Future Electricity Demand Growth in the East Midlands

Stakeholder workshop – 30 March 2017

East Midlands licence area

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Today

- Scope
- Distributed generation and demand technology growth scenarios to 2030
  - Methodology
  - Scenarios
  - Results
- Growth in residential and non-residential developments:
  - Methodology
  - Results

Scope

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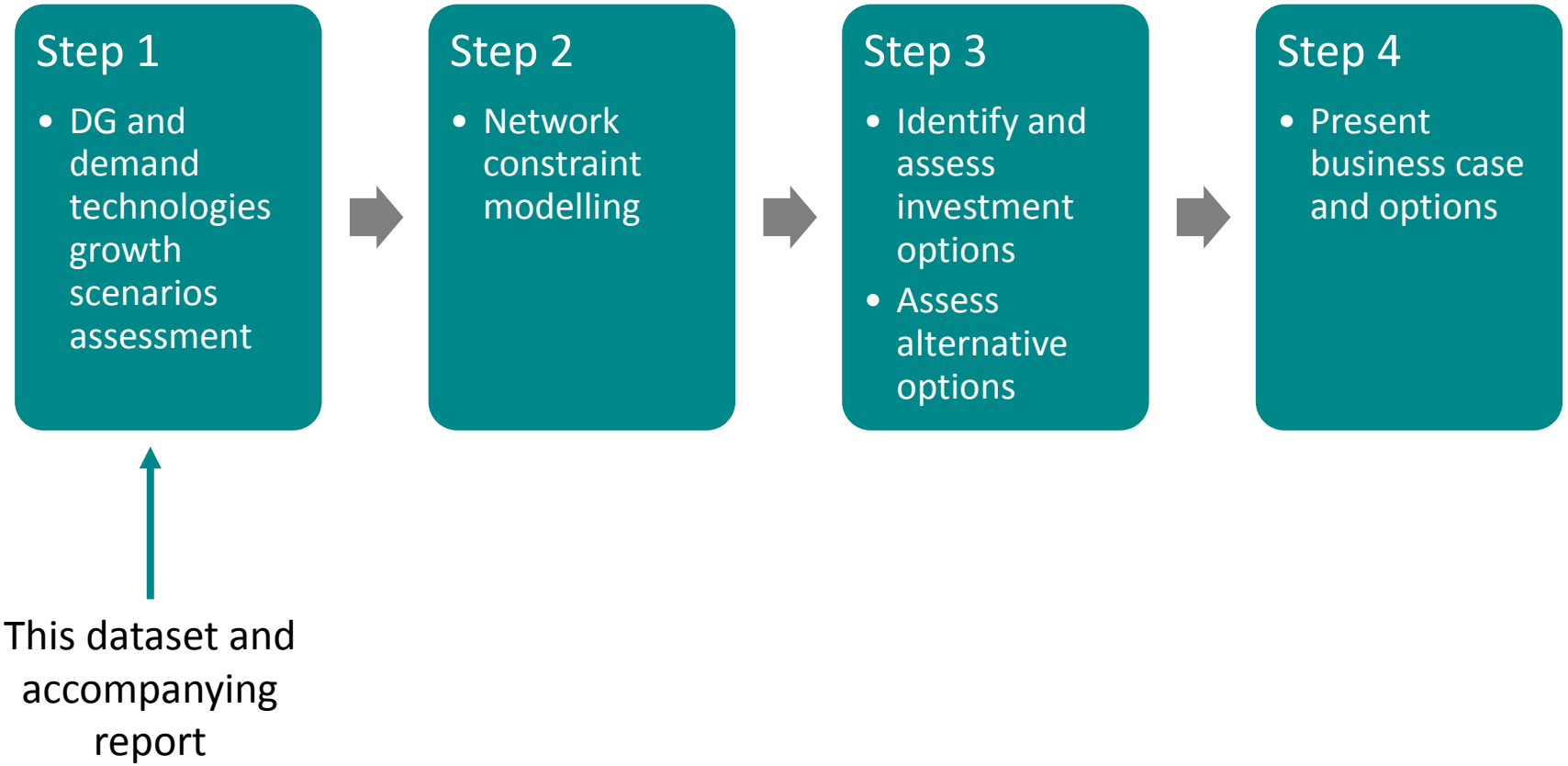
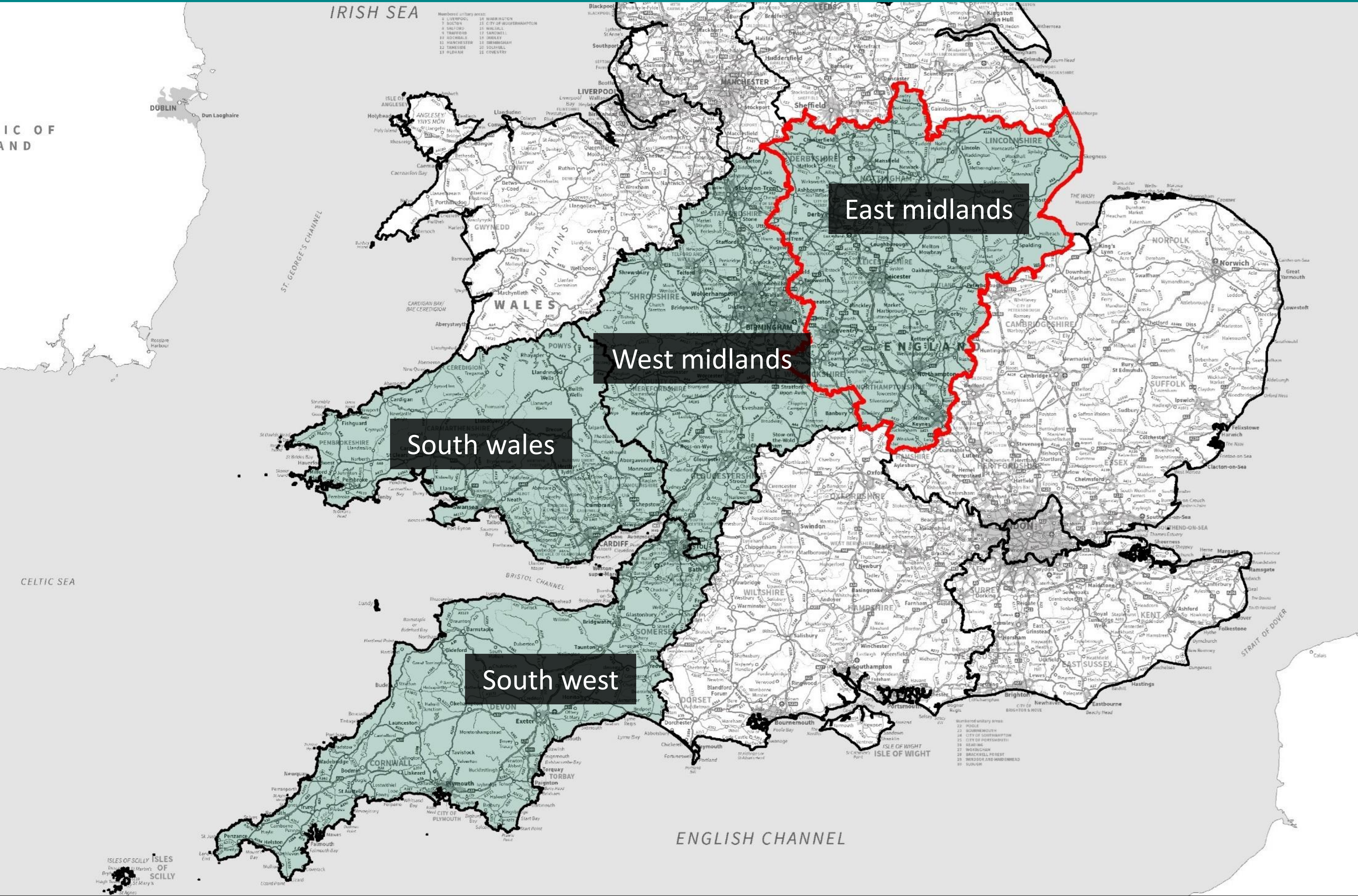
First step in process

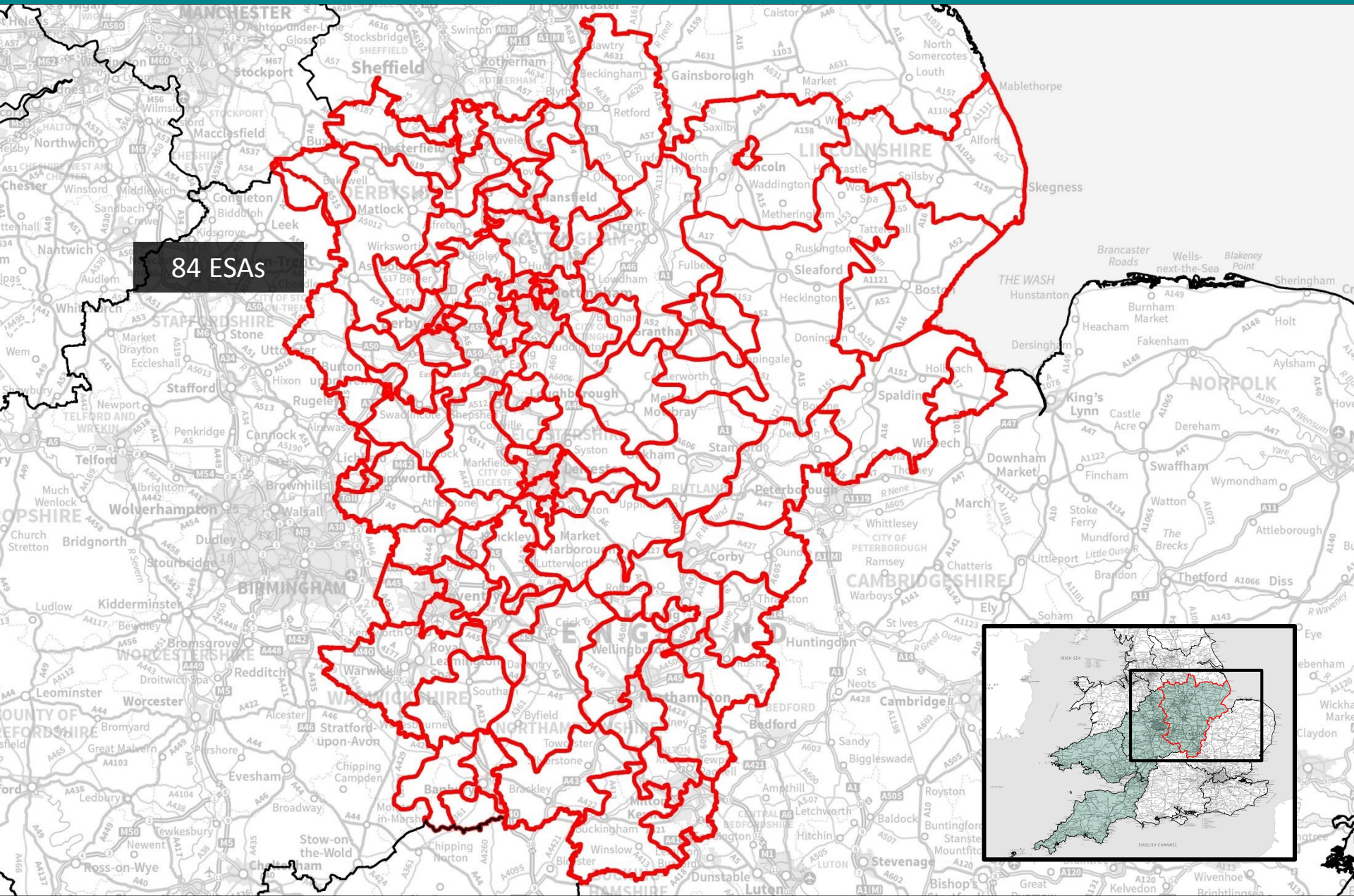
Strategic network investment options study



East midlands licence area



Electricity supply areas (ESAs)



Technologies

Existing DG technologies
Solar PV
Onshore wind
Hydropower
Energy from waste
Anaerobic digestion
Offshore wind

Emerging and new technologies
Floating wind
Geothermal
Tidal stream
Wave energy
Tidal range

New demand
Electric vehicles
Heat pumps
New build houses

Energy storage
Response services
Reserve services
High energy user behind meter
Own use and community
Co-location

DG and demand technologies growth scenarios:

Methodology

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Methodology stages

Stage 1

Baseline

- Number, capacity and nature of projects currently connected

Stage 2

Pipeline

- Pipeline projection of projects to 2020 where possible

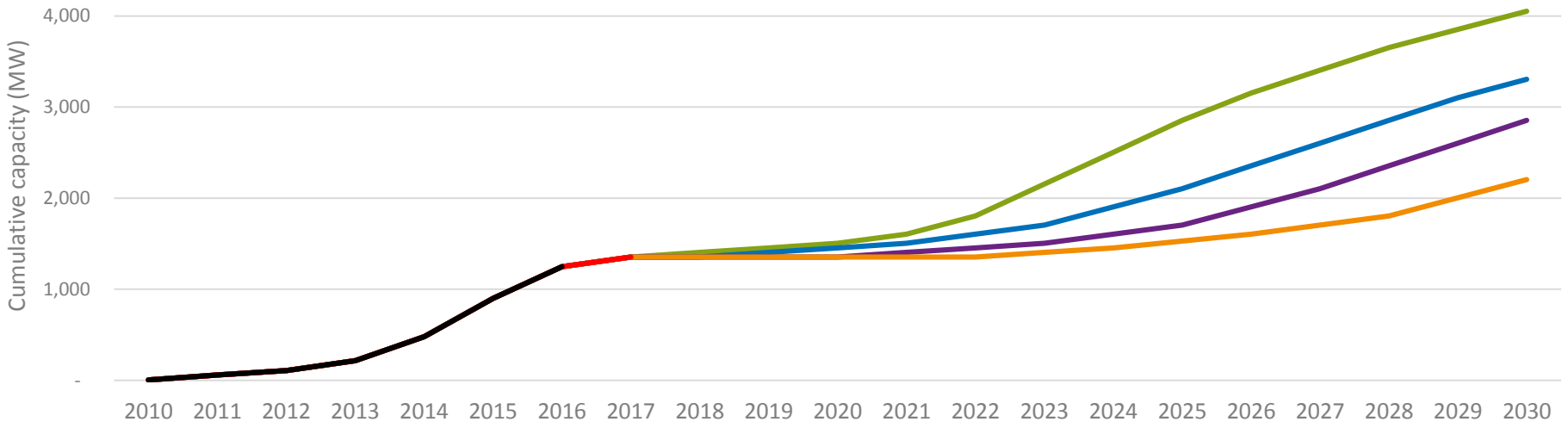
Stage 3

Scenarios

- Scenario projections out to 2030

Illustrative graphical representation of method

Baseline → Pipeline → 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 2030)

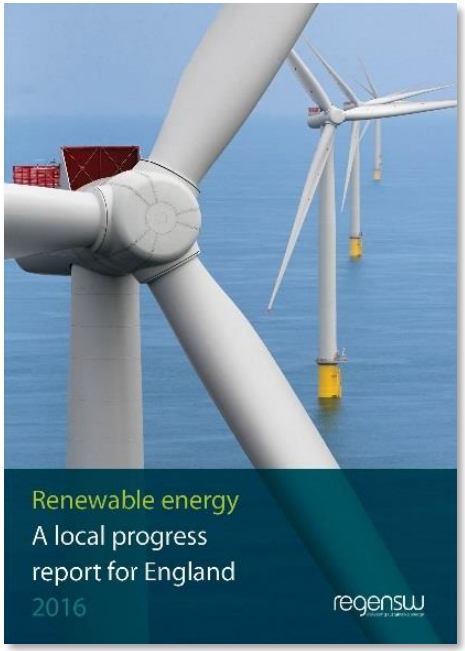
Growth scenarios based on National Grid's FES- applied at a local level

- Gone Green
- Consumer Power
- Slow Progression
- No Progression

Stage 1 - Baseline (2016)

Key sources of data

- WPD connected projects data
- Regen progress report for renewable energy
- Installers and organisations
- Plug-in electric vehicle grants
- FiT installation reports
- Planning data
- ROCs data
- FOI requests
- EFR and Capacity market bids data
- Anonymised DVLA EV registered keeper data

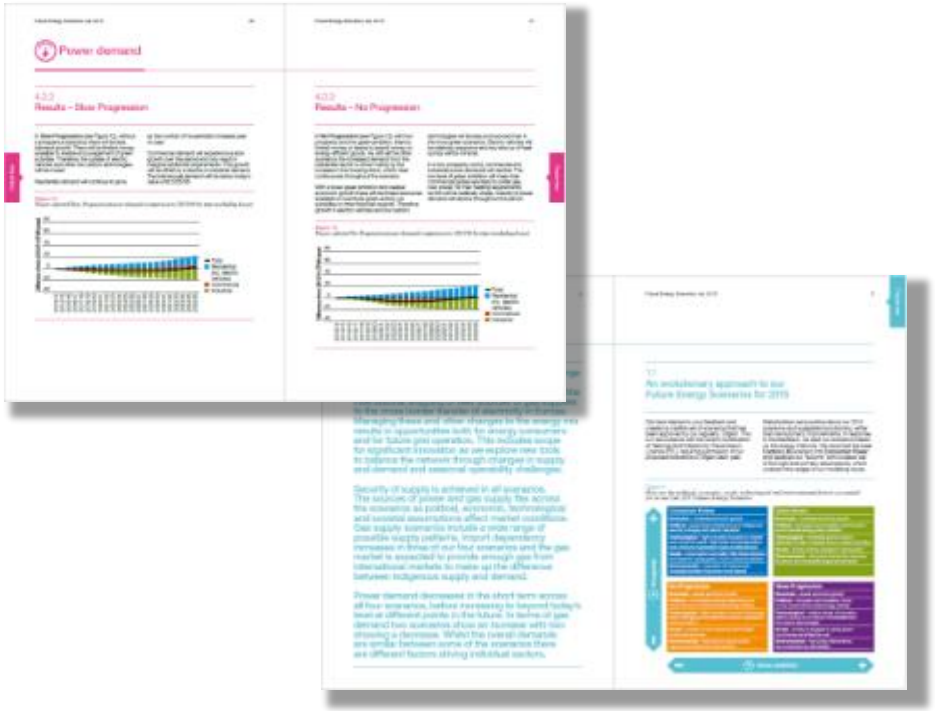


Stage 2 - Pipeline (2016-2020)

Key sources of data

- WPD accepted offers data
- BEIS RE planning database
- Local authority planning data
- Developers and installers
- Stakeholders
- Verification

Stage 3 - Future Energy Scenarios (FES)



Stage 3 - Future Energy Scenarios (FES)

Prosperity (+ / −)

Consumer Power

Economic – moderate economic growth

Political – government policies focus on indigenous security of supply and carbon reduction

Technological – high innovation focused on market and consumer needs. High levels of local generation and a mixture of generation types at national level

Social – consumerism and quality of life drives behaviour and desire for 'going green', not a conscious decision

Environmental – Long-term UK carbon and renewable ambition becomes more relaxed

Gone Green

Economic – moderate economic growth

Political – European harmonisation and long-term environmental energy policy certainty

Technological – renewable and low carbon generation is high. Increased focus on green innovation

Social – society actively engaged in 'going green'

Environmental – new policy intervention ensuring all carbon and renewable targets are achieved

No Progression

Economic – slower economic growth

Political – inconsistent political statements and a lack of focus on environmental energy policies

Technological – little innovation occurs in the energy sector with gas as the preferred choice for generation over low carbon

Social – society is cost conscious and focused on the here and now

Environmental – reduced low carbon policy support and limited new interventions

Slow Progression

Economic – slower economic growth

Political – European harmonisation, focus on low cost environmental energy policies

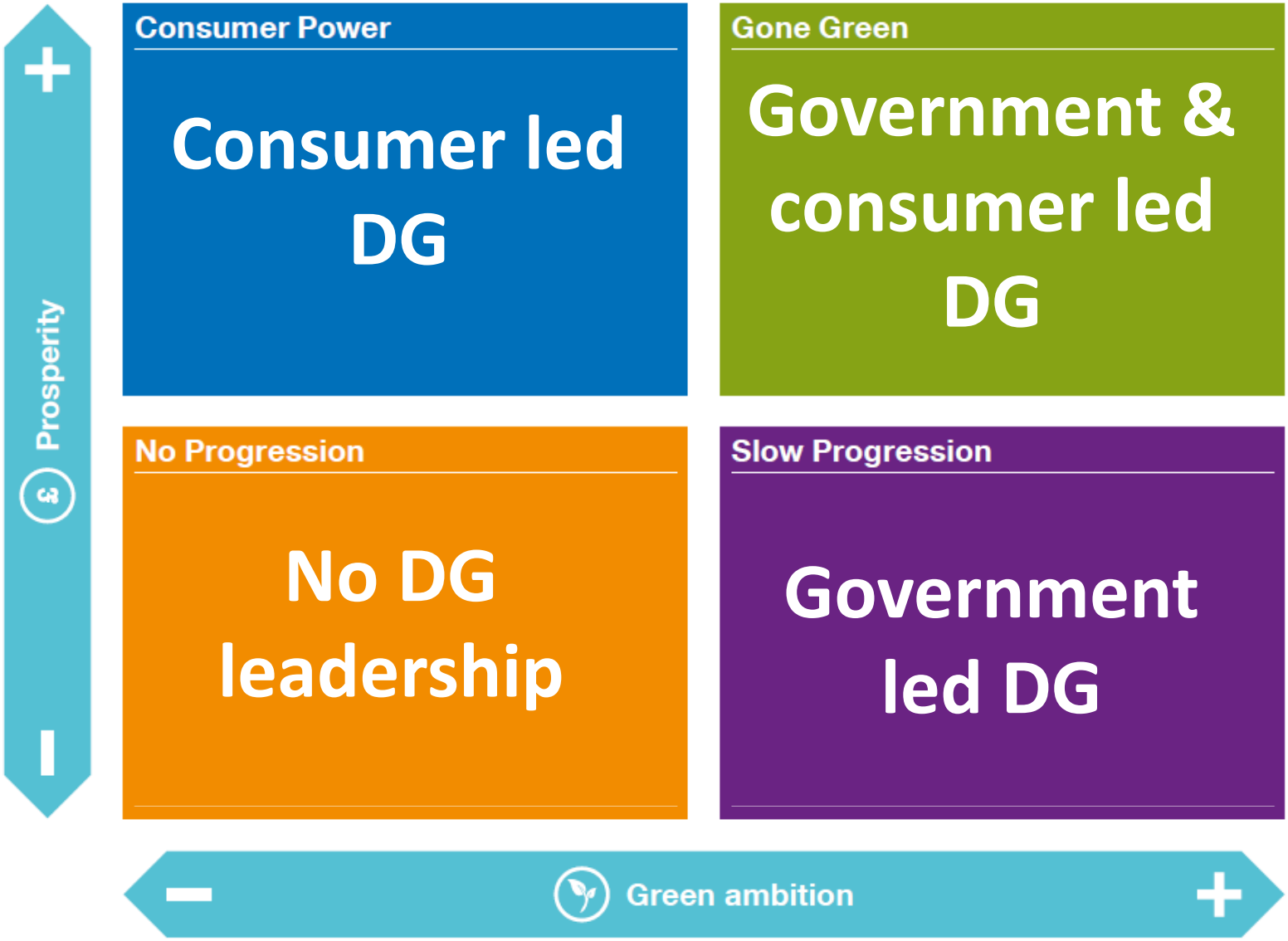
Technological – medium levels of innovation lead to a focus on a mixture of renewable and low carbon technologies

Social – society is engaged in 'going green' but choices are limited by cost

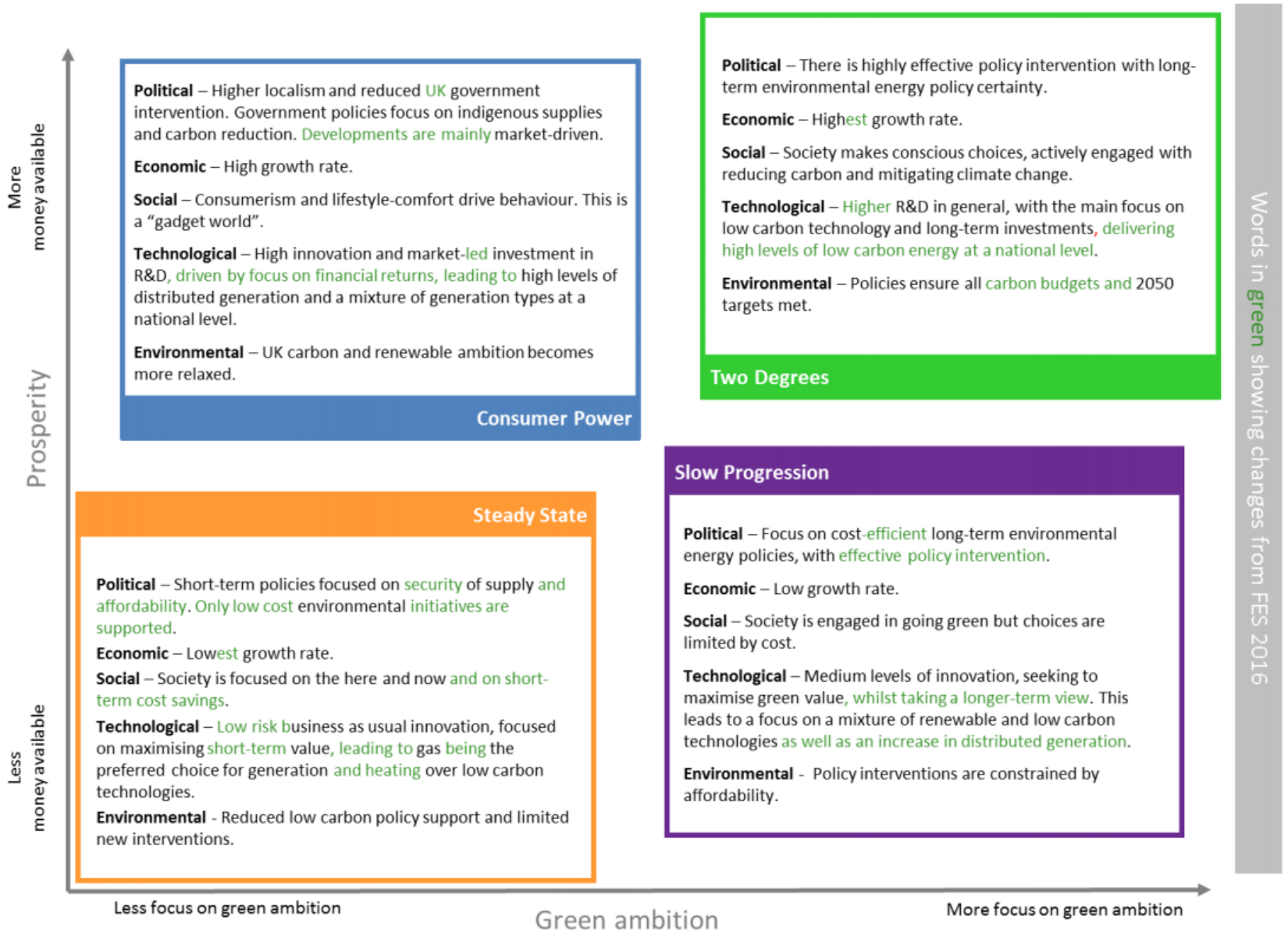
Environmental – new policy interventions are constrained by affordability

Green ambition (− / +)

Stage 3 - Future Energy Scenarios (FES)



Stage 3 - Future Energy Scenarios (FES)



DG and demand technologies growth scenarios:

Building the scenario projections

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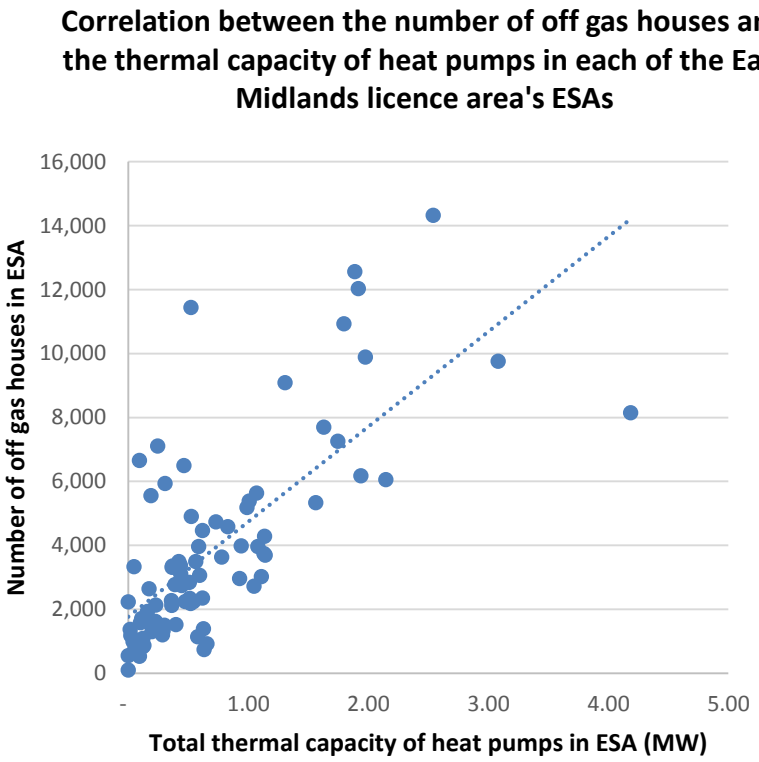
Scenarios: past trends

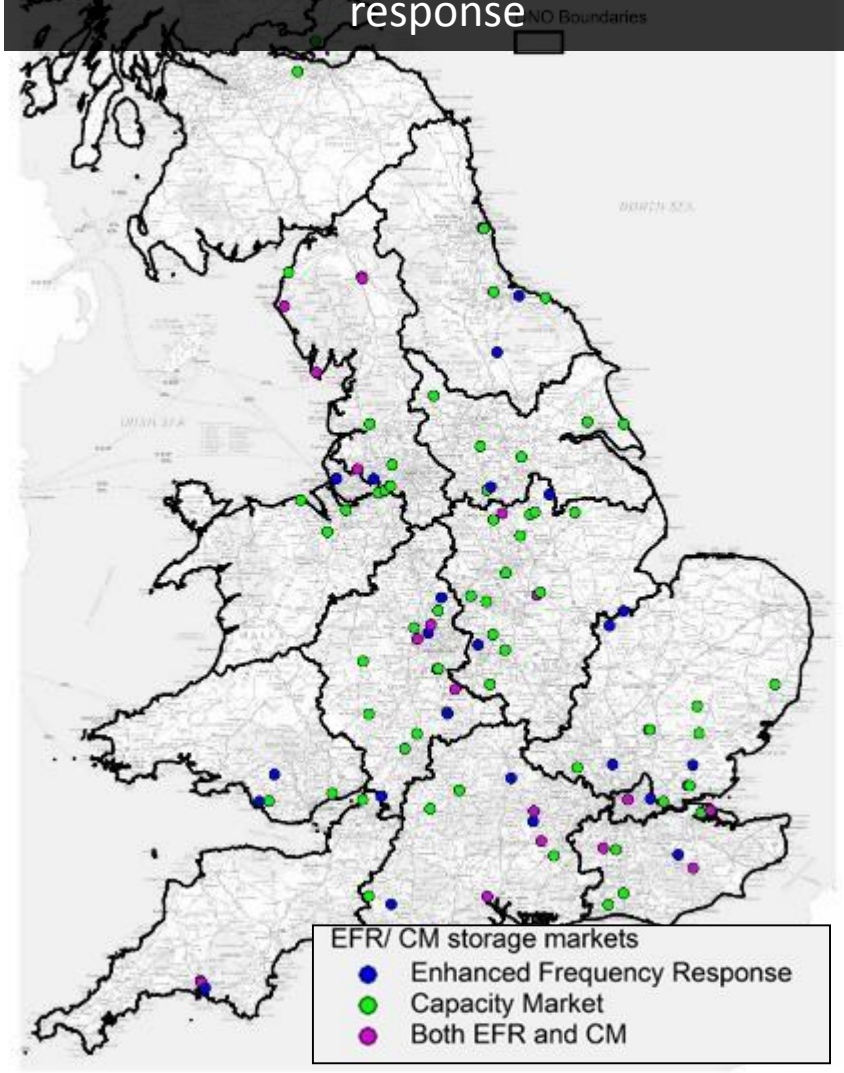
- Analyse existing trends
- Human and environmental factors
- Baseline and Pipeline
- Current geographical distribution



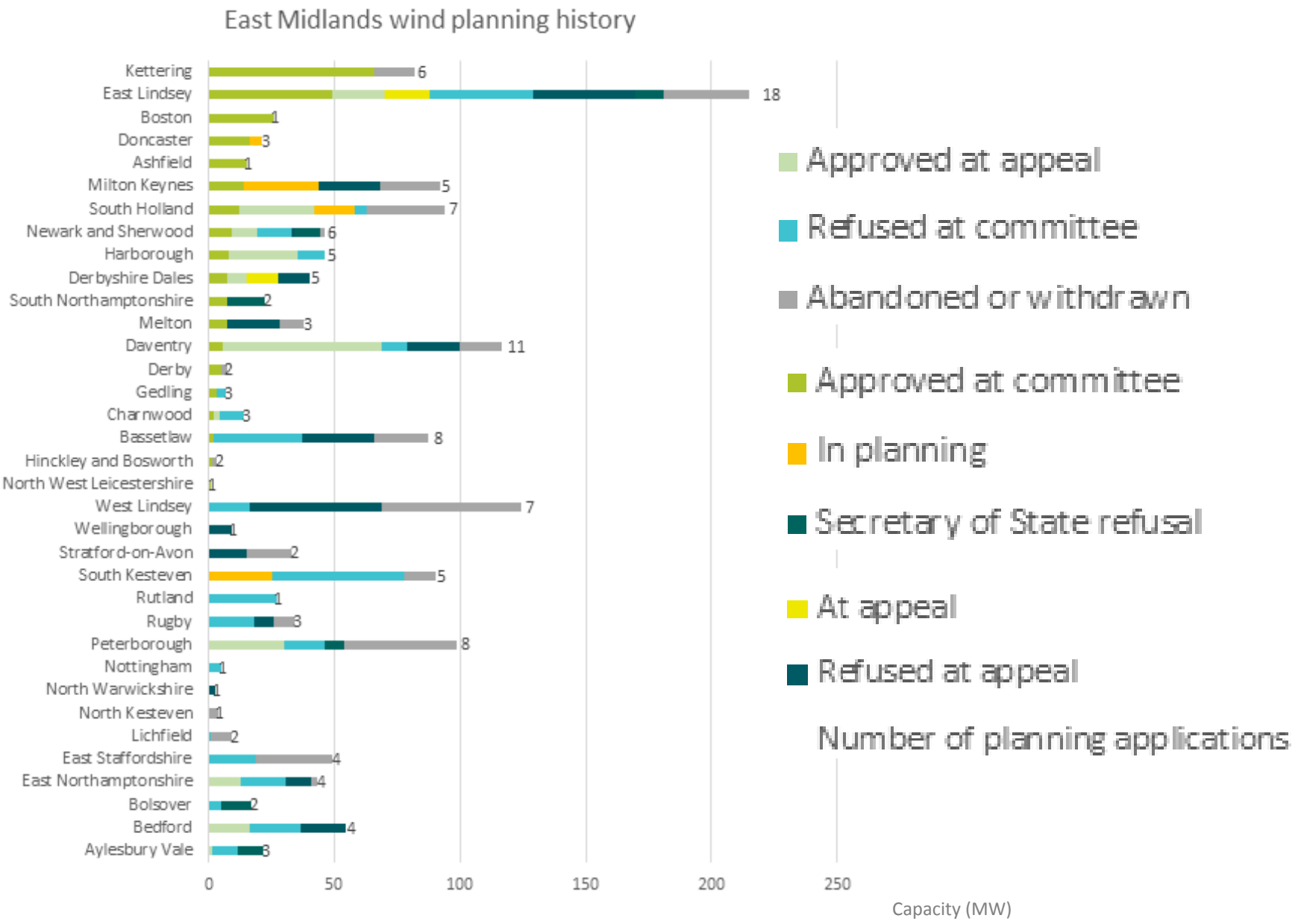
Scenarios: emerging trends

- Greater distribution of domestic technologies
- Emerging new business models
- Electric vehicles purchasing
- Co-location of renewables

Energy storage project locations under capacity market and enhanced frequency response

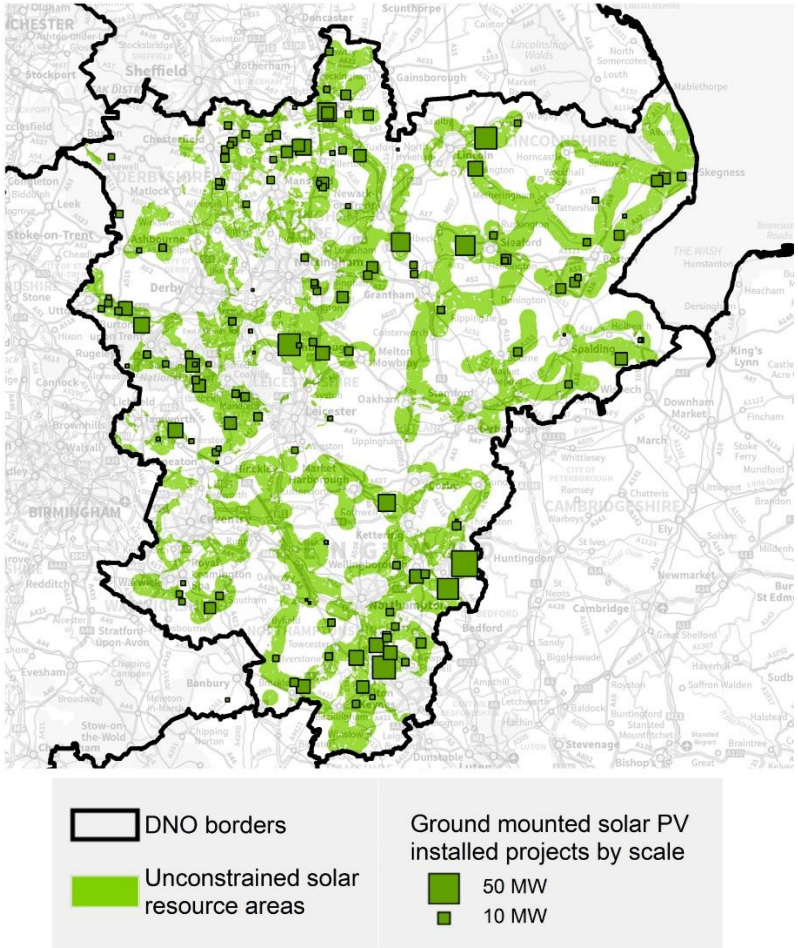


Building the scenarios: planning trends

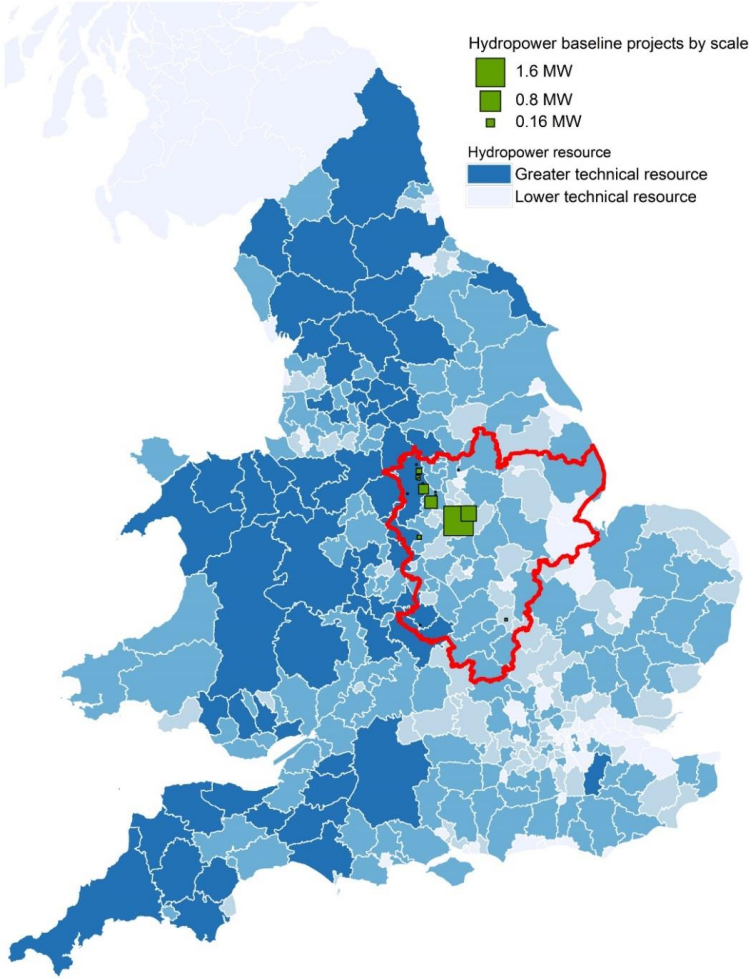


Scenarios: resource assessments

Solar PV resource corridors



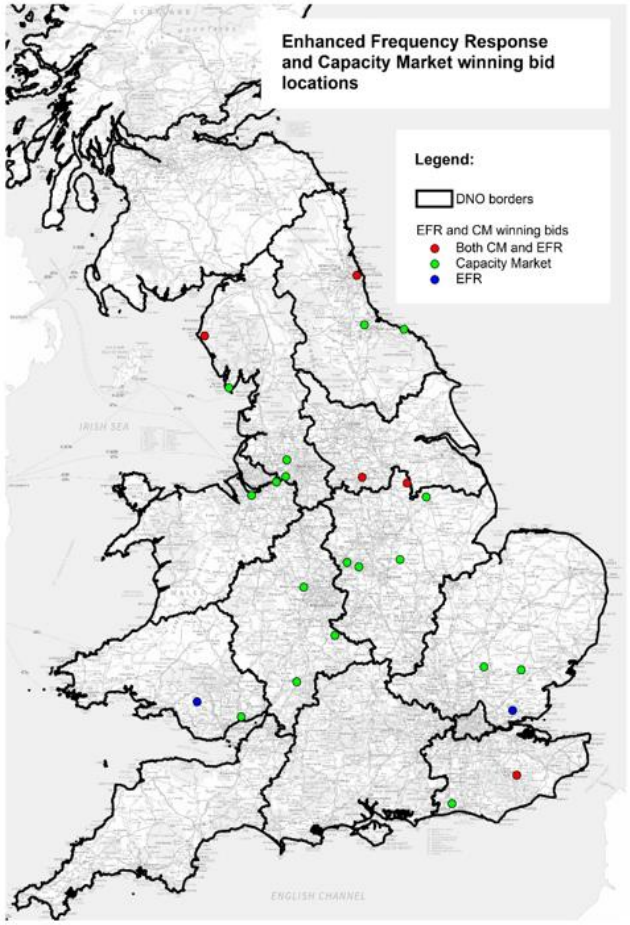
Hydropower resource



Building the scenarios: spatial data

Spatial data

- Deprivation index
- Off-gas areas
- Planning environment
- Housing density
- Population
- Community groups



DG and demand technologies growth scenarios:

Results – electric vehicles

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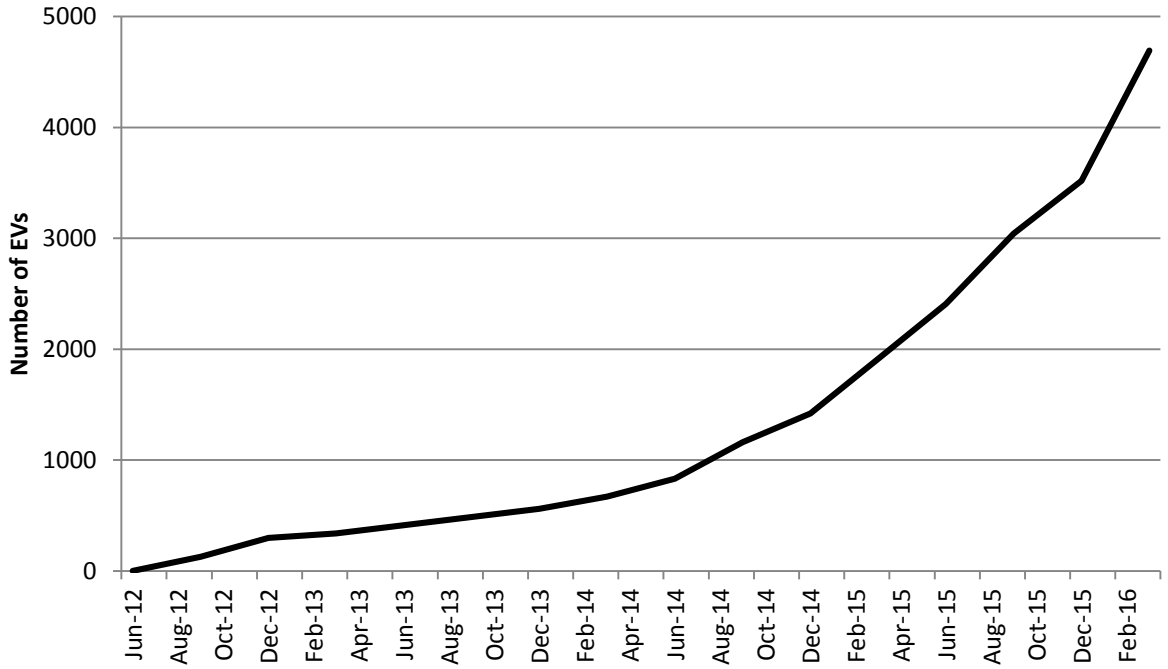
Electric vehicles

Cumulative growth of pure and plug-in hybrid electric vehicles in the East Midlands licence area

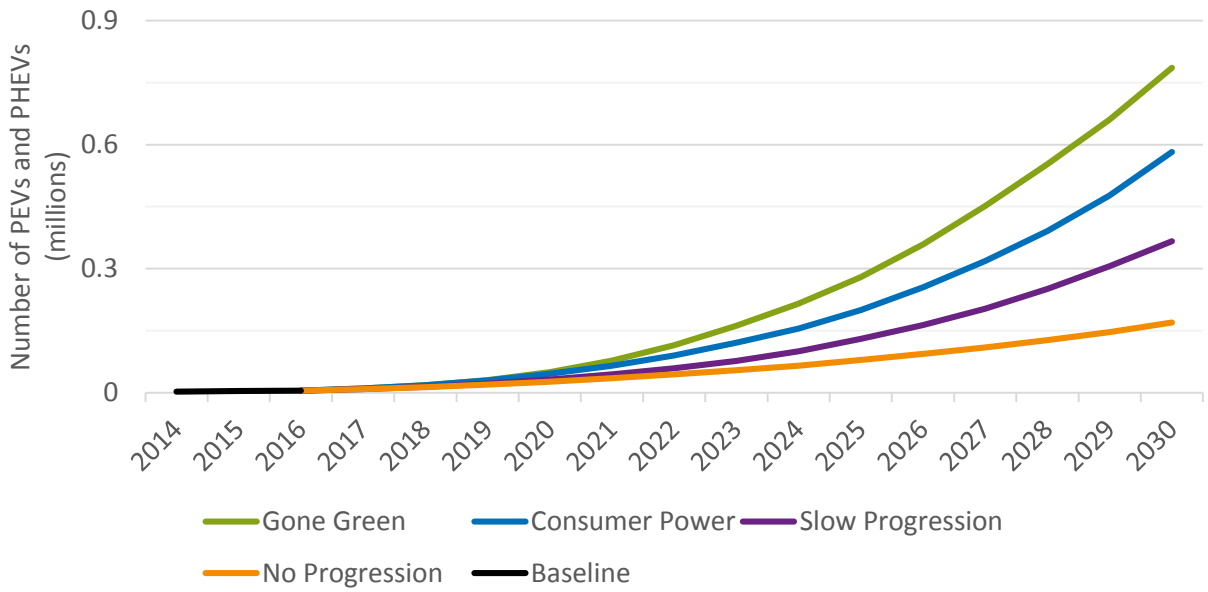


Example – electric vehicles

Potential factors enabling electric vehicle uptake	GG	CP	SP	NP
Government influenced factors				
Continued programme of grants for electric vehicle purchases post-2018	●			
Public sector led programme of investment in electric vehicle infrastructure	●		●	
Strengthened legislation restricting the use of diesel vehicles	●		●	
Electric vehicles continue to be exempt from road tax	●	●	●	
Technology costs and development				
Costs continue to fall rapidly due to investment in the UK market	●	●		
Performance of electric vehicles improves rapidly due to R&D investment	●	●		
Availability of finance				
Strong economy means individuals, communities and small businesses have capital available to buy new cars	●	●		
Other factors				
Consumer appetite for electric cars increases, with high profile endorsements	●	●	●	

Electric vehicles

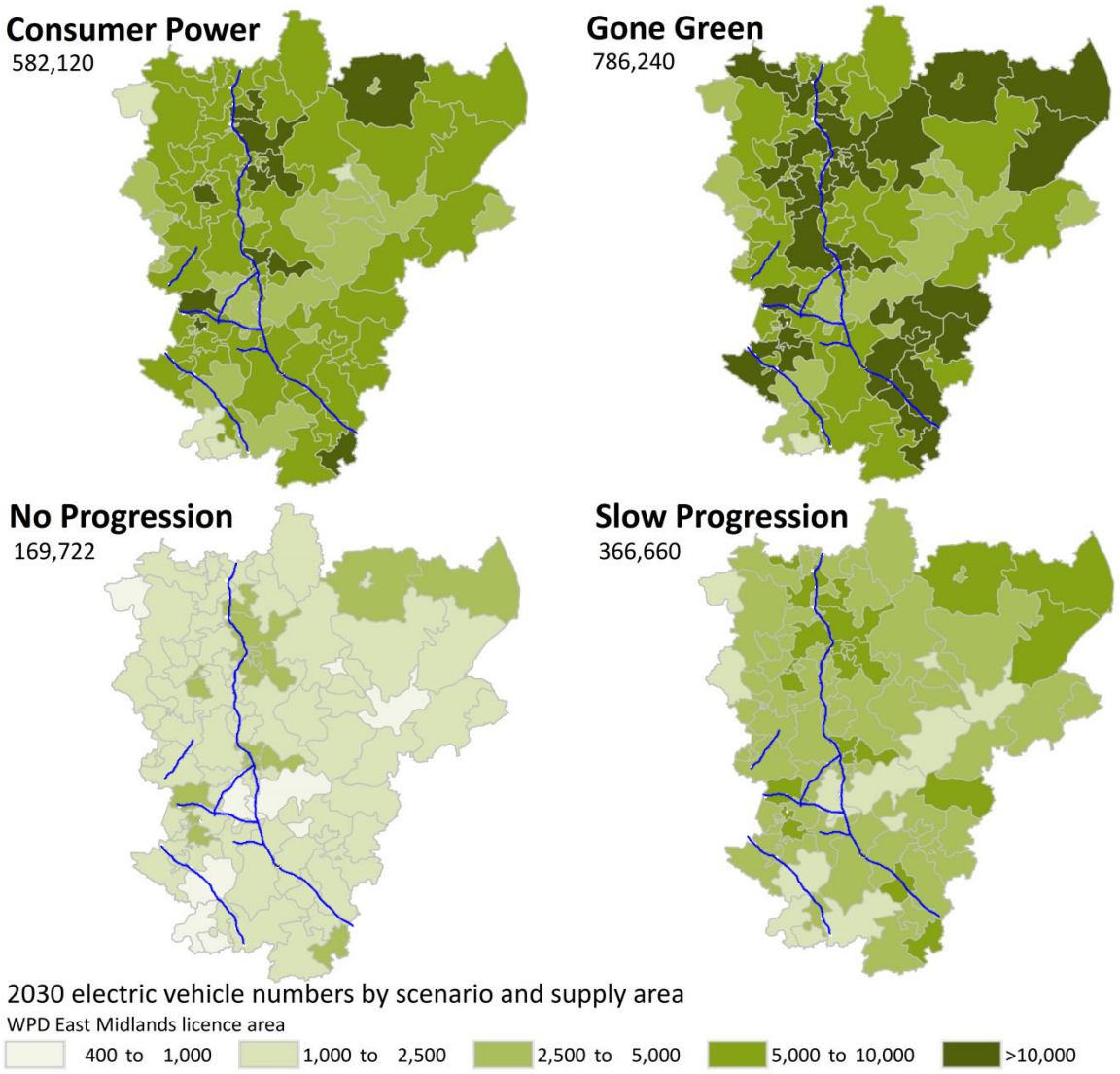
Number of pure and plug-in hybrid electric vehicle scenarios in the East Midlands licence area



Cumulative number of pure electric vehicles and plug-in electric vehicles in East Midlands area

	Baseline	2020	2025	2030
Gone Green	5,023	49,663	279,600	786,240
Consumer Power	5,023	45,463	199,800	582,120
Slow Progression	5,023	31,969	130,302	366,660
No Progression	5,023	26,245	79,002	169,722

Electric vehicles



DG and demand technologies growth scenarios:

Results – heat pumps

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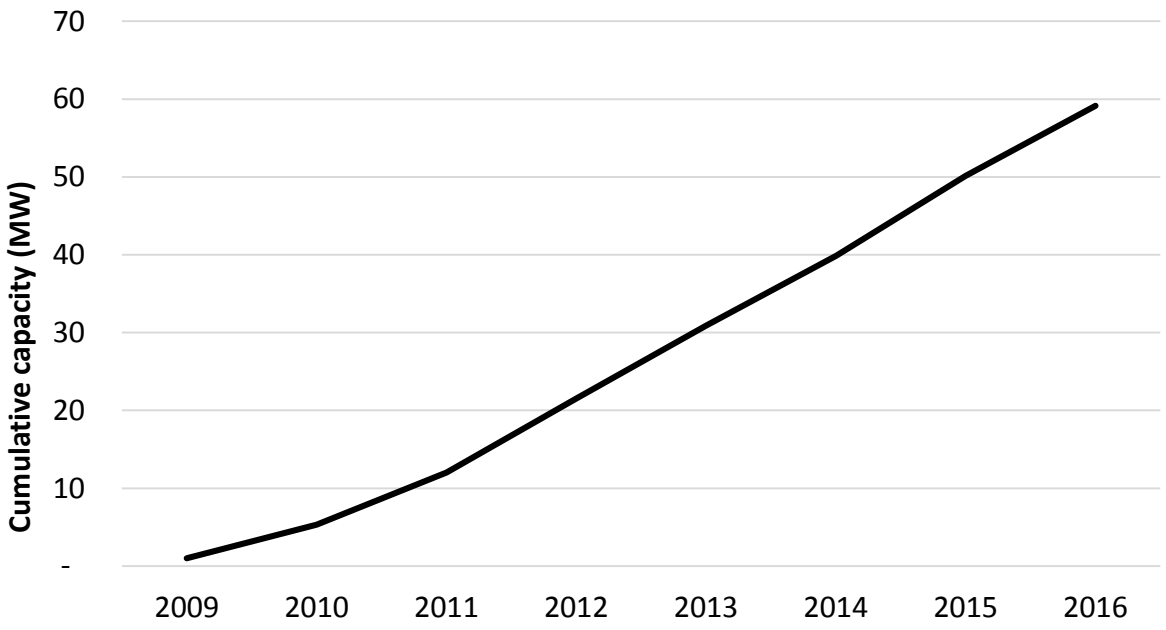
Heat pumps

Heat pump thermal capacity growth in the WPD east midlands licence area

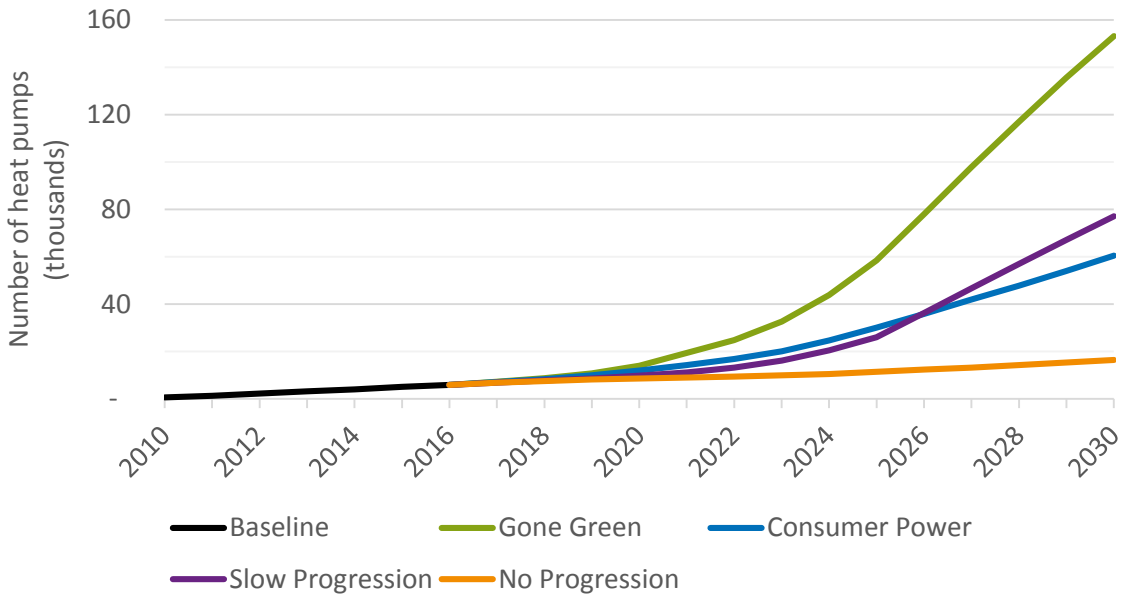


Example – heat pumps

Potential factors enabling heat pump deployment	GG	CP	SP	NP
Government influenced factors				
Government heat policy includes drivers for heat pumps, including continued/expanded RHI	●		●	
Energy efficiency standards for new properties are tightened, either through national building regulations or widespread local planning policies	●		●	
Technology costs				
Upfront costs of conventional heat pumps falls due to strong global market and R&D	●	●		
Technological innovation – emerging technologies become more established enabling new applications and cost reductions	●	●		
Wholesale price of power and gas				
Rising electricity and gas wholesale price – potentially driven by economic growth	●	●		
Availability of finance				
Strong economy means individuals, communities and small businesses have capital available to invest	●	●		
Other factors				
Consumer appetite for heat pump technology increases	●			
Public sector investment programmes drive installations in local areas	●		●	

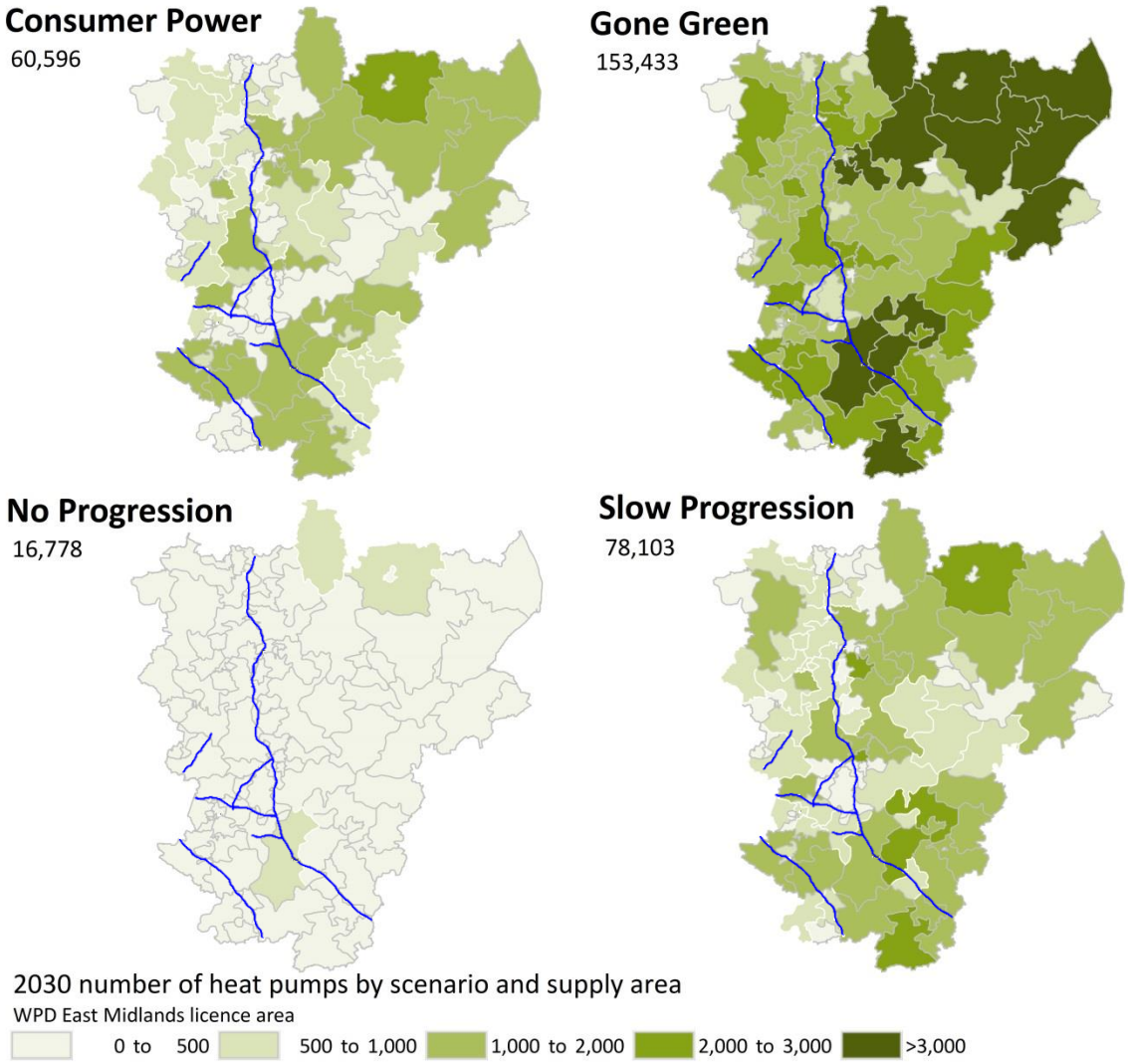
Heat pumps

Scenarios for the number of heat pumps in the East Midlands licence area



Scenario	Baseline	2020		2025		2030	
		New Build	Retrofit	New Build	Retrofit	New Build	Retrofit
Gone Green	5,912	2,379	11,563	6,955	51,463	28,255	124,993
Consumer Power	5,912	2,083	9,845	10,276	19,820	22,262	38,203
Slow Progression	5,912	475	9,279	2,395	23,555	26,362	50,761
No Progression	5,912	566	8,053	2,794	8,623	6,455	9,934

Heat pumps


Consumer Power
60,596
Gone Green
153,433
No Progression
16,778
Slow Progression
78,103
2030 number of heat pumps by scenario and supply area
WPD East Midlands licence area
0 to 500
500 to 1,000
1,000 to 2,000
2,000 to 3,000
>3,000

DG and demand technologies growth scenarios:

Results – storage

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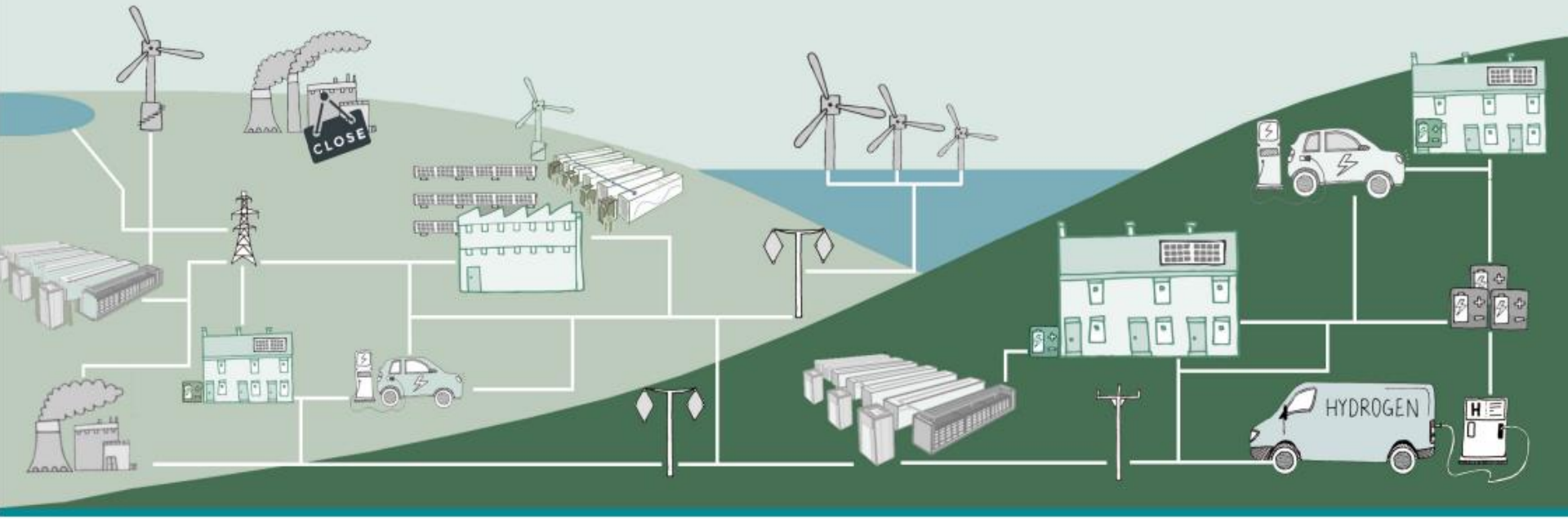
Pathways to Parity - Market insight series

Energy Storage - Towards a commercial model - 2nd Edition



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GREEN HEDGE

Triodos Bank

Business models / project classes

1. Response service	*Providing higher value ancillary services to transmission and distribution network operators, including frequency response and voltage support for network balancing (i.e. FFR, EFR, ERPS)*
2. Reserve service	*Specifically aiming to provide short/medium term reserve capacity for network balancing, such as the Capacity Market, Short Term Operating Reserve (STOR) and Fast Reserve*
3. C&I high energy 'prosumers'	*Located with a higher energy user (with or without on-site generation) to avoid peak energy costs, and peak transmission and distribution charges while providing energy continuity*
4. Domestic and community 'own-use'	*Domestic, community or small commercial scale storage designed to maximise own use of generated electricity and avoid peak electricity costs – i.e. with rooftop PV*
5. Generation co-location	*Storage co-located with variable energy generation in order to a) price/time shift or b) peak shave to avoid grid curtailment or reinforcement costs*
6. Energy trader	*The business model that references the potential for energy supply companies, local supply markets and/or generators using storage as a means of arbitrage between low and high price periods - likely aggregated - and peak shaving.*

Potential scale of the storage market

Business model	GB market growth scenarios by 2030*		
	High Growth Scenario	Slower and no growth Scenario	Possible upside very high growth scenario
Response service	2 GW	0.5 - 1 GW	2 - 3 GW
	2 GWh	0.5 - 1 GWh	4 - 5 GWh
Reserve Services*	3-4 GW	2-3 GW	4 GW
C&I high energy user & behind the meter	2.5 - 4 GW	0.6 - 1.2 GW	5 GW
	10 - 16 GWh	2.5 - 5 GWh	20 GWh
Domestic and community own use with PV***	1.5 - 2 GW	0.37 - 0.75 GW	3 GW
	6 - 8 GWh	1.2 - 3 GWh	12 GWh
Generation co-location	2 GW	0.5 - 1GW	4 GW
	6 - 8 GWh	2-4 GWh	16 GWh
Total GB market	10 - 12 GW	4 - 5 GW	15 GW**
	24 - 44 GWh	6 - 13 GWh	50 GWh

* Includes existing 2.7 GW of storage – mainly pumped hydro reserve services

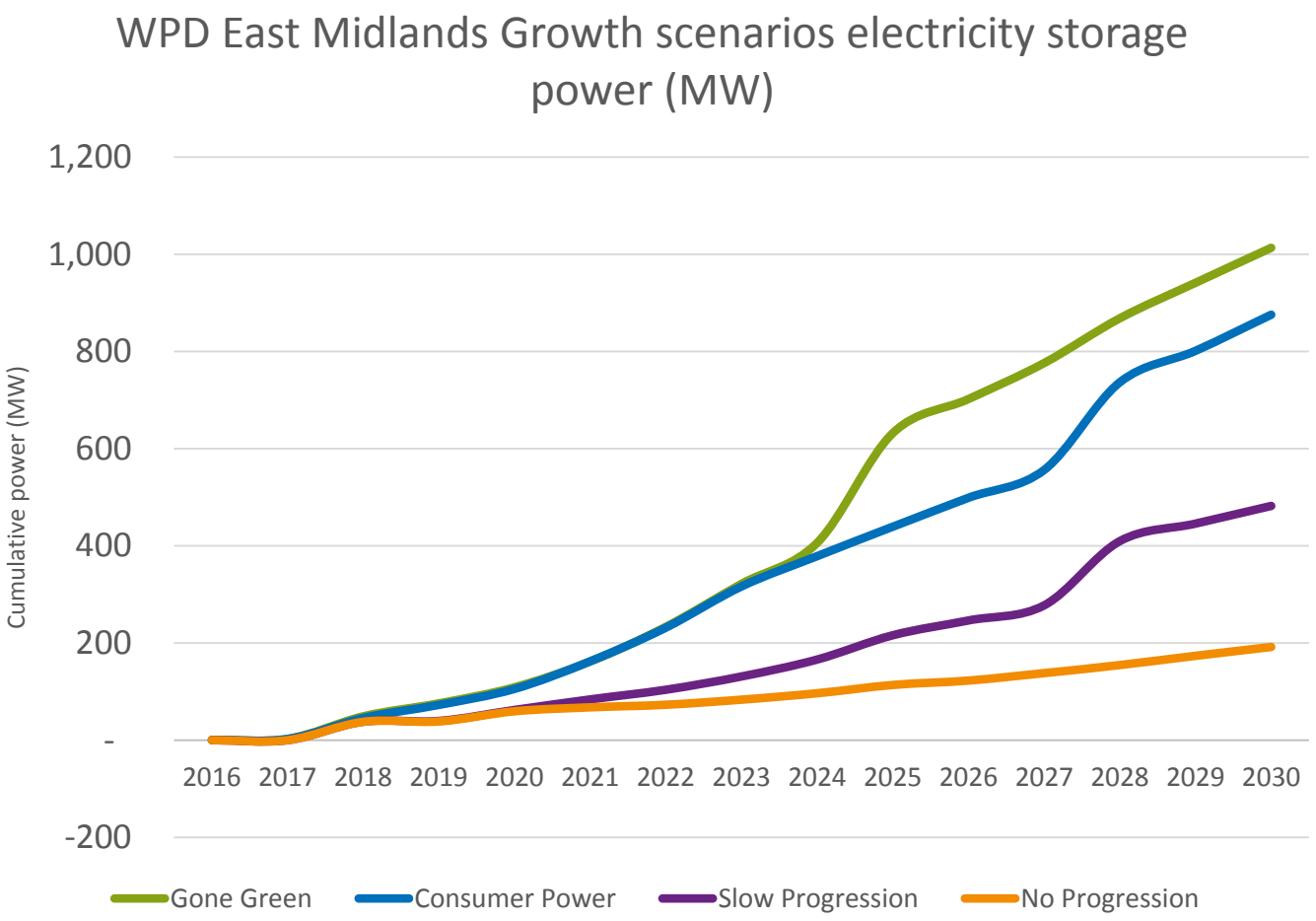
** A very high growth scenario for all business models would probably imply some degree of revenue cannibalisation between business models and is therefore less likely by 2030.

*** Would include EV vehicle-to-house storage discharge although this has not been modelled separately

Storage results

Growth factors
Wave 1 - led by response services
• Storage dominates the EFR, FFR, DSR and new voltage support services • Higher value services drive market growth with focus on MW and response time • First applications for high energy industrial and commercial users behind the meter models • Domestic and community scale early adopters • Development of a DSO distribution network model creates new market opportunities • Government creates framework for a flexible and smart energy system
Wave 2 - co-location business models become viable
• Market for C&I high energy user/generators grows rapidly • Emission controls and an attractive business case mean that storage effectively replaces diesel generators for most C&I application • First co-location projects with solar PV lead to a rapid expansion and new ground mounted solar PV farms are developed • Domestic and community scale storage market expands rapidly driven by falling costs
Wave 3 - expansion and new market models
• Aggregation and new trading platforms develop • Local supply markets, private wire and virtual markets rely heavily on electricity storage • Domestic electricity storage becomes common as costs fall and electric vehicle purchases increase, alongside growth in the electrification of heat • Most new solar and wind farms now include electricity storage to harness low marginal cost energy and price arbitrage • Towards the end of the decade, heat storage and electricity storage are increasingly integrated

Scenario growth of storage



Storage results

WPD East Midlands Licence Area - Electricity Storage Growth Scenarios

	Storage Power (MW)	2017	2020	2025	2030
Gone Green	Response services	-	70	130	150
	Reserve Services		-	150	150
	High energy C&I	-	22	158	264
	Domestic and community	-	11	63	235
	Co-location	-	6	130	214
	Total power (MW)	-	109	632	1,013
Consumer Power	Response services	-	70	130	150
	Reserve Services		-	-	100
	High energy C&I	-	20	158	264
	Domestic and community	-	9	82	258
	Co-location	-	6	69	103
	Total power (MW)	-	105	439	876
Slow Progression	Response services	-	40	78	78
	Reserve Services		-	-	100
	High energy C&I	-	20	96	160
	Domestic and community	-	1	17	75
	Co-location	-	2	25	68
	Total power (MW)	-	62	216	482
No Progression	Response services	-	39	54	51
	Reserve Services		-	-	-
	High energy C&I	-	20	48	80
	Domestic and community	-	0	6	22
	Co-location	-	0	6	38
	Total power (MW)	-	60	114	192

	Storage capacity (MWh)	2,017	2,020	2,025	2,030
Gone Green	Response services	-	70	130	150
	Reserve Services		-	450	450
	High energy C&I	-	66	518	930
	Domestic and community	-	16	116	607
	Co-location	-	18	442	735
	Total capacity (MWh)	-	170	1,656	2,871
Consumer Power	Response services	-	70	130	150
	Reserve Services		-	-	300
	High energy C&I	-	60	518	930
	Domestic and community	-	13	149	654
	Co-location	-	19	232	351
	Total capacity (MWh)	-	163	1,029	2,384
Slow Progression	Response services	-	40	78	78
	Reserve Services		-	-	300
	High energy C&I	-	60	311	560
	Domestic and community	-	1	33	201
	Co-location	-	5	84	236
	Total capacity (MWh)	-	106	506	1,376
No Progression	Response services	-	39	54	51
	Reserve Services		-	-	-
	High energy C&I	-	60	152	277
	Domestic and community	-	0	12	59
	Co-location	-	1	20	133
	Total capacity (MWh)	-	101	238	520

Growth in residential and non-residential developments:

Methodology

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Local Plans

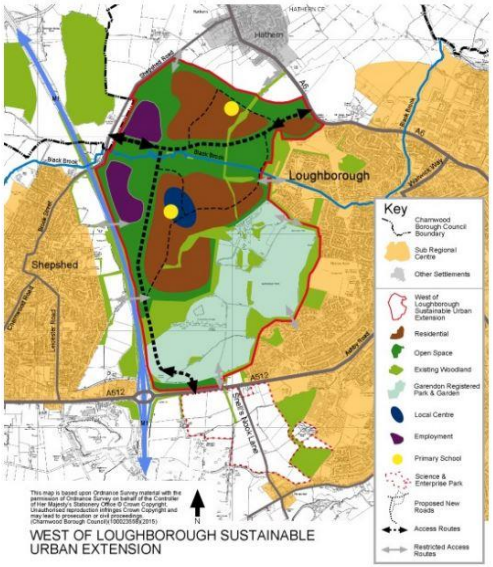
Charnwood Local Plan 2011 to 2028

Core Strategy

Adopted 9th November 2015

Charnwood

Chapter 10: North Charnwood: Loughborough and Shepshed

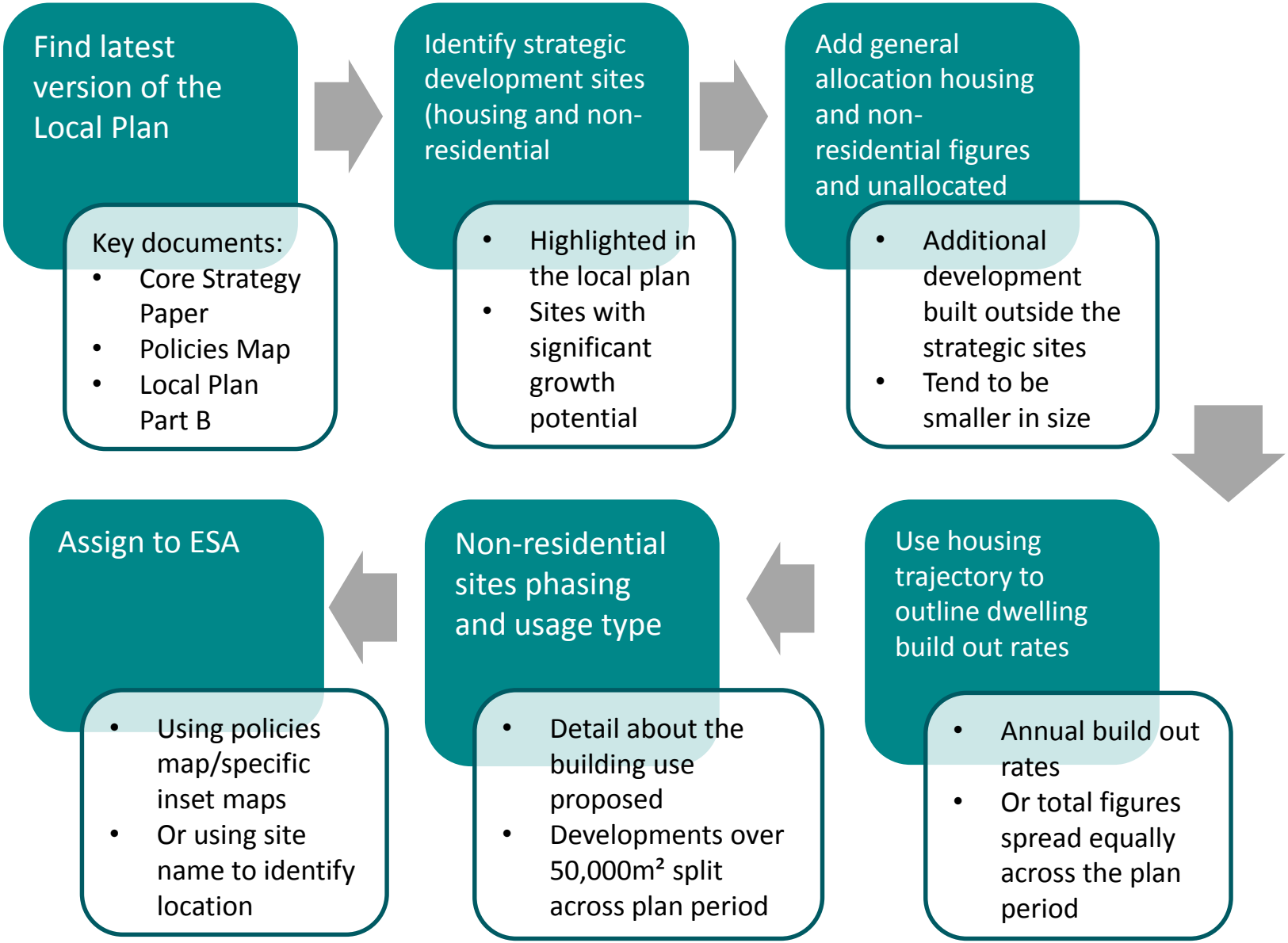


WEST OF LOUGHBOROUGH SUSTAINABLE URBAN EXTENSION

Appendix 1: Charnwood Housing Trajectory

CHARNWOOD BOROUGH	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Totals
	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
PAST COMPLETIONS	697	503	602															1802
LEICESTER PRINCIPAL URBAN AREA - Estimated completions from commitments				109	80	110	90	90	111	70	50	20						730
LOUGHBOROUGH / SHEPSHED - Estimated completions from commitments				239	383	555	407	245	262	134	104	102	40	40	30			2511
SERVICE CENTRES - Estimated completions from commitments				344	360	350	350	350	350	250	75	50	50	50	50	40	23	2682
REST OF BOROUGH - Estimated completions from commitments				59	133	224	154	81	25									676
TOTAL ALL - Estimated completions from commitments				751	916	1239	1001	766	748	454	229	172	90	90	80	40	23	6599
Estimated completions from WEST OF LOUGHBOROUGH SUSTAINABLE URBAN EXTENSION						40	120	120	240	240	240	240	240	240	240	240	240	2440
Estimated completions from NORTH EAST OF LEICESTER SUSTAINABLE URBAN EXTENSION						25	175	250	300	300	325	325	325	325	300	300	300	3250
Estimated completions from DIRECTION OF GROWTH NORTH OF BIRSTALL							75	110	120	130	130	130	130	130	130	130	130	1345
Estimated total completions				751	916	1304	1371	1246	1408	1124	924	867	785	785	750	710	693	13634
Estimated cumulative completions	697	1200	1802	2553	3469	4773	6144	7390	8798	9922	10846	11713	12498	13283	14033	14743	15436	
Annualised housing requirement	820	820	820	820	820	820	820	820	820	820	820	820	820	820	820	820	820	13940
Cumulative requirement	820	1640	2460	3280	4100	4920	5740	6560	7380	8200	9020	9840	10660	11480	12300	13120	13940	
MONITOR - No. Dwellings above or below Cumulative requirement	-123	-440	-658	-727	-631	-147	404	830	1418	1722	1826	1873	1838	1803	1733	1623	1496	
MANAGE - Annual requirement taking account of past/projected completions	820	828	849	867	876	873	833	780	728	643	574	516	445	361	219	-47	-803	

Method to identify new developments



Method to identify new developments

If up to date version of local plan unavailable alternative data sources used

- Strategic Housing Land Availability Assessment (SHLAA)
- Employment Land Review

SHLAA identifies available sites within a local authority

- Updated regularly for each planning authority
- Covers next 5 years of housing development

Employment land review assesses future supply

- Focus on 'B class' employment uses
- Some analysis of retail, healthcare, education uses

Scenarios for new demand

Apply scenario growth factors to data

Scenario 1 High economic growth: Consumer Power & Gone Green

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

Scenario 2 Low economic growth: Slow Progression & No Progression

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

	Development name	Development name version	Local authority	ESA	Allocation type	Number of homes	Development plan stage	Local Plan ref SHLAA	SHLAA stage / planning	Link to information	End of plan period	Note	submitted or adopted date
3	Greenhill lane, Leabrooks	1	Amber Va	ALFRETON 33kV S STN	General alloc	29	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2020		01/04/2016
4	Hands Road, Heanor	1	Amber Va	HEANOR 33kV S STN	General alloc	99	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2019		01/04/2016
5	Cromford Road, Langley Mill	1	Amber Va	HEANOR 33kV S STN	General alloc	71	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2020		01/04/2016
6	Church street, Heanor	1	Amber Va	HEANOR 33kV S STN	General alloc	12	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2018		01/04/2016
7	Delves Court, Heanor	1	Amber Va	HEANOR 33kV S STN	General alloc	32	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2017		01/04/2016
8	Salcombe Road, Alfreton	1	Amber Va	ALFRETON 33kV S STN	General alloc	21	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2020		01/04/2016
9	King Street, Alfreton	1	Amber Va	ALFRETON 33kV S STN	General alloc	11	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2017		01/04/2016
10	Mansfield Road, Alfreton	1	Amber Va	ALFRETON 33kV S STN	General alloc	10	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
11	Lea Road, Lea Bridge	1	Amber Va	WINSTER 33kV S STN	General alloc	26	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2018		01/04/2016
12	Bradshaw avenue, Riddings	1	Amber Va	HEANOR 33kV S STN	General alloc	93	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2018		01/04/2016
13	Cemetary Road, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	20	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
14	Wyatts Way, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	185	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
15	Station Road, Langley Mill	1	Amber Va	HEANOR 33kV S STN	General alloc	99	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
16	Parkside close, Ironville	1	Amber Va	HEANOR 33kV S STN	General alloc	60	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
17	Bulbridge Hill, Ambergate	1	Amber Va	HEANOR 33kV S STN	General alloc	85	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
18	Bulbridge Hill, Ambergate	2	Amber Va	ALFRETON 33kV S STN	General alloc	85	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
19	Eastview Terrace, Langley Mill	1	Amber Va	HEANOR 33kV S STN	General alloc	40	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2020		01/04/2016
20	Black horse inn, Somercotes	1	Amber Va	ALFRETON 33kV S STN	General alloc	18	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
21	Former Thorntons factory, Belper	1	Amber Va	ALFRETON 33kV S STN	General alloc	50	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2019		01/04/2016
22	Derwent Street, Belper	1	Amber Va	SPONDON 33kV S STN	General alloc	107	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2020		01/04/2016
23	Pit lane, Shipley	1	Amber Va	STANTON 33kV S STN	General alloc	308	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2025		01/04/2016
24	Holborn View, Condor	1	Amber Va	HEANOR 33kV S STN	General alloc	79	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2021		01/04/2016
25	Roes lane, Crich	1	Amber Va	ALFRETON 33kV S STN	General alloc	108	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2019		01/04/2016
26	Crich Road, Fritchley	1	Amber Va	HEANOR 33kV S STN	General alloc	16	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2017		01/04/2016
27	Kilbourne Road, Belper	1	Amber Va	SPONDON 33kV S STN	General alloc	14	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2017		01/04/2016
28	Home farm, coach road, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	31	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2019		01/04/2016
29	Lowes Hill, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	86	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2025		01/04/2016
30	Greenhillocks, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	154	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2025		01/04/2016
31	Adale Road, Smalley	1	Amber Va	HEANOR 33kV S STN	General alloc	22	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2017		01/04/2016
32	Millford Mills, Millford	1	Amber Va	SPONDON 33kV S STN	General alloc	69	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2018		01/04/2016
33	Meadow Lane, Alfredo	1	Amber Va	ALFRETON 33kV S STN	General alloc	50	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2018		01/04/2016
34	Main Road, Pye bridge	1	Amber Va	HEANOR 33kV S STN	General alloc	17	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2025		01/04/2016
35	Evans Concrete, Peasehill road, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	27	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2017		01/04/2016
36	Newlands drive, Riddings	1	Amber Va	HEANOR 33kV S STN	General alloc	18	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2017		01/04/2016
37	Maple avenue, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	21	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2025		01/04/2016
38	Waingroves Road, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	84	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2019		01/04/2016
39	Heanor Road, Smalley	1	Amber Va	HEANOR 33kV S STN	General alloc	120	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2020		01/04/2016
40	Eachwell Lane, Alfreton	1	Amber Va	ALFRETON 33kV S STN	General alloc	140	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2019		01/04/2016
41	Nottingham Road, Ripley	1	Amber Va	HEANOR 33kV S STN	General alloc	126	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2018		01/04/2016
42	Fall Road, Heanor	1	Amber Va	HEANOR 33kV S STN	General alloc	176	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2021		01/04/2016
43	Loscoe Miners Welfare	1	Amber Va	HEANOR 33kV S STN	General alloc	68	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2025		01/04/2016
44	Coast hill, Crich	1	Amber Va	ALFRETON 33kV S STN	General alloc	18	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2019		01/04/2016
45	Danseby Rise, Danseby	1	Amber Va	HEANOR 33kV S STN	General alloc	65	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2021		01/04/2016
46	Land at Radbourne lane	1	Amber Va	Derby 132/33	Strategic site	390	Adopted	SHLAA	Planning pe	http://info.ambervalley.gov.uk/do	2020		01/04/2016
47	Outseats Farm, Alfreton	1	Amber Va	ALFRETON 33kV S STN	Strategic site	317	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2028		01/04/2016
48	Coppice farm, Peasehill Road, Ripley	1	Amber Va	HEANOR 33kV S STN	Strategic site	360	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2025		01/04/2016
49	Derby Road, Swanwick	1	Amber Va	HEANOR 33kV S STN	Strategic site	600	Draft	SHLAA	In planning	http://info.ambervalley.gov.uk/do	2032		01/04/2016
50	Skegby Lane	1	Ashfield	MANSFIELD 33kV S ST	General alloc	250	Adopted	Local Plan		http://www.ashfield-dc.gov.uk/res	2032	No annua	06/10/2016
51	Main st, Huthwaite	1	Ashfield	ANNESLEY 33kV S STN	General alloc	65	Adopted	Local Plan		http://www.ashfield-dc.gov.uk/res	2032	No annua	06/10/2016
52	Ashland road west, Sutton	1	Ashfield	ANNESLEY 33kV S STN	General alloc	235	Adopted	Local Plan		http://www.ashfield-dc.gov.uk/res	2032	No annua	06/10/2016
53	Cosmoor Road, Sutton	1	Ashfield	ANNESLEY 33kV S STN	General alloc	266	Adopted	Local Plan		http://www.ashfield-dc.gov.uk/res	2032	No annua	06/10/2016
54	Chesterfield Road, Huthwaite	1	Ashfield	ANNESLEY 33kV S STN	General alloc	100	Adopted	Local Plan		http://www.ashfield-dc.gov.uk/res	2032	No annua	06/10/2016
55	Priestsic Road, Ashfield	1	Ashfield	ANNESLEY 33kV S STN	General alloc	24	Adopted	Local Plan		http://www.ashfield-dc.gov.uk/res	2032	No annua	06/10/2016
56	Beck Lane, Sutton	1	Ashfield	MANSFIELD 33kV S ST	General alloc	400	Adopted	Local Plan		http://www.ashfield-dc.gov.uk/res	2032	No annua	06/10/2016

Scenario 1 - Higher economic scenario - Gone Green and Const

Growth in residential and non-residential developments:

Results

WESTERN POWER DISTRIBUTION
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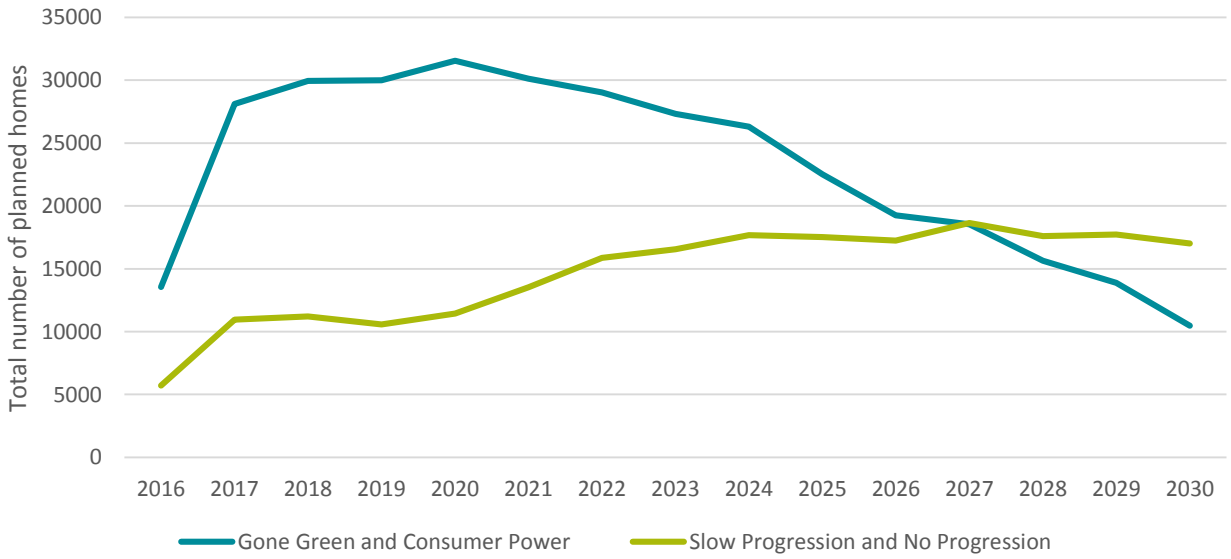
Results: housing developments

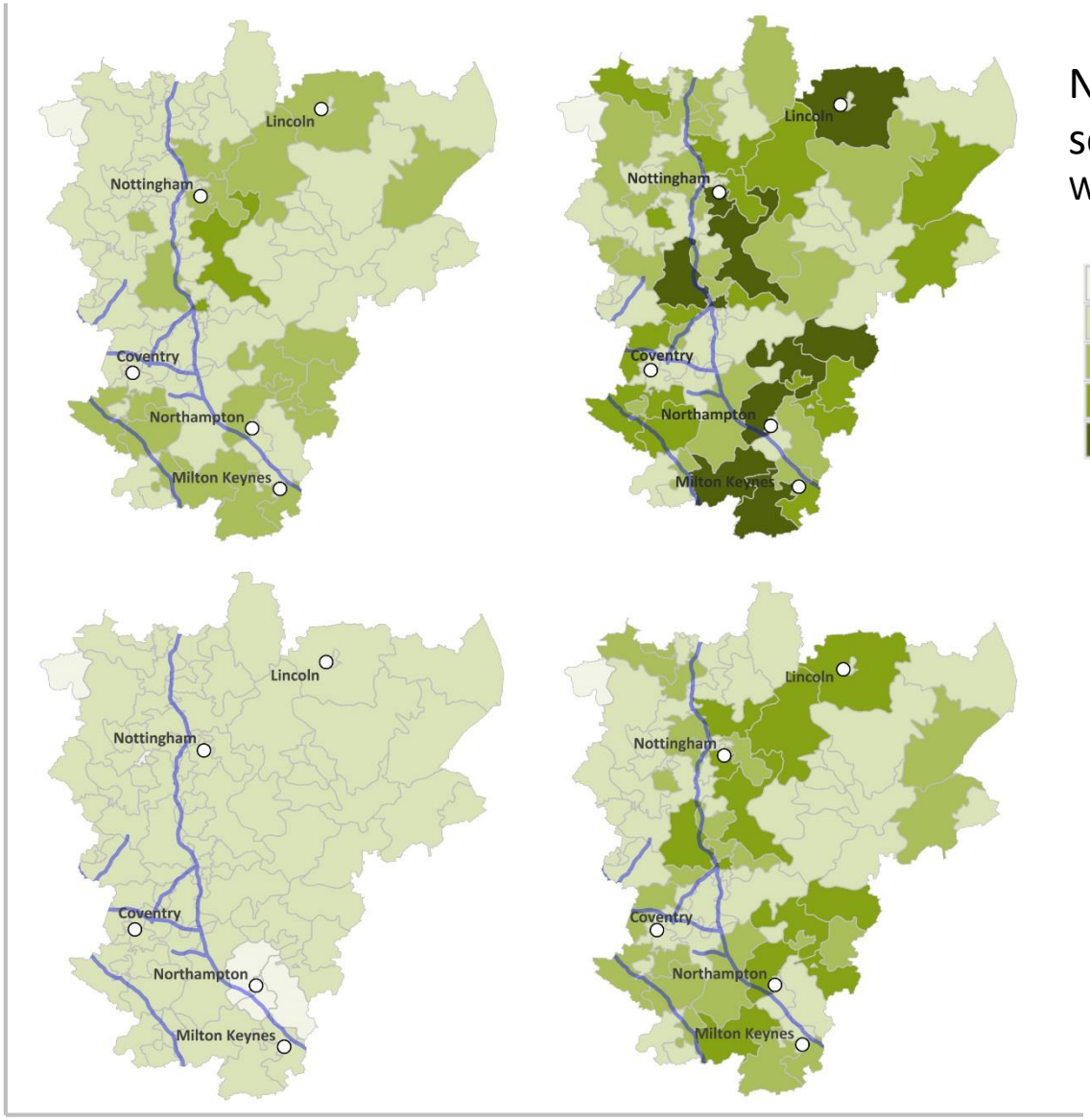
	Local authority	Total number of homes (up to 2030) Higher economic scenario	Lower economic scenario
1	Milton Keynes	19,937	9,975
2	Hinckley and Bosworth	16,528	8,226
3	Leicester	13,991	13,002
4	Rushcliffe	13,430	9,764
5	Nottingham	12,367	8,294
6	Corby	12,293	7,711
7	Warwick	12,121	7,377
8	Charnwood	12,002	8,886
9	South Northamptonshire	11,916	7,831
10	Northampton	10,600	7,338



Growth in new housing developments by ESA

Scenario 1:
Gone Green and Consumer Power

Scenario 2:
Slow Progression and No Progression

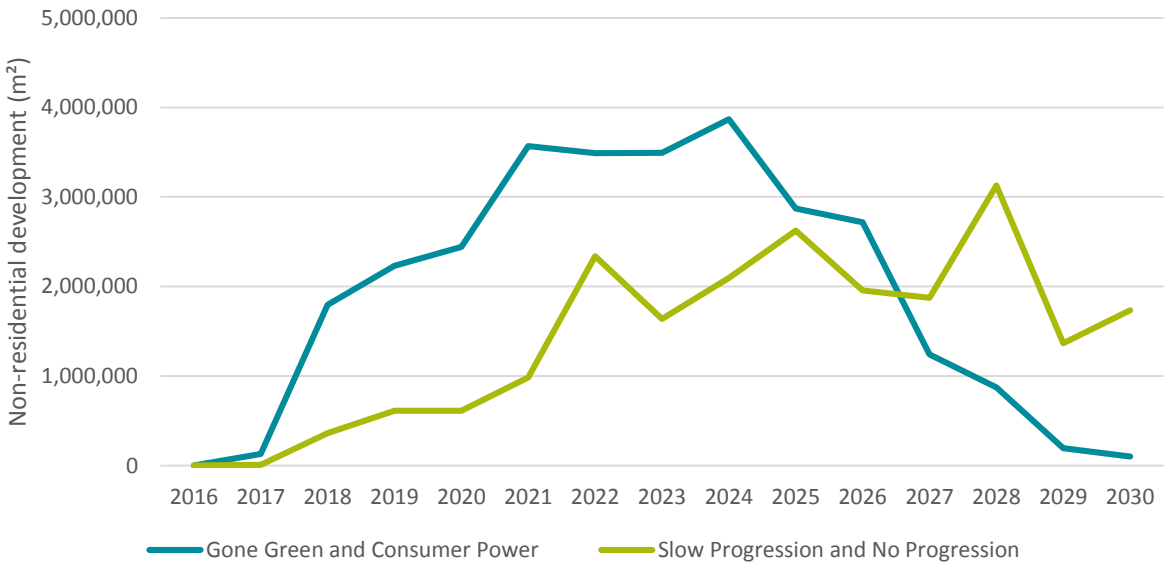


Number of homes by scenario and supply area
WPD East Midlands licence area

	0
	50 to 2,500
	2,500 to 5,000
	5,000 to 10,000
	10,000 to 15,000

Results: non-residential developments

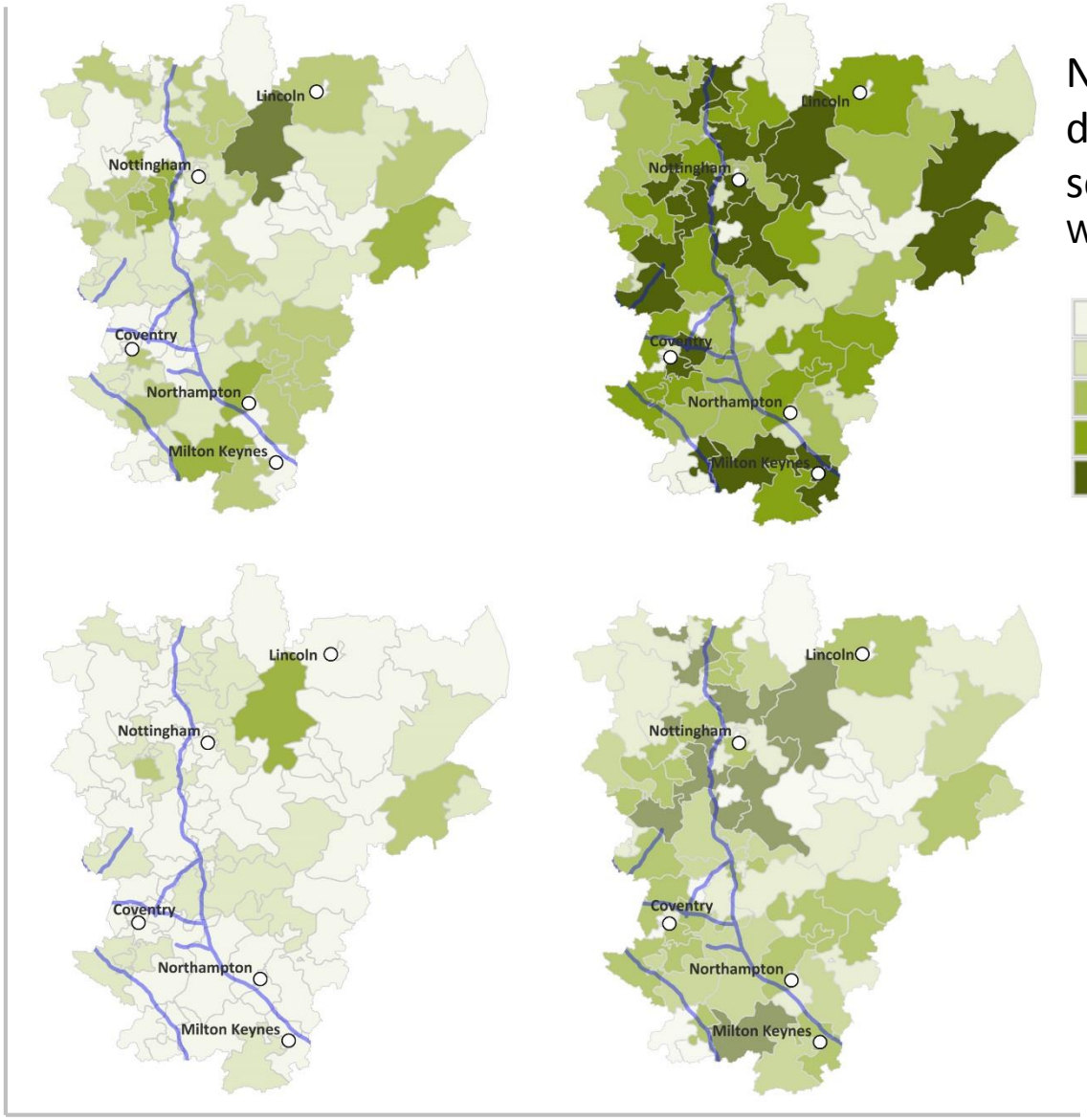
	Local Authority	Total non-residential (hectares) (up to 2030)	
		Higher economic scenario	Lower economic scenario
1	Erewash	190.6	145.6
2	Derby	185.0	133.3
3	Newark and Sherwood	184.5	141.0
4	Milton Keynes	159.1	105.9
5	Charnwood	153.0	144.8
6	South Northamptonshire	151.5	141.1
7	Coventry	148.5	82.5
8	South Derbyshire	128.0	128.0
9	Warwick	86.5	51.0
10	North West Leicestershire	82.0	53.0



Growth in non-residential developments by ESA

Scenario 1: Gone Green and Consumer Power

Scenario 2: Slow Progression and No Progression

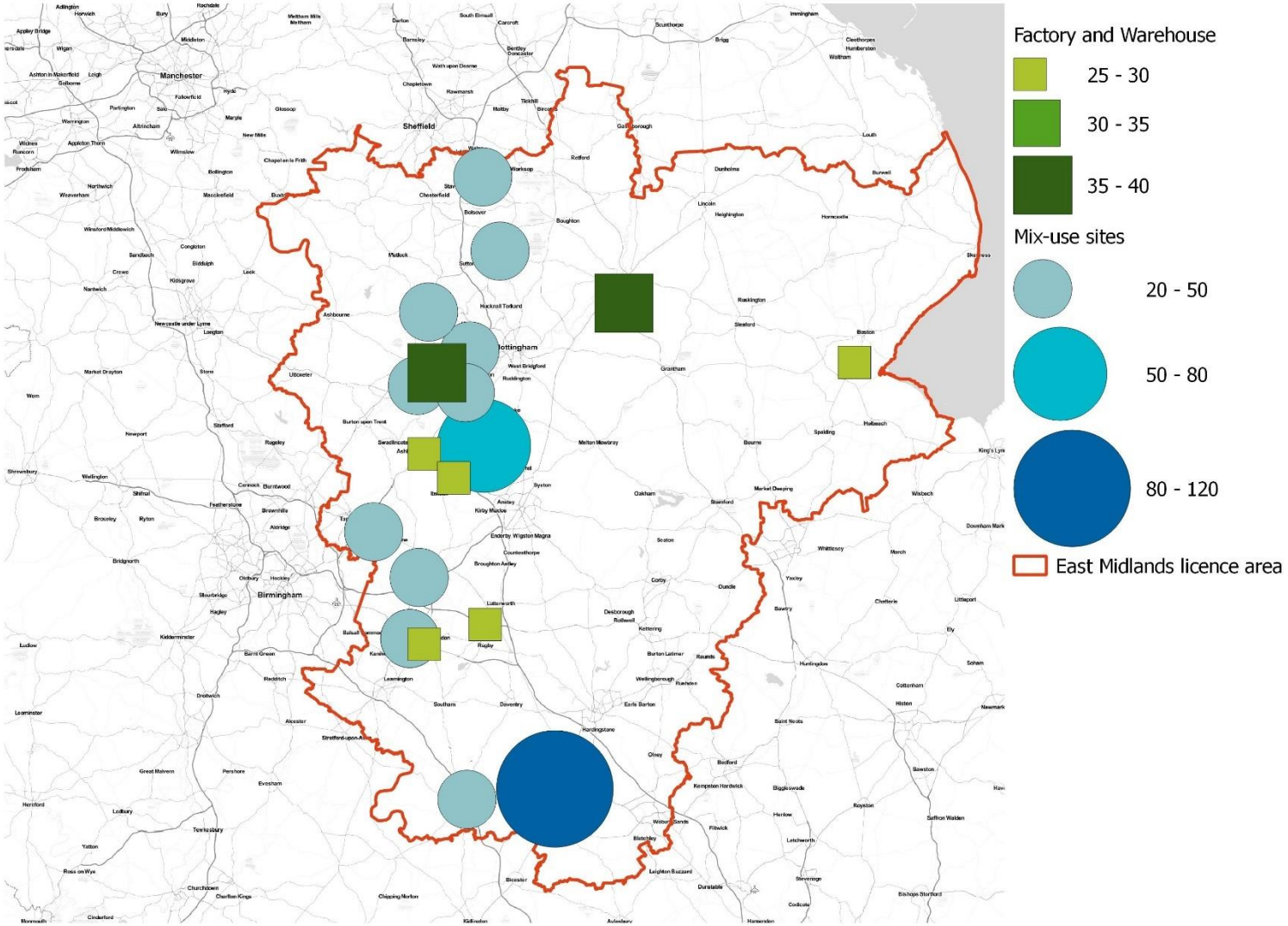


Non-residential development (m²) by scenario and supply area

WPD East Midlands licence area

0	
200 to	100,000
100,000 to	250,000
250,000 to	500,000
500,000 to	1,920,000

Growth in non-residential developments: largest sites



Next steps

- Are the results what you would expect?
- Any information to add?
- Any questions/comments on the approach and outcomes




Amy Brimmicombe - abrimmicombe@regensw.co.uk
Cheryl Hiles - chiles@regensw.co.uk
Joel Venn - jvenn@regensw.co.uk

Regen, Innovation Centre, Rennes Drive, Exeter, EX4 4RN
T: 01392 493 399

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