

Distribution Future Energy Scenarios 2022

Local Authority:
West Devon

What are Distribution Future Energy Scenarios?

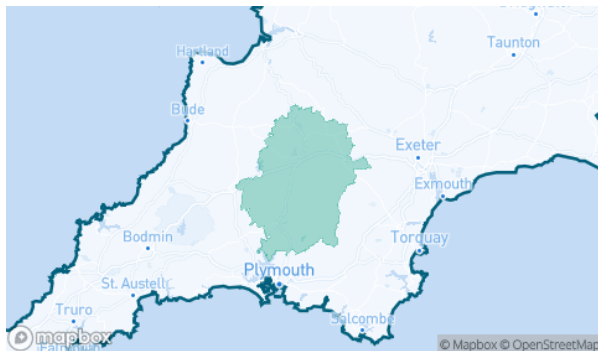
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

The scenarios use a scenario framework consistent with all electricity distribution network operators and the National Grid ESO Future Energy Scenarios. These aim to account for differing uptakes of Electric Vehicles, Heat Pumps, new domestic and I&C developments and distributed generation connections, that NGED use to assess the strategic development of our network.

A summary of the methodology and detailed reports are available on our website. DFES scenario projections are available on the interactive DFES map on the website [here](#).

Geographic Area Covered

This report covers the area of West Devon covered by the NGED licence areas.



Scenario Summary

This DFES scenario framework includes three scenarios that are compliant with UK government targets of Net Zero greenhouse gas emissions by 2050. A summary of each scenario is below:

Falling Short (FS) assumes non-compliance with the net zero emissions target. Low levels of decarbonisation and societal change.

System Transformation (ST) has high level of decarbonisation with lower societal change. Larger, more centralised solutions are developed. This scenario has the highest levels of hydrogen deployment.

Consumer Transformation (CT) has high levels of decarbonisation and societal change. Consumers adopt new technologies rapidly, and more decentralised solutions are developed. This scenario has significant electrification of domestic heat.

Leading the Way (LW) has very high levels of decarbonisation and societal change. Consumers adopt new technologies rapidly, and a mix of solutions are developed. This scenario aims for the “fastest credible” decarbonisation pathway.



Scenario Projections: at a glance

The DFES scenario projections at a Local Authority level include all customers connected to the distribution network within the area of the Local Authority at all voltage levels. Customers connected to the transmission network are not included in this analysis. The table below shows a breakdown of the total for West Devon for two specific years in the DFES analysis.

NGED also created a 5th 'Best View' forecast for the purposes of regulatory reporting and strategic network planning. This is a hybrid forecast built on local stakeholder engagement and historic performance, which reflects local authority ambition for the technologies where its influence is greatest. The Best View informs the likely amount of investment on the network across a licence area; however, changes in regional growth projections that affect investment requirements are supported through the uncertainty mechanism funding process.

Technology	Units	Baseline Total	2030				2050			
			FS	ST	CT	LW	FS	ST	CT	LW
Air conditioning	Domestic air conditioning units	0	0	0	0	0	6735	2861	2861	0
Domestic	New dwellings	0	1199	1298	1298	1542	1915	1875	1875	1852
Electric vehicles	Electric vehicles	645	5498	6837	1262 2	1259 4	3768 3	3128 1	3095 1	2763 6
EV Charge Point	EV charge points	371	2492	3662	6879	7599	2175 5	2093 3	2110 4	2196 7
Heat pumps	Heat pump installations	630	3840	4330	6208	8688	1702 5	1856 4	2607 4	2378 0
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.0	0.0	0.0	0.2	2.0	1.4	2.1
Non domestic	Floorspace (metres squared) of new I&C developments	0	2759 7	3447 2	3447 2	3596 0	5022 1	5022 1	5022 1	5022 1
Other Distributed Generation	MW (installed capacity)	3.8	3.8	3.9	4.0	3.9	3.8	4.1	4.9	4.1
Resistive electric heating	Resistive electric heating units	4420	3543	3466	3712	3521	2096	786	2225	2357
Solar Generation	MW (installed capacity)	13.6	16.8	21.7	28.4	37.4	37.5	65.6	91.8	105. 3
Storage	MW (installed capacity)	0.0	0.1	0.7	1.6	2.2	2.0	5.4	14.2	18.2
Wind	MW (installed capacity)	3.0	3.1	3.3	5.3	4.7	4.7	9.8	25.2	21.4

What does this mean for the local distribution network?

As the DFES scenario projections do not imply any electrical behaviour to the base units, electrical profiles are assigned to each technology type for different yearly snapshots. The profiled demand and generation outputs can be overlaid onto a network model and used to identify where there may be future network constraints on the Extra High Voltage (EHV) networks. The customer behaviour assumptions are summarised in the DFES: Customer Behaviour Report, and the detailed network review forms a key input to the NGED investment planning process, which includes the Network Development Plan and Distribution Network Options Assessment.

Incorporating your feedback

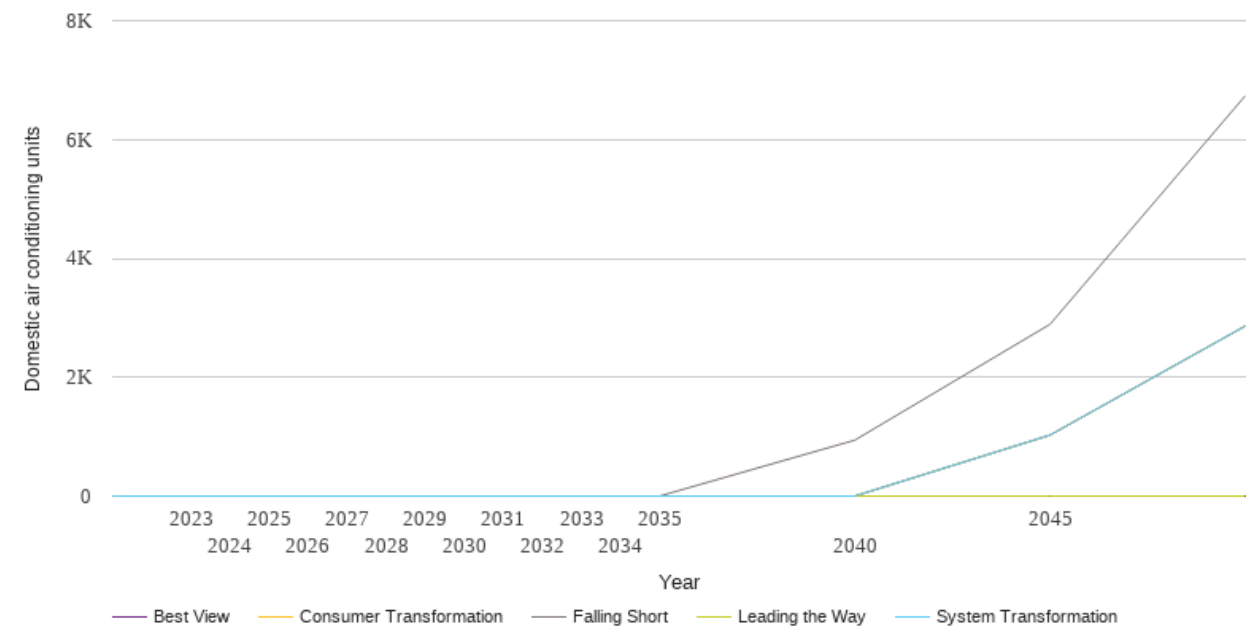
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios analysis.

If you have any comments or queries regarding these reports, please contact nged.energyplanning@nationalgrid.co.uk.

Technology Summary: Air conditioning

The table and graph below show the scenario projections for each of the DFES scenarios.

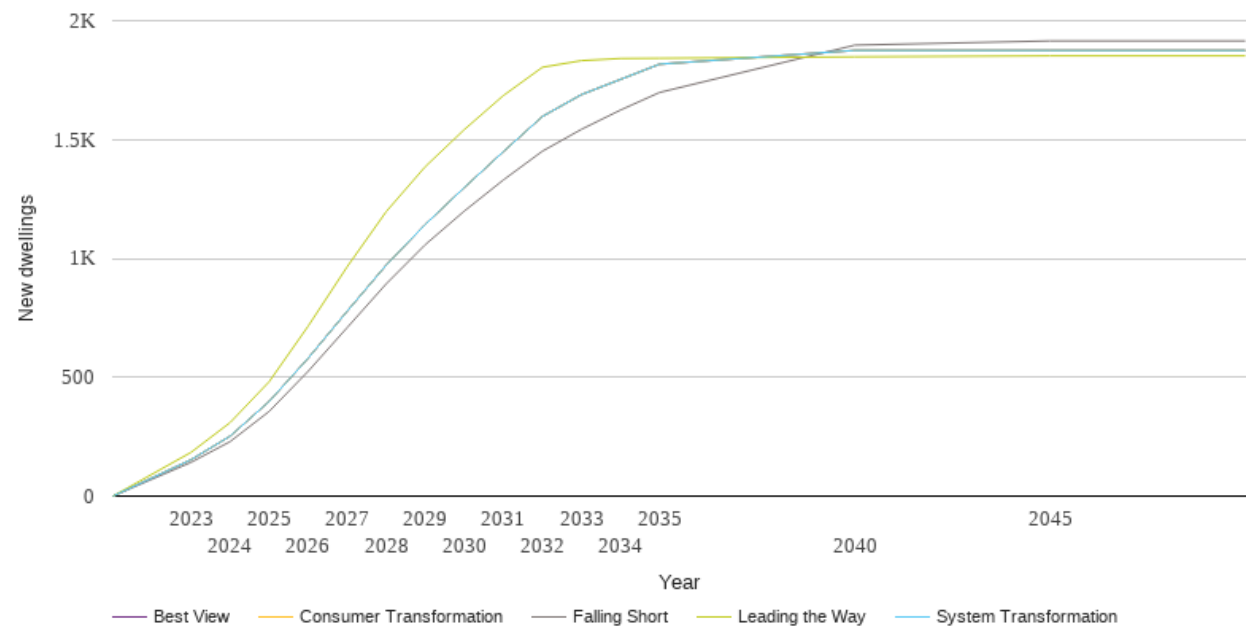
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0	0
2035	0	0	0	0	0
2040	941	0	0	0	0
2045	2890	1026	1026	0	1026
2050	6735	2861	2861	0	2861



Technology Summary: Domestic

The table and graph below show the scenario projections for each of the DFES scenarios.

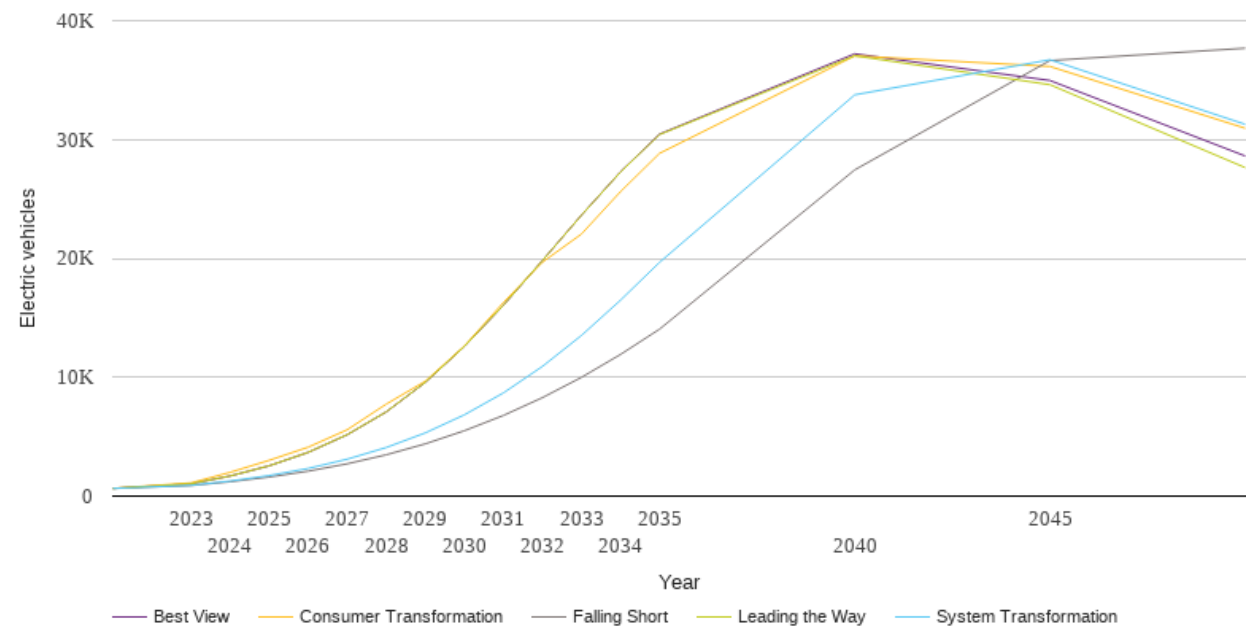
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	142	153	153	184	153
2024	229	252	252	309	252
2025	356	398	398	481	398
2026	525	580	580	715	580
2027	709	778	778	965	778
2028	893	972	972	1197	972
2029	1058	1143	1143	1386	1143
2030	1199	1298	1298	1542	1298
2031	1330	1449	1449	1685	1449
2032	1451	1597	1597	1804	1597
2033	1543	1689	1689	1832	1689
2034	1624	1753	1753	1841	1753
2035	1698	1817	1817	1842	1817
2040	1897	1875	1875	1848	1875
2045	1915	1875	1875	1852	1875
2050	1915	1875	1875	1852	1875



Technology Summary: Electric vehicles

The table and graph below show the scenario projections for each of the DFES scenarios.

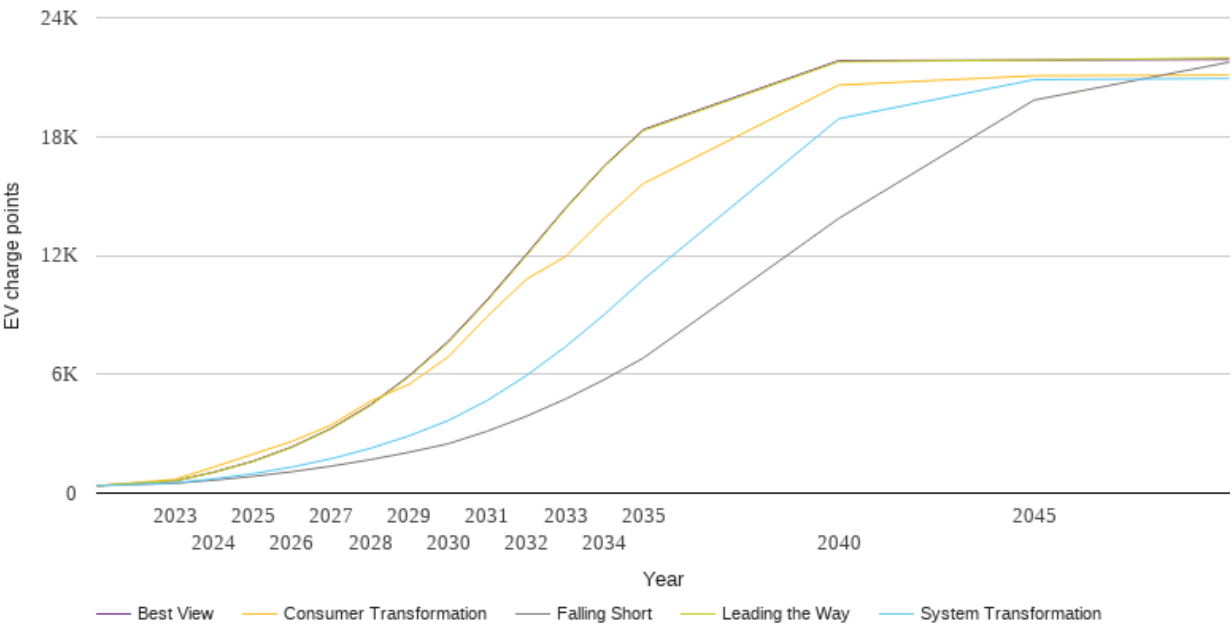
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	645	645	645	645	645
2023	891	906	1110	1035	1035
2024	1209	1264	1997	1690	1690
2025	1602	1728	3010	2547	2547
2026	2097	2326	4115	3679	3678
2027	2717	3106	5583	5169	5163
2028	3475	4088	7739	7090	7084
2029	4395	5317	9667	9575	9566
2030	5498	6837	12622	12594	12582
2031	6785	8679	16284	16060	16046
2032	8283	10910	19682	19815	19821
2033	9990	13517	22047	23631	23641
2034	11916	16480	25615	27263	27283
2035	14046	19667	28839	30419	30454
2040	27448	33761	37040	37050	37212
2045	36647	36713	36148	34614	34967
2050	37683	31281	30951	27636	28615



Technology Summary: EV Charge Point

The table and graph below show the scenario projections for each of the DFES scenarios.

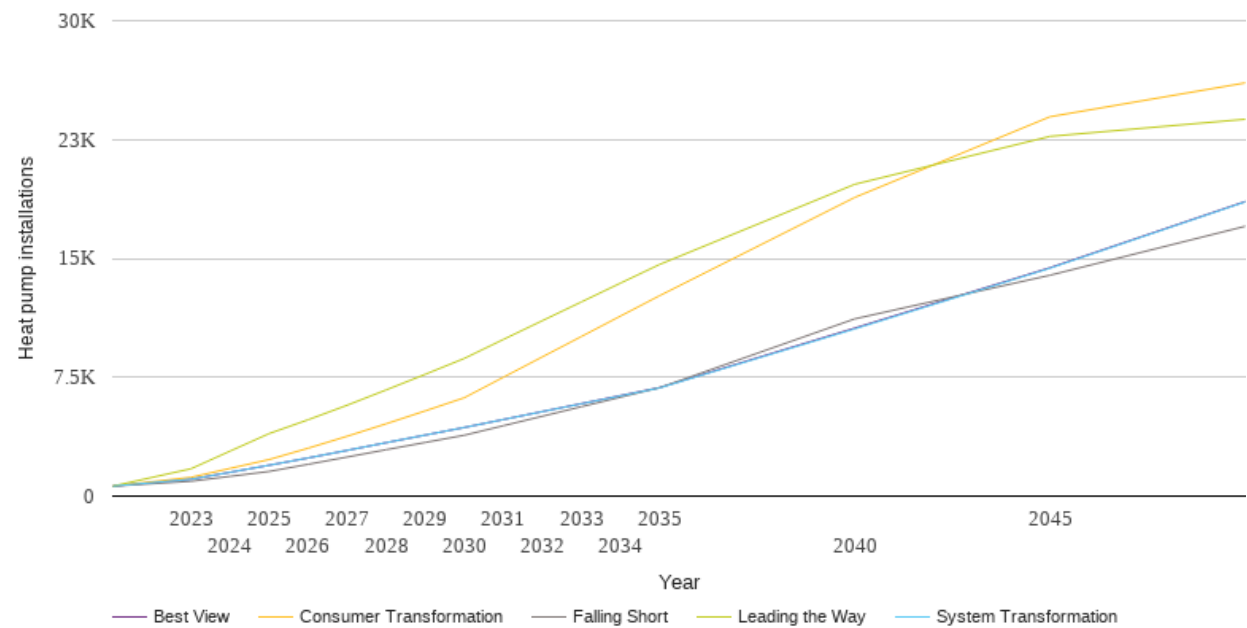
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	371	371	371	371	371
2023	495	519	693	619	619
2024	652	721	1322	1051	1061
2025	847	983	1967	1596	1612
2026	1081	1316	2616	2313	2336
2027	1360	1737	3440	3238	3268
2028	1686	2255	4632	4406	4451
2029	2063	2894	5497	5883	5928
2030	2492	3662	6879	7599	7663
2031	3127	4678	8922	9701	9771
2032	3880	5932	10794	11985	12055
2033	4747	7385	11943	14335	14382
2034	5734	9022	13874	16491	16535
2035	6824	10790	15636	18302	18351
2040	13866	18897	20597	21781	21830
2045	19837	20869	21068	21859	21859
2050	21755	20933	21104	21967	21895



Technology Summary: Heat pumps

The table and graph below show the scenario projections for each of the DFES scenarios.

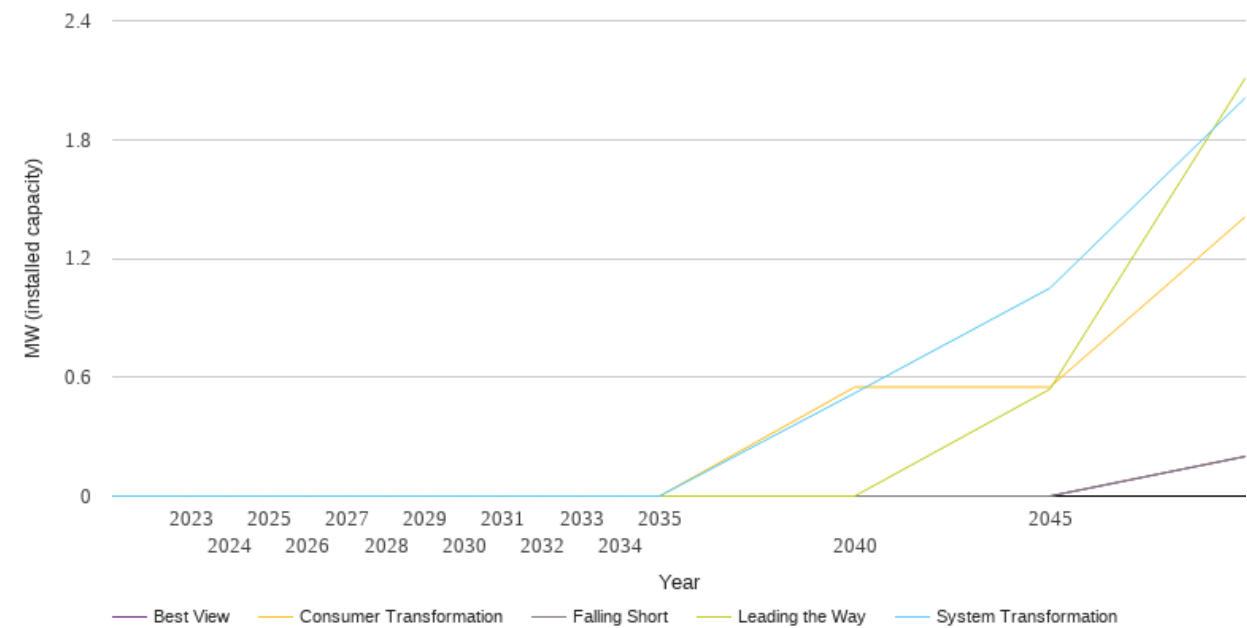
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	630	630	630	630	630
2023	936	1065	1185	1726	1065
2024	1245	1501	1747	2839	1501
2025	1554	1946	2307	3944	1946
2026	2006	2406	3022	4817	2406
2027	2465	2885	3777	5736	2885
2028	2927	3371	4565	6701	3371
2029	3386	3851	5378	7686	3851
2030	3840	4330	6208	8688	4330
2031	4441	4829	7500	9885	4833
2032	5040	5329	8787	11070	5336
2033	5641	5824	10072	12254	5836
2034	6239	6323	11360	13439	6341
2035	6837	6823	12644	14615	6845
2040	11184	10550	18847	19675	10600
2045	13937	14377	23937	22699	14412
2050	17025	18564	26074	23780	18588



Technology Summary: Hydrogen electrolysis

The table and graph below show the scenario projections for each of the DFES scenarios.

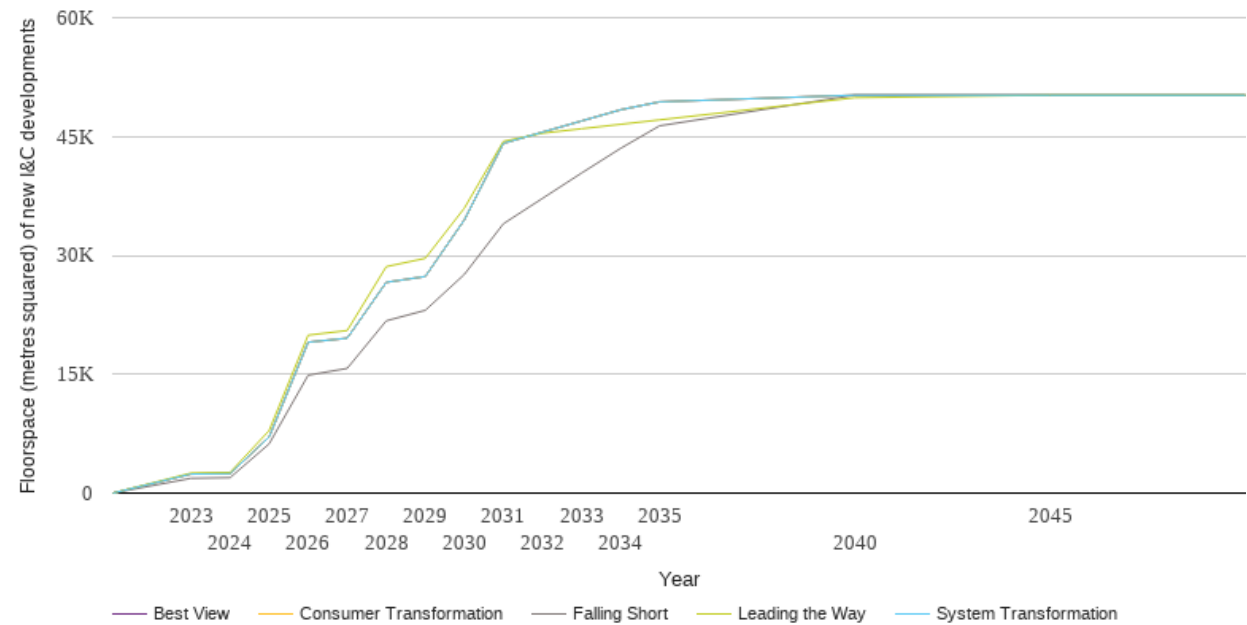
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0	0.0
2033	0.0	0.0	0.0	0.0	0.0
2034	0.0	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.5	0.6	0.0	0.0
2045	0.0	1.0	0.6	0.5	0.0
2050	0.2	2.0	1.4	2.1	0.2



Technology Summary: Non domestic

The table and graph below show the scenario projections for each of the DFES scenarios.

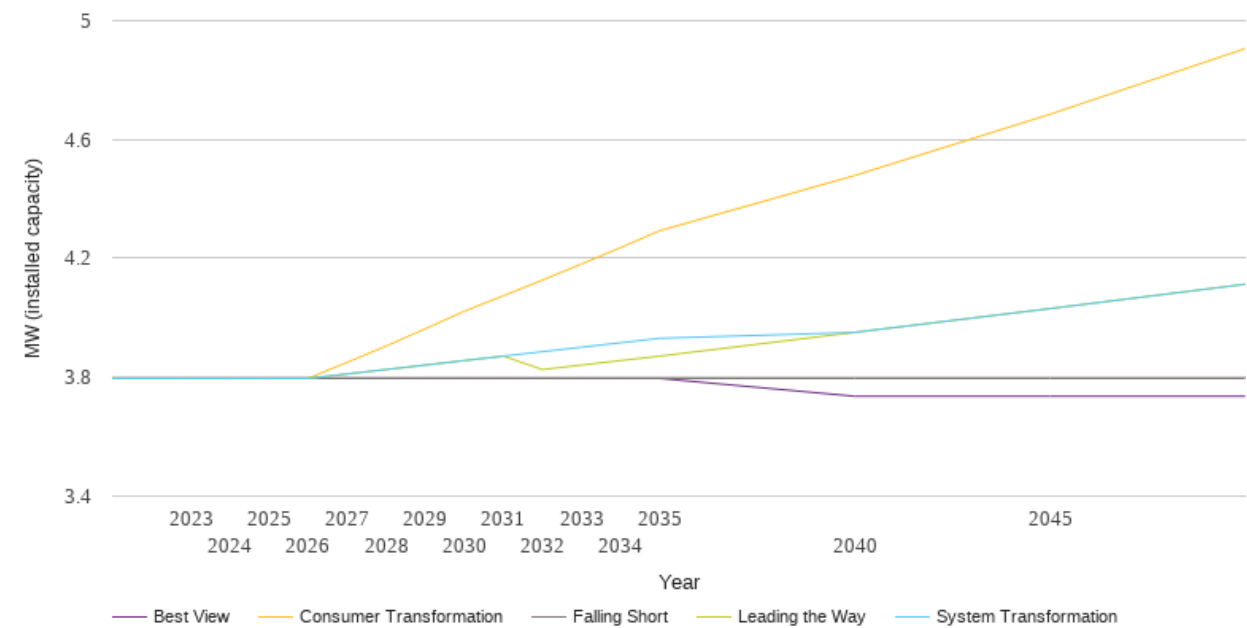
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	1867	2400	2400	2533	2400
2024	1947	2453	2453	2600	2453
2025	6206	7077	7077	7890	7077
2026	14876	19039	19039	19930	19039
2027	15738	19549	19549	20516	19549
2028	21739	26599	26599	28578	26599
2029	23068	27336	27336	29632	27336
2030	27597	34472	34472	35960	34472
2031	33992	44142	44142	44394	44142
2032	37188	45552	45552	45421	45552
2033	40383	46961	46961	45981	46961
2034	43499	48371	48371	46541	48371
2035	46353	49380	49380	47101	49380
2040	50221	50221	50221	49901	50221
2045	50221	50221	50221	50221	50221
2050	50221	50221	50221	50221	50221



Technology Summary: Other Distributed Generation

The table and graph below show the scenario projections for each of the DFES scenarios.

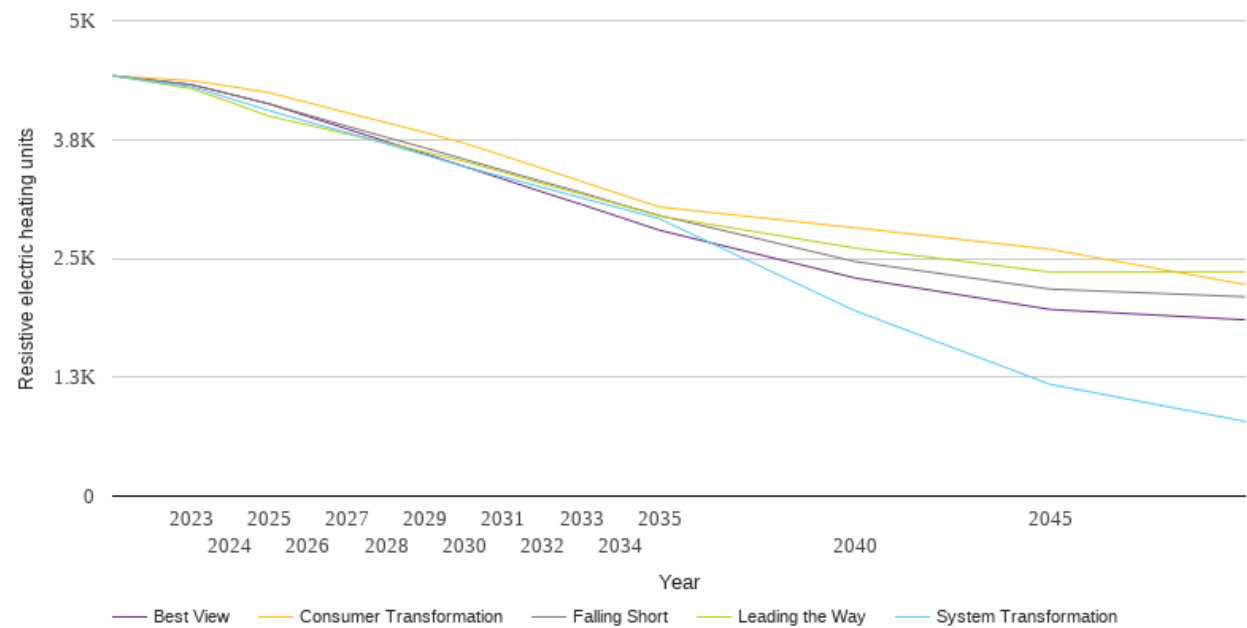
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	3.8	3.8	3.8	3.8	3.8
2023	3.8	3.8	3.8	3.8	3.8
2024	3.8	3.8	3.8	3.8	3.8
2025	3.8	3.8	3.8	3.8	3.8
2026	3.8	3.8	3.8	3.8	3.8
2027	3.8	3.8	3.9	3.8	3.8
2028	3.8	3.8	3.9	3.8	3.8
2029	3.8	3.8	4.0	3.8	3.8
2030	3.8	3.9	4.0	3.9	3.8
2031	3.8	3.9	4.1	3.9	3.8
2032	3.8	3.9	4.1	3.8	3.8
2033	3.8	3.9	4.2	3.8	3.8
2034	3.8	3.9	4.2	3.9	3.8
2035	3.8	3.9	4.3	3.9	3.8
2040	3.8	4.0	4.5	4.0	3.7
2045	3.8	4.0	4.7	4.0	3.7
2050	3.8	4.1	4.9	4.1	3.7



Technology Summary: Resistive electric heating

The table and graph below show the scenario projections for each of the DFES scenarios.

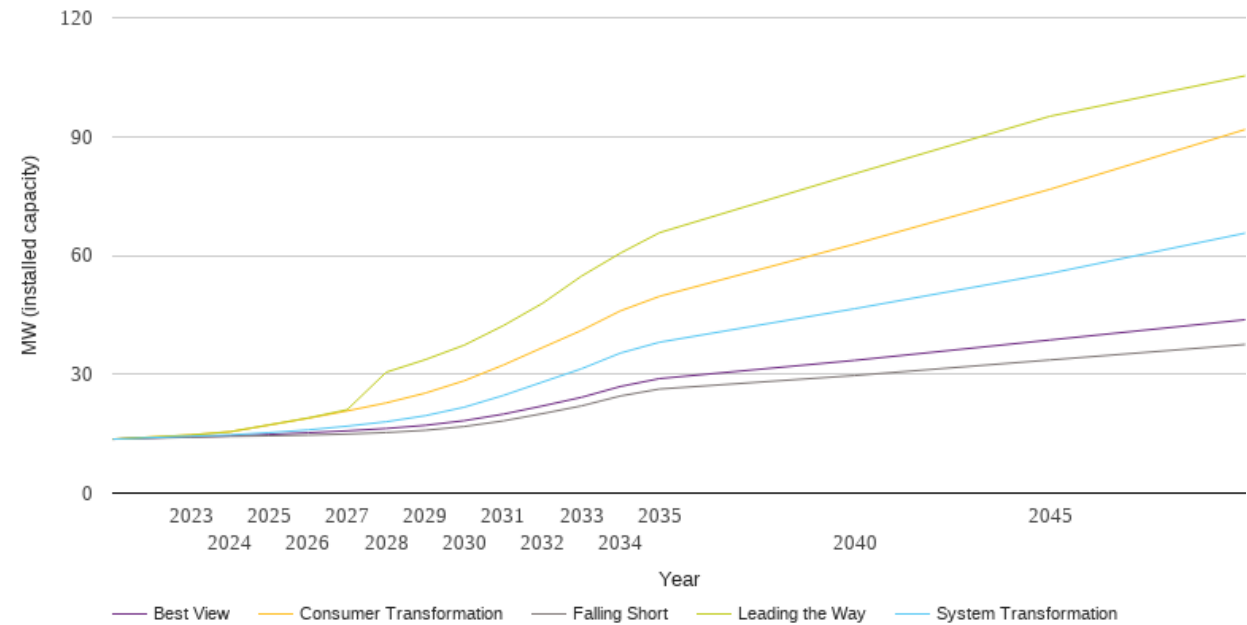
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	4420	4420	4420	4420	4420
2023	4327	4305	4369	4285	4328
2024	4227	4181	4310	4143	4227
2025	4125	4054	4243	3995	4125
2026	4007	3935	4138	3902	3992
2027	3890	3823	4031	3809	3861
2028	3774	3705	3928	3715	3729
2029	3661	3587	3823	3619	3600
2030	3543	3466	3712	3521	3467
2031	3425	3357	3580	3405	3333
2032	3307	3247	3446	3288	3198
2033	3193	3137	3310	3175	3067
2034	3068	3027	3174	3063	2932
2035	2951	2916	3040	2945	2796
2040	2467	1950	2822	2609	2295
2045	2177	1176	2596	2356	1963
2050	2096	786	2225	2357	1854



Technology Summary: Solar Generation

The table and graph below show the scenario projections for each of the DFES scenarios.

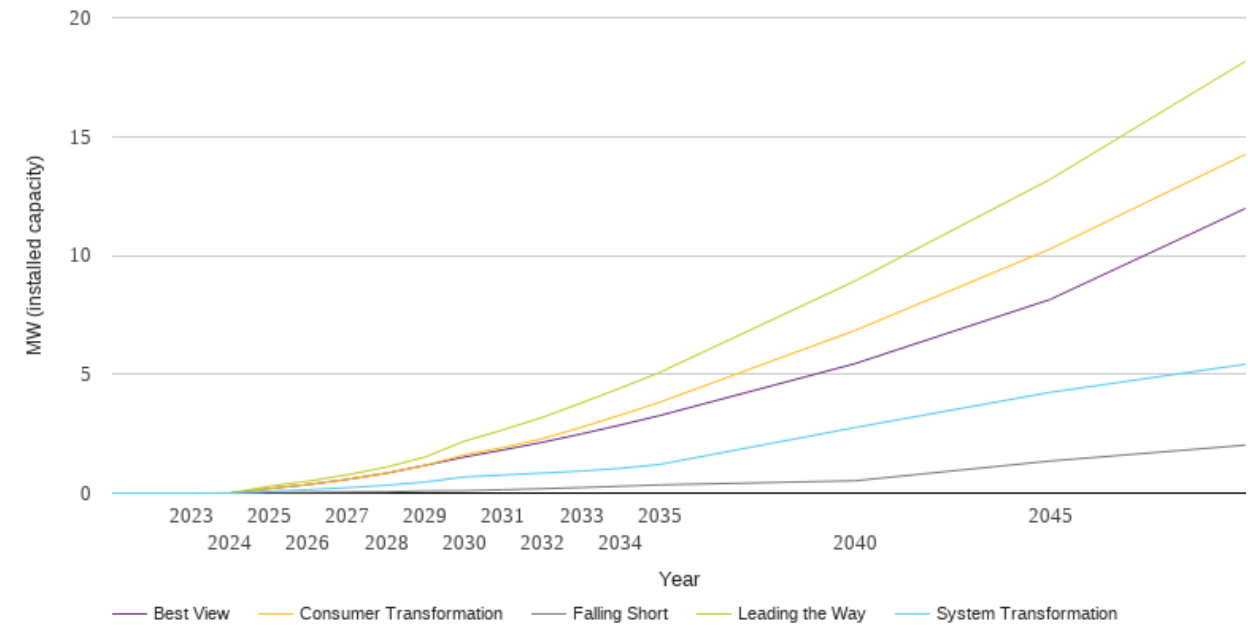
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	13.6	13.6	13.6	13.6	13.6
2023	14.1	14.4	14.7	14.7	14.2
2024	14.3	14.7	15.5	15.5	14.4
2025	14.4	15.3	17.2	17.2	14.8
2026	14.6	16.0	18.9	19.0	15.2
2027	14.9	16.9	20.7	21.1	15.7
2028	15.3	18.0	22.8	30.5	16.3
2029	15.9	19.5	25.2	33.7	17.1
2030	16.8	21.7	28.4	37.4	18.3
2031	18.2	24.6	32.3	42.3	19.9
2032	20.1	28.0	36.7	47.9	22.0
2033	22.0	31.4	41.1	54.8	24.2
2034	24.5	35.4	46.0	60.6	26.9
2035	26.3	38.1	49.7	65.7	28.9
2040	29.7	46.5	62.9	80.6	33.5
2045	33.6	55.4	76.7	95.1	38.6
2050	37.5	65.6	91.8	105.3	43.8



Technology Summary: Storage

The table and graph below show the scenario projections for each of the DFES scenarios.

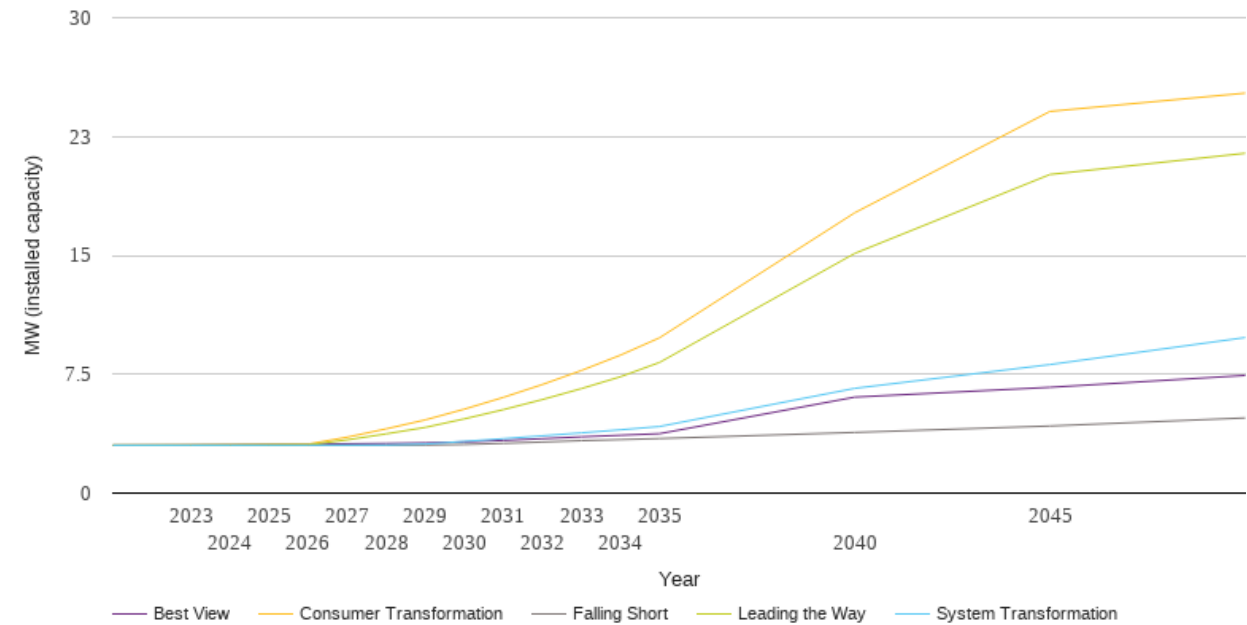
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.1	0.2	0.3	0.2
2026	0.0	0.1	0.4	0.5	0.4
2027	0.0	0.2	0.6	0.8	0.6
2028	0.1	0.3	0.8	1.1	0.8
2029	0.1	0.5	1.2	1.5	1.2
2030	0.1	0.7	1.6	2.2	1.5
2031	0.1	0.8	1.9	2.7	1.8
2032	0.2	0.8	2.3	3.2	2.1
2033	0.2	0.9	2.8	3.8	2.5
2034	0.3	1.0	3.3	4.4	2.9
2035	0.3	1.2	3.8	5.1	3.3
2040	0.5	2.8	6.8	8.9	5.4
2045	1.3	4.2	10.3	13.2	8.1
2050	2.0	5.4	14.2	18.2	12.0



Technology Summary: Wind

The table and graph below show the scenario projections for each of the DFES scenarios.

Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	3.0	3.0	3.0	3.0	3.0
2023	3.0	3.0	3.0	3.0	3.0
2024	3.0	3.0	3.0	3.0	3.0
2025	3.0	3.0	3.1	3.0	3.1
2026	3.0	3.0	3.1	3.0	3.1
2027	3.0	3.0	3.5	3.4	3.1
2028	3.0	3.0	4.1	3.7	3.1
2029	3.0	3.1	4.6	4.1	3.2
2030	3.1	3.3	5.3	4.7	3.2
2031	3.1	3.4	6.0	5.3	3.3
2032	3.2	3.6	6.9	5.9	3.4
2033	3.3	3.8	7.7	6.6	3.6
2034	3.4	4.0	8.7	7.3	3.6
2035	3.4	4.2	9.8	8.2	3.7
2040	3.8	6.6	17.7	15.1	6.1
2045	4.2	8.1	24.1	20.1	6.7
2050	4.7	9.8	25.2	21.4	7.4



National Grid Electricity Distribution PLC 09223384)
National Grid Electricity Distribution (East Midlands) Plc (company number 02366923))
National Grid Electricity Distribution (West Midlands) Plc (company number 03600574))
National Grid Electricity Distribution (South West) Plc (company number 02366894))
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