

# Distribution Future Energy Scenarios 2022

Local Authority:  
Cherwell

## What are Distribution Future Energy Scenarios?

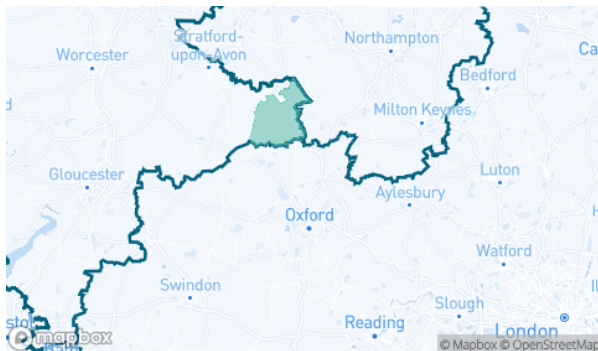
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 Cherwell 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 Cherwell 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	337	941	815	815	337	18187	9636	9635	337
Domestic	New dwellings	0	1893	2002	2002	2259	2428	2351	2351	2303
Electric vehicles	Electric vehicles	818	6766	8219	15287	15233	46434	39050	39468	33460
EV Charge Point	EV charge points	589	3217	4526	8365	9166	25633	24216	25353	25706
Heat pumps	Heat pump installations	393	3419	3402	6888	9993	16395	18358	30248	27100
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	2.0	0.0	0.3	1.7	9.1	6.3	6.9
Non domestic	Floorspace (metres squared) of new I&C developments	0	18211 3	22482 2	22482 2	23751 4	33297 6	33297 6	33297 6	33297 6
Other Distributed Generation	MW (installed capacity)	17.3	17.3	13.3	13.3	13.3	14.0	16.0	16.0	23.5
Resistive electric heating	Resistive electric heating units	6894	5836	5641	5917	5718	3805	1782	3960	4126
Solar Generation	MW (installed capacity)	17.5	20.6	24.5	30.1	28.9	36.3	60.0	81.7	81.8
Storage	MW (installed capacity)	0.0	0.3	0.9	1.6	2.3	2.3	6.1	13.7	16.6
Wind	MW (installed capacity)	0.0	0.0	0.0	0.3	0.2	0.2	0.8	3.0	2.3

## 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

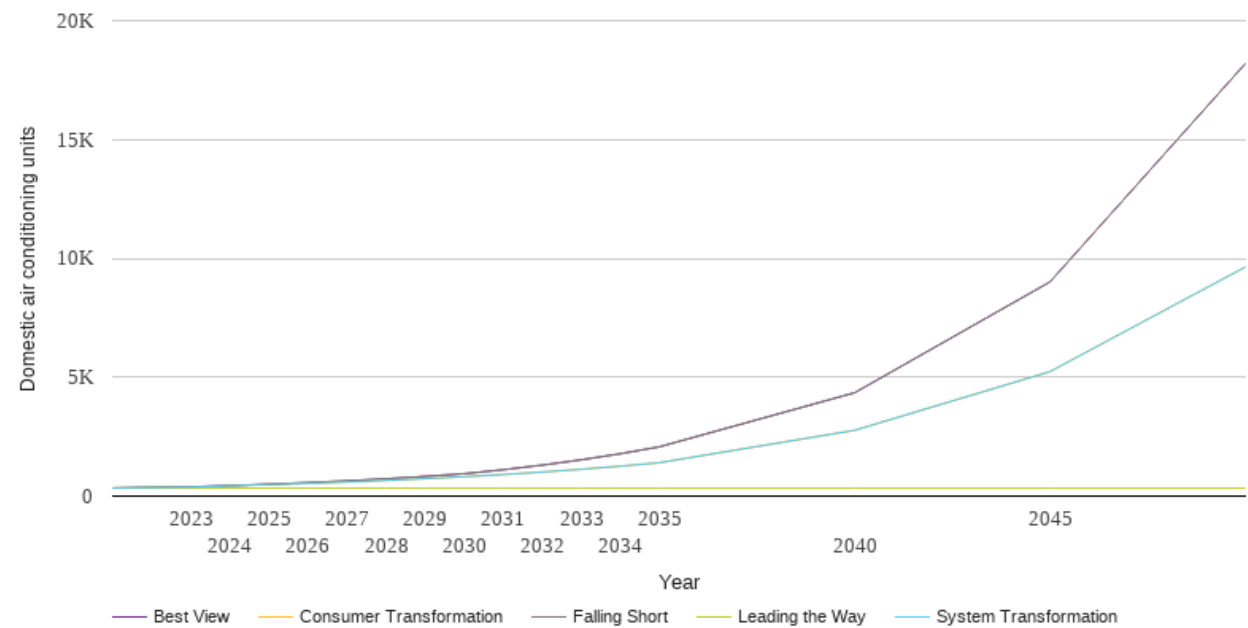
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

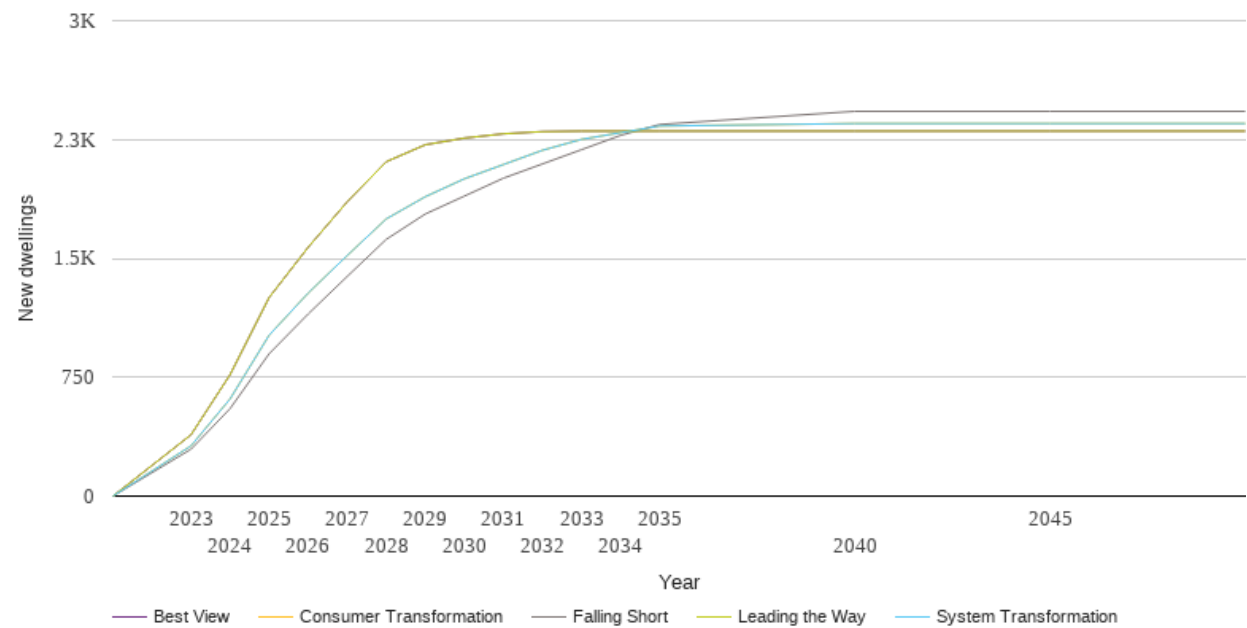
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	337	337	337	337	337
2023	389	382	382	337	389
2024	439	429	429	337	439
2025	498	484	484	337	498
2026	565	535	535	337	565
2027	641	593	593	337	641
2028	727	659	659	337	727
2029	828	733	733	337	828
2030	941	815	815	337	941
2031	1110	908	908	337	1110
2032	1304	1012	1012	337	1304
2033	1527	1128	1128	337	1527
2034	1783	1260	1260	337	1783
2035	2075	1406	1406	337	2075
2040	4349	2769	2769	337	4349
2045	9011	5236	5236	337	9011
2050	18187	9636	9635	337	18187



# Technology Summary: Domestic

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

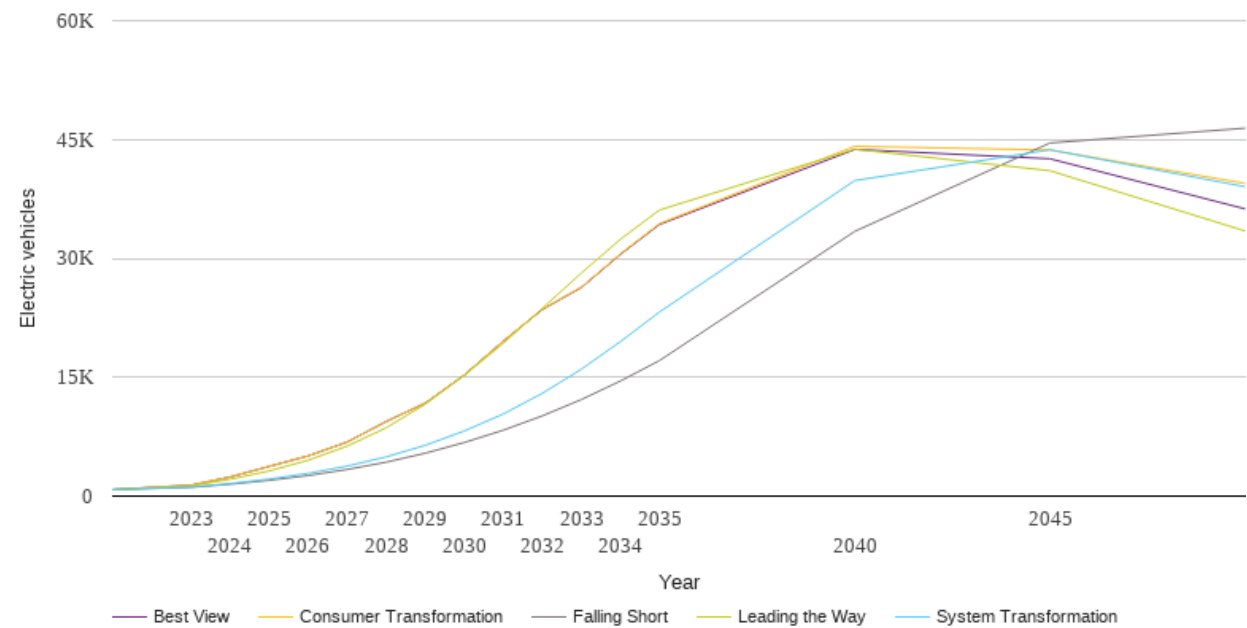
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	296	317	317	387	387
2024	552	613	613	766	766
2025	898	1015	1015	1253	1253
2026	1149	1281	1281	1570	1570
2027	1386	1518	1518	1857	1857
2028	1620	1749	1749	2110	2110
2029	1780	1889	1889	2217	2217
2030	1893	2002	2002	2259	2259
2031	2006	2092	2092	2286	2286
2032	2096	2182	2182	2300	2300
2033	2186	2251	2251	2303	2303
2034	2276	2293	2293	2303	2303
2035	2345	2335	2335	2303	2303
2040	2428	2351	2351	2303	2303
2045	2428	2351	2351	2303	2303
2050	2428	2351	2351	2303	2303



# Technology Summary: Electric vehicles

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

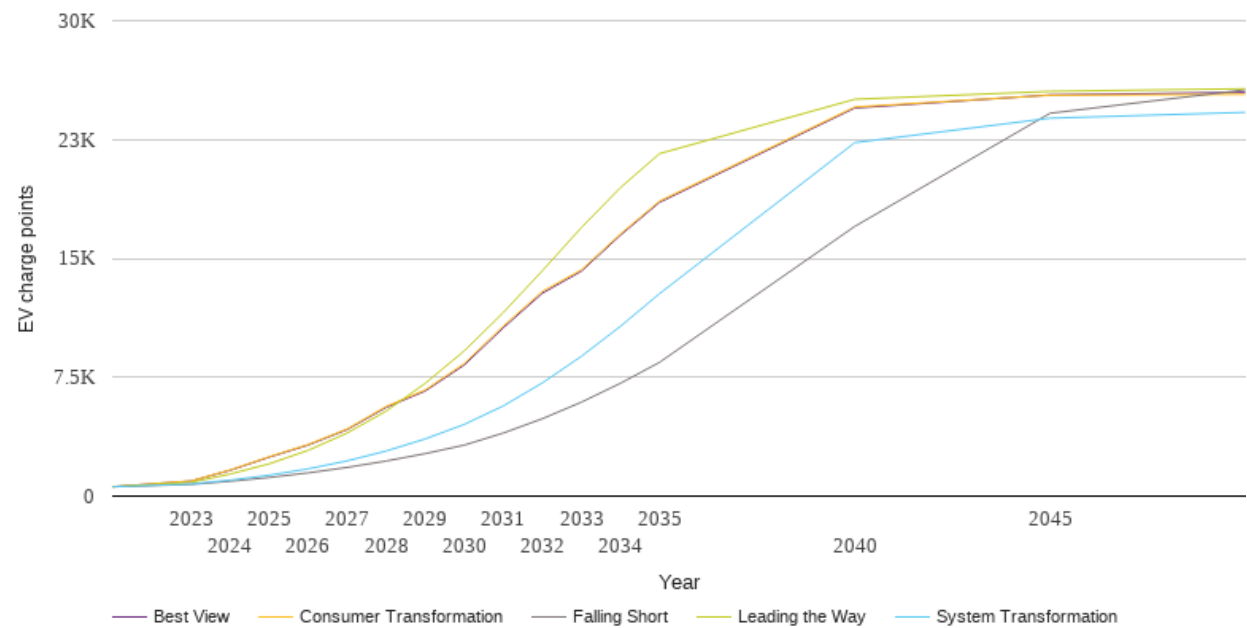
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	818	818	818	818	818
2023	1113	1142	1374	1288	1374
2024	1499	1582	2411	2126	2411
2025	1990	2150	3745	3171	3745
2026	2599	2863	5069	4528	5070
2027	3360	3786	6825	6313	6827
2028	4286	4950	9415	8620	9417
2029	5414	6413	11728	11606	11731
2030	6766	8219	15287	15233	15291
2031	8322	10366	19572	19295	19577
2032	10130	12975	23591	23701	23550
2033	12192	16024	26387	28167	26335
2034	14527	19498	30590	32420	30515
2035	17109	23239	34393	36112	34289
2040	33408	39817	44152	43783	43754
2045	44567	43711	43682	41062	42572
2050	46434	39050	39468	33460	36246



# 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	589	589	589	589	589
2023	740	763	953	862	945
2024	933	1006	1643	1391	1627
2025	1175	1318	2481	2036	2456
2026	1465	1719	3255	2887	3224
2027	1810	2223	4238	3982	4200
2028	2214	2846	5658	5367	5600
2029	2681	3610	6701	7119	6639
2030	3217	4526	8365	9166	8277
2031	3982	5695	10734	11582	10626
2032	4885	7143	12918	14224	12807
2033	5930	8824	14278	16951	14200
2034	7122	10714	16543	19470	16469
2035	8440	12774	18615	21612	18543
2040	17018	22303	24553	25039	24492
2045	24158	23846	25296	25539	25312
2050	25633	24216	25353	25706	25475

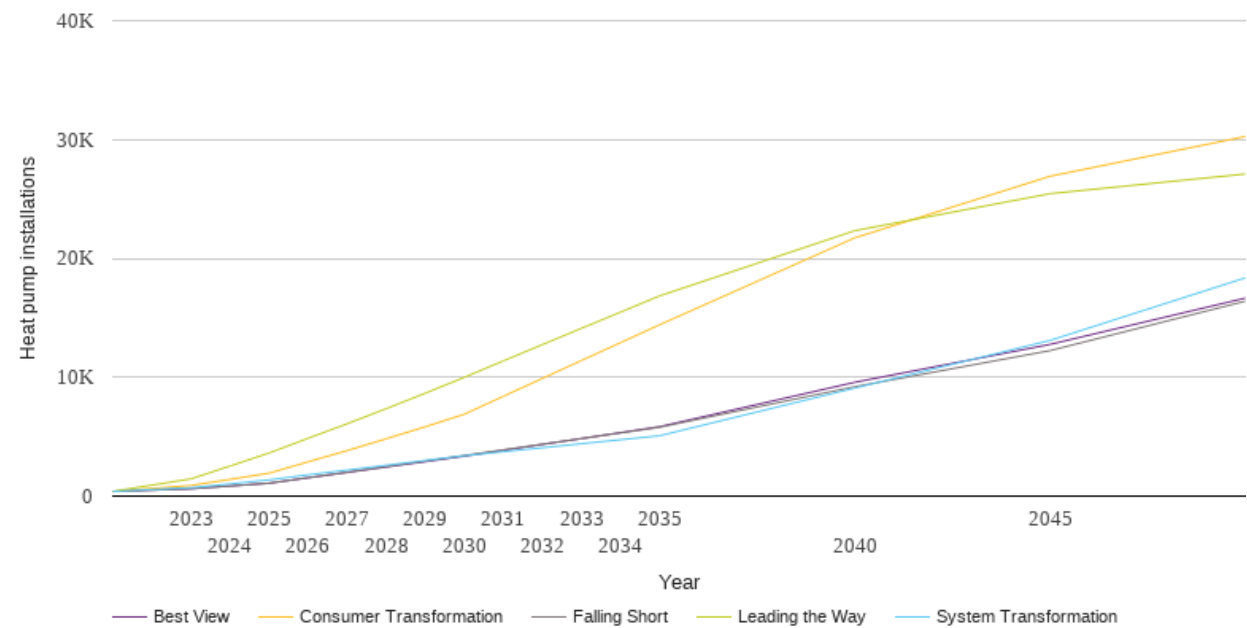




# Technology Summary: Heat pumps

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

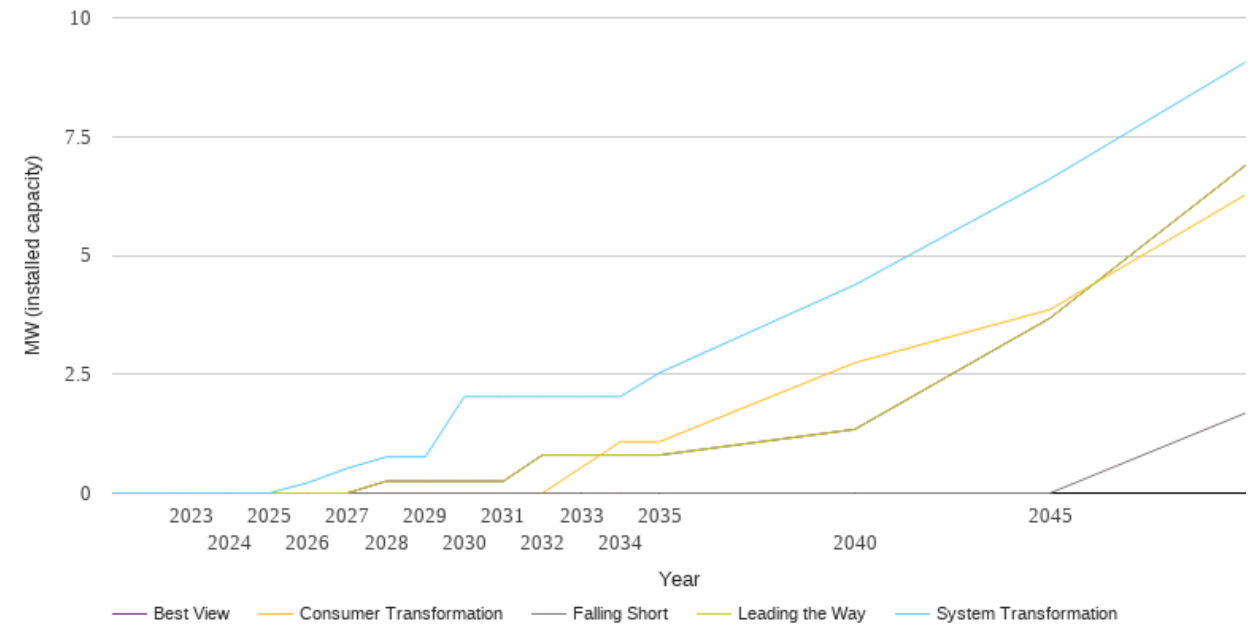
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	393	393	393	393	393
2023	622	705	892	1450	622
2024	850	1026	1405	2527	850
2025	1083	1362	1930	3628	1083
2026	1552	1789	2885	4865	1540
2027	2017	2188	3831	6088	1992
2028	2485	2592	4823	7355	2447
2029	2948	2996	5835	8654	2898
2030	3419	3402	6888	9993	3356
2031	3892	3735	8396	11374	3851
2032	4366	4068	9900	12745	4347
2033	4839	4405	11405	14115	4842
2034	5314	4742	12905	15476	5340
2035	5789	5077	14410	16840	5839
2040	9202	9086	21727	22330	9575
2045	12238	13092	26909	25444	12761
2050	16395	18358	30248	27100	16655



# Technology Summary: Hydrogen electrolysis

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

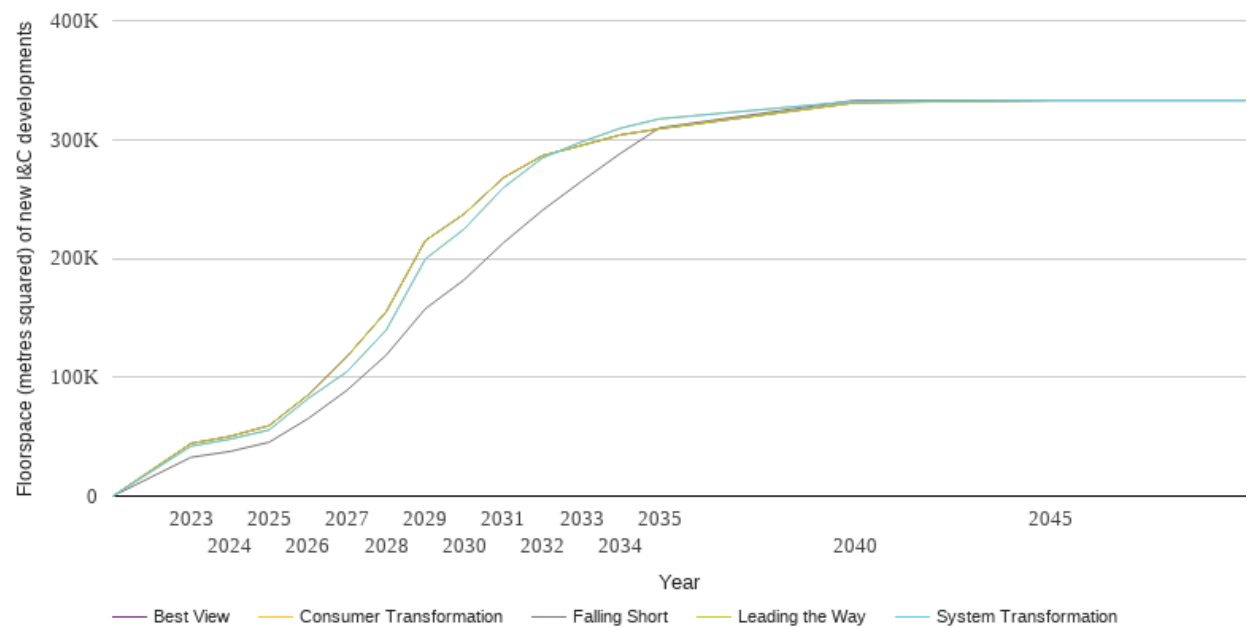
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.2	0.0	0.0	0.0
2027	0.0	0.5	0.0	0.0	0.0
2028	0.0	0.8	0.0	0.3	0.3
2029	0.0	0.8	0.0	0.3	0.3
2030	0.0	2.0	0.0	0.3	0.3
2031	0.0	2.0	0.0	0.3	0.3
2032	0.0	2.0	0.0	0.8	0.8
2033	0.0	2.0	0.5	0.8	0.8
2034	0.0	2.0	1.1	0.8	0.8
2035	0.0	2.5	1.1	0.8	0.8
2040	0.0	4.4	2.7	1.3	1.3
2045	0.0	6.6	3.9	3.7	3.7
2050	1.7	9.1	6.3	6.9	6.9



# Technology Summary: Non domestic

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

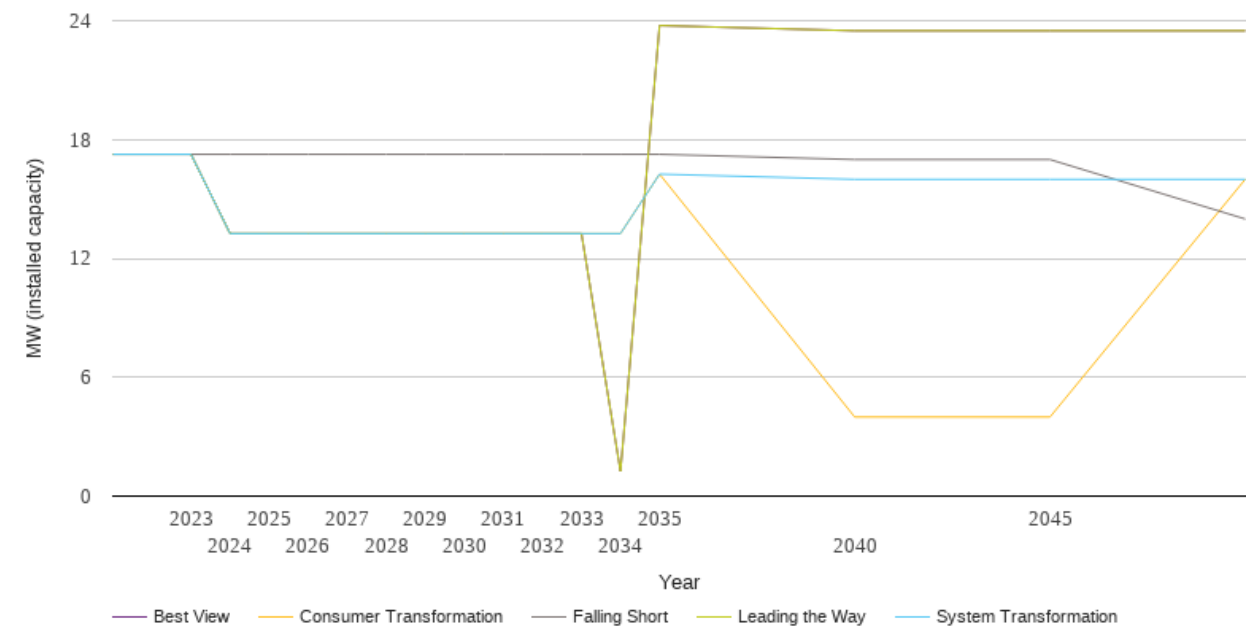
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	32656	41987	41987	44319	44319
2024	37556	47920	47920	50236	50236
2025	45327	55658	55658	59304	59304
2026	65179	82073	82073	85106	85106
2027	89206	104826	104826	117605	117605
2028	118660	139730	139730	155203	155203
2029	157581	199454	199454	214969	214969
2030	182113	224822	224822	237514	237514
2031	213069	259469	259469	267851	267851
2032	240423	284552	284552	286409	286409
2033	264858	297980	297980	295040	295040
2034	288396	309526	309526	303921	303921
2035	309888	317372	317372	309038	309038
2040	332976	332223	332223	330973	330973
2045	332976	332976	332976	332976	332976
2050	332976	332976	332976	332976	332976



# Technology Summary: Other Distributed Generation

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

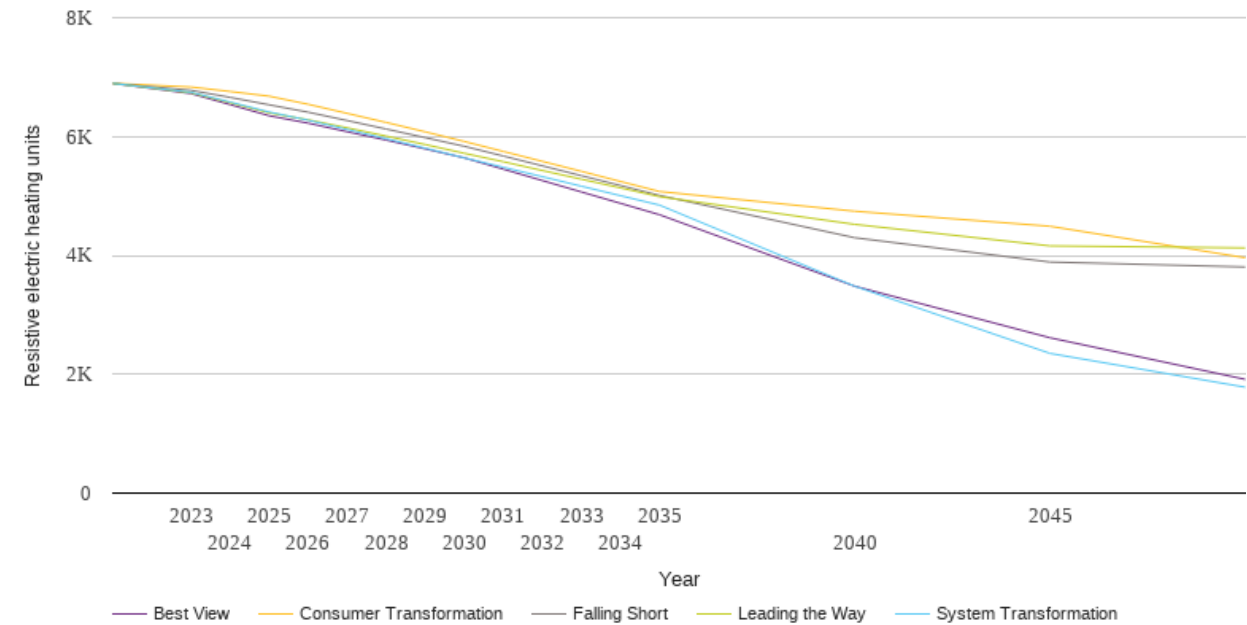
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	17.3	17.3	17.3	17.3	17.3
2023	17.3	17.3	17.3	17.3	17.3
2024	17.3	13.3	13.3	13.3	13.3
2025	17.3	13.3	13.3	13.3	13.3
2026	17.3	13.3	13.3	13.3	13.3
2027	17.3	13.3	13.3	13.3	13.3
2028	17.3	13.3	13.3	13.3	13.3
2029	17.3	13.3	13.3	13.3	13.3
2030	17.3	13.3	13.3	13.3	13.3
2031	17.3	13.3	13.3	13.3	13.3
2032	17.3	13.3	13.3	13.3	13.3
2033	17.3	13.3	13.3	13.3	13.3
2034	17.3	13.3	13.3	1.3	1.3
2035	17.3	16.3	16.3	23.8	23.8
2040	17.0	16.0	4.0	23.5	23.5
2045	17.0	16.0	4.0	23.5	23.5
2050	14.0	16.0	16.0	23.5	23.5



# Technology Summary: Resistive electric heating

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

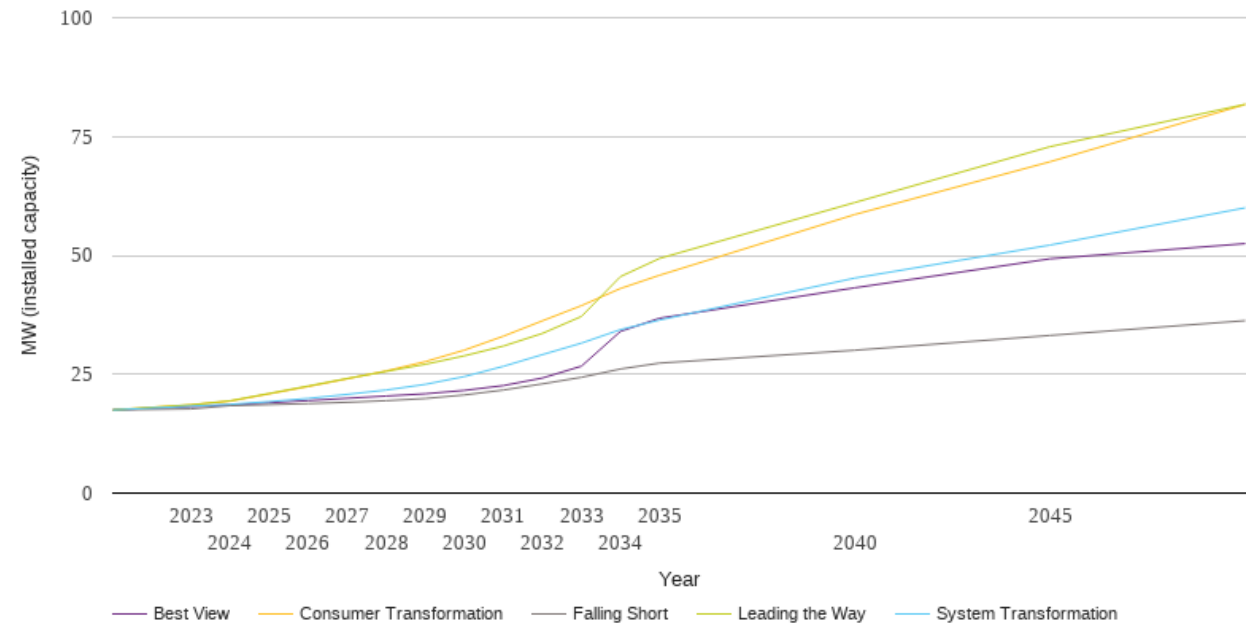
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6894	6894	6894	6894	6894
2023	6778	6744	6833	6736	6723
2024	6659	6581	6758	6570	6538
2025	6534	6413	6679	6398	6350
2026	6410	6275	6543	6281	6225
2027	6269	6119	6390	6146	6081
2028	6126	5964	6237	6007	5940
2029	5981	5804	6079	5865	5792
2030	5836	5641	5917	5718	5641
2031	5672	5483	5749	5576	5451
2032	5507	5324	5582	5428	5259
2033	5341	5164	5414	5282	5067
2034	5176	5005	5244	5136	4876
2035	5009	4846	5075	4988	4684
2040	4297	3481	4743	4522	3481
2045	3888	2351	4490	4160	2614
2050	3805	1782	3960	4126	1914



# Technology Summary: Solar Generation

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

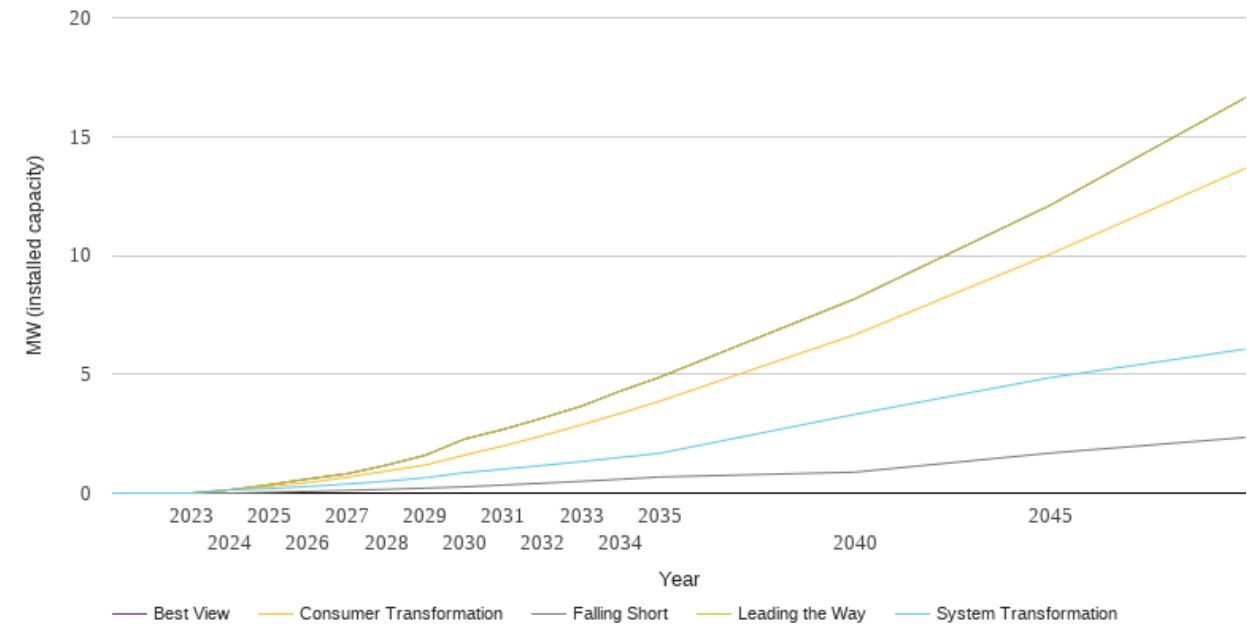
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	17.5	17.5	17.5	17.5	17.5
2023	17.7	18.3	18.5	18.6	18.2
2024	18.4	18.7	19.3	19.4	18.5
2025	18.6	19.2	20.9	21.0	19.0
2026	18.8	19.9	22.4	22.5	19.5
2027	19.1	20.8	24.0	24.1	19.9
2028	19.4	21.7	25.7	25.6	20.4
2029	19.9	22.9	27.7	27.1	20.9
2030	20.6	24.5	30.1	28.9	21.6
2031	21.7	26.7	33.0	30.9	22.6
2032	23.0	29.1	36.2	33.6	24.2
2033	24.4	31.5	39.4	37.2	26.7
2034	26.1	34.4	43.0	45.5	34.0
2035	27.3	36.4	45.8	49.4	36.8
2040	30.0	45.2	58.6	61.1	43.2
2045	33.2	52.2	69.7	72.9	49.3
2050	36.3	60.0	81.7	81.8	52.5



# Technology Summary: Storage

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

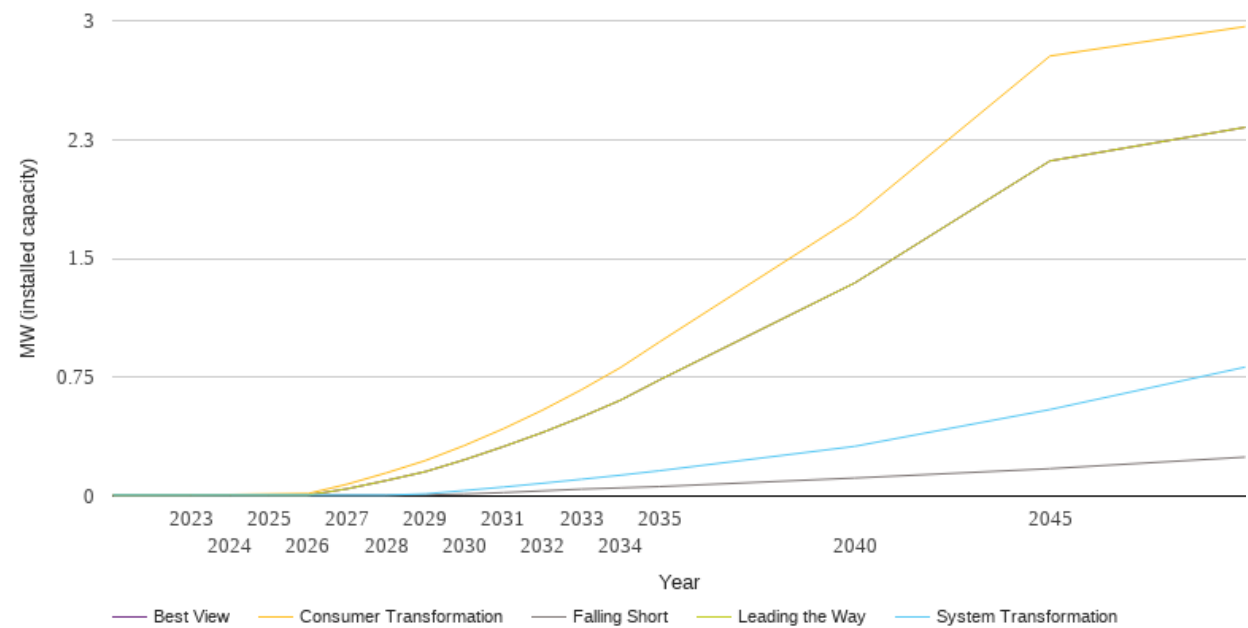
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.1	0.1	0.1	0.1
2025	0.0	0.2	0.3	0.4	0.4
2026	0.1	0.3	0.4	0.6	0.6
2027	0.1	0.4	0.7	0.8	0.8
2028	0.2	0.5	0.9	1.2	1.2
2029	0.2	0.6	1.2	1.6	1.6
2030	0.3	0.9	1.6	2.3	2.3
2031	0.3	1.0	2.0	2.7	2.7
2032	0.4	1.2	2.4	3.2	3.2
2033	0.5	1.3	2.9	3.7	3.7
2034	0.6	1.5	3.4	4.3	4.3
2035	0.7	1.7	3.9	4.9	4.9
2040	0.9	3.3	6.7	8.2	8.2
2045	1.7	4.9	10.0	12.1	12.1
2050	2.3	6.1	13.7	16.6	16.6



# 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	0.1
2029	0.0	0.0	0.2	0.2	0.2
2030	0.0	0.0	0.3	0.2	0.2
2031	0.0	0.1	0.4	0.3	0.3
2032	0.0	0.1	0.5	0.4	0.4
2033	0.0	0.1	0.7	0.5	0.5
2034	0.1	0.1	0.8	0.6	0.6
2035	0.1	0.2	1.0	0.7	0.7
2040	0.1	0.3	1.8	1.3	1.3
2045	0.2	0.5	2.8	2.1	2.1
2050	0.2	0.8	3.0	2.3	2.3





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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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