

Distribution Future Energy Scenarios 2022

Local Authority:
Wyre Forest

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 Wyre Forest 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 Wyre Forest 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	279	894	742	742	279	25107	12590	12590	279
Domestic	New dwellings	0	2810	3049	3049	3569	4665	4594	4594	4545
Electric vehicles	Electric vehicles	1139	9324	11725	21670	21629	66283	57631	57013	48291
EV Charge Point	EV charge points	587	4287	6413	12109	13326	38554	38049	39419	39849
Heat pumps	Heat pump installations	378	2594	2566	7552	12097	23891	27892	47081	41546
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.4	0.0	0.2	0.6	3.6	2.3	3.0
Non domestic	Floorspace (metres squared) of new I&C developments	0	27410	30843	30843	32473	81661	81018	81018	81661
Other Distributed Generation	MW (installed capacity)	2.0	8.7	3.6	4.7	4.9	8.7	3.3	4.6	4.9
Resistive electric heating	Resistive electric heating units	5194	4551	4355	4566	4438	3238	1542	3188	3321
Solar Generation	MW (installed capacity)	6.6	10.7	16.5	24.3	23.7	36.3	69.0	100.3	97.5
Storage	MW (installed capacity)	0.0	0.3	1.0	2.1	3.2	3.4	8.5	20.1	25.4
Wind	MW (installed capacity)	0.0	0.0	0.0	0.3	0.3	0.4	1.2	3.9	3.1

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.

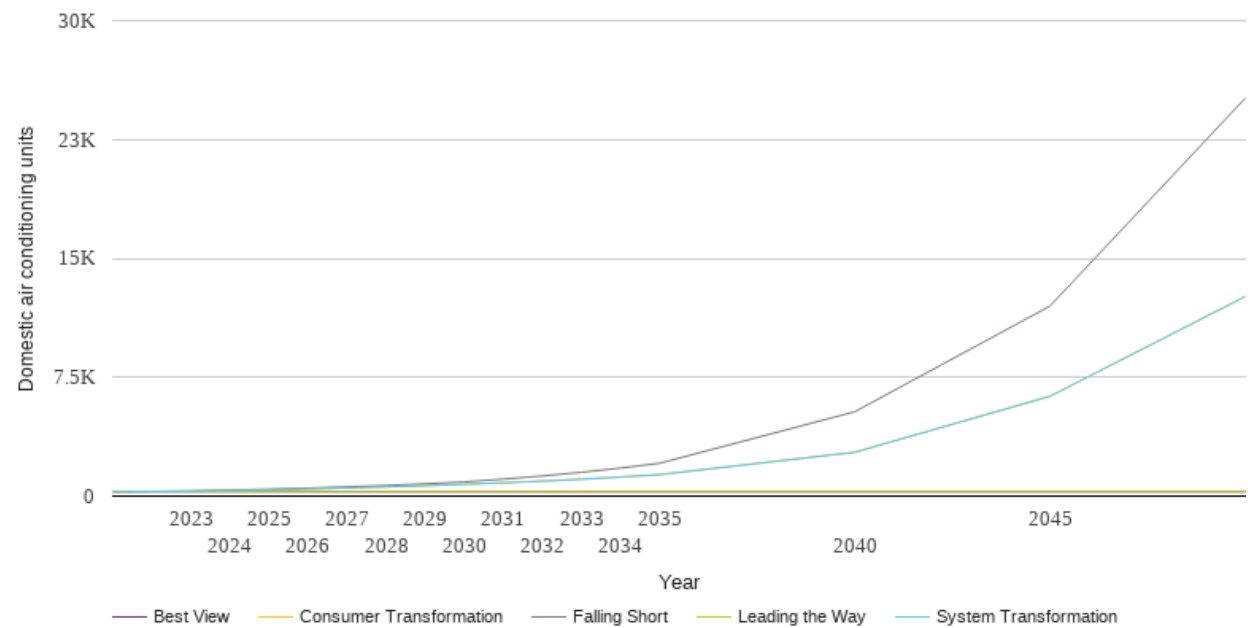
If you have any comments or queries regarding these reports, please contact

nged.energyplanning@nationalgrid.co.uk.

Technology Summary: Air conditioning

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

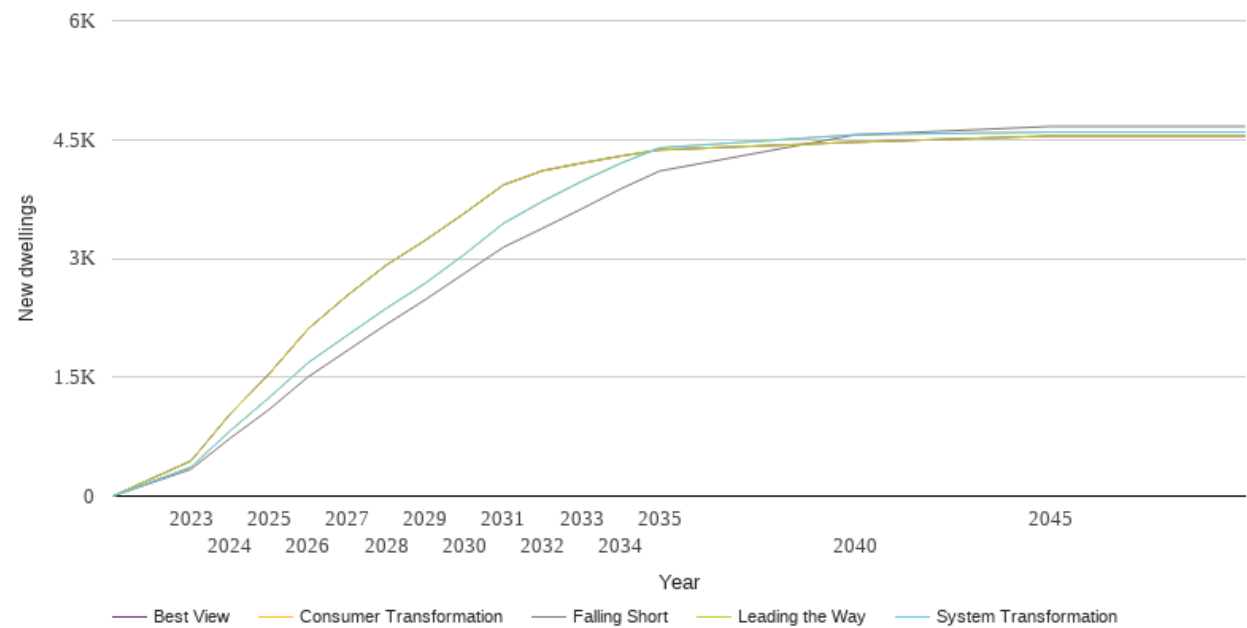
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	279	279	279	279	279
2023	322	316	316	279	279
2024	374	355	355	279	279
2025	435	400	400	279	279
2026	504	453	453	279	279
2027	583	513	513	279	279
2028	672	581	581	279	279
2029	777	657	657	279	279
2030	894	742	742	279	279
2031	1070	838	838	279	279
2032	1271	945	945	279	279
2033	1502	1066	1066	279	279
2034	1767	1203	1203	279	279
2035	2071	1354	1354	279	279
2040	5323	2767	2767	279	279
2045	11991	6299	6299	279	279
2050	25107	12590	12590	279	279



Technology Summary: Domestic

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

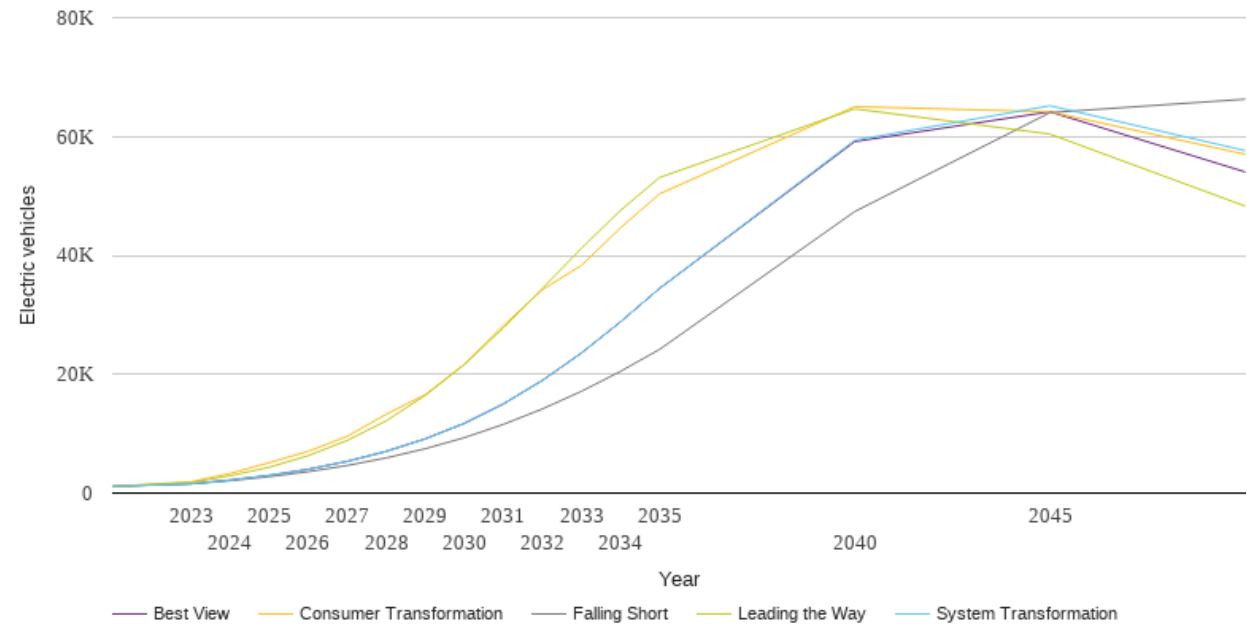
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	340	367	367	445	445
2024	729	823	823	1035	1035
2025	1093	1243	1243	1543	1543
2026	1505	1683	1683	2110	2110
2027	1835	2028	2028	2530	2530
2028	2166	2369	2369	2915	2915
2029	2479	2686	2686	3229	3229
2030	2810	3049	3049	3569	3569
2031	3140	3441	3441	3927	3927
2032	3379	3719	3719	4106	4106
2033	3624	3971	3971	4202	4202
2034	3876	4199	4199	4291	4291
2035	4102	4395	4395	4369	4369
2040	4558	4561	4561	4467	4467
2045	4665	4594	4594	4545	4545
2050	4665	4594	4594	4545	4545



Technology Summary: Electric vehicles

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

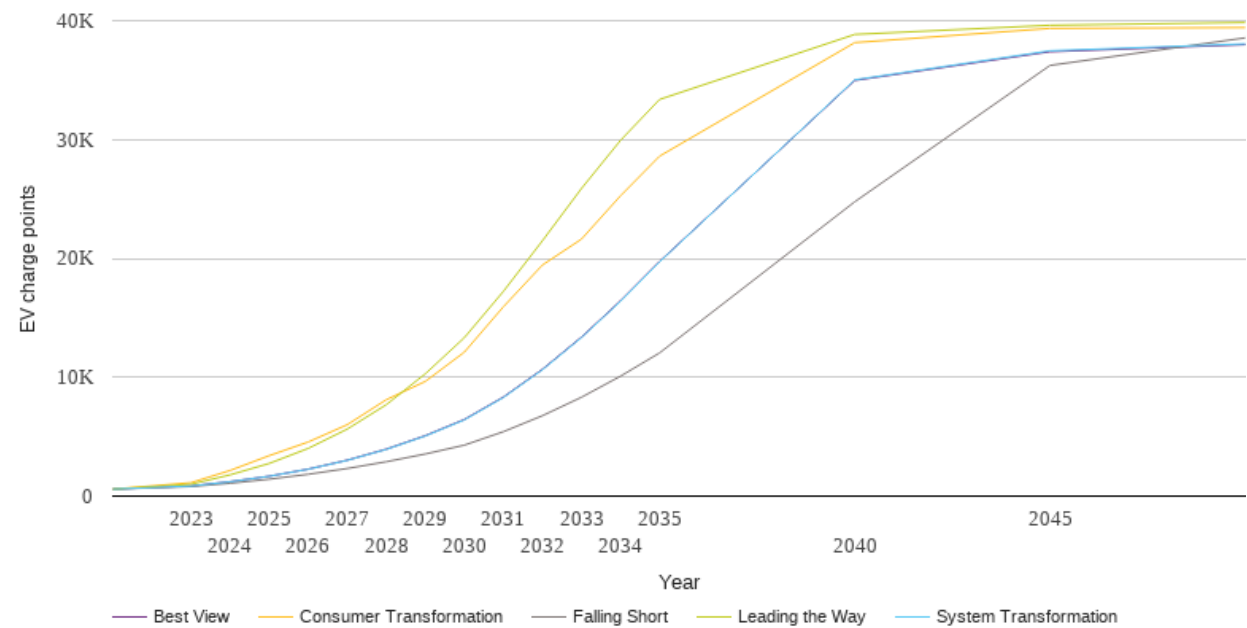
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1139	1139	1139	1139	1139
2023	1553	1582	1895	1782	1582
2024	2087	2187	3306	2924	2187
2025	2760	2968	5114	4346	2969
2026	3599	4003	7023	6296	4007
2027	4648	5336	9551	8856	5342
2028	5923	7019	13272	12166	7027
2029	7469	9125	16575	16442	9136
2030	9324	11725	21670	21629	11738
2031	11564	14988	28186	27788	15005
2032	14162	18948	34225	34448	18964
2033	17130	23567	38326	41189	23578
2034	20478	28810	44636	47573	28814
2035	24176	34449	50345	53104	34443
2040	47382	59382	65035	64662	59151
2045	64025	65181	64165	60412	64164
2050	66283	57631	57013	48291	54042



Technology Summary: EV Charge Point

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

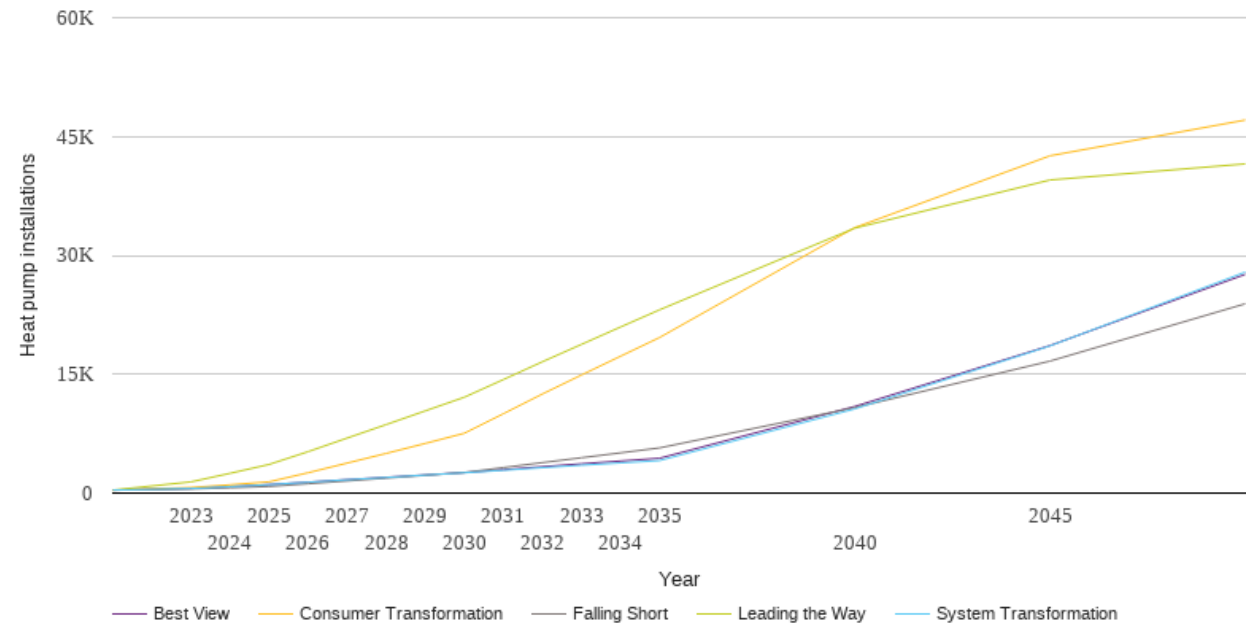
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	587	587	587	587	587
2023	804	846	1128	995	849
2024	1078	1205	2154	1787	1210
2025	1421	1664	3400	2744	1672
2026	1834	2258	4549	4010	2270
2027	2321	3004	6006	5635	3021
2028	2889	3927	8108	7688	3950
2029	3541	5056	9648	10288	5085
2030	4287	6413	12109	13326	6446
2031	5419	8294	15928	17224	8333
2032	6764	10627	19441	21481	10669
2033	8317	13332	21619	25880	13378
2034	10088	16385	25265	29928	16431
2035	12046	19702	28601	33372	19740
2040	24762	35022	38155	38842	34975
2045	36234	37468	39352	39614	37393
2050	38554	38049	39419	39849	37987



Technology Summary: Heat pumps

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

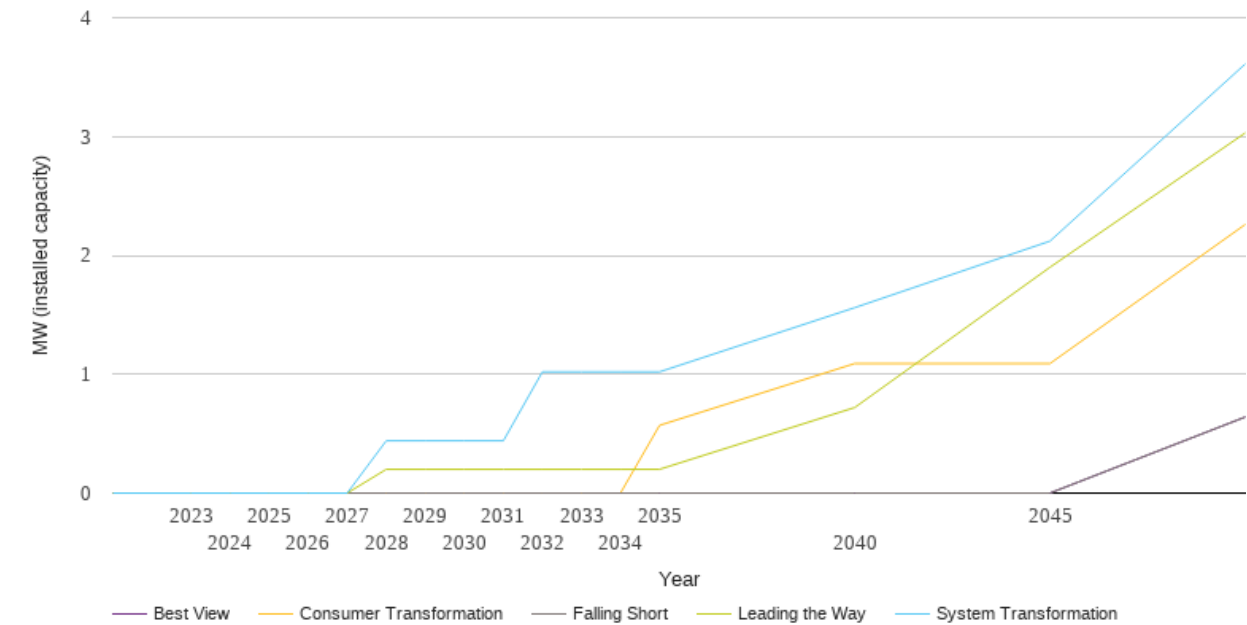
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	378	378	378	378	378
2023	523	580	697	1417	580
2024	674	808	1042	2494	808
2025	831	1069	1423	3618	1069
2026	1182	1372	2571	5230	1375
2027	1536	1683	3788	6947	1691
2028	1888	1972	5008	8649	1985
2029	2241	2271	6267	10376	2288
2030	2594	2566	7552	12097	2586
2031	3220	2879	10015	14327	2955
2032	3846	3209	12509	16575	3336
2033	4461	3516	14903	18766	3697
2034	5079	3809	17273	20958	4045
2035	5701	4106	19633	23129	4395
2040	10791	10626	33502	33437	10931
2045	16656	18576	42568	39516	18617
2050	23891	27892	47081	41546	27604



Technology Summary: Hydrogen electrolysis

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

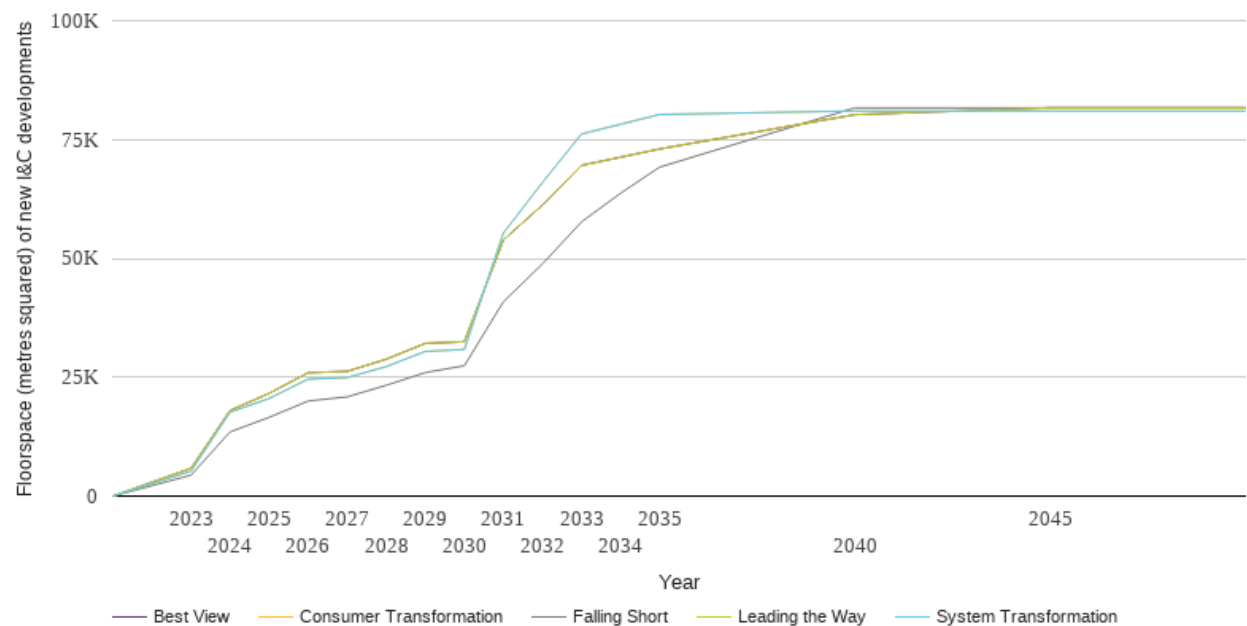
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.4	0.0	0.2	0.0
2029	0.0	0.4	0.0	0.2	0.0
2030	0.0	0.4	0.0	0.2	0.0
2031	0.0	0.4	0.0	0.2	0.0
2032	0.0	1.0	0.0	0.2	0.0
2033	0.0	1.0	0.0	0.2	0.0
2034	0.0	1.0	0.0	0.2	0.0
2035	0.0	1.0	0.6	0.2	0.0
2040	0.0	1.6	1.1	0.7	0.0
2045	0.0	2.1	1.1	1.9	0.0
2050	0.6	3.6	2.3	3.0	0.6



Technology Summary: Non domestic

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

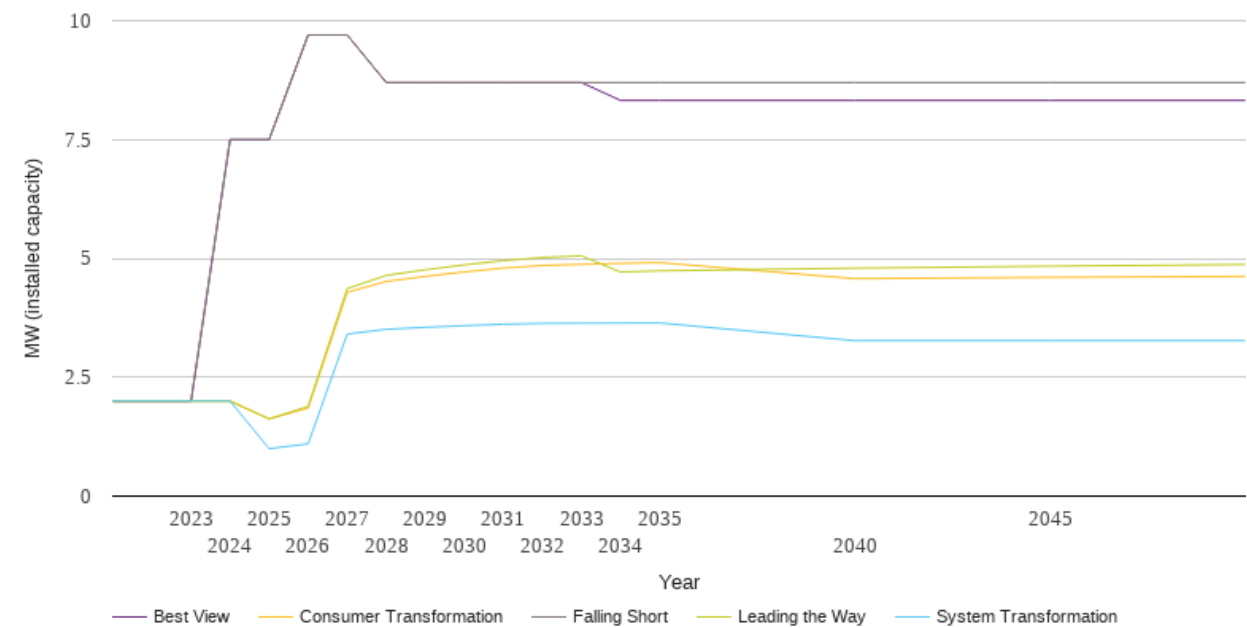
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	4405	5250	5250	5863	5863
2024	13512	17667	17667	18016	18016
2025	16564	20527	20527	21605	21605
2026	20000	24608	24608	25955	25955
2027	20872	24928	24928	26236	26236
2028	23309	27239	27239	28794	28794
2029	25982	30431	30431	32121	32121
2030	27410	30843	30843	32473	32473
2031	40866	55310	55310	53872	53872
2032	48827	65956	65956	61211	61211
2033	57671	76162	76162	69555	69555
2034	63694	78213	78213	71287	71287
2035	69192	80264	80264	73018	73018
2040	81661	81018	81018	80230	80230
2045	81661	81018	81018	81661	81661
2050	81661	81018	81018	81661	81661



Technology Summary: Other Distributed Generation

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

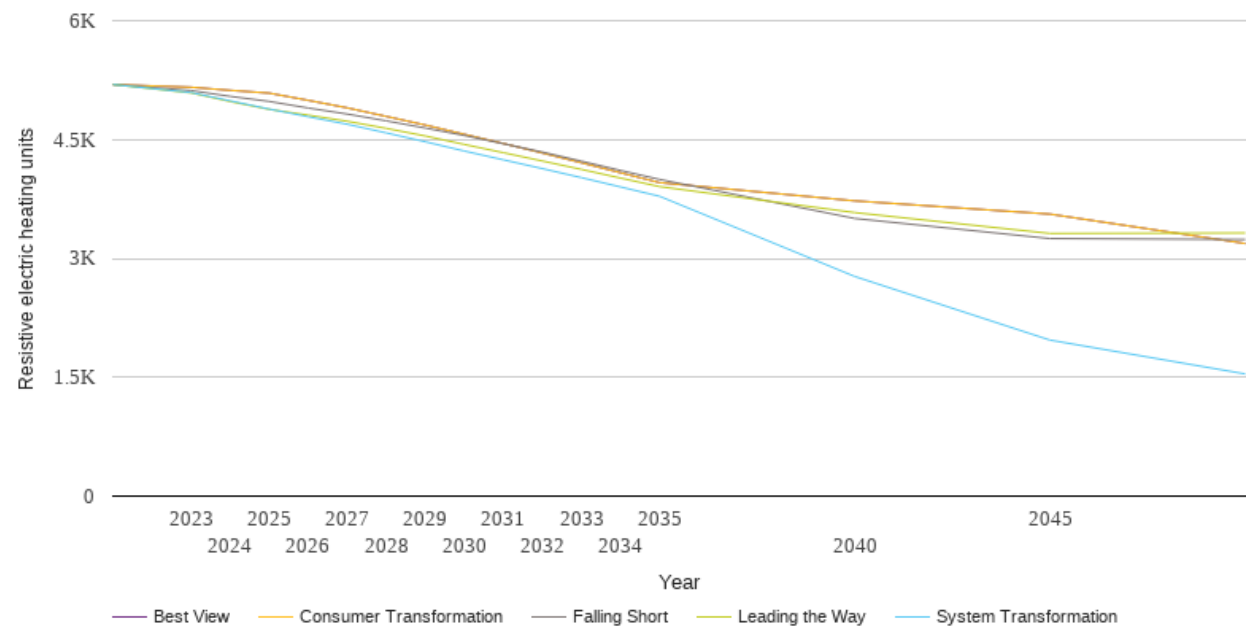
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	2.0	2.0	2.0	2.0	2.0
2023	2.0	2.0	2.0	2.0	2.0
2024	7.5	2.0	2.0	2.0	7.5
2025	7.5	1.0	1.6	1.6	7.5
2026	9.7	1.1	1.9	1.9	9.7
2027	9.7	3.4	4.3	4.4	9.7
2028	8.7	3.5	4.5	4.6	8.7
2029	8.7	3.6	4.6	4.8	8.7
2030	8.7	3.6	4.7	4.9	8.7
2031	8.7	3.6	4.8	5.0	8.7
2032	8.7	3.6	4.9	5.0	8.7
2033	8.7	3.6	4.9	5.1	8.7
2034	8.7	3.6	4.9	4.7	8.3
2035	8.7	3.6	4.9	4.7	8.3
2040	8.7	3.3	4.6	4.8	8.3
2045	8.7	3.3	4.6	4.8	8.3
2050	8.7	3.3	4.6	4.9	8.3



Technology Summary: Resistive electric heating

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

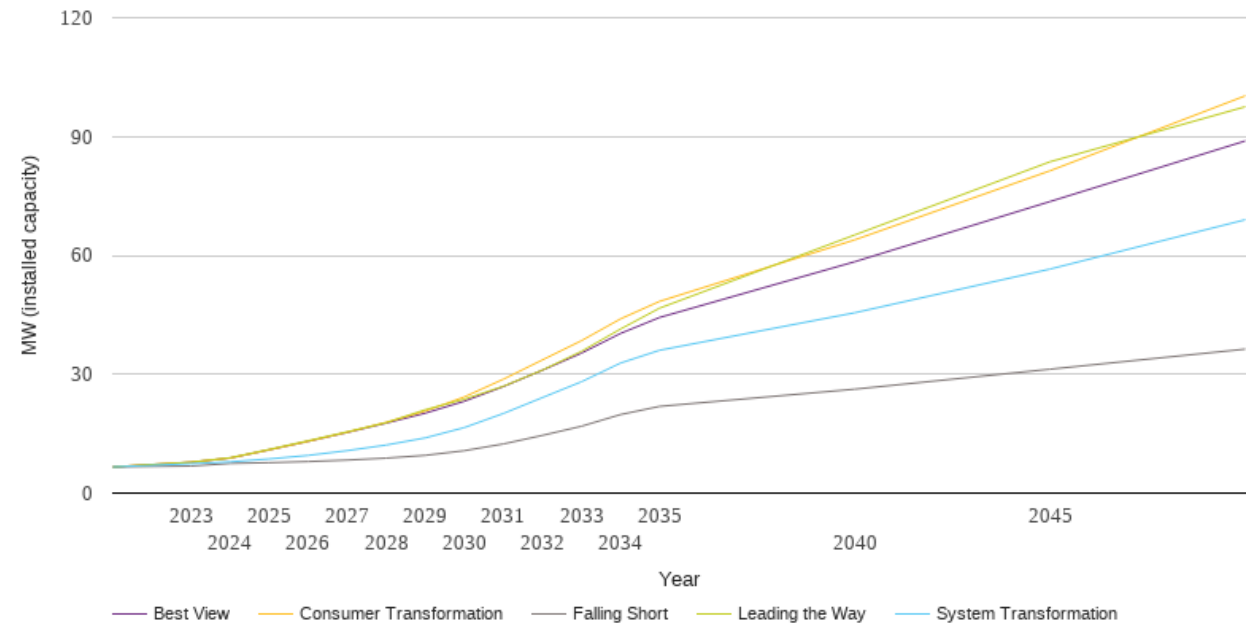
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	5194	5194	5194	5194	5194
2023	5118	5093	5160	5089	5160
2024	5045	4989	5121	4980	5121
2025	4981	4885	5086	4881	5086
2026	4898	4788	4995	4808	4995
2027	4822	4693	4900	4731	4900
2028	4736	4584	4792	4641	4792
2029	4645	4472	4683	4545	4683
2030	4551	4355	4566	4438	4566
2031	4447	4244	4450	4334	4450
2032	4342	4133	4330	4229	4330
2033	4227	4019	4207	4123	4207
2034	4110	3902	4081	4014	4081
2035	3997	3784	3956	3906	3956
2040	3504	2772	3726	3578	3726
2045	3250	1969	3559	3315	3559
2050	3238	1542	3188	3321	3188



Technology Summary: Solar Generation

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

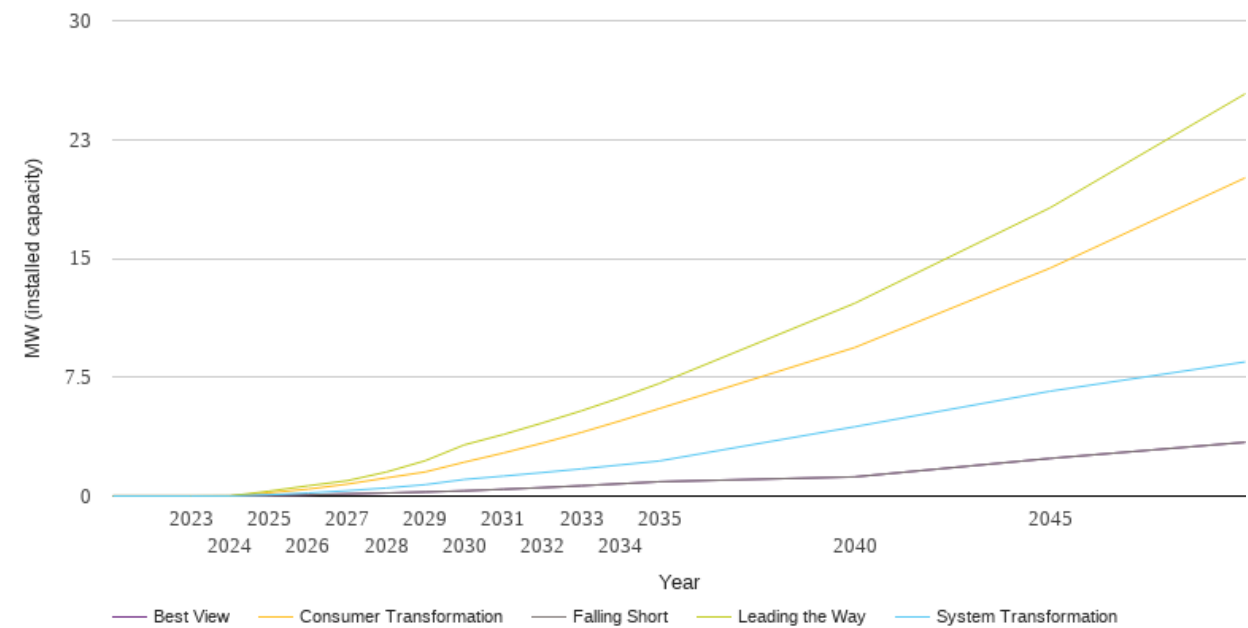
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6.6	6.6	6.6	6.6	6.6
2023	6.8	7.4	7.8	7.8	7.8
2024	7.5	7.9	8.8	8.9	8.8
2025	7.7	8.6	10.9	11.0	10.9
2026	8.0	9.5	13.1	13.2	13.1
2027	8.3	10.7	15.4	15.5	15.3
2028	8.8	12.1	17.9	17.8	17.7
2029	9.5	13.9	20.7	21.0	20.2
2030	10.7	16.5	24.3	23.7	23.2
2031	12.4	20.1	28.8	27.0	26.9
2032	14.6	24.1	33.6	31.0	31.0
2033	16.9	28.1	38.5	35.8	35.3
2034	19.8	32.8	44.0	41.4	40.3
2035	21.9	36.0	48.4	46.7	44.3
2040	26.2	45.5	63.9	65.2	58.4
2045	31.3	56.5	81.3	83.6	73.6
2050	36.3	69.0	100.3	97.5	88.9



Technology Summary: Storage

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

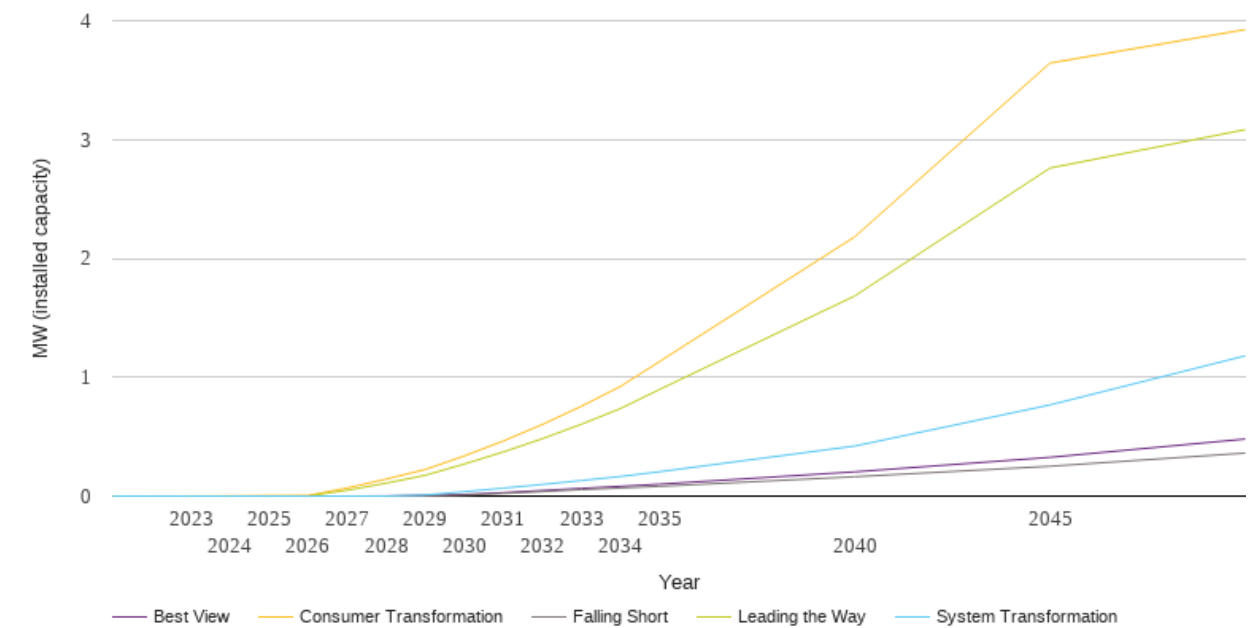
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.1	0.2	0.3	0.0
2026	0.1	0.2	0.4	0.7	0.1
2027	0.1	0.3	0.8	1.0	0.1
2028	0.2	0.5	1.1	1.5	0.2
2029	0.3	0.7	1.5	2.2	0.3
2030	0.3	1.0	2.1	3.2	0.3
2031	0.4	1.3	2.7	3.9	0.4
2032	0.5	1.5	3.3	4.6	0.5
2033	0.7	1.7	4.0	5.4	0.7
2034	0.8	2.0	4.8	6.2	0.8
2035	0.9	2.2	5.5	7.1	0.9
2040	1.2	4.4	9.4	12.2	1.2
2045	2.4	6.6	14.4	18.2	2.4
2050	3.4	8.5	20.1	25.4	3.4



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	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	0.1	0.0	0.0
2028	0.0	0.0	0.1	0.1	0.0
2029	0.0	0.0	0.2	0.2	0.0
2030	0.0	0.0	0.3	0.3	0.0
2031	0.0	0.1	0.5	0.4	0.0
2032	0.0	0.1	0.6	0.5	0.0
2033	0.1	0.1	0.8	0.6	0.1
2034	0.1	0.2	0.9	0.7	0.1
2035	0.1	0.2	1.1	0.9	0.1
2040	0.2	0.4	2.2	1.7	0.2
2045	0.3	0.8	3.6	2.8	0.3
2050	0.4	1.2	3.9	3.1	0.5



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))
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