak; 20GW DG, 12% of Energy
- Significant changes in energy system operation: need for coordination if growth is to be achieved economically
- Ofgem wanting to understand the value to the wider customer base if they were to fund strategic reinforcement
- Need to understand whether there are 'no/low regret' investment options
- What does Brexit mean for renewables, LCTs and electrical self sufficiency?

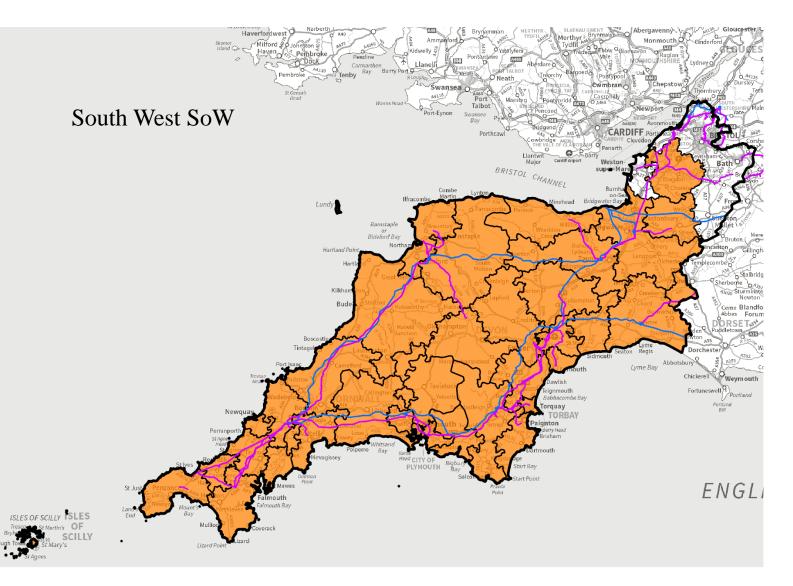




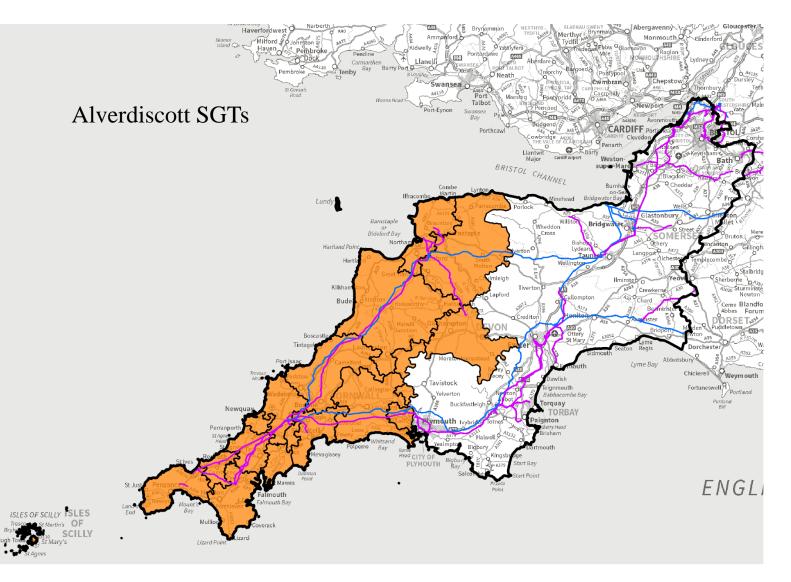




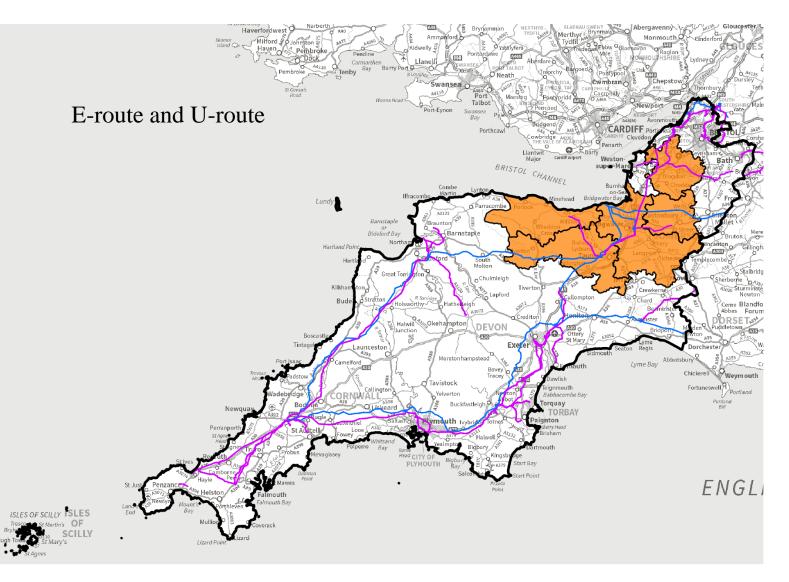




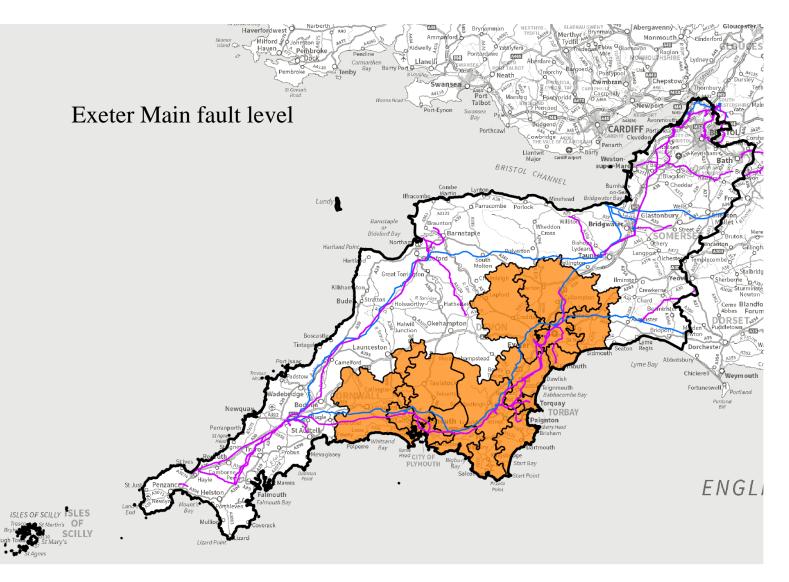


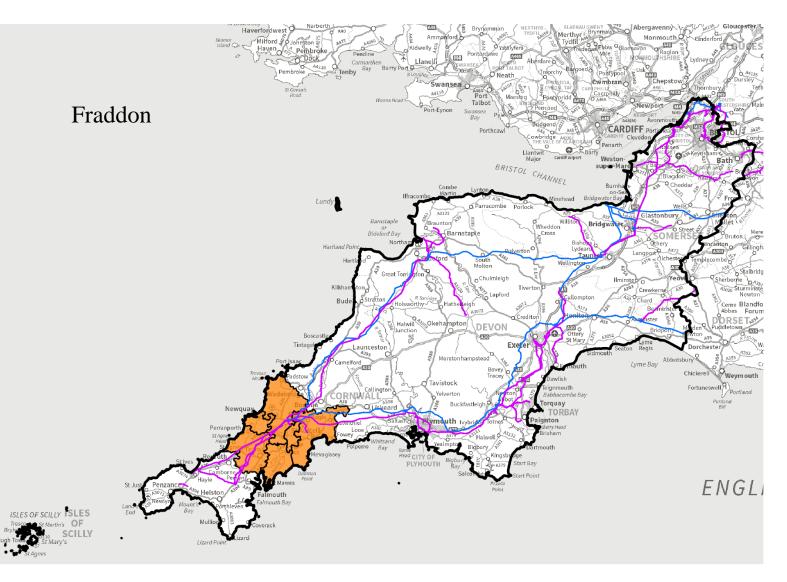




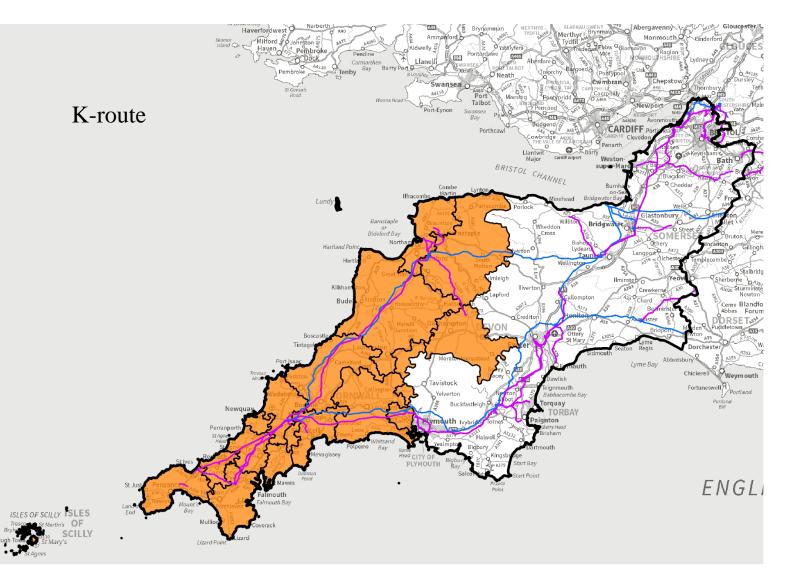




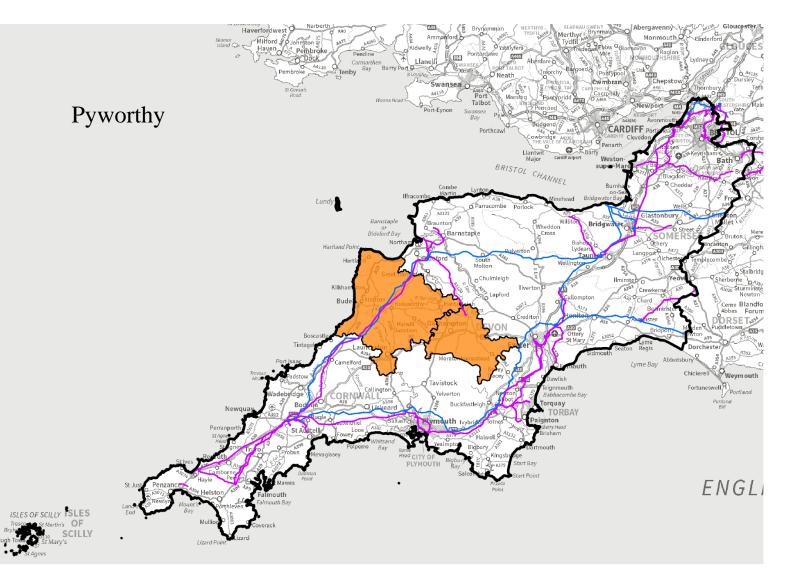




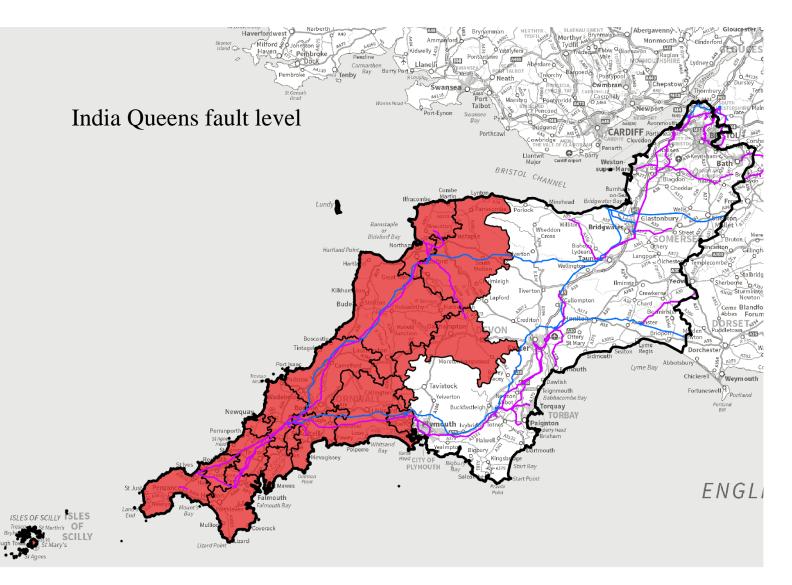


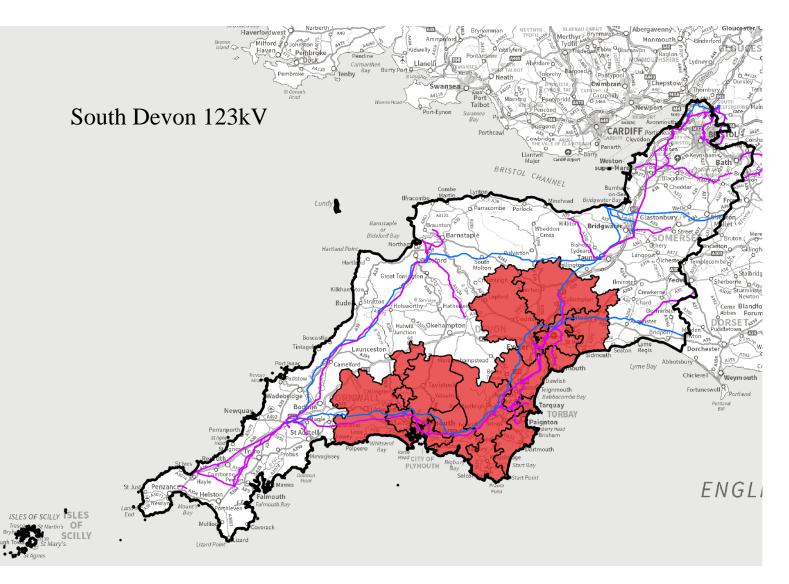




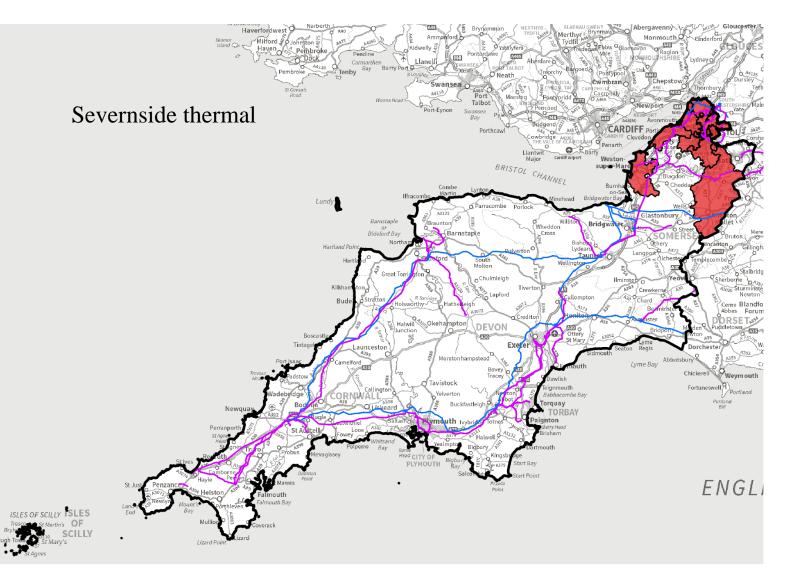








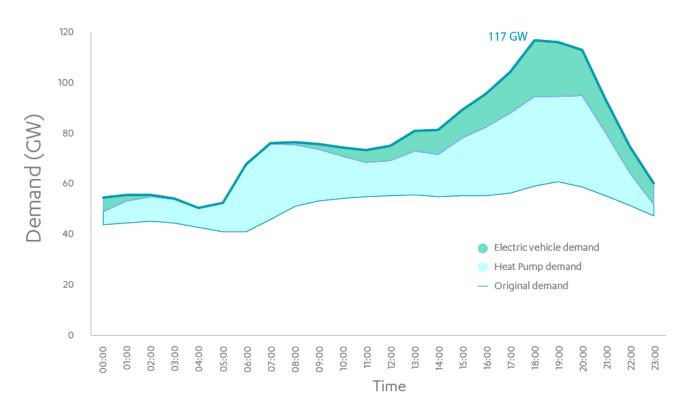






Significant uncertainty of future growth in electricity demand

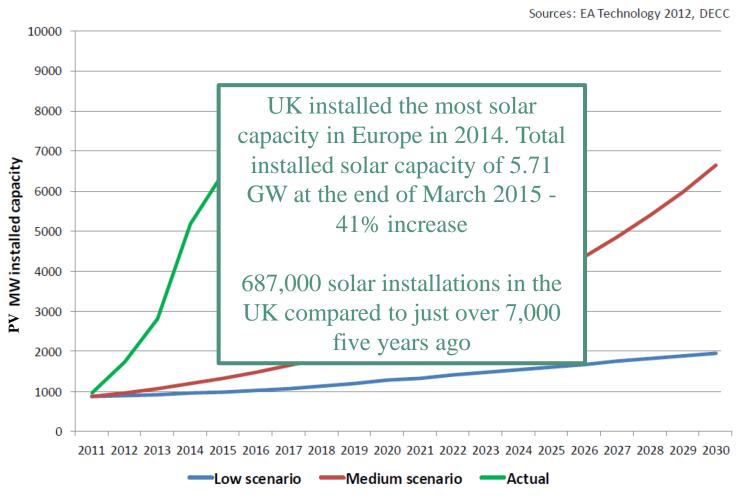
Possible future daily demand scenario with sub-optimal power system¹⁰



Infrastructure Commission Smart Power Report March 2016



Significant uncertainty in DG growth





Current WPD South West DG Data

	Connected		Offered	Total	Enquired
Generator type	[MVA]	Accepted [MVA]	[MVA]	[MVA]	[MVA]
Photovoltaic	1,240	111	30	1,381	
Wind	294	82	12	388	1
Landfill Gas, Sewage Gas, Biogas and Waste Incineration	6	9	41	55	
СНР	34	7	2	43	
Biomass and Energy Crops	1	0	2	3	
Hydro, Tidal and Wave					
Power	5	-	1	6	
Storage	16	244	656	916	49
All Other Generation (inc					
Mixed)	523	491	323	1,336	23
Total	2,118	944	1,068	4,129	75



Aim of Study

- Assessing the potential growth of customer demand and LCT uptake by type, general location and year
- Identifying thermal, voltage and fault level constraints that result
- Assessing options for conventional reinforcement
- Providing recommendations for 'low regret' investment and identifying the cost and timescale of these
- Use this to understand the economic potential for demand side response and/or generation constraint to avoid reinforcement
- Begin to attach 'Energy' figures to future flexibility required



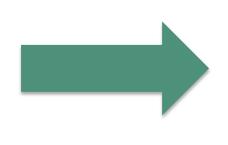
Timetable for Strategic Study

- Stakeholder workshop to get stakeholder input to approach and scenarios to be considered – December 2017
- Undertake network studies and identify solutions with costs -2018 Q1
- Sensitivity work i.e. how much 'headroom' do the potential solutions give – 2018 Q2
- Assess potential for demand response/generation constraint 2018 Q2
- Complete report June 2018
- Dissemination event or webinar July 2018



The Transition from Distribution Network Operator to Distribution System Operator

Distribution
Network
Operator



Distribution
System
Operator

Passive networks managing maximum power flows

Active networks managing real-time energy flows



WPD/National Grid Regional Development Programme

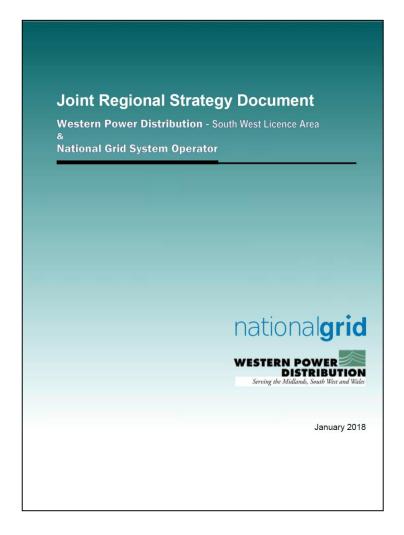
Programme includes:

- Sharing of existing data and network models on a more granular basis
- Collaborative design of whole system modelling studies
- Covers steady state thermal, voltage and fault level
- National Grid to share dynamic modelling techniques
- Covers three scenarios:
 - 2020 3GW
 - 2025 4GW
 - 2030 5GW
- 2020 network models used as basis for study
- Future network requirements will be modelled and solved using both conventional reinforcement and commercial non-build solutions
- Collaborative whole system Network Options Assessment will be trialled
- Processes ,methodologies and results to be documented for external publishing through Open Networks
- Programme to finish in March 2018



Customer Benefits

- Whole system roadmap of DG, LCT and demand growth scenarios in the South West
- Establishes a co-ordinated pathway to achieve greater levels of DG growth
- Recommends least regret works to be completed to ensure on-time enabling of customer requirements
- Reduces time to connect for distribution customers due to active T-D co-ordination ahead of customer requirements
- Establishes the CBA for distribution customers providing flexibility and associated benefits to solve transmission issues
- Produces a regional strategy to enable identified outputs.





What might this mean for our customers?

- WPD is becoming more active in its approach to network operation:
 - Active Network Management rolling out across all network
 - Extending ANM to demand and storage customers
 - Transparency with our data
- Revenue streams for DSR/flexibility services DSO requirements will be predictable and forecast in advance.
 - Revenue from demand 'turn up'/'turn down' services
 - Revenue from generation 'turn up'/'turn down' services
 - Revenue from storage energy shifting services
 - Revenue from demand shifting/influencing
 - Revenue from reactive power support
- Quicker, more efficient connections for customers willing to become active energy system participants







2035 Electricity Scenarios WPD South West licence area

Stakeholder workshop – 5 December 2017

Introduction to WPD 2035 scenarios



- Process
- ESAs
- Technologies
- Methodology
 - Data sources
 - Using the FES scenario
 - Trend analysis
 - Resource assessments

First step in process



Shaping Subtransmission

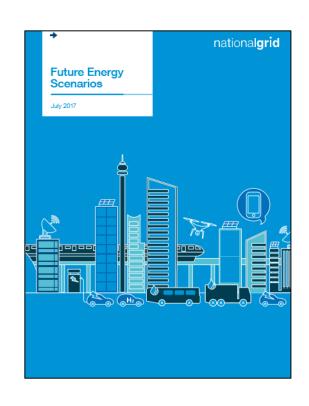
to 2030

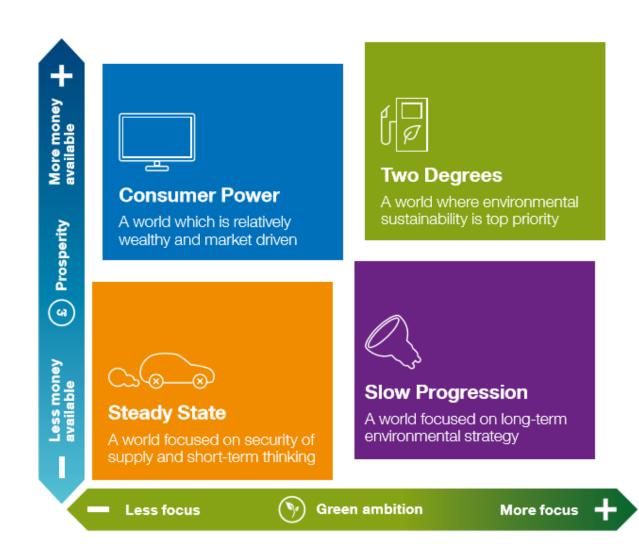
Understanding the need for strategic network investment to **2032**Options study

Step 1 Step 2 Step 3 Step 4 Identify and Network DG and Present demand constraint business case assess technologies modelling to investment and options growth 2035 options scenarios Assess assessment alternative options This study

Future Energy Scenarios

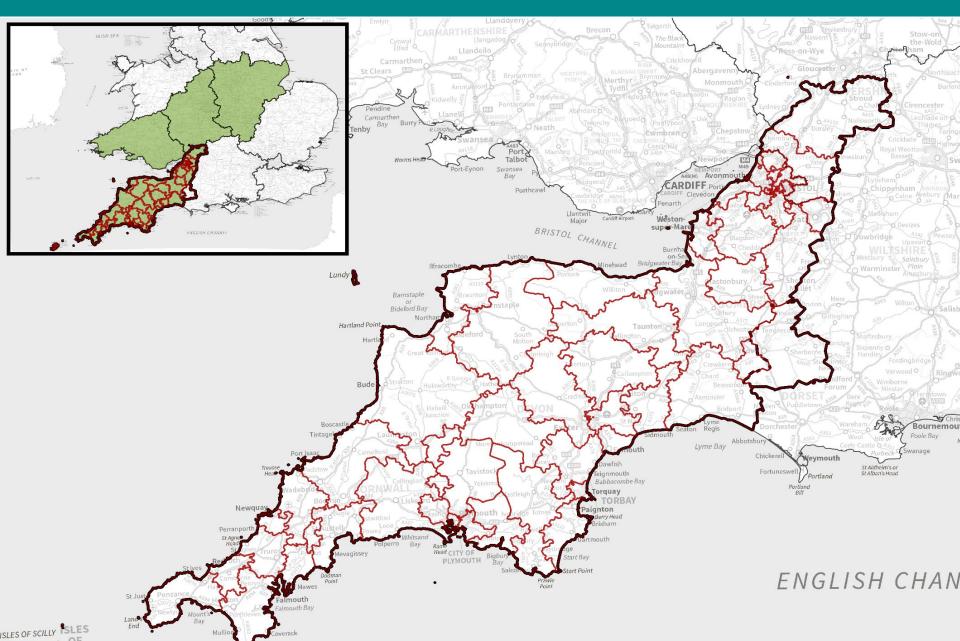






South West - Electricity supply areas (ESAs)





Technologies being assessed



Supply

Distributed generation technologies

Solar PV

- rooftop and ground mounted

Onshore wind

Hydropower

Energy from waste

Anaerobic digestion

Fossil Fuel

Other techs inc. Marine & Geothermal

Demand

Key areas with potential for disruption

Electric vehicles

Heat pumps (by type)

Air conditioning

New build developments (residential)

New build developments (non-residential)

Storage

Energy storage at distribution level

Response services

Reserve services

High energy user behind meter

Own use and community

Co-location

Summary of scope



- South West licence area
- ii. 52 ESAs
- iii. Generation, storage and demand technologies
- iv. Annually from 2018 to 2032
- v. Four scenarios defined by differing levels of economic growth and green ambition

Methodology – stages of assessment



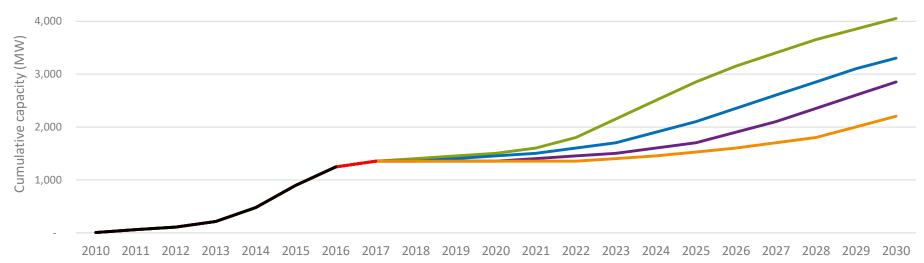




2. Pipeline



3. Scenarios



Current baseline

WPD connection data, Regen national renewables project database, FiT data, ROC data, plus other publicly available data



Pipeline projection

Analysis of current projects in the planning system and with grid connection agreements for large scale technologies. Dependent on technology when projection goes out to.

Growth scenarios (to 2032)

Growth scenarios based on National Grid's FES- applied at a local level

Two degrees Consumer power Slow progression Steady state



Sources of data



Baseline includes:

- Regen database including England progress report for renewable energy
- WPD connection data,
- AddressBase (Ordnance Survey) data
- Plug-in electric vehicle grants and anonymised
 DVLA EV registered keeper data
- FiT data, ROC data etc..

Renewable energy A local progress report for England 2016

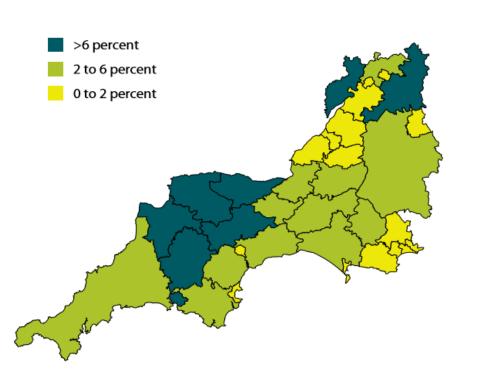
Pipeline includes:

- Projects in planning system
- Grid connection agreements for large scale technologies.
- Local plans for residential and non-residential projections with data validation
- Data validation with local authorities

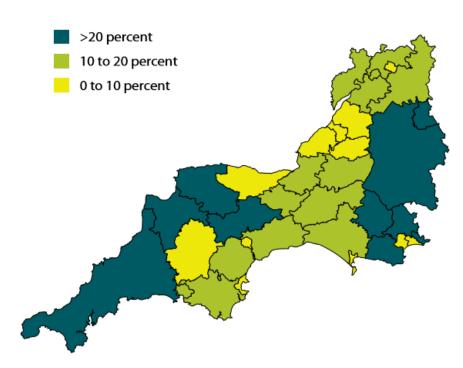
South West Local Authorities - 2016



Percentage domestic heat met from renewable heat generation by local authority



Percentage electricity met from renewable electricity generation by local authority



Source: Regen 2016 Progress Report

Building the scenarios – using the FES

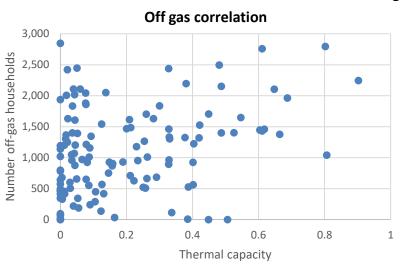


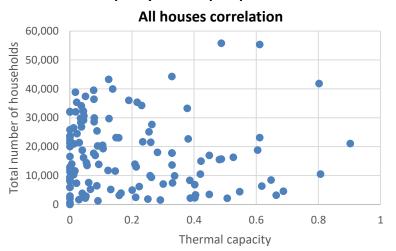


Building scenarios: past and emerging trends



Correlation between the number of off gas houses and the thermal capacity of heat pumps



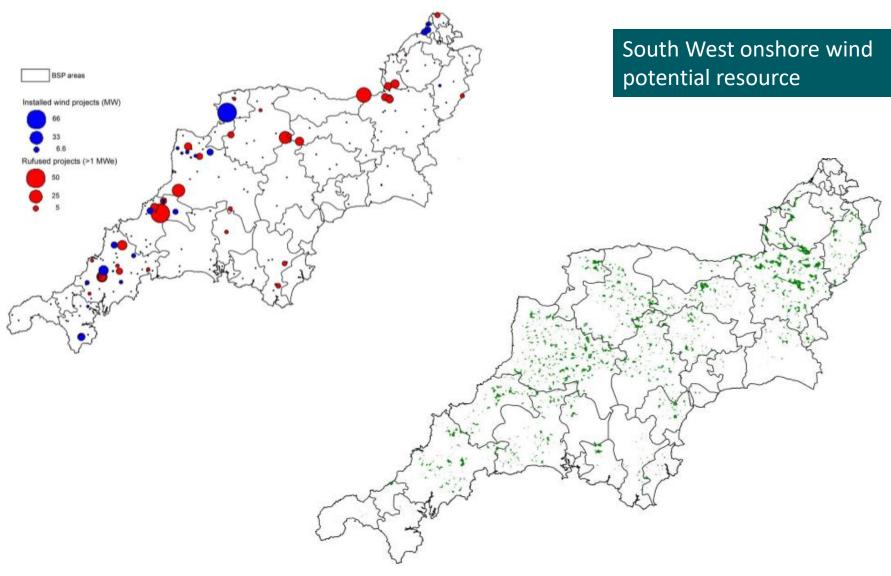


Rooftop domestic solar PV in each Index of Multiple Deprivation



Building scenarios: resource assessments





Source: WPD Regen Scenarios 2015

Building scenarios: projections key technologies



Some projections have high uncertainty. E.g. electric vehicle growth:

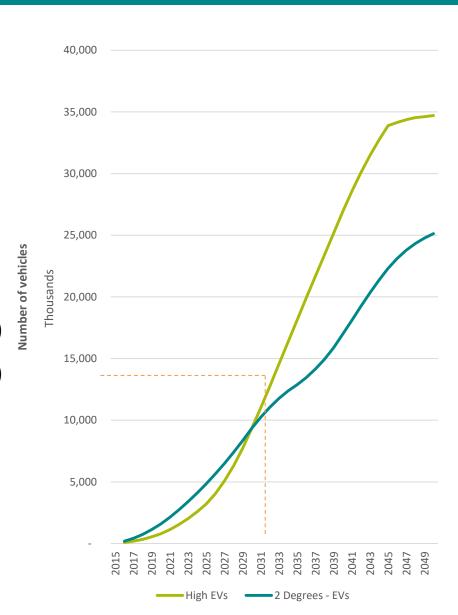
The National Grid FES growth rates by 2032 (GB):

- 'Two degrees' scenario: 15.2 million

– 'High EVs' scenario: 18.1 million

The Committee on Climate Change report to parliament, EV pathway:

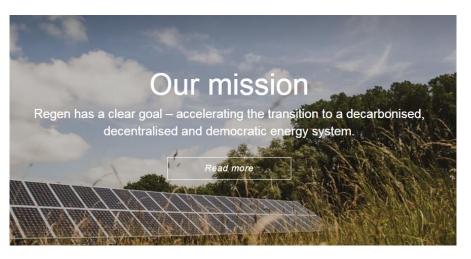
- 16% market share by 2020 (PHEVs + ZEVs)
- 60% market share by 2030 (PHEVs + ZEVs)
- 100% market share by 2040 (ZEVs only)



Regen







Regen passionately believes that sustainable energy has a vital role at the heart of a successful economy and its thriving local communities.

We offer independent expert advice on all aspects of sustainable energy delivery. We use our technical, financial and policy knowledge to support a range of public and private sector organisations to make the most of their clean energy opportunities.



Future Electricity Demand in the South West licence area

Engagement workshop – 5 December 2017

South West licence area



Identifying new residential and non-residential developments

Methodology





Data sources – Local Plans









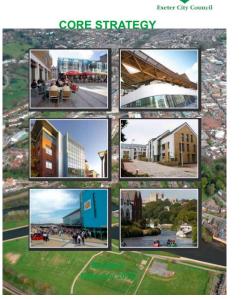


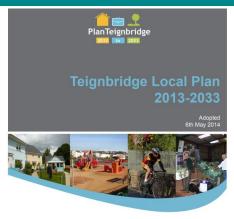


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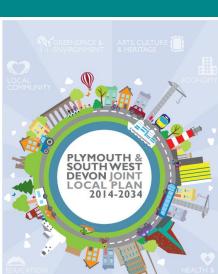
www.cornwall.gov.uk







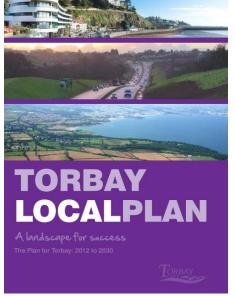




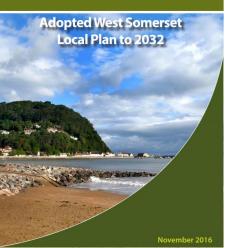
SUBMISSION produced by West Devon Borough Council, South JULY 2017 Hams District Council and Plymouth City Council











East Devon Local Plan 2013 to 2031

Adopted - 28 January 2016

Data sources



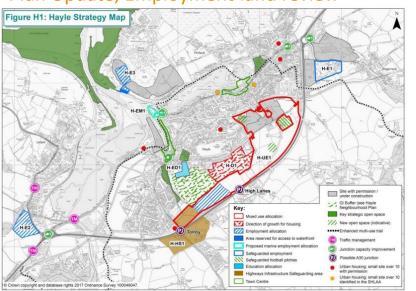
Housing monitoring updates, strategic housing land availability assessments (SHLAAs)

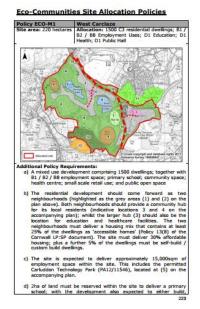
	-	0		0		1.					′					_	,						1
Site	Permission	Parish	Settlement (at which the development occurs whether within Bullb or not)	Commentary on Site	Oct 2016 - Mar 2017	2007 - 18	2018 - 19	2039 - 20	2020 - 21	Apr 2021 - Sept 2021	Oct 2021 - Mar 2022	202 - 23	2023 - 24	2036 - 25	2025 - 2026	Apr 2026 - Sept 2026	Oct 2025 - Mar 2027	2027 - 28	2008 - 29	2029 - 30	2030 - 31	Rve Year Supply - Oct 15 to Sept 20	Overall
Fosse Way Court Seaton EX12 2UP	14/0187/MFUL	Seaton	Seaton	Refurbishment of existing apartments plus construction of new block linking existing buildings comprising total 10 additional open market apartments. Not yet implemented and understood to be stalled due to a freeholder /eas sholder issue so assume completion will be beyond the 5 year period.	0	0	0	0	0	0	0	0	0	12	18							0	30
Land North Of Rowan Drive Seaton	13/1091/MOUT	Seaton	Seaton	Part of site allocated for 10 dwellings by the newly adopted Local Plan. Permssion is for 36. Reserved matters being considered by Committee in February 2017. Assume completion will be in 2018/19 and 2019/20 inline with HELAA methodiclogy.	o	0	12	24														36	36
Land Off Barnards HII Lane Seaton	15/1195/MOUT	Seaton	Seaton	Site previously allocated in the Braft Local Plan. New permission reducing overall numbers and percentage of affordable homes. No reserved matters approval as yet. Assume completion will be in 2018/19 and 2019/20 in line with HELAA methodology.	0	0	12	8														20	20
Seaton Quay, Former Racal Ste), Riverside Way, Seaton, Devon, EX12 2 UE	16/0503/MRES	Seaton	Seaton	Seaton Clary development that has been salled for recent years but has now been partified with less solid properties of the solid parties of the solid parti	o	•	12	25	¥5	13	15											75	90
Victoria Hotel, The Esplarade, 9dmouth, Devon, EX10 8RY	06/2382/MRIS	Sidmouth	Sidmouth	Site commenced 2008 (08/1873/CPE cert ficate of la wfuriness for foundations implementing this development). No further information and assume requires new building control application approval to recommence but expected to happen within the five year period.	o	0	o	12	2													14	14
Land At Frys Lane Sidford	12/2222/MOUT	Sidmouth	Sidmouth	Reserved matters application (16/2696/MRES) pending consideration. Assume completion will be in 2018/19	0	0	12															12	12
Land To The East Of The Village Hall Sidmouth Road Clyst St Mary	15/1269/MRES	Sowton	Clyst St Mary	Large site on the edge of Clyst St Mary. Commenced in mid 2016. Assume completions will be from 2016/17 onwards in line with SHLAA methodology.	12	25	25	18														80	80

	Status	Total permitted	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	202021	2021/22	202223	202024	2034.05	903000	02000		202728	2028/29	2029/30	2030/01	2031/32	Total on site	Plan 2006		Comments
Taunton completions			322	237	185	264	275	421	532	513											Т	Т	Т	Т		\neg				2749	
SHLAA Site Completions			62	51	83	50	91	174	400	386											Т	Т	Т	Т		\neg				1297	
Small Site Completions/Windfalls			260	186	102	214	184	247	132	127	37	37	37	47	47	47						Т		Т						1704	
05/16/0003: Kinglake, Bishops Hull	PP	75										35	40								Т	Т	Т	Т		\neg		75		75	Site under construction.
08/10/0009ca; 08/13/0013, 08/16/0031; Ladymead School*	OA PP	100				П			9	17				19				П			Т	Т	Т	Т	П	П		45		45	Phase 1 complete. Phase 2 awaiting decision on RM application. Phase 3 on hold.
08/10/0024ca; 08/15/0012: Nerrols Drive	PP	630									15	40	60	60	60	25	21	4	5	5 5	6 6	5	55	Т	\neg	\neg		540		540	Phase 1 (260 dwellings) under construction.
25/06/0020; 25/11/0006; 25/12/0021: Old																					\top	Т	\neg	Т		\neg					
Cider Works	PP	356	62	51	52	29	31	- 11	24	19	53	24											\perp	\perp				356		354	Site under construction.
25/09/0016; 25/12/0032ea; 25/13/0014, 25/13/0035 Taunton Trading Estate	PP	526			31	18	38	21	42	88	61	٥	60	60	60	47		╙			\perp	╙	\perp	1		_		526	\perp	526	Phase 1 & 3 complete. Phase 2 near completion. Awaiting RM applications for remaining 227 on OA.
	PP	14				3							5	6								L	\perp	1				14			Site stalled.
38/13/0448: Priory Bridge Road car park	PP	49				\vdash				-	29						_	_		_	_	_	\perp	_	_	_		49			Site under construction.
38/11/0596: Firepool Area A, B, C & D	PP	204				\Box		44	60	22	50	28					_	_		_	_	\perp	\perp	\perp	\perp	\perp		204	\perp		Site under construction.
	OA PP	44												44														44			Awaiting RM application.
38/15/0506 Firepool Area H	PP	55										45	10															55		55	Site under construction.
38/14/0076 Firepool Area F	PP	24				ш						24					_	1 -		1	1	1		_ [$-\Gamma$			24			TDBC Housing Enabling - due to start on site Mar 17.
38/12/02030a, 38/15/0177; Killams Drive	PP	315										40	40	40	40	40	41	4	3	5	\top	т	\neg	\top		\neg		315		315	Phase 1 (92 dwellings) under construction.
38/12/0234: Kings College	PP	58									25	33								-	\top	\top	\neg	\neg		\neg		58		58	Site under construction.
38/13/0278; 38/13/0307: Creechbarrow Road	PP	46				П				14	30	8						Т		Г	T	Т	Т	T	T	T		52		52	TDBC Housing Enabling - site under construction.
38/13/0420: 1 Kingston Road	PP	40										40						Т			Т	Т	\neg	Т	\neg	\neg		40		40	Site under construction.
38/14/0355: Parmin Close	PP	47										47										т		\top		\neg		47		47	TDBC Housing Enabling - site under construction.
38/14/0417: Wiffred Road	PP	20									21																	21		21	Due to complete by 31 March 2017.
38/16/0169: 49 East Reach	PP	11											-11															- 11		11	Full PP approved Aug 2016
38/12/0164: Rear 12-13 East Street	PP	10											10									$^{-}$	-	\top				10		10	Full PP approved Oct 2016
48/05/0072ea; 48/11/0027; 48/12/0015; 48/12/0064; 48/12/0068; 48/13/0004; 48/13/0037; 48/13/0061; 48/13/0007; 48/14/0016; 48/14/028; 48/15/0018; 48/15/03(0); 48/15/0053; Monkton Heathfield Urban Extension	pp	900					22	76	220		215	150	26															900			Site under construction. Build out rate based on recent completion rates
48/10/0072: Aginghills Farm	PP	136				ш		22	45	35	34						_	_		_	_	\perp	\perp	_	_	_		136			Site Complete
48/13/0008OA: Hartnells Farm	OA PP	320				ш							50	50	50	50	- 5	9	2	0								320		320	Awaiting RM application.
	Del	37				Ш								17				╙				╙	\perp	1		_		37			Resolution to approve 10.12.14. Awaiting S106
38/16/0324OA Hydrographic Office	Del	100	_	\square		\vdash	_	\vdash	_	\square	_				25			5 2	_	-	+	+	\perp	+	_	\rightarrow	_	100	\vdash		Resolution to approve. Awaiting S106
TAUN001: Land at Pyrland Farm	Del		_			\sqcup		\perp		\sqcup					20	25	_	_	_	_	_	_	\perp	_	_	\rightarrow		45	\perp	45	
TAUN002: Land between Langaller and Walford Cross, Monkton Heathfield	Del												187	200	200	200	20	20	20	20	0 20	0 2	00 2	00	48			2235		1987	Combined with ong SHLAA site TA144 (174 dw)
	Del															10	_	_		\perp	\perp	\perp	1	1	_	4		10	4	10	
TAUN004: Land at Bishops Hull (Kinglake)	Del		_	\vdash	_	\vdash	_	\vdash	_	\vdash	_					10	_	-	-	-	+	+	-	+	-	\rightarrow	_	10	\vdash	10	
TAUN005: Former Livestock Market (38/15/0475oa)	Del													50	50	50	5						\perp	1				200			Mixed use application inc up to 200 dwellings REFUSED 01.09.16. Awaiting new application
TAUN006: Land at Bridgwater Road	Del		_			\sqcup		\perp		\Box		24					_	_		1	_	\perp	\perp	_	_	_		24	\perp	24	
TAUN007: Coal Orchard (38/16/03570a)	Del															18												36			Mixed use app inc 36 dwellings - awaiting decision
TAUN008: Corneytrowe (42/14/0069)	Del												50	100					22	22	0 2	0 2	15 2	10	\perp	$_{\rm I}$		2000			Resolution to approve 27.01.16. Awaiting S106
TAUN009: West of Greenway	Del														55							T						150		150	
TAUN010: Ford Farm	Del													40	55	55	5	5 6	0	6	10	5	\neg	Т		\neg		400		400	
	_		_	_		_	_	_		_						_	_	_	_	_	-	-	-			_					

Site Allocations Development Plan, Economic Development Monitoring Report, Infrastructure Delivery

Plan Update, Employment land review







Method to identify new developments



1

Refer to latest version of the local development plan

Key documents – Core Strategy Paper, Policy maps

2

Identify latest supporting documents

- Local Plans often not the most up to date source
- Annual monitoring reports, SHLAAs, ELAs, Infrastructure Needs Assessment

3

Gather detail on strategic sites (housing, employment)

- Sites with significant growth potential, specific policy ref in the LDP
- Number of homes to be built
- Site area of non-residential property
- Any indication of phasing to be built over year

Method to identify new developments



4

General allocation for housing and non-residential sites

- Housing trajectory for annual build out rates
- Additional developments to be built outside of strategic sites

5

Non-residential phasing and usage type

- Very limited information on annual build out rates and site areas
- Developments over 50,000m2 split across plan period

6

Unallocated

• Figures for homes to be built across the LA that are yet to be allocated or windfall allowance — no specific site details

7

Assign to ESA

Using policy maps or site development name



Review with Local Authorities

Data check: contact all local authorities in licence area to confirm figures



Predominantly highlighted use of:

- Monitoring reports
- Site Allocations

 Document
- GIS layers
- Provide detail on the usage type split of non-residential

Scenarios for new demand





Scenario 1
High economic growth



High growth rates with build out rate matches targets given in local plan

Apply scenario growth factors to data



Scenario 2 Low economic growth



Strategic sites: likely to go ahead but with delays

 Based on the development stage of local plan

General allocation and unallocated: total number of dwellings reduced

 Based on previous trends total annual completed build figures in the UK

Final database



					•														Scena	rio 1 - High	er econo	mic scena	rio - Gone	Green ar	d Consu	mer Power	•
		cal			Develo pment Source Stage	Link to	Start of plan i	nd of I	Plan	Published, submitted																	
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0 Newcourt		eter Sowton Bsp	Strategic si		Adopted SHLAA/ Planning			2026	20	2015/16	140	129	105	100	76	Ů	i õ		0	ň	n	ů.	ů.	n	n	n	ñ
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3 Water Lane		eter Exeter City Bsp	General allo		7 Adopted SHLAA/ Planning			2026	20	2015/16	13	14	0	0	0	0	0		n .	0	n	0	0	0	0	n .	ů.
4 Windfalls		eter Sowton Bsp	Unallocate		5 Adopted SHLAA/Annual m			2026	20 Assun		ı,		44.5	47.5	50.5	n			n	n	n	n .	0	0	0	n	0
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0 Barnstaple		orth Di Barnstaple Bsp	Unallocate		5 Publishe Local Plan	http://co		2031	20	01/07/2017	153	50	88	60	89	20			0 1	5	0	0	0	0	0	0	0
1 Bideford		orridge East Yelland Bsp	Strategic si		1 Publishe Local Plan	http://co		2031	20	01/07/2017	100	108	168	255	301	240				5 26		15 13	15 13	5 12	7	0	0
2 Bideford		orridge East Yelland Bsp	General allo		Publishe Local Plan	http://co		2031	20	01/07/2017	100	100	100	40	82	46			0 20	0 2			0 10		0	0	0
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4 Braunton and Wrafton		orth Di East Yelland Bsp	Strategic si		Publishe Local Plan	http://co		2031	20	01/07/2017	45	48	33	0	07	20			0 4	0 4	0 1			0	0	0	0
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6 Fremington and Yelland		orth Di East Yelland Bsp			7 Publishe Local Plan	http://co		2031	20	01/07/2017	80	27	0	30	30	40			0 2	0 3			-	~	0	0	0
7 Fremington and Yelland		orth Di East Yelland Bsp	Strategic si Unallocate		Publishe Local Plan	http://co		2031	20	01/07/2017	25	73	44	50	49	40) 40		0 3	0 3	0		0	•	0	0	0
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8 Great Torrington		orridge Barnstaple Bsp	Strategic si		3 Publishe Local Plan	http://co		2031	20	01/07/2017	40	- 0	48 10	0	14	60			0 2	0 0	0	0	0	0	0	0	0
9 Great Torrington		orridge Barnstaple Bsp	Unallocate		1 Publishe Local Plan 6 Publishe Local Plan	http://co		2031	20	01/07/2017	23	37	75	09	80	76			0	0 1		0	0	~	0	0	0
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1 Holsworthy		orridge Pyworthy Bsp	General allo		Publishe Local Plan	http://co		2031	20		32	- 21	40	60	51	74				0 8	0		0 8			0	0
2 Ilfracombe		orth Di East Yelland Bsp	Strategic si		5 Publishe Local Plan	http://co		2031	20	01/07/2017		- 0	40	60	51	15		13		13	0 1	30 8			0	0	0
3 Ilfracombe		orth Di East Yelland Bsp	General allo		1 Publishe Local Plan	http://co			20		36	25	45	57	48	CI CI			0	0	0	0	0	•	0	0	0
4 Ilfracombe		orth Di East Yelland Bsp	Unallocate		1 Publishe Local Plan	http://co		2031		01/07/2017	36					- 0	0			0 4	U	U	0	0	U	0	0
5 Northam		orridge East Yelland Bsp	Strategic si		7 Publishe Local Plan	http://co		2031	20	01/07/2017	38	163	302	324	305	251						30	0	U	U	U	0
6 Northam		orridge East Yelland Bsp	General allo		2 Publishe Local Plan	http://co		2031	20	01/07/2017	1	U	0 45	0	0	35				31	U	0	0	0	0	0	0
7 Northam		orridge East Yelland Bsp	Unallocate		Publishe Local Plan	http://co		2031	20	01/07/2017	41	26 55	40	90	6		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		U	4 4	U	U 15 4	0 4	.0	U	U	0
8 South Molton		orth Di Barnstaple Bsp	Strategic si		Publishe Local Plan	http://co		2031	20	01/07/2017	55	55	75		100	125			0 6	4 4		15 4		~	U	U	0
9 South Molton		orth Di Barnstaple Bsp	General allo		1 Publishe Local Plan	http://co		2031	20	01/07/2017	1		9	13	0	14	0		8	9	6	0	U	0	U	U	U
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1 Bradworthy		orridge Pyworthy Bsp	Strategic si		2 Publishe Local Plan	http://co		2031	20	01/07/2017	1 "	U	- /	10	0				b	0	U	U	U	U	0	U	0
2 Bradworthy		orridge Pyworthy Bsp	General allo		Publishe Local Plan	http://co		2031	20	01/07/2017	1 0	U	0	0	0		10		8	0	U	0	0	0	U	U	0
3 Bradworthy		orridge Pyworthy Bsp	Unallocate		Publishe Local Plan	http://co		2031	20	01/07/2017	1 /	2	0	6	4	- 0	0		0	0 1	U	0	0	0	0	0	0
4 Bratton Fleming		orth Di Barnstaple Bsp	Strategic si		5 Publishe Local Plan	http://co		2031	20	01/07/2017	0	0	0	15	10) 0		0	0	0	0	0	0	0	0	0
5 Bratton Fleming		orth Di Barnstaple Bsp	Unallocate		7 Publishe Local Plan	http://co			20	01/07/2017	3	0	- 1	4	9	. 0) 0		0	0	0	0	0	0	0	0	0
6 Buckland Brewer		orridge East Yelland Bsp	Strategic si		7 Publishe Local Plan	http://co		2031	20	01/07/2017	1 1	3	16	12	0	16	9		0	0	0	0	0	0	0	0	0
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6 Chulmleigh		orth Di Barnstaple Bsp	General allo		3 Publishe Local Plan	http://co		2031	20	01/07/2017	0	0	0	0	0	0	12		11	0	0	0	0		0	0	0
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4 Dolton		orridge Barnstaple Bsp	Strategic si		Publishe Local Plan	http://co		2031	20	01/07/2017	0	0	0	10	10	5	5 0		0	0 :	3	0	0	~	0	0	0
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6 Halwill Junction	To	orridge Pyworthy Bsp	Strategic si	t 25	5 Publishe Local Plan	http://co	2011	2031	20	01/07/2017	0	0	0	0	0	10) 15		0	0	0	0	0	0	0	0	0

New housing and non-residential developments: Initial results





Initial results: housing developments

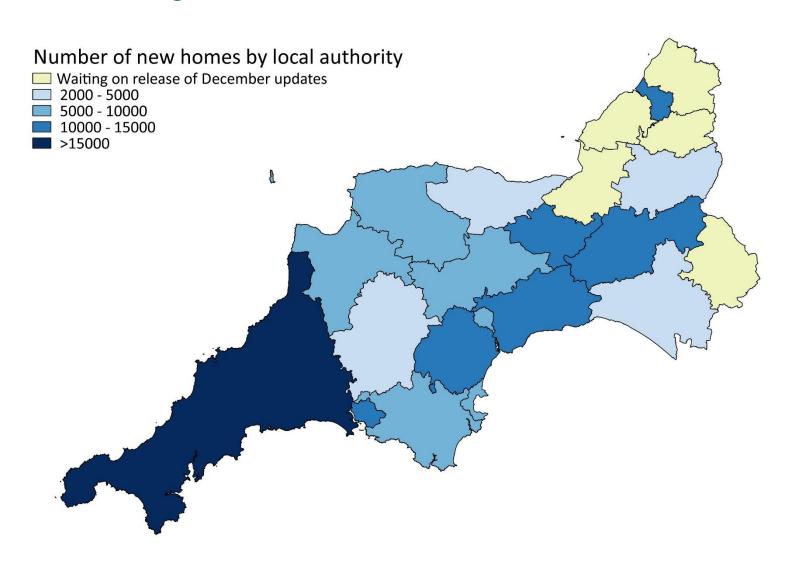


	Local authority	Total number of homes (up to 2032) Higher economic scenario
1	Cornwall	39,229
2	Plymouth	14,805
3	East Devon	13,368
4	Taunton Deane	12,791
5	South Somerset	11,936
6	Teignbridge	11,805
7	City of Bristol	11,112
8	Torbay	8,900
9	North Devon	8,743
10	Mid Devon	8,178
11	Torridge	8,015
12	Exeter	7,022
13	South Hams	5,027
14	Mendip	2,926
15	West Devon	2,491
16	West Somerset	2,434
17	West Dorset	2,140

New housing developments by ESA



Scenario 1: High economic scenario



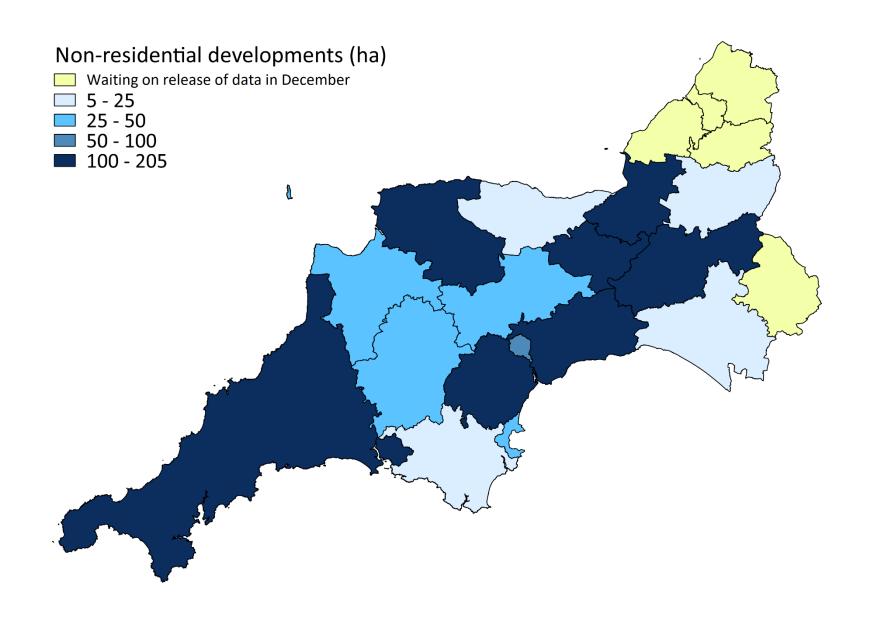
Initial results: non-residential developments



	Local authority	Total non-residential (up to 2032) Higher economic scenario
1	Cornwall	205
2	Teignbridge	169
3	City of Plymouth	168
4	Taunton Deane	158
5	East Devon	155
6	South Somerset	142
7	Sedgemoor	128
8	North Devon	105
9	Exeter	53
10	Torbay	43
11	Mid Devon	41
12	Torridge	41
13	West Devon	32
14	South Hams	21
15	Mendip	10
16	West Dorset	10
17	West Somerset	9

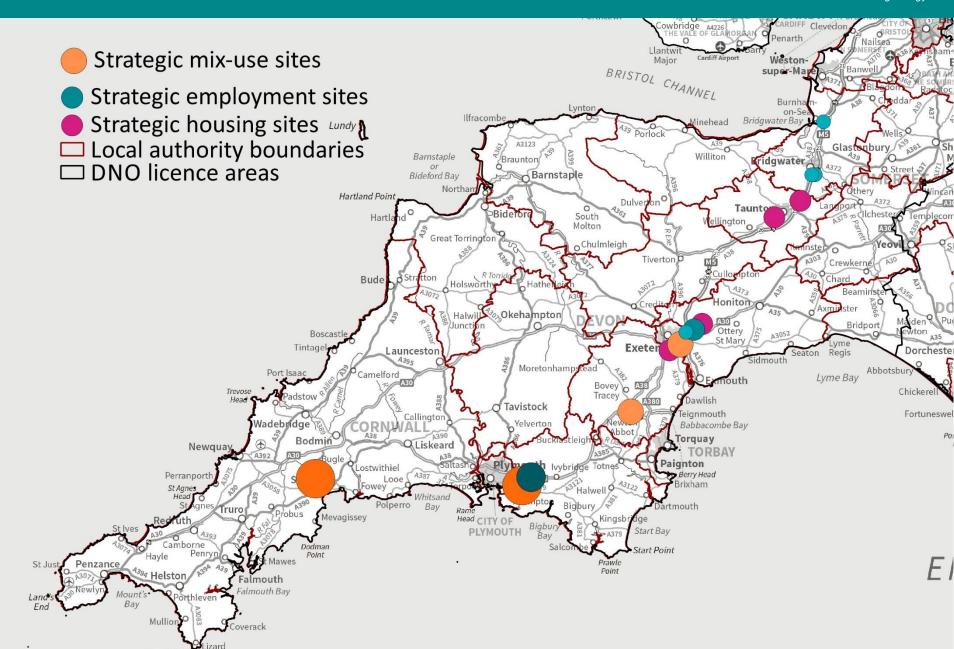
Non-residential developments





Non-residential developments: largest sites







- Complete initial data collection from December releases
- Check data with each local authority unable to include new data after 31st December
- Apply low economic scenario reductions to current figures.

Questions

- Any information to add?
- Any questions/comments on the approach and outcomes?



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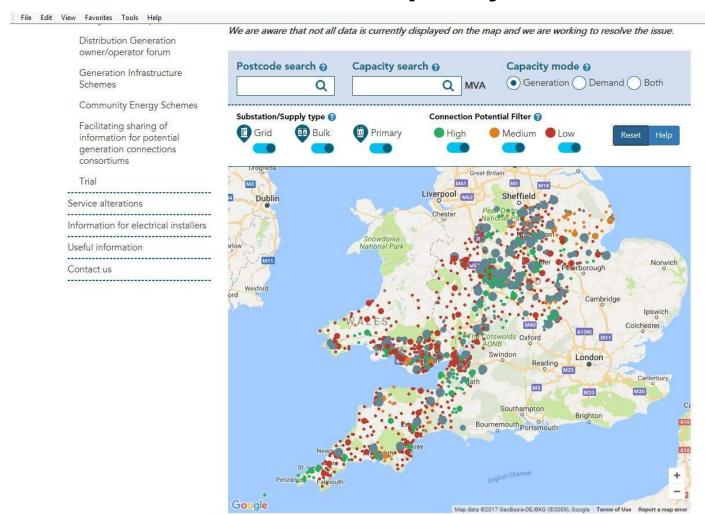


Serving the Midlands, South West and Wales

Strategic Investment Options for the South West

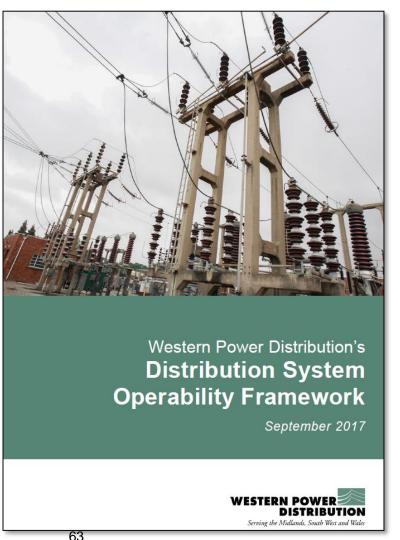
5th December 2017

WPD Online Capacity Tool





DSOF and NIA information day



- WPD's DSOF identifies 9 prominent network issues which need consideration as our system becomes more active.
- Themed around Customers, Network Operations and Assets.
- We are seeking third party NIA innovation projects which could solve or alleviate these network issues through nontraditional means.
- A DSOF & NIA information day will be held in Birmingham on 25th January 2018 and project proposal forms will be downloadable from our website in the new year.



Timetable for Strategic Study

- Stakeholder workshop to get stakeholder input to approach and scenarios to be considered – December 2017
- Undertake network studies and identify solutions with costs -2018 Q1
- Sensitivity work i.e. how much 'headroom' do the potential solutions give – 2018 Q2
- Assess potential for demand response/generation constraint –
 2018 Q2
- Complete report June 2018
- Dissemination event or webinar July 2018



Timetable for Strategic Studies

▼ Q3&4 2017 West Midlands

Q1&2 2018

South West

Q3&4 2018

South Wales

Q1&2 2019

East Midlands



We welcome further collaboration:

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