

Distribution Future Energy Scenarios 2022

Local Authority:
Isles of Scilly

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 Isles of Scilly covered by the NGED licence areas.



Scenario Summary

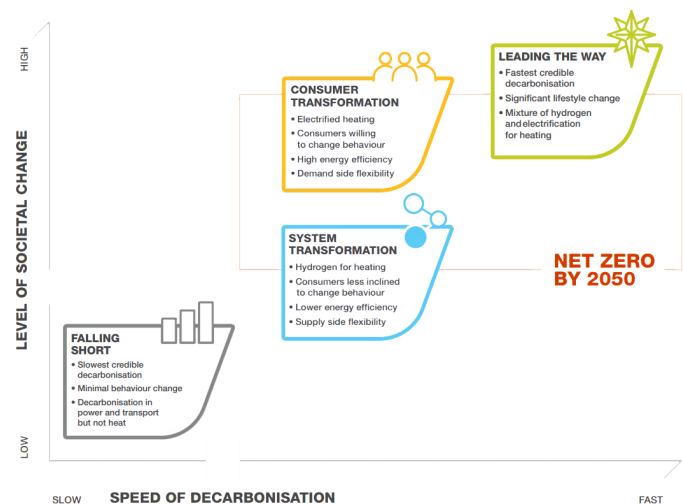
This DFES scenario framework includes three scenarios that are compliant with UK government targets of Net Zero greenhouse gas emissions by 2050. A summary of each scenario is below:

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 Isles of Scilly 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	0	0	0	0
Domestic	New dwellings	0	0	0	0	0	0	0	0	0
Electric vehicles	Electric vehicles	25	24 4	34 0	65 5	66 0	242 1	206 0	220 8	208 7
EV Charge Point	EV charge points	9	70	12 0	22 3	23 7	756	772	754	774
Heat pumps	Heat pump installations	46	21 7	16 4	29 5	36 2	535	546	773	723
Hydrogen electrolysis	MW (installed capacity)	0.0	0. 0	0. 0	0. 0	0. 0	0.0	0.0	0.0	0.0
Non domestic	Floorspace (metres squared) of new I&C developments	0	0	0	0	0	0	0	0	0
Other Distributed Generation	MW (installed capacity)	3.0	0. 0	0. 0	0. 1	0. 1	0.0	0.0	0.1	0.1
Resistive electric heating	Resistive electric heating units	815	63 6	62 4	66 3	62 9	343	139	399	413
Solar Generation	MW (installed capacity)	0.5	0. 6	0. 9	1. 4	1. 4	1.1	2.3	4.4	4.4
Storage	MW (installed capacity)	0.0	0. 0	0. 0	0. 0	0. 1	0.1	0.4	0.7	0.8
Wind	MW (installed capacity)	0.0	0. 0	0. 0	0. 0	0. 0	0.0	0.0	0.0	0.0

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

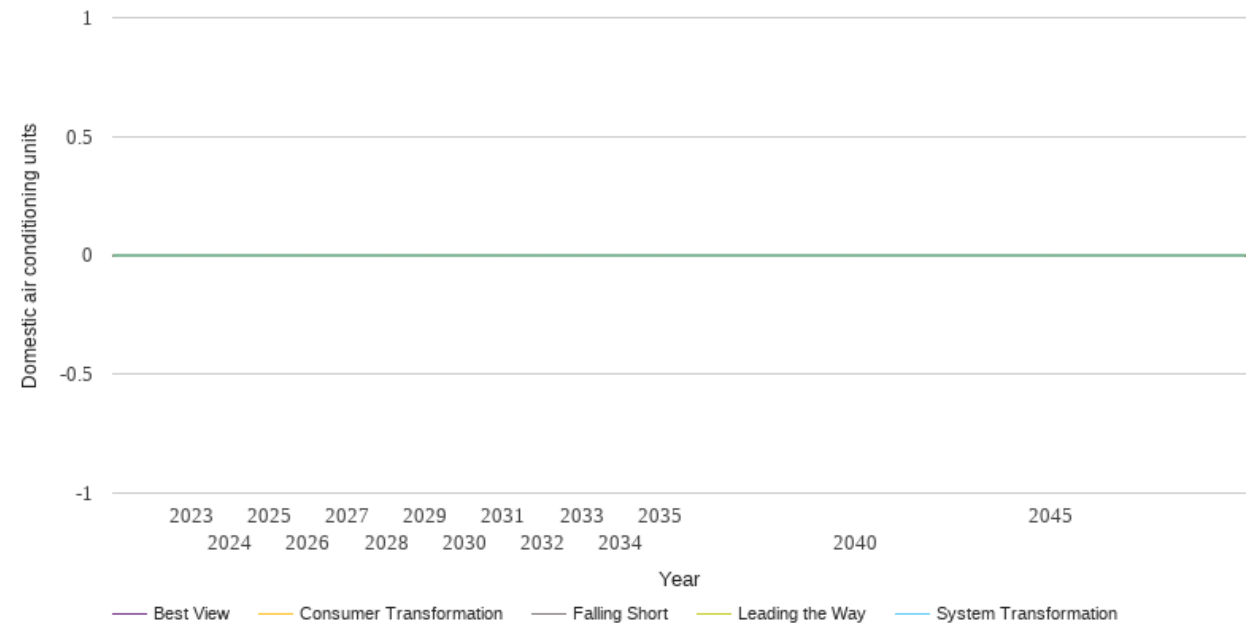
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

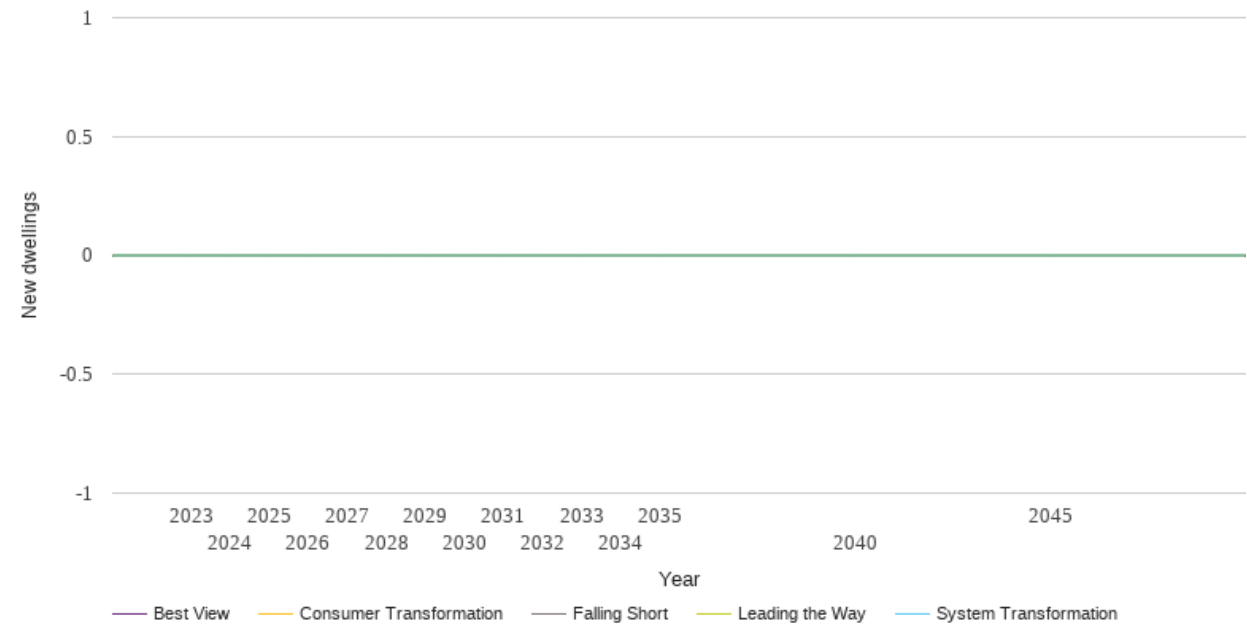
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0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



Technology Summary: Domestic

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

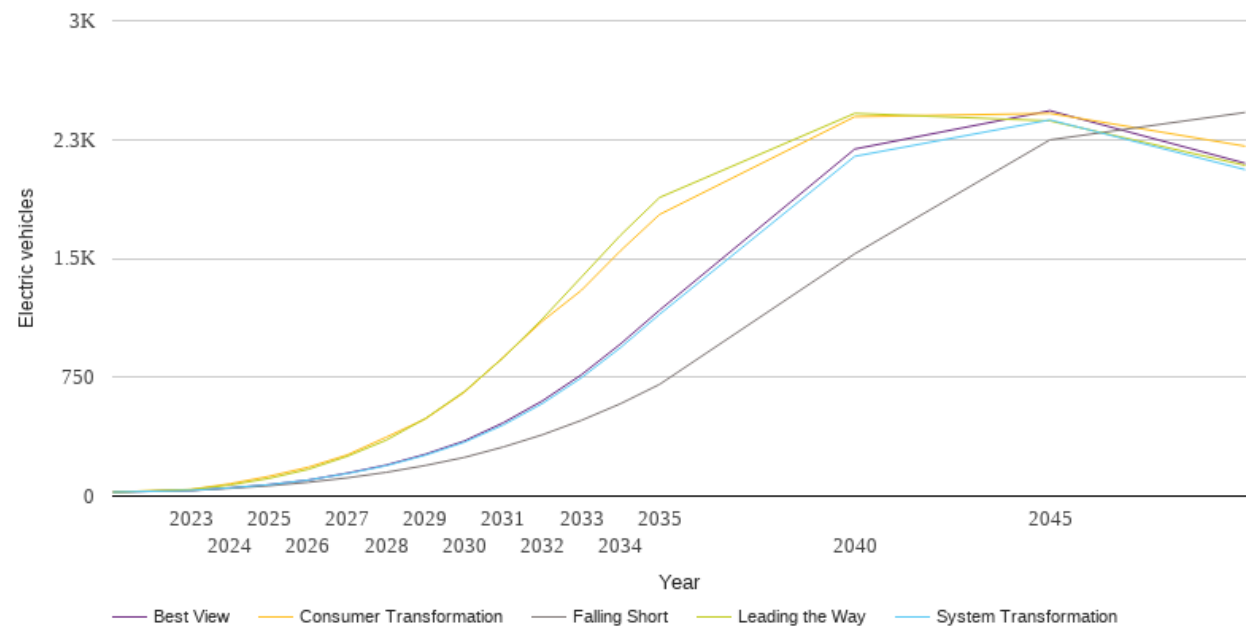
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0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



Technology Summary: Electric vehicles

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

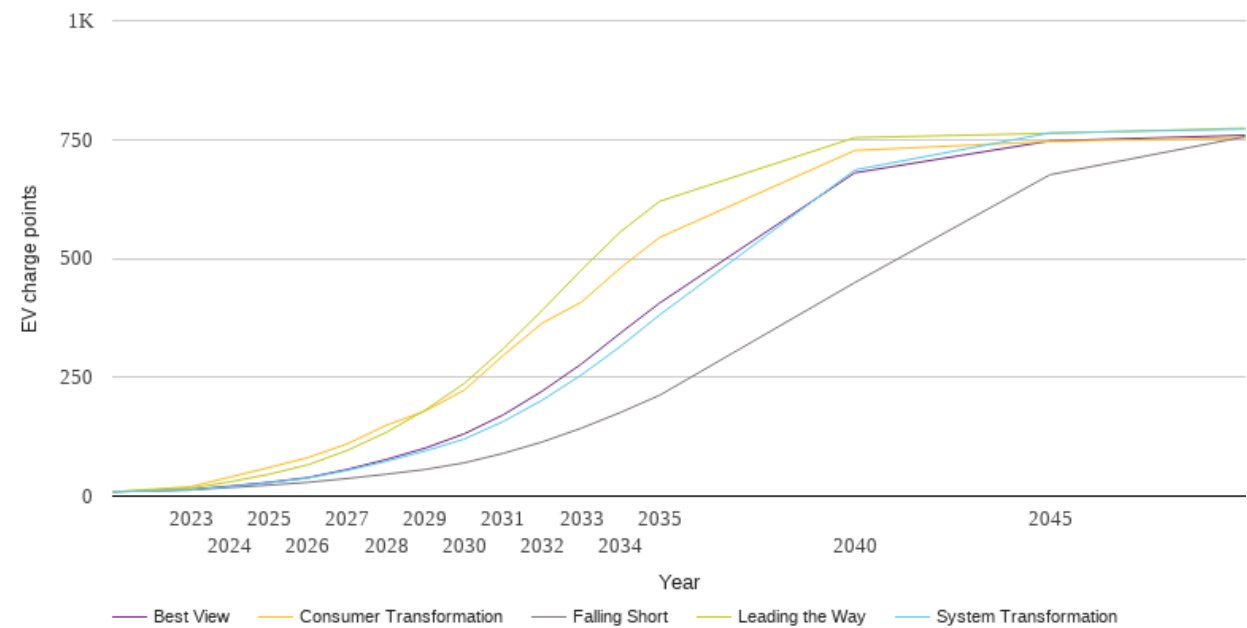
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	25	25	25	25	25
2023	35	36	42	41	36
2024	49	52	78	70	52
2025	65	72	125	112	72
2026	87	101	182	169	101
2027	115	142	260	251	145
2028	150	192	372	353	196
2029	193	258	487	489	264
2030	244	340	655	660	348
2031	310	449	877	874	463
2032	387	584	1104	1118	601
2033	478	747	1299	1382	766
2034	583	937	1548	1646	960
2035	705	1147	1777	1884	1173
2040	1529	2144	2394	2415	2190
2045	2248	2374	2415	2368	2432
2050	2421	2060	2208	2087	2100



Technology Summary: EV Charge Point

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

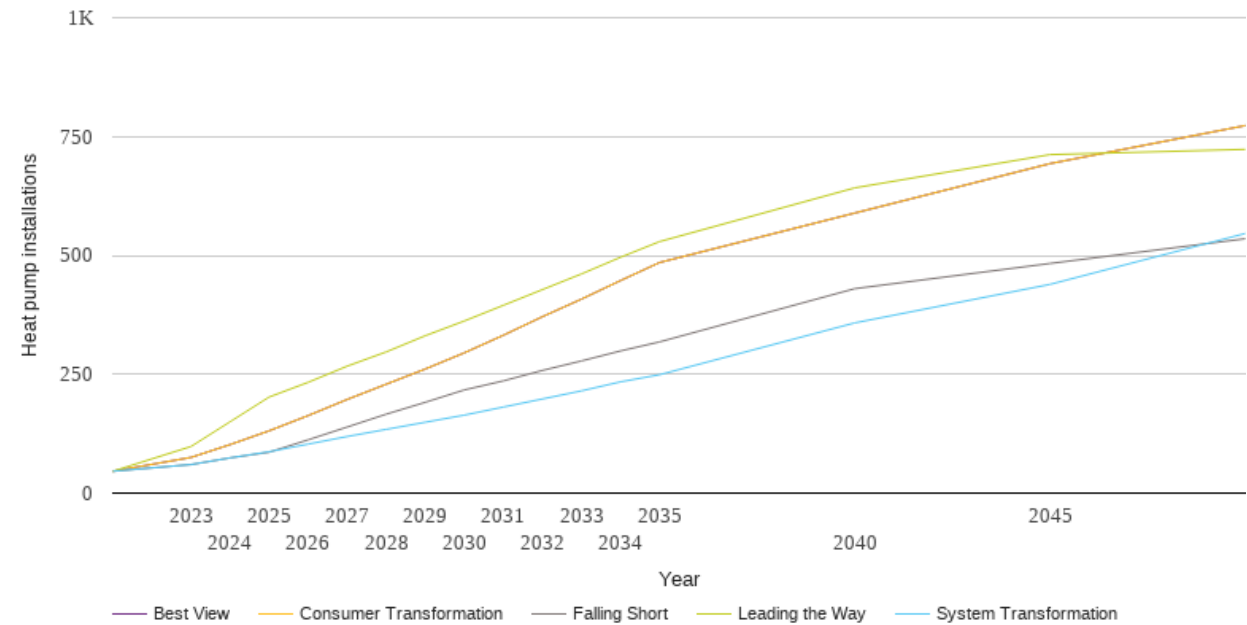
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	9	9	9	9	9
2023	13	13	20	17	14
2024	18	20	40	30	21
2025	23	28	60	46	29
2026	29	38	81	66	39
2027	37	54	110	96	56
2028	46	73	149	134	77
2029	56	95	179	181	101
2030	70	120	223	237	131
2031	90	157	296	310	171
2032	114	202	364	391	221
2033	143	255	408	476	278
2034	176	315	480	556	343
2035	212	381	544	620	406
2040	449	686	727	754	680
2045	676	764	746	763	747
2050	756	772	754	774	759



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	46	46	46	46	46
2023	60	60	75	98	75
2024	74	74	102	150	102
2025	86	87	131	202	131
2026	112	103	163	233	163
2027	139	119	197	267	197
2028	166	134	229	297	229
2029	191	149	261	331	261
2030	217	164	295	362	295
2031	236	181	332	395	332
2032	258	198	371	428	371
2033	278	215	408	461	408
2034	299	234	447	496	447
2035	318	249	485	529	485
2040	430	358	589	642	589
2045	483	439	693	712	693
2050	535	546	773	723	773



Technology Summary: Hydrogen electrolysis

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

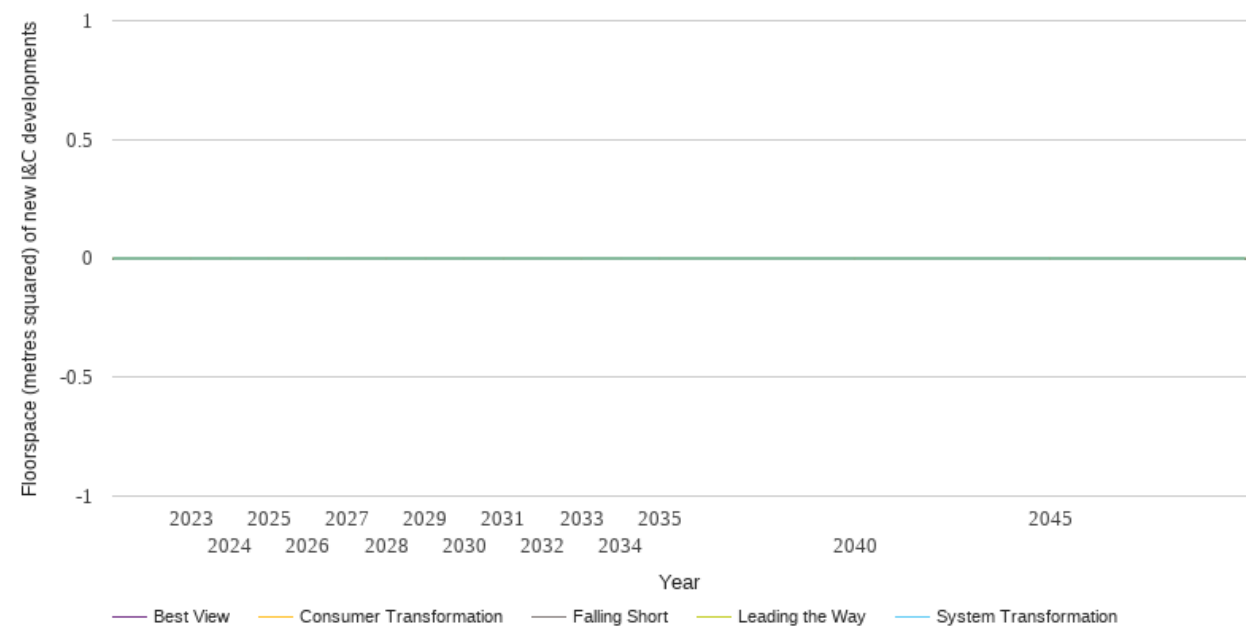
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0
2045	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0



Technology Summary: Non domestic

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

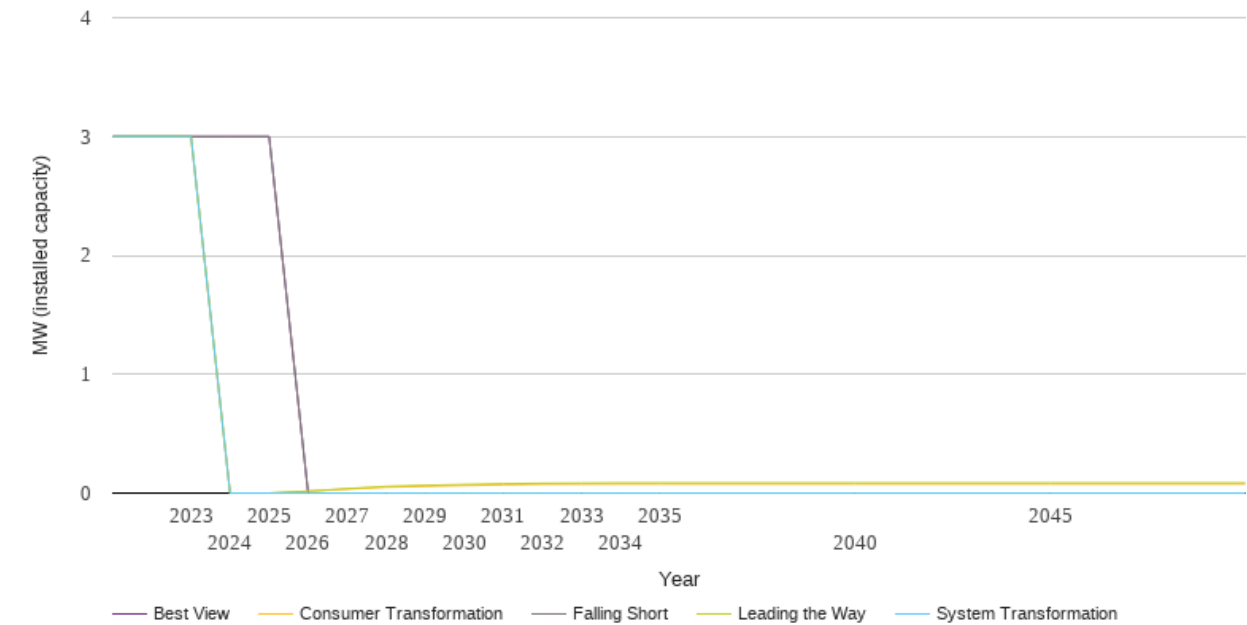
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0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



Technology Summary: Other Distributed Generation

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

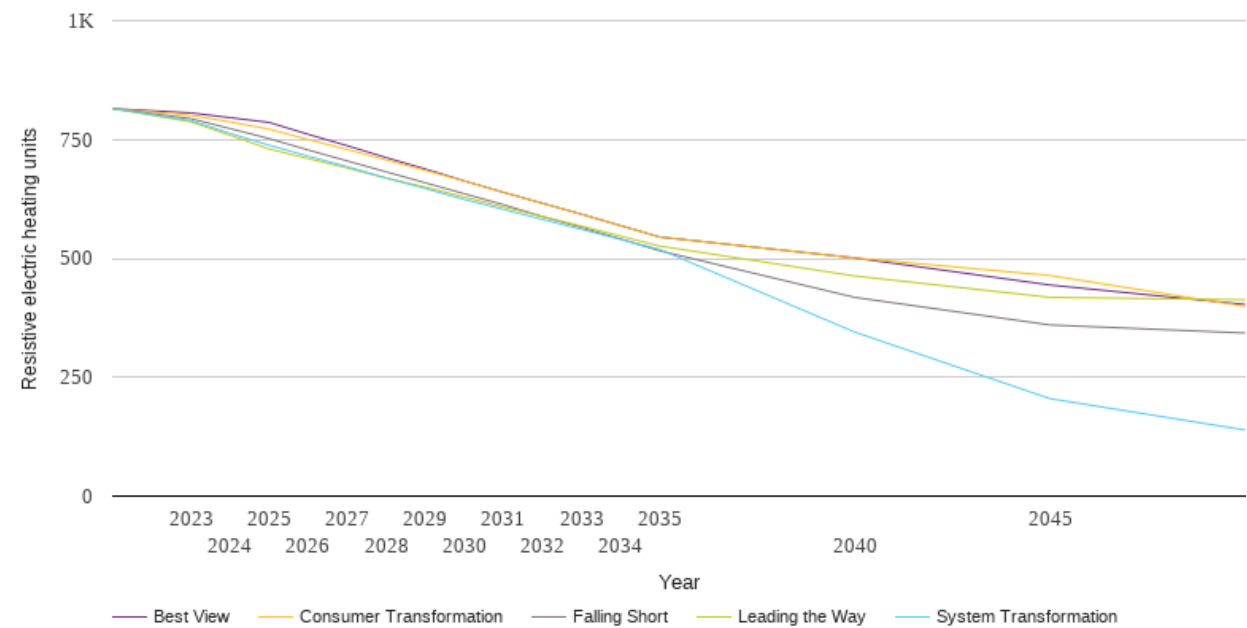
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	3.0	3.0	3.0	3.0	3.0
2023	3.0	3.0	3.0	3.0	3.0
2024	3.0	0.0	0.0	0.0	3.0
2025	3.0	0.0	0.0	0.0	3.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.1	0.1	0.0
2029	0.0	0.0	0.1	0.1	0.0
2030	0.0	0.0	0.1	0.1	0.0
2031	0.0	0.0	0.1	0.1	0.0
2032	0.0	0.0	0.1	0.1	0.0
2033	0.0	0.0	0.1	0.1	0.0
2034	0.0	0.0	0.1	0.1	0.0
2035	0.0	0.0	0.1	0.1	0.0
2040	0.0	0.0	0.1	0.1	0.0
2045	0.0	0.0	0.1	0.1	0.0
2050	0.0	0.0	0.1	0.1	0.0



Technology Summary: Resistive electric heating

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

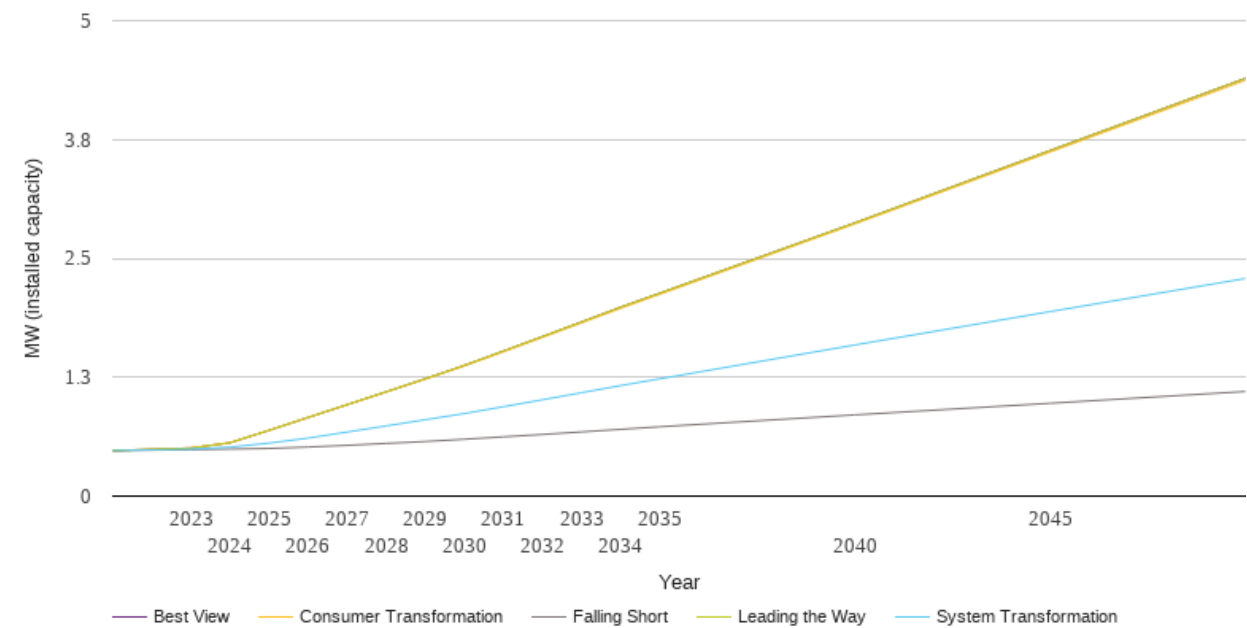
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	815	815	815	815	815
2023	794	790	801	787	806
2024	773	763	787	759	796
2025	752	738	772	730	786
2026	728	715	750	710	761
2027	705	693	729	690	737
2028	682	669	707	669	712
2029	659	647	685	650	688
2030	636	624	663	629	663
2031	613	603	639	608	639
2032	588	582	616	588	616
2033	565	561	593	568	593
2034	541	540	569	547	569
2035	516	519	545	526	545
2040	418	345	501	463	501
2045	360	205	464	418	444
2050	343	139	399	413	403



Technology Summary: Solar Generation

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

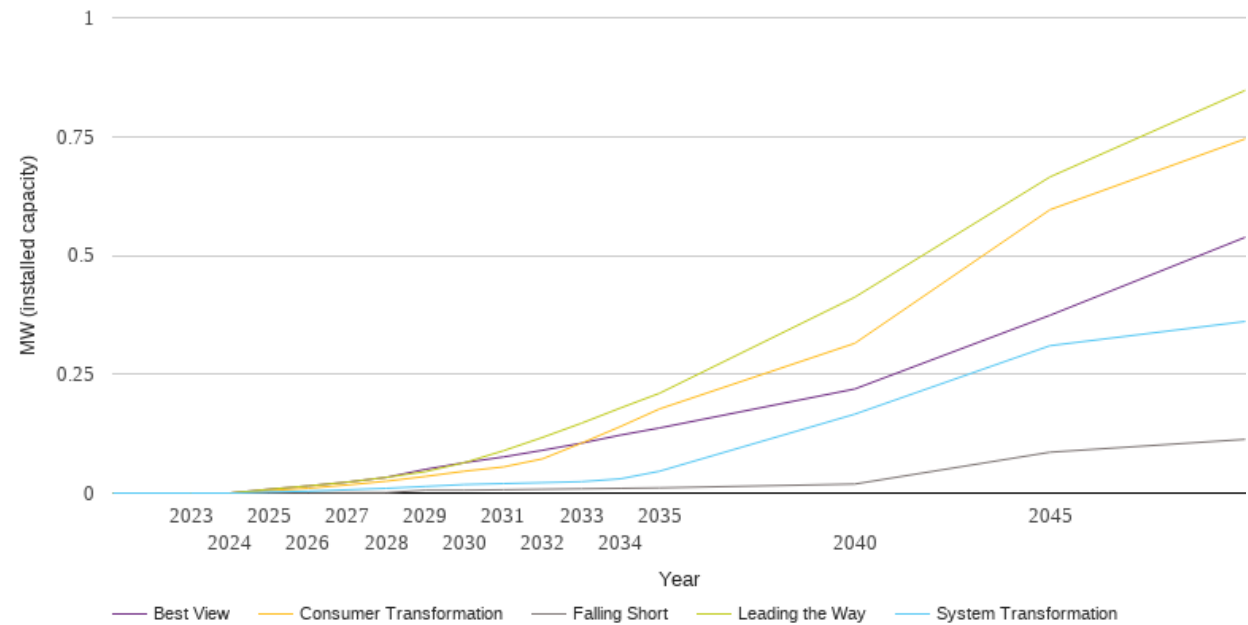
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.5	0.5	0.5	0.5	0.5
2023	0.5	0.5	0.5	0.5	0.5
2024	0.5	0.5	0.6	0.6	0.6
2025	0.5	0.6	0.7	0.7	0.7
2026	0.5	0.6	0.8	0.8	0.8
2027	0.5	0.7	1.0	1.0	1.0
2028	0.6	0.7	1.1	1.1	1.1
2029	0.6	0.8	1.2	1.2	1.2
2030	0.6	0.9	1.4	1.4	1.4
2031	0.6	0.9	1.5	1.5	1.5
2032	0.6	1.0	1.7	1.7	1.7
2033	0.7	1.1	1.8	1.8	1.8
2034	0.7	1.2	2.0	2.0	2.0
2035	0.7	1.2	2.1	2.1	2.1
2040	0.9	1.6	2.9	2.9	2.9
2045	1.0	1.9	3.6	3.6	3.6
2050	1.1	2.3	4.4	4.4	4.4



Technology Summary: Storage

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

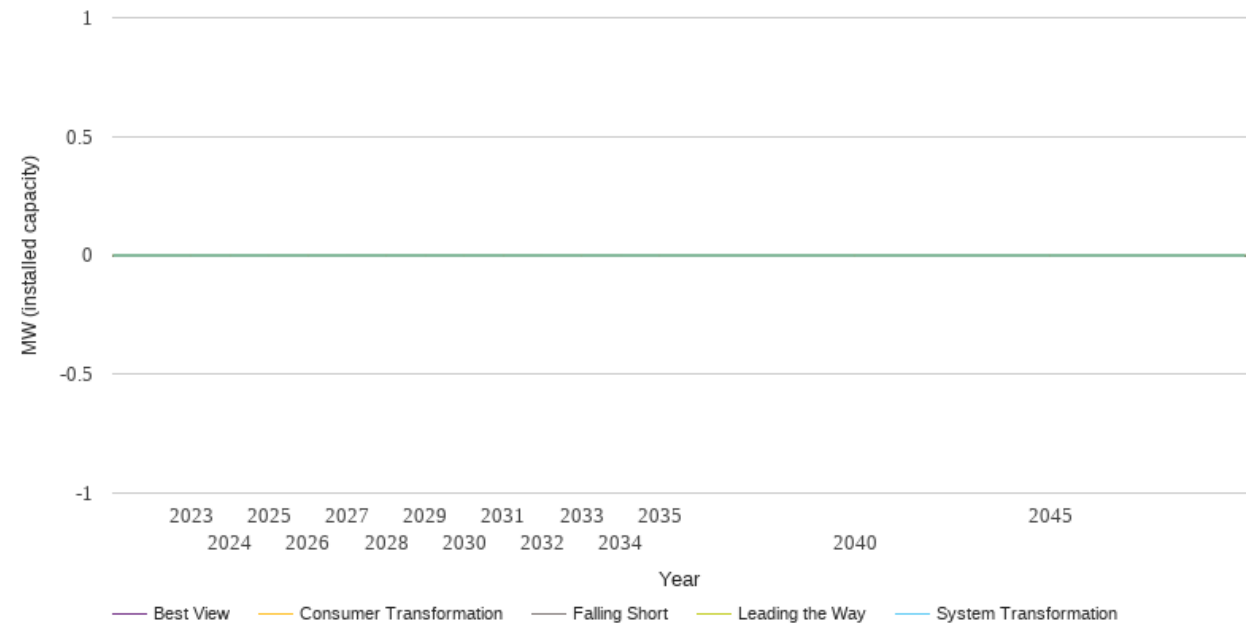
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.1
2030	0.0	0.0	0.0	0.1	0.1
2031	0.0	0.0	0.1	0.1	0.1
2032	0.0	0.0	0.1	0.1	0.1
2033	0.0	0.0	0.1	0.1	0.1
2034	0.0	0.0	0.1	0.2	0.1
2035	0.0	0.0	0.2	0.2	0.1
2040	0.0	0.2	0.3	0.4	0.2
2045	0.1	0.3	0.6	0.7	0.4
2050	0.1	0.4	0.7	0.8	0.5



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	0.0	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	0.0	0.0	0.0	0.0
2045	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0



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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