

# Distribution Future Energy Scenarios 2022

Local Authority:  
Melton

## 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 Melton covered by the NGED licence areas.



## Scenario Summary

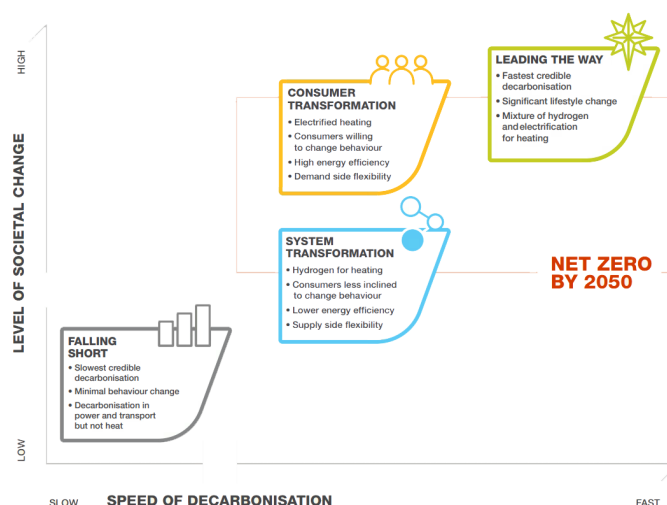
This DFES scenario framework includes three scenarios that are compliant with UK government targets of Net Zero greenhouse gas emissions by 2050. A summary of each scenario is below:

**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 Melton 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	165	97	97	0	9735	4557	4557	0
Domestic	New dwellings	0	2561	2745	2745	3172	4968	4874	4874	4823
Electric vehicles	Electric vehicles	871	5596	6802	12495	12427	36374	30374	29848	25606
EV Charge Point	EV charge points	437	2548	3709	6951	7687	21350	20508	21804	21673
Heat pumps	Heat pump installations	257	2035	2465	5038	7651	14141	16477	26224	23040
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.8	0.0	0.0	2.7	12.4	6.3	9.2
Non domestic	Floorspace (metres squared) of new I&C developments	0	55730	63447	63447	69863	99315	99165	99165	99315
Other Distributed Generation	MW (installed capacity)	0.7	3.0	0.8	0.7	0.8	2.5	1.0	0.5	0.6
Resistive electric heating	Resistive electric heating units	2096	1973	1854	1964	1916	1575	745	1421	1479
Solar Generation	MW (installed capacity)	17.8	23.0	30.1	34.6	29.6	72.4	134.0	151.5	137.6
Storage	MW (installed capacity)	0.0	0.1	0.9	1.6	2.3	2.4	5.8	13.7	19.0
Wind	MW (installed capacity)	1.1	1.2	1.6	4.8	4.3	6.8	17.9	52.6	42.3

## 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

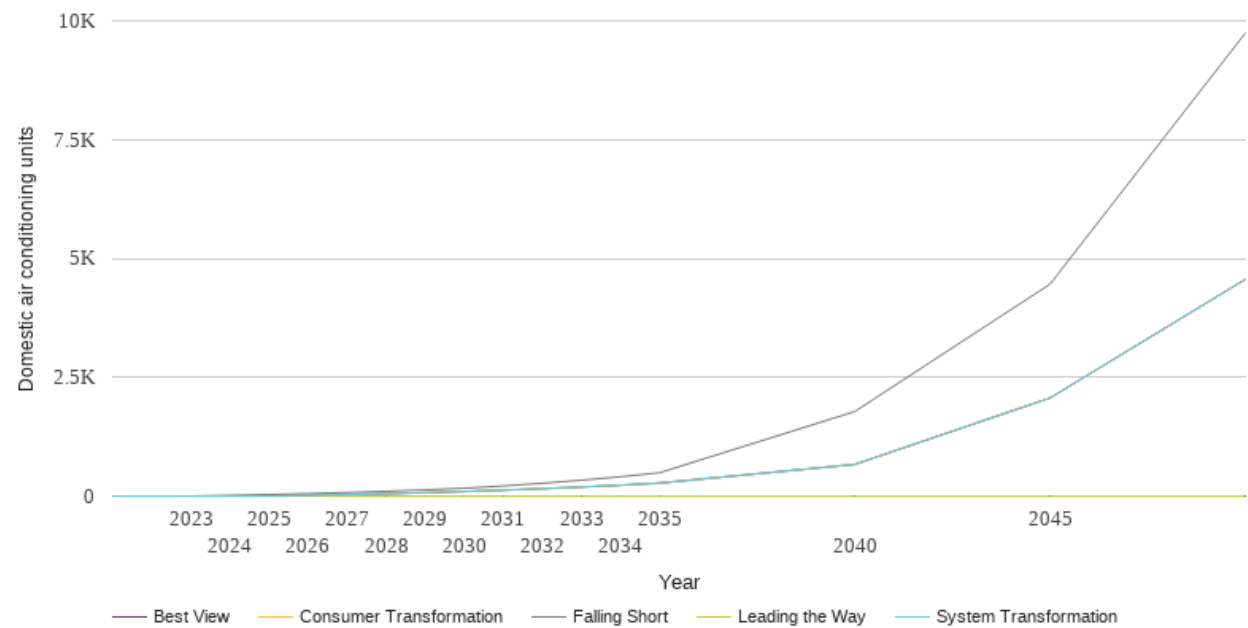
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

If you have any comments or queries regarding these reports, please contact [nged.energyplanning@nationalgrid.co.uk](mailto:nged.energyplanning@nationalgrid.co.uk).

# Technology Summary: Air conditioning

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

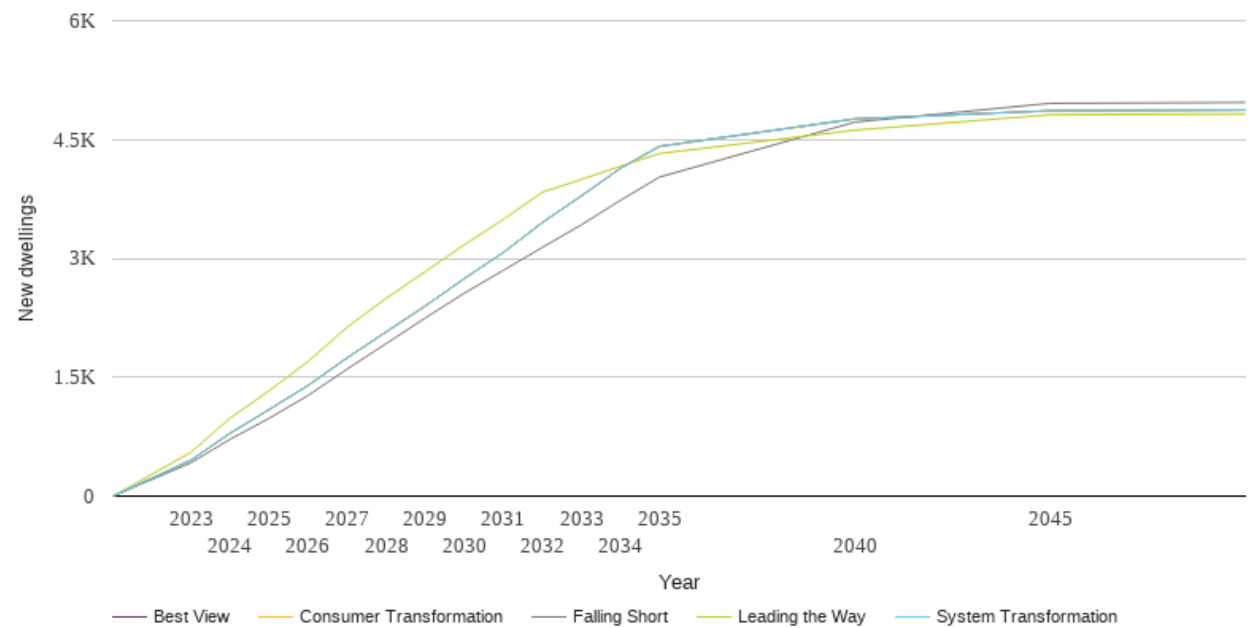
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	15	0	0	0	0
2025	32	0	0	0	0
2026	52	15	15	0	15
2027	75	32	32	0	32
2028	101	51	51	0	51
2029	131	73	73	0	73
2030	165	97	97	0	97
2031	214	125	125	0	125
2032	270	156	156	0	156
2033	334	191	191	0	191
2034	407	230	230	0	230
2035	491	274	274	0	274
2040	1778	666	666	0	666
2045	4457	2064	2064	0	2064
2050	9735	4557	4557	0	4557



# Technology Summary: Domestic

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

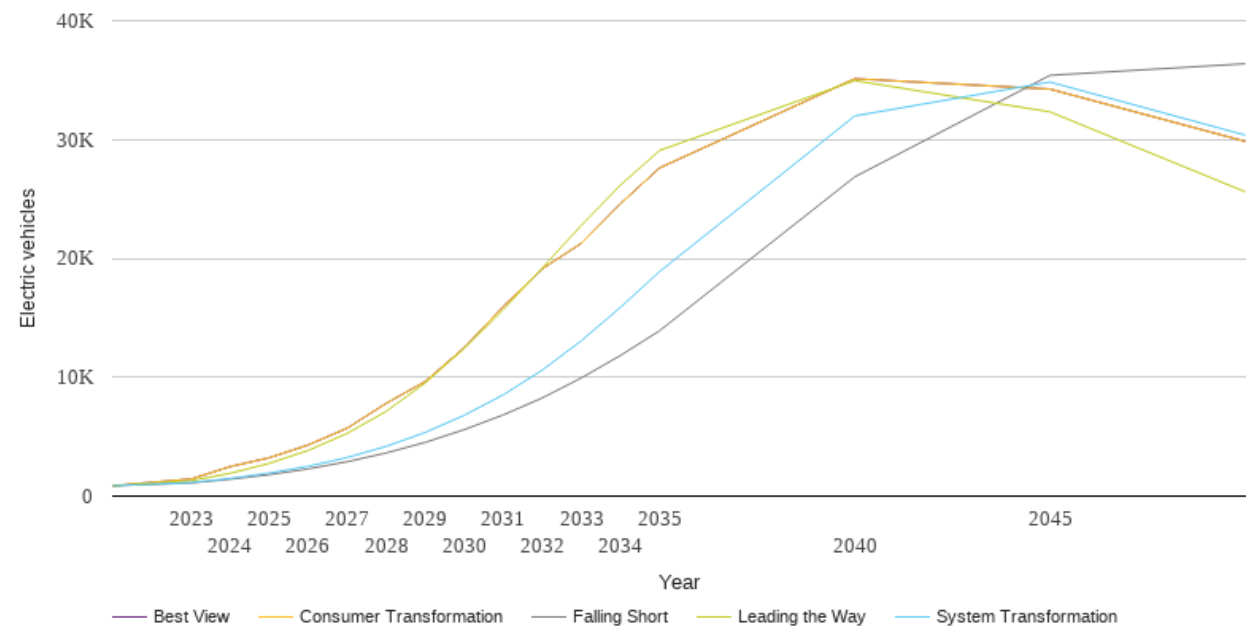
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	422	454	454	554	454
2024	717	793	793	984	793
2025	982	1092	1092	1329	1092
2026	1270	1397	1397	1700	1397
2027	1604	1745	1745	2132	1745
2028	1925	2073	2073	2497	2073
2029	2248	2399	2399	2833	2399
2030	2561	2745	2745	3172	2745
2031	2849	3075	3075	3492	3075
2032	3139	3453	3453	3836	3453
2033	3425	3790	3790	3997	3790
2034	3733	4138	4138	4164	4138
2035	4027	4414	4414	4323	4414
2040	4719	4760	4760	4618	4760
2045	4957	4863	4863	4812	4863
2050	4968	4874	4874	4823	4874



# Technology Summary: Electric vehicles

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

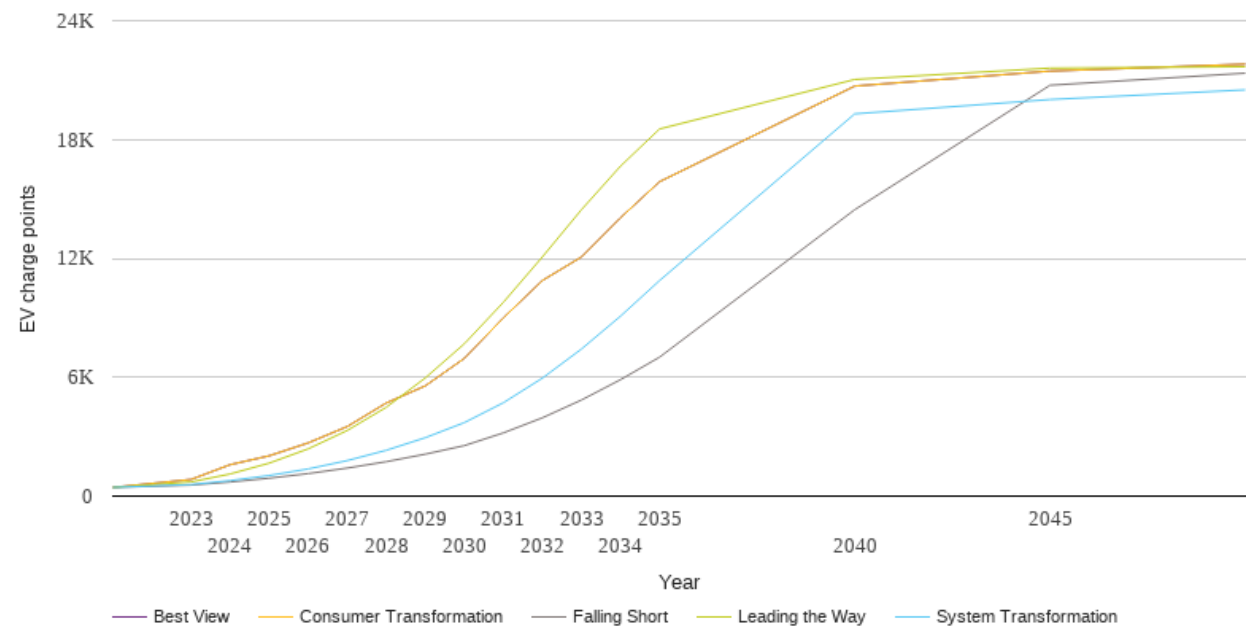
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	871	871	871	871	871
2023	1109	1132	1435	1295	1435
2024	1417	1480	2477	1915	2477
2025	1803	1932	3227	2749	3227
2026	2290	2505	4300	3841	4300
2027	2894	3246	5718	5277	5718
2028	3629	4186	7807	7131	7807
2029	4522	5358	9647	9526	9647
2030	5596	6802	12495	12427	12495
2031	6834	8526	15954	15689	15954
2032	8267	10611	19136	19212	19136
2033	9946	13080	21273	22791	21273
2034	11833	15883	24608	26171	24608
2035	13907	18885	27610	29080	27610
2040	26862	31984	35113	34952	35113
2045	35400	34838	34244	32327	34244
2050	36374	30374	29848	25606	29848



# Technology Summary: EV Charge Point

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

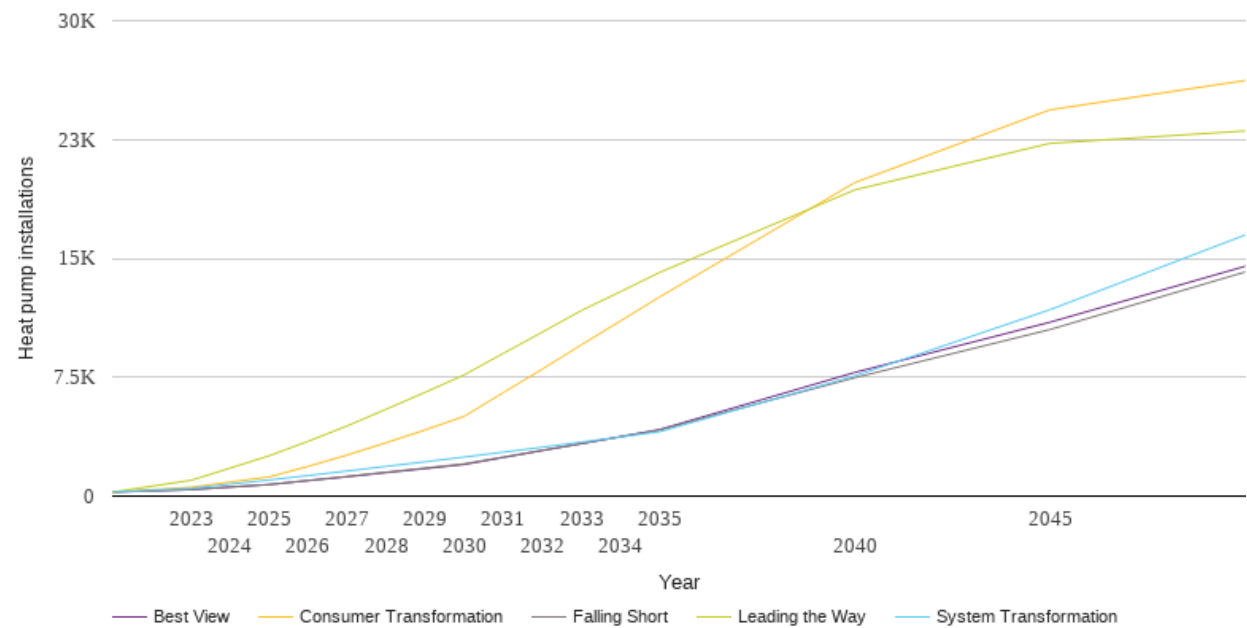
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	437	437	437	437	437
2023	556	582	839	713	839
2024	711	781	1585	1116	1585
2025	903	1039	2033	1663	2033
2026	1136	1370	2685	2384	2685
2027	1414	1791	3510	3312	3510
2028	1737	2312	4700	4482	4700
2029	2117	2948	5564	5964	5564
2030	2548	3709	6951	7687	6951
2031	3191	4712	8998	9783	8998
2032	3953	5956	10885	12076	10885
2033	4851	7424	12071	14459	12071
2034	5877	9082	14051	16656	14051
2035	7013	10881	15871	18532	15871
2040	14459	19297	20698	21033	20698
2045	20740	20018	21456	21607	21456
2050	21350	20508	21804	21673	21804



# Technology Summary: Heat pumps

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

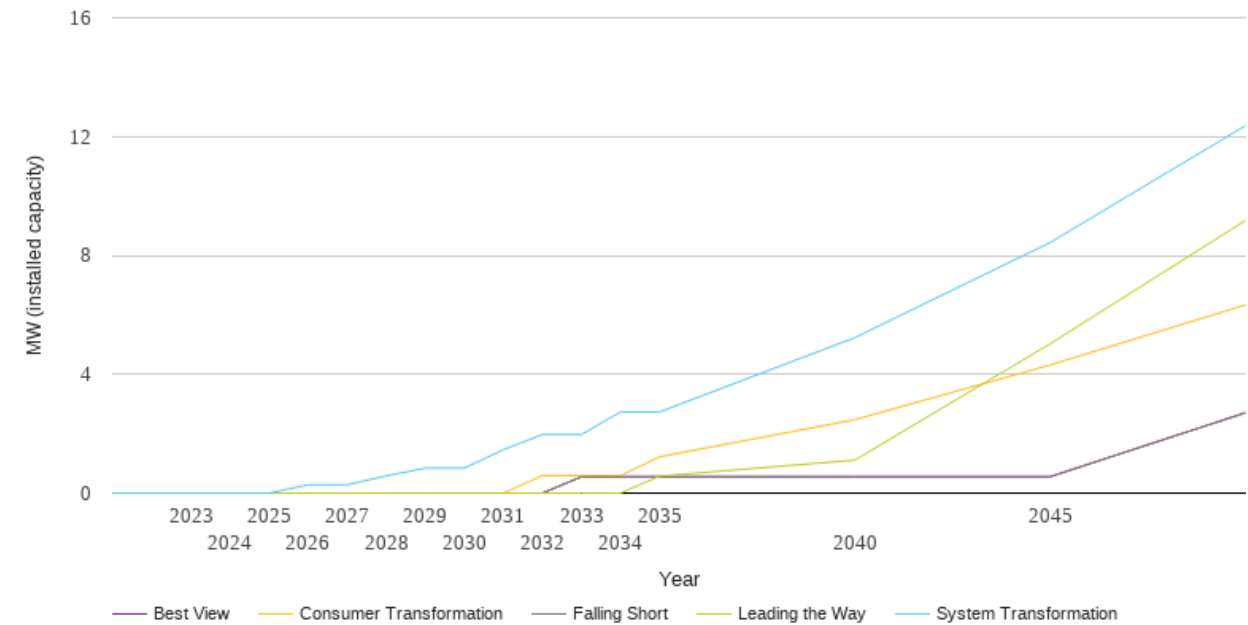
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	257	257	257	257	257
2023	410	488	555	995	410
2024	570	752	883	1764	570
2025	727	1017	1208	2544	727
2026	986	1295	1876	3458	978
2027	1237	1582	2592	4430	1221
2028	1507	1877	3368	5485	1483
2029	1769	2166	4181	6553	1737
2030	2035	2465	5038	7651	1997
2031	2463	2773	6531	9006	2436
2032	2892	3085	8017	10348	2876
2033	3314	3409	9549	11710	3311
2034	3743	3732	11048	12900	3753
2035	4174	4059	12561	14111	4197
2040	7468	7583	19783	19323	7802
2045	10510	11761	24374	22260	10972
2050	14141	16477	26224	23040	14503



# Technology Summary: Hydrogen electrolysis

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

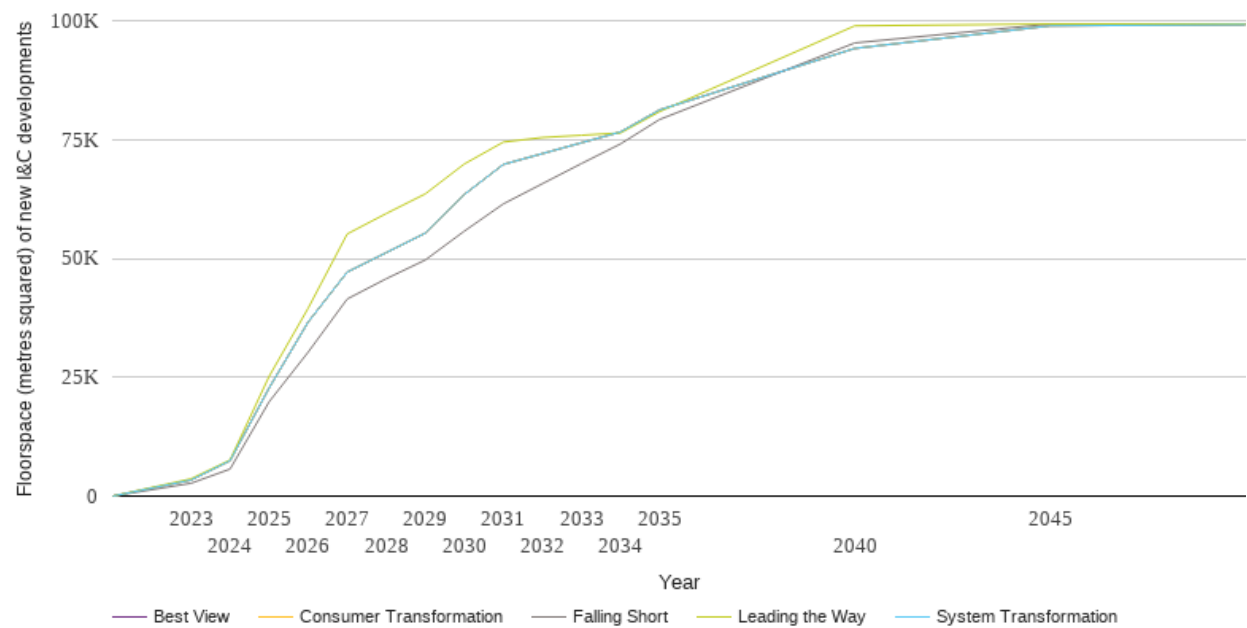
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.3	0.0	0.0	0.0
2027	0.0	0.3	0.0	0.0	0.0
2028	0.0	0.6	0.0	0.0	0.0
2029	0.0	0.8	0.0	0.0	0.0
2030	0.0	0.8	0.0	0.0	0.0
2031	0.0	1.5	0.0	0.0	0.0
2032	0.0	2.0	0.6	0.0	0.0
2033	0.6	2.0	0.6	0.0	0.6
2034	0.6	2.7	0.6	0.0	0.6
2035	0.6	2.7	1.2	0.6	0.6
2040	0.6	5.2	2.5	1.1	0.6
2045	0.6	8.4	4.3	5.0	0.6
2050	2.7	12.4	6.3	9.2	2.7



# Technology Summary: Non domestic

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

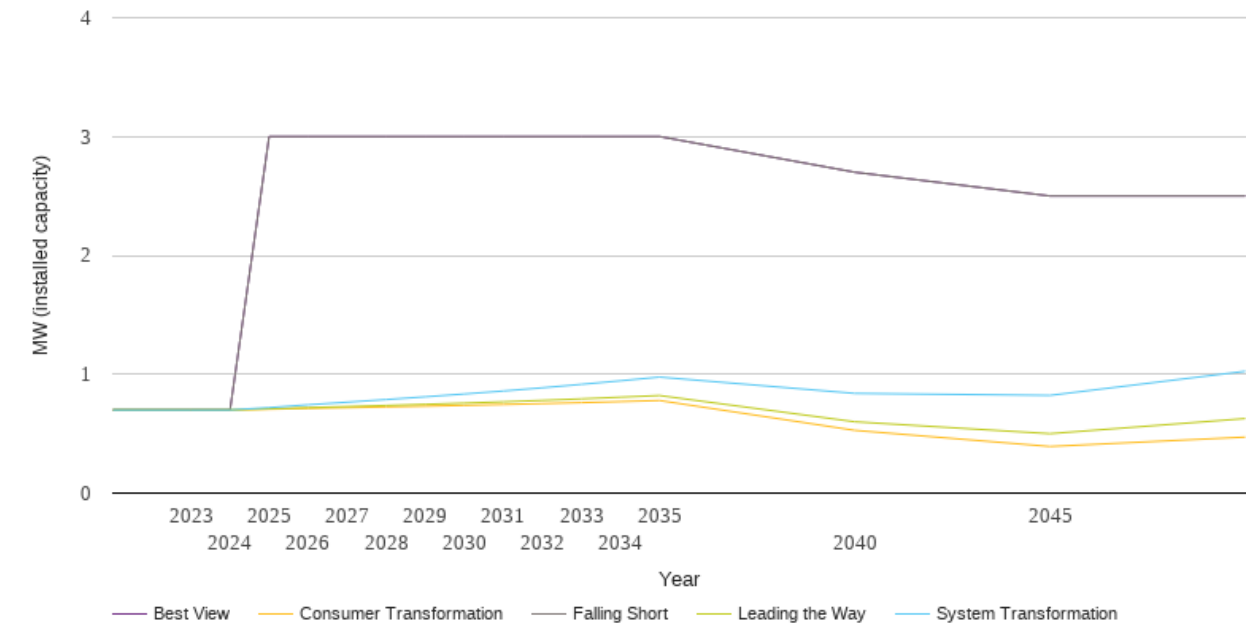
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	2700	3375	3375	3638	3375
2024	5681	7440	7440	7597	7440
2025	19833	22740	22740	25190	22740
2026	30279	36608	36608	39518	36608
2027	41460	47122	47122	55140	47122
2028	45725	51208	51208	59436	51208
2029	49665	55316	55316	63569	55316
2030	55730	63447	63447	69863	63447
2031	61470	69765	69765	74464	69765
2032	65710	72041	72041	75423	72041
2033	69950	74318	74318	75903	74318
2034	74077	76594	76594	76383	76594
2035	79215	81233	81233	80863	81233
2040	95315	94165	94165	98915	94165
2045	99315	98915	98915	99315	98915
2050	99315	99165	99165	99315	99165



# Technology Summary: Other Distributed Generation

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

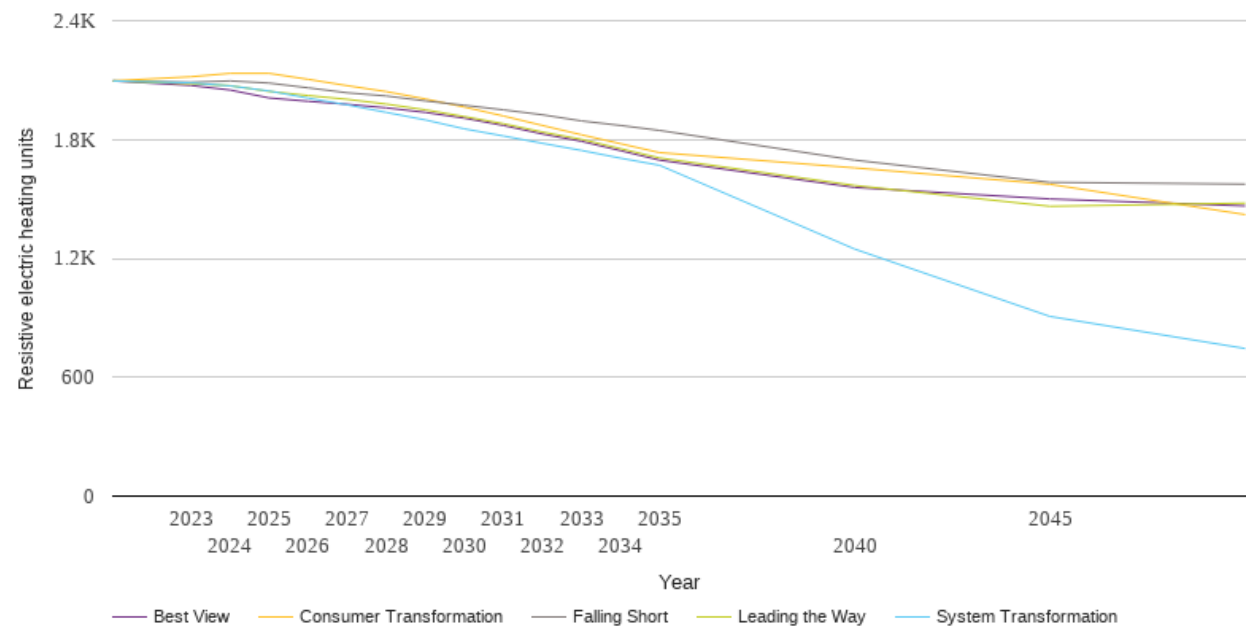
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.7	0.7	0.7	0.7	0.7
2023	0.7	0.7	0.7	0.7	0.7
2024	0.7	0.7	0.7	0.7	0.7
2025	3.0	0.7	0.7	0.7	3.0
2026	3.0	0.7	0.7	0.7	3.0
2027	3.0	0.8	0.7	0.7	3.0
2028	3.0	0.8	0.7	0.7	3.0
2029	3.0	0.8	0.7	0.7	3.0
2030	3.0	0.8	0.7	0.8	3.0
2031	3.0	0.9	0.7	0.8	3.0
2032	3.0	0.9	0.8	0.8	3.0
2033	3.0	0.9	0.8	0.8	3.0
2034	3.0	0.9	0.8	0.8	3.0
2035	3.0	1.0	0.8	0.8	3.0
2040	2.7	0.8	0.5	0.6	2.7
2045	2.5	0.8	0.4	0.5	2.5
2050	2.5	1.0	0.5	0.6	2.5



# Technology Summary: Resistive electric heating

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

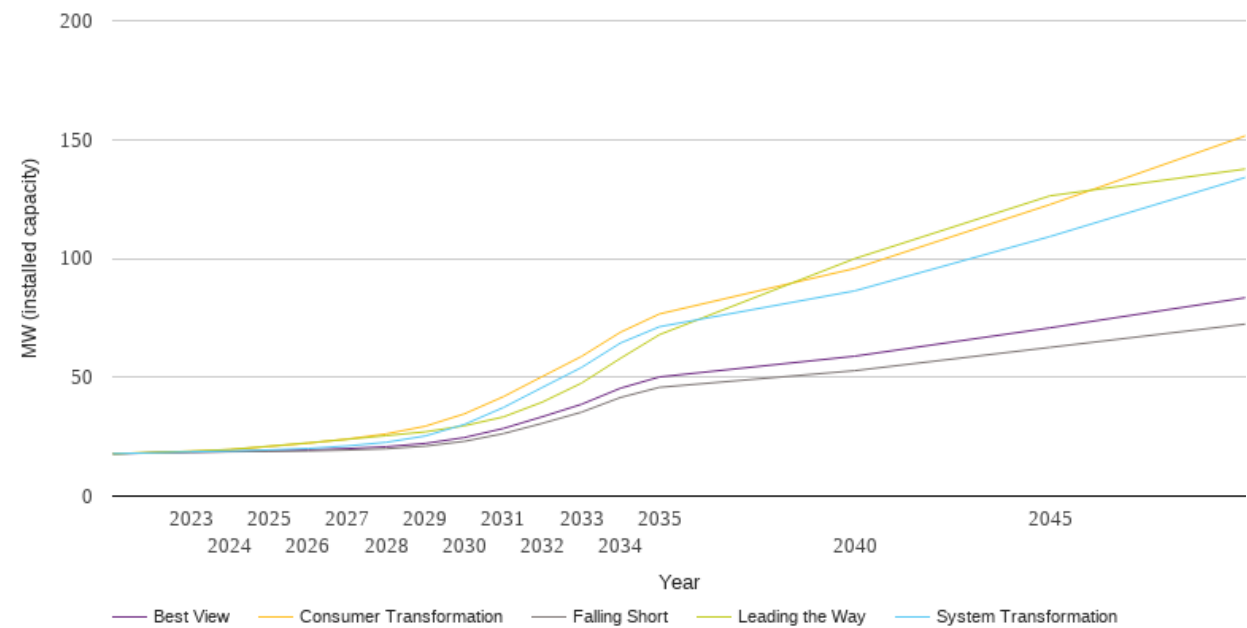
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	2096	2096	2096	2096	2096
2023	2089	2086	2117	2082	2073
2024	2096	2071	2134	2072	2050
2025	2085	2045	2134	2043	2010
2026	2061	2009	2104	2022	1993
2027	2036	1975	2072	2003	1978
2028	2020	1937	2042	1979	1960
2029	1995	1899	2005	1950	1937
2030	1973	1854	1964	1916	1908
2031	1950	1818	1919	1880	1871
2032	1925	1781	1871	1838	1828
2033	1894	1745	1824	1801	1791
2034	1871	1706	1779	1754	1744
2035	1846	1670	1734	1707	1696
2040	1696	1247	1657	1568	1558
2045	1584	907	1574	1463	1500
2050	1575	745	1421	1479	1465



# Technology Summary: Solar Generation

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

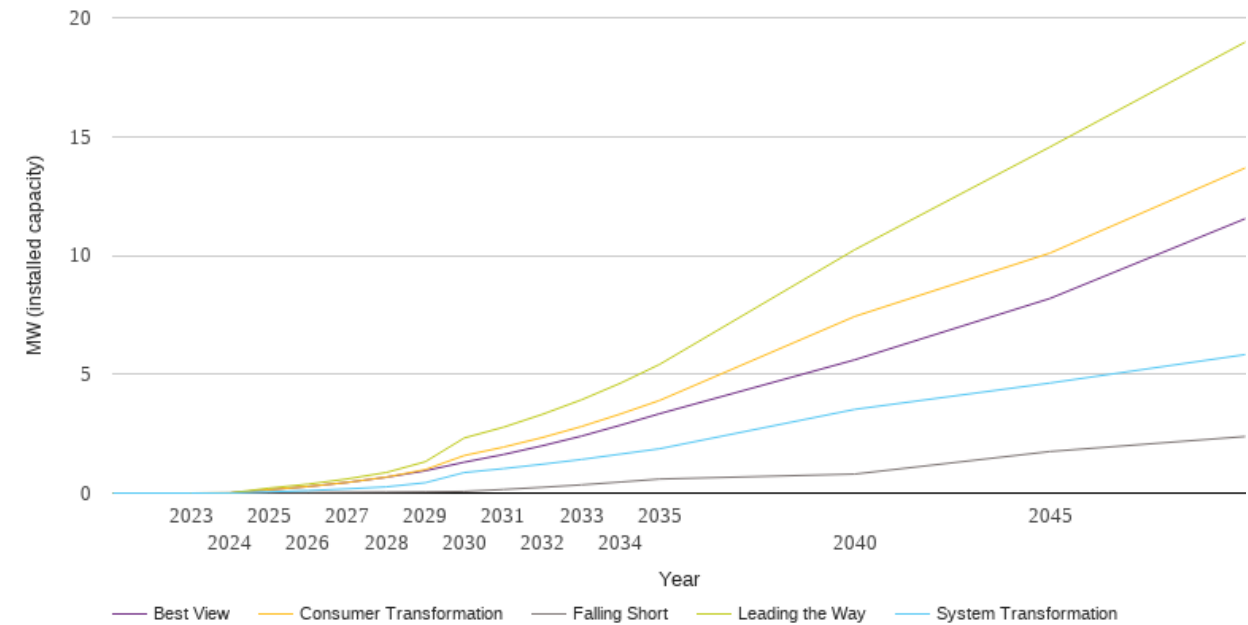
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	17.8	17.8	17.8	17.8	17.8
2023	18.4	18.6	18.9	18.9	18.5
2024	18.7	18.9	19.5	19.6	18.7
2025	18.8	19.4	20.9	21.0	19.1
2026	19.0	20.0	22.3	22.4	19.4
2027	19.4	21.1	24.0	23.9	20.0
2028	19.9	22.6	26.2	25.4	20.8
2029	21.0	25.3	29.4	27.0	22.1
2030	23.0	30.1	34.6	29.6	24.6
2031	26.3	37.3	41.8	33.3	28.5
2032	30.6	45.7	50.3	39.6	33.4
2033	35.3	54.1	58.7	47.5	38.6
2034	41.5	64.4	68.9	58.0	45.4
2035	45.7	71.2	76.6	67.9	50.1
2040	52.8	86.3	95.8	99.9	58.9
2045	62.6	109.2	122.6	126.3	70.8
2050	72.4	134.0	151.5	137.6	83.4



# Technology Summary: Storage

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

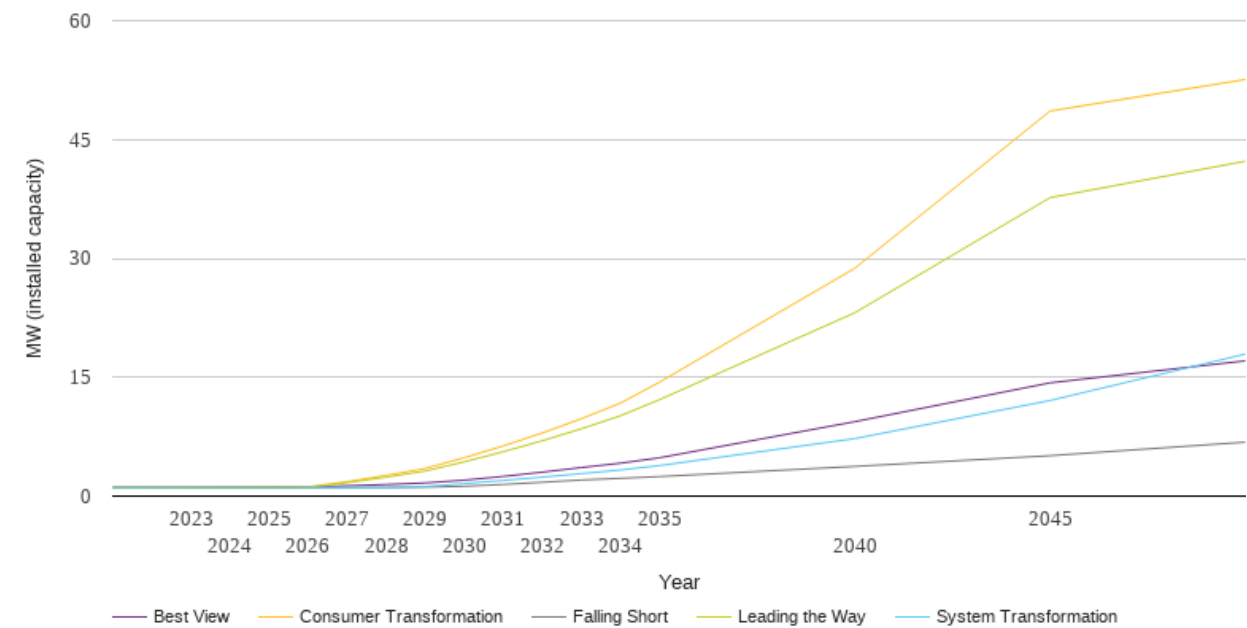
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.1	0.1	0.2	0.1
2026	0.0	0.1	0.3	0.4	0.3
2027	0.0	0.2	0.4	0.6	0.4
2028	0.0	0.3	0.7	0.9	0.7
2029	0.1	0.4	1.0	1.3	0.9
2030	0.1	0.9	1.6	2.3	1.3
2031	0.2	1.0	1.9	2.8	1.6
2032	0.2	1.2	2.3	3.3	2.0
2033	0.3	1.4	2.8	3.9	2.4
2034	0.5	1.6	3.3	4.6	2.9
2035	0.6	1.9	3.9	5.4	3.3
2040	0.8	3.5	7.4	10.2	5.6
2045	1.7	4.6	10.1	14.6	8.2
2050	2.4	5.8	13.7	19.0	11.5



# 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	1.1	1.1	1.1	1.1	1.1
2023	1.1	1.1	1.1	1.1	1.1
2024	1.1	1.1	1.1	1.1	1.1
2025	1.1	1.1	1.1	1.1	1.1
2026	1.1	1.1	1.2	1.1	1.2
2027	1.1	1.1	1.8	1.7	1.3
2028	1.1	1.1	2.6	2.4	1.5
2029	1.1	1.2	3.5	3.2	1.7
2030	1.2	1.6	4.8	4.3	2.0
2031	1.5	2.0	6.3	5.6	2.5
2032	1.7	2.4	8.0	7.0	3.0
2033	2.0	2.8	9.8	8.5	3.6
2034	2.2	3.3	11.7	10.1	4.2
2035	2.5	3.9	14.4	12.2	4.8
2040	3.7	7.3	28.7	23.1	9.4
2045	5.1	12.1	48.6	37.7	14.3
2050	6.8	17.9	52.6	42.3	17.1



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))  
National Grid Electricity Distribution (South Wales) Plc (company number 02366985))  
(collectively, “NGED”)

[nged.networkstrategy@nationalgrid.co.uk](mailto:nged.networkstrategy@nationalgrid.co.uk)

