

# Distribution Future Energy Scenarios 2022

Local Authority:  
Oadby and Wigston

## 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 Oadby and Wigston 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 Oadby and Wigston 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	273	643	587	587	273	16300	8036	8036	273
Domestic	New dwellings	0	891	929	929	1036	1127	1080	1080	1048
Electric vehicles	Electric vehicles	856	5479	6695	12291	12246	37687	34176	34415	27202
EV Charge Point	EV charge points	453	2692	3904	7349	8093	22583	21839	23295	23167
Heat pumps	Heat pump installations	78	1103	974	3447	5917	12307	14066	23773	20731
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	68809	77231	77231	81491	82751	82751	82751	82751
Other Distributed Generation	MW (installed capacity)	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Resistive electric heating	Resistive electric heating units	1517	1302	1259	1345	1291	914	399	891	944
Solar Generation	MW (installed capacity)	6.5	7.8	10.4	15.3	15.5	13.3	26.3	47.0	49.8
Storage	MW (installed capacity)	0.0	0.1	0.4	1.1	1.3	1.5	3.8	10.5	13.7
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

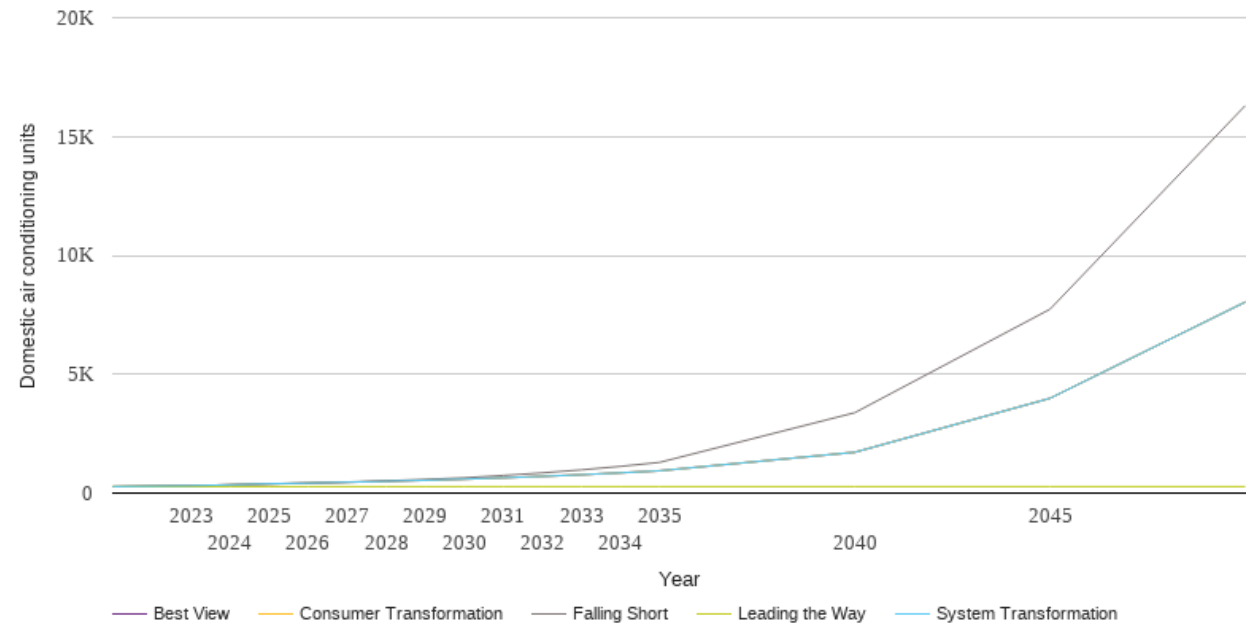
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

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

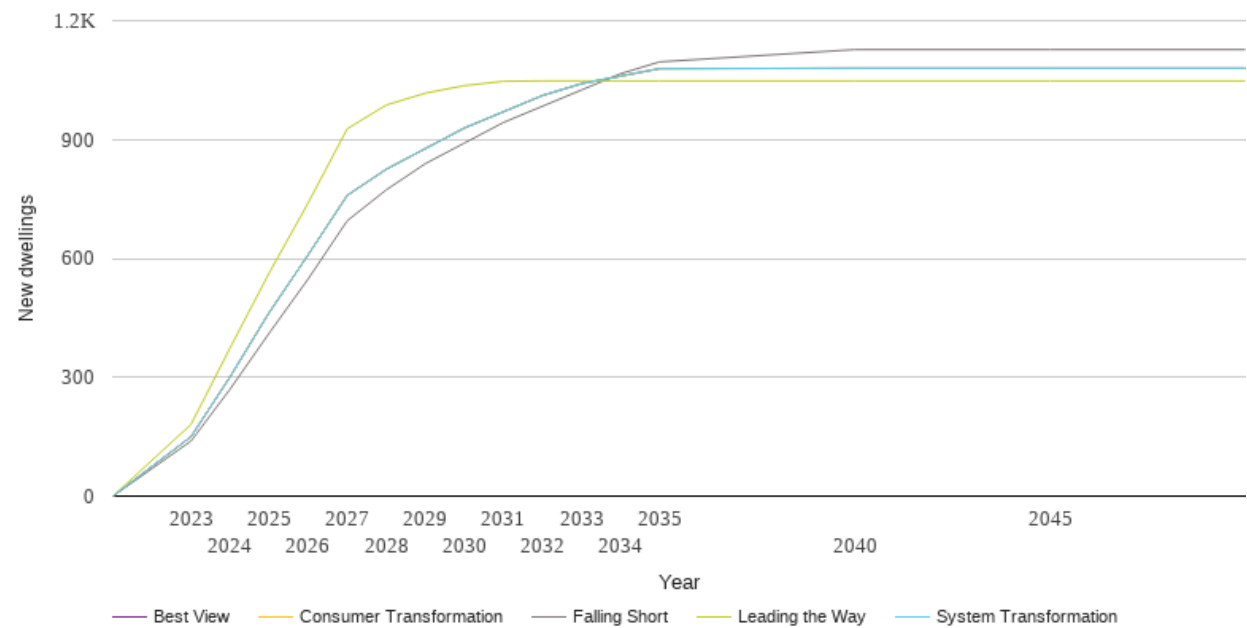
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	273	273	273	273	273
2023	315	310	310	273	310
2024	345	348	348	273	348
2025	380	392	392	273	392
2026	420	422	422	273	422
2027	465	456	456	273	456
2028	516	495	495	273	495
2029	576	539	539	273	539
2030	643	587	587	273	587
2031	740	642	642	273	642
2032	851	704	704	273	704
2033	978	773	773	273	773
2034	1124	852	852	273	852
2035	1291	939	939	273	939
2040	3382	1718	1718	273	1718
2045	7735	3987	3987	273	3987
2050	16300	8036	8036	273	8036



# Technology Summary: Domestic

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

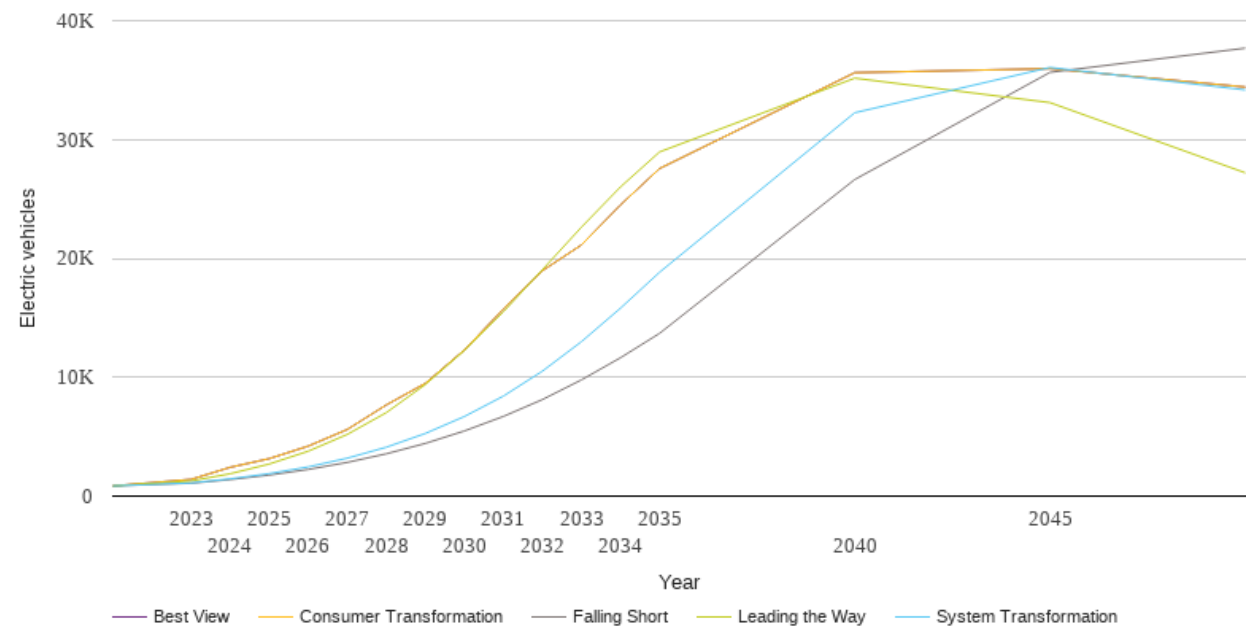
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	139	150	150	181	150
2024	270	301	301	374	301
2025	411	463	463	563	463
2026	548	609	609	740	609
2027	695	759	759	927	759
2028	773	825	825	987	825
2029	839	877	877	1017	877
2030	891	929	929	1036	929
2031	943	970	970	1047	970
2032	984	1011	1011	1048	1011
2033	1025	1041	1041	1048	1041
2034	1066	1060	1060	1048	1060
2035	1096	1079	1079	1048	1079
2040	1127	1080	1080	1048	1080
2045	1127	1080	1080	1048	1080
2050	1127	1080	1080	1048	1080



# Technology Summary: Electric vehicles

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

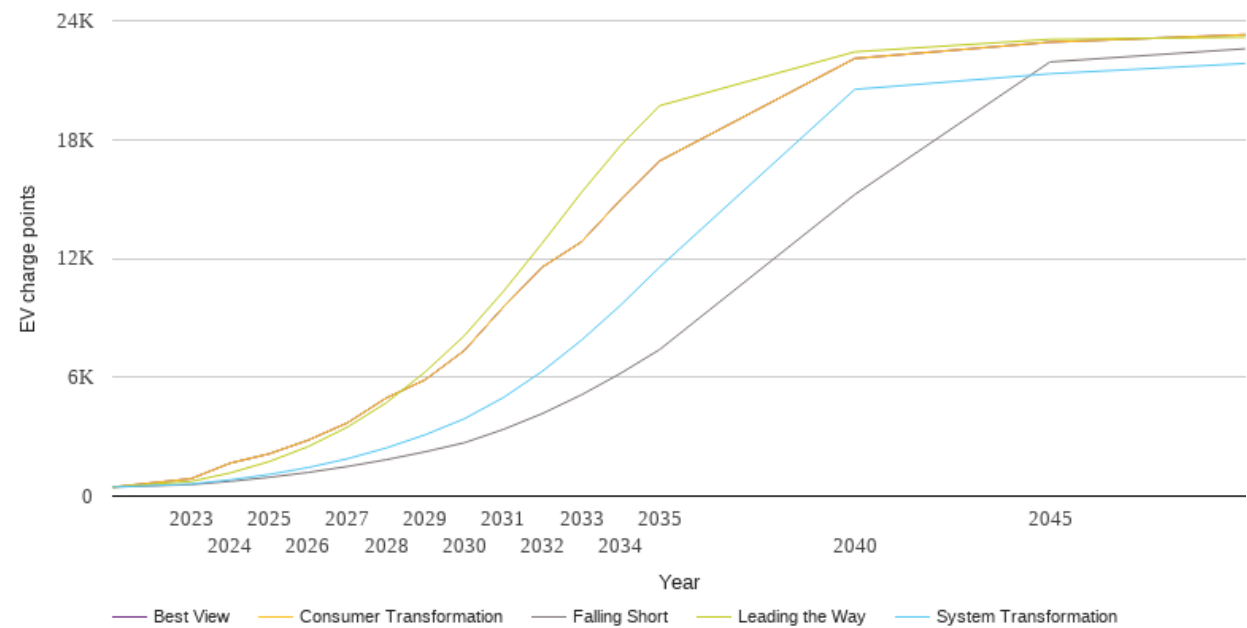
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	856	856	856	856	856
2023	1086	1107	1403	1272	1403
2024	1388	1450	2417	1878	2417
2025	1768	1890	3148	2695	3148
2026	2242	2456	4202	3774	4202
2027	2834	3189	5604	5188	5604
2028	3556	4111	7667	7018	7667
2029	4430	5269	9484	9382	9484
2030	5479	6695	12291	12246	12291
2031	6702	8412	15742	15508	15742
2032	8122	10513	18965	19047	18965
2033	9779	12995	21132	22628	21132
2034	11640	15809	24500	26013	24500
2035	13690	18832	27557	28956	27557
2040	26636	32255	35626	35165	35626
2045	35652	36066	35964	33108	35964
2050	37687	34176	34415	27202	34415



# 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	453	453	453	453	453
2023	580	609	878	743	878
2024	742	819	1661	1167	1661
2025	947	1092	2134	1741	2134
2026	1195	1440	2822	2499	2822
2027	1492	1882	3694	3477	3694
2028	1837	2429	4954	4709	4954
2029	2238	3098	5874	6270	5874
2030	2692	3904	7349	8093	7349
2031	3366	4973	9542	10330	9542
2032	4167	6304	11564	12779	11564
2033	5112	7868	12834	15332	12834
2034	6193	9632	14959	17690	14959
2035	7393	11554	16917	19706	16917
2040	15225	20531	22092	22427	22092
2045	21916	21319	22916	23060	22916
2050	22583	21839	23295	23167	23295

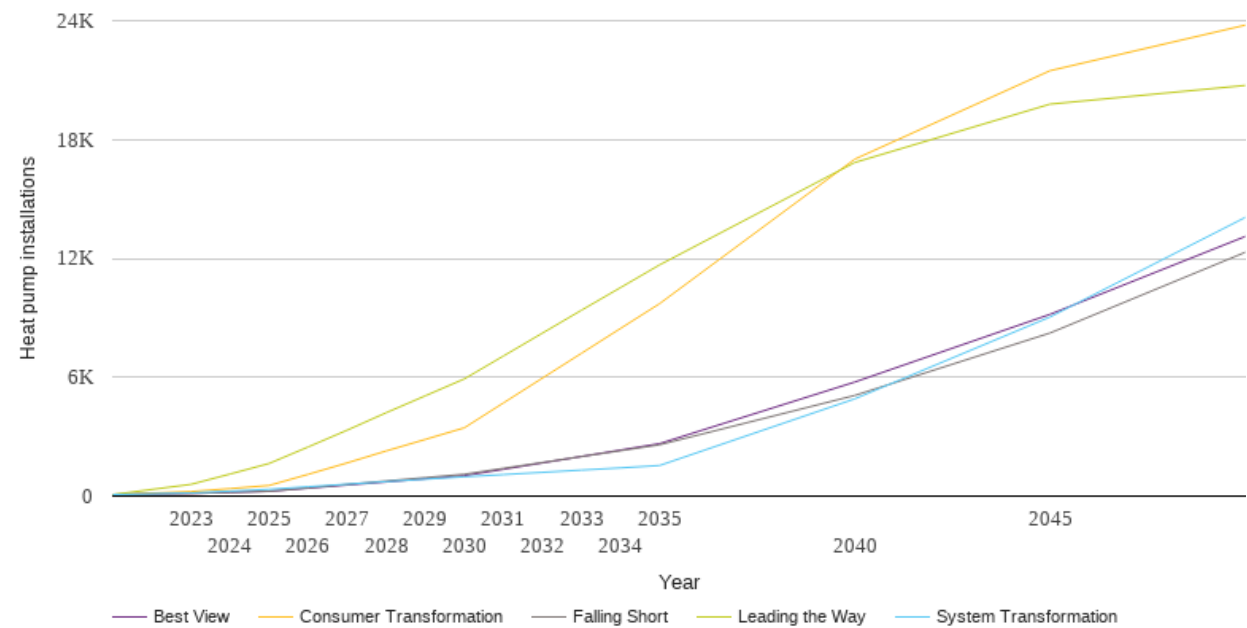




# Technology Summary: Heat pumps

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	78	78	78	78	78
2023	134	159	229	592	134
2024	189	251	377	1113	189
2025	243	342	538	1646	243
2026	415	473	1098	2480	400
2027	591	601	1676	3329	560
2028	762	732	2279	4210	716
2029	933	853	2860	5062	873
2030	1103	974	3447	5917	1030
2031	1400	1085	4701	7071	1353
2032	1695	1198	5955	8227	1675
2033	1997	1313	7209	9383	2000
2034	2292	1423	8463	10525	2323
2035	2589	1544	9713	11671	2648
2040	5081	4908	17009	16841	5757
2045	8232	9039	21473	19787	9174
2050	12307	14066	23773	20731	13105



# Technology Summary: Hydrogen electrolysis

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

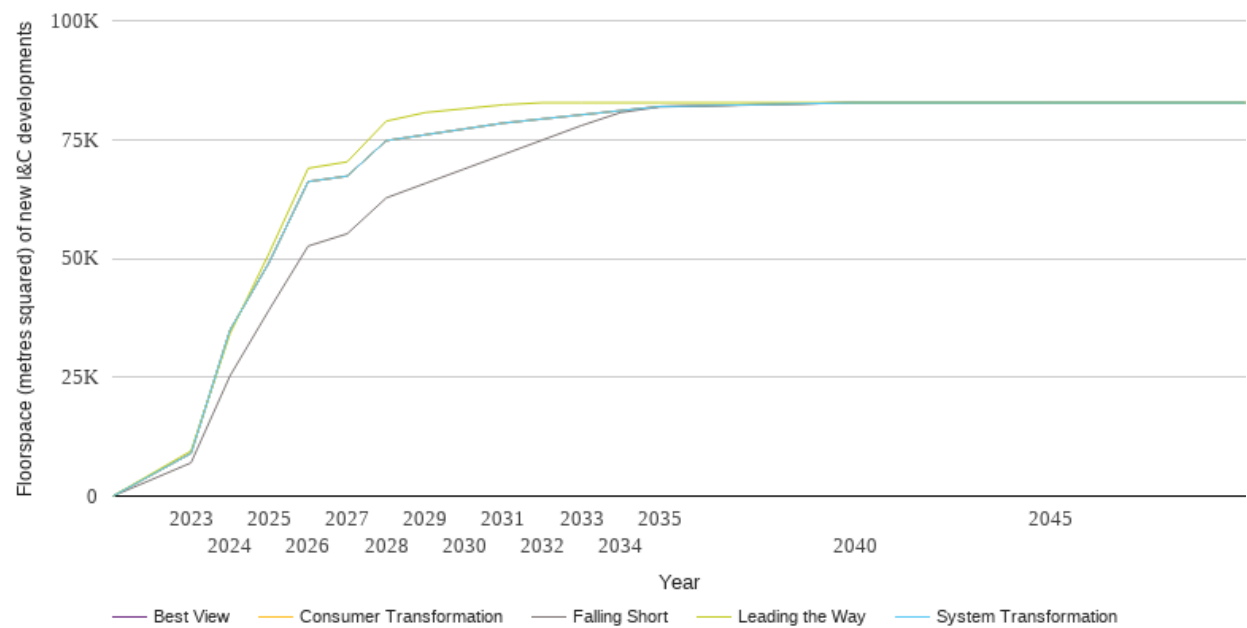
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0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

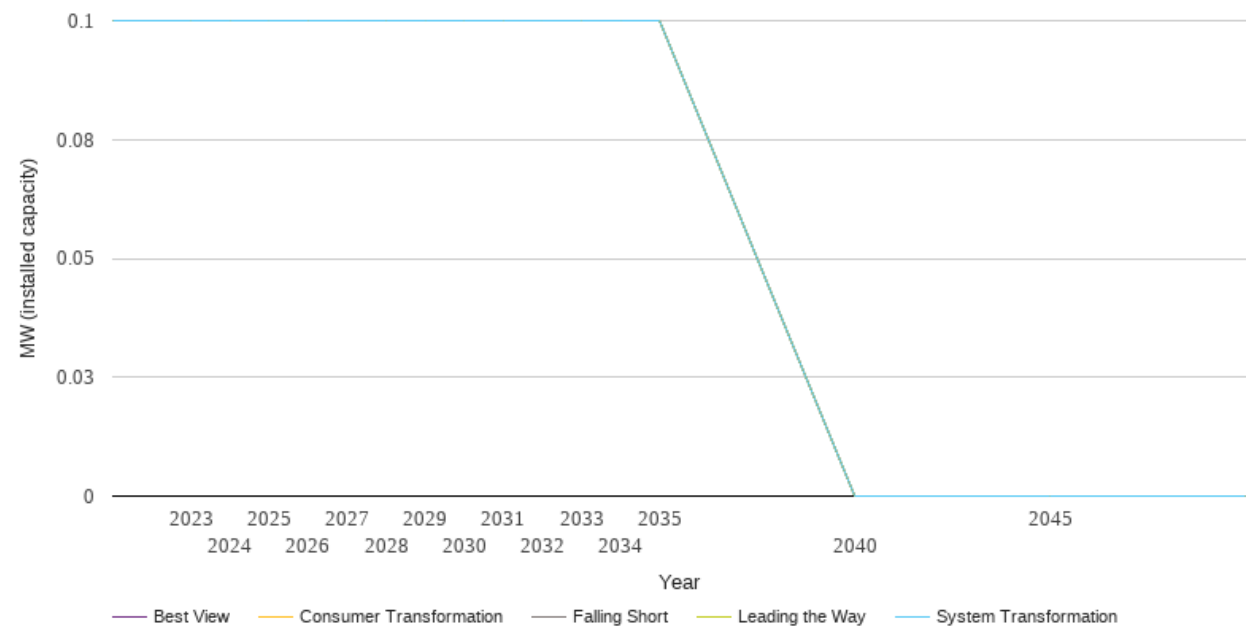
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	7000	9000	9000	9500	9000
2024	25313	34933	34933	34197	34933
2025	39185	49133	49133	51090	49133
2026	52589	66149	66149	68949	66149
2027	55181	67310	67310	70310	67310
2028	62724	74770	74770	78870	74770
2029	65767	76000	76000	80680	76000
2030	68809	77231	77231	81491	77231
2031	71852	78461	78461	82301	78461
2032	74895	79331	79331	82751	79331
2033	77938	80201	80201	82751	80201
2034	80680	81071	81071	82751	81071
2035	81851	81941	81941	82751	81941
2040	82751	82751	82751	82751	82751
2045	82751	82751	82751	82751	82751
2050	82751	82751	82751	82751	82751



# Technology Summary: Other Distributed Generation

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

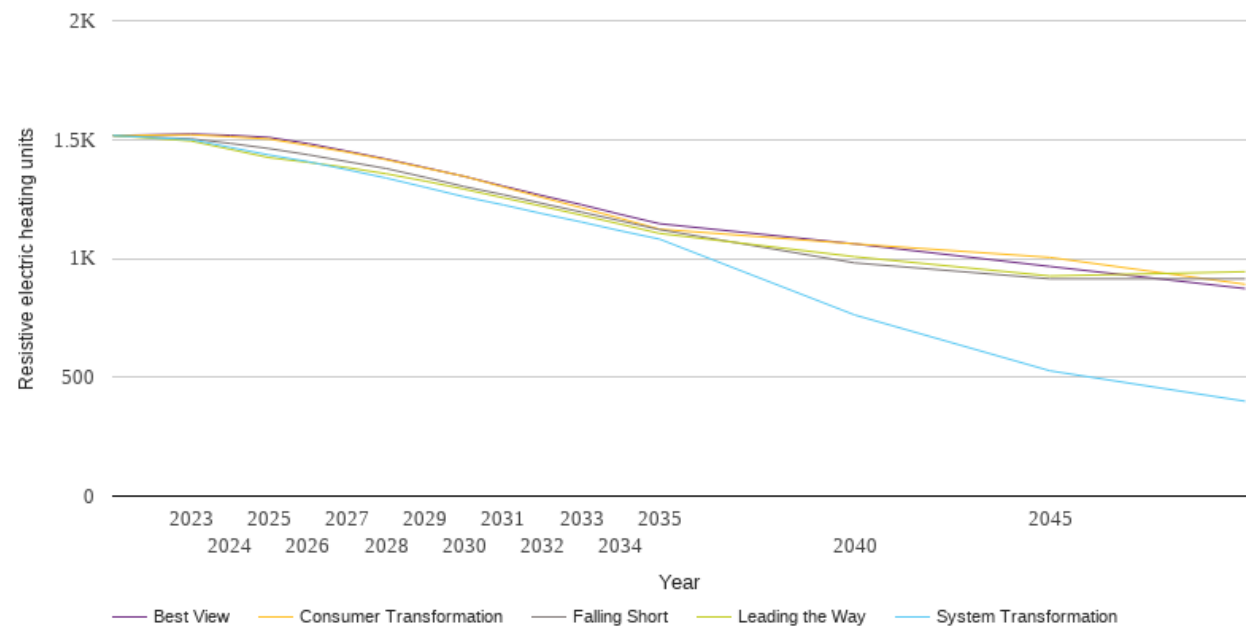
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.1	0.1	0.1	0.1	0.1
2023	0.1	0.1	0.1	0.1	0.1
2024	0.1	0.1	0.1	0.1	0.1
2025	0.1	0.1	0.1	0.1	0.1
2026	0.1	0.1	0.1	0.1	0.1
2027	0.1	0.1	0.1	0.1	0.1
2028	0.1	0.1	0.1	0.1	0.1
2029	0.1	0.1	0.1	0.1	0.1
2030	0.1	0.1	0.1	0.1	0.1
2031	0.1	0.1	0.1	0.1	0.1
2032	0.1	0.1	0.1	0.1	0.1
2033	0.1	0.1	0.1	0.1	0.1
2034	0.1	0.1	0.1	0.1	0.1
2035	0.1	0.1	0.1	0.1	0.1
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: Resistive electric heating

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

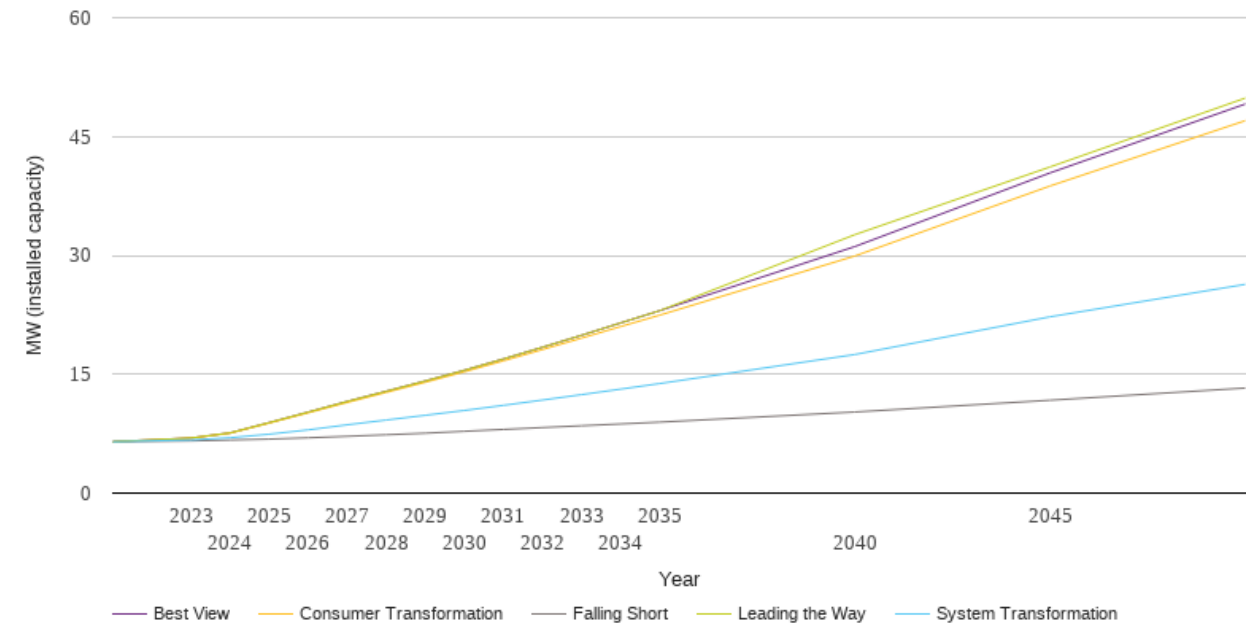
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1517	1517	1517	1517	1517
2023	1503	1500	1520	1494	1523
2024	1484	1467	1512	1459	1518
2025	1462	1435	1502	1424	1509
2026	1436	1407	1475	1404	1483
2027	1407	1373	1447	1382	1451
2028	1378	1338	1415	1356	1418
2029	1341	1299	1380	1325	1382
2030	1302	1259	1345	1291	1345
2031	1268	1225	1300	1255	1304
2032	1231	1188	1256	1219	1264
2033	1195	1153	1213	1182	1226
2034	1158	1116	1168	1144	1185
2035	1121	1081	1123	1105	1146
2040	981	762	1061	1007	1061
2045	914	527	1004	926	966
2050	914	399	891	944	873



# Technology Summary: Solar Generation

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

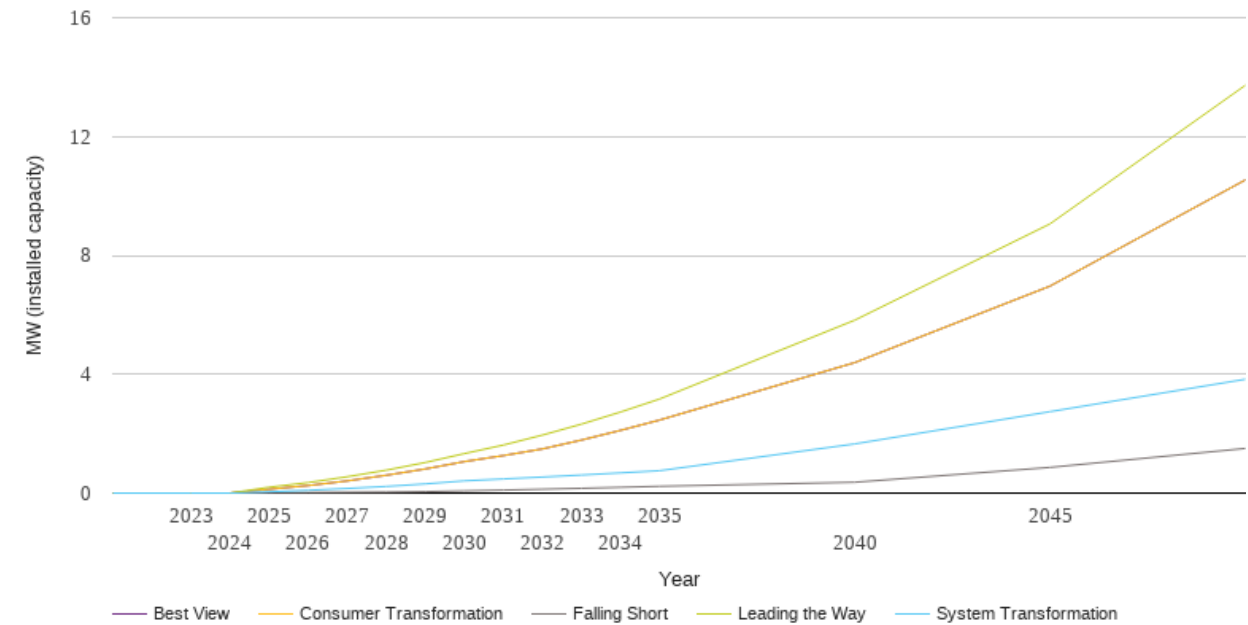
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6.5	6.5	6.5	6.5	6.5
2023	6.6	6.7	6.9	6.9	6.9
2024	6.7	7.0	7.6	7.6	7.6
2025	6.8	7.4	8.8	8.9	8.9
2026	7.0	8.0	10.1	10.2	10.2
2027	7.2	8.6	11.4	11.6	11.6
2028	7.4	9.2	12.7	12.9	12.9
2029	7.6	9.8	14.0	14.1	14.1
2030	7.8	10.4	15.3	15.5	15.5
2031	8.0	11.1	16.7	16.9	16.9
2032	8.3	11.7	18.1	18.4	18.4
2033	8.5	12.4	19.6	19.9	19.9
2034	8.7	13.1	21.0	21.5	21.5
2035	9.0	13.8	22.5	23.0	23.0
2040	10.2	17.5	29.9	32.6	31.1
2045	11.7	22.2	38.8	41.2	40.4
2050	13.3	26.3	47.0	49.8	49.1



# Technology Summary: Storage

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

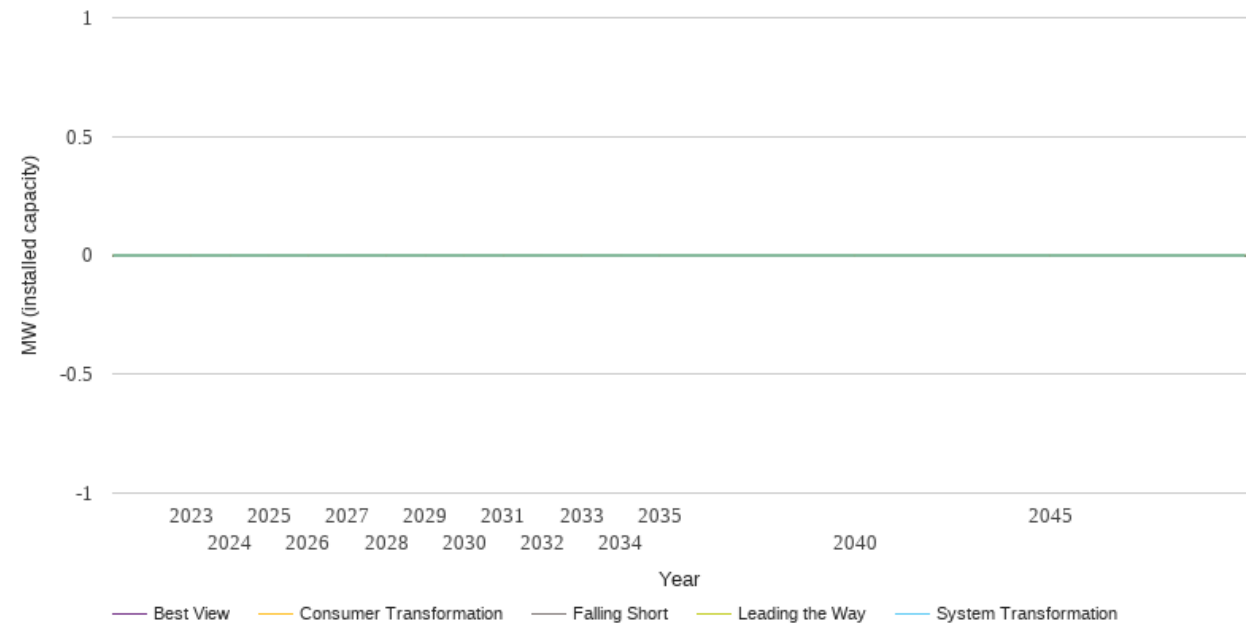
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.1	0.2	0.1
2026	0.0	0.1	0.3	0.4	0.3
2027	0.0	0.2	0.4	0.6	0.4
2028	0.0	0.2	0.6	0.8	0.6
2029	0.0	0.3	0.8	1.0	0.8
2030	0.1	0.4	1.1	1.3	1.1
2031	0.1	0.5	1.3	1.6	1.3
2032	0.1	0.5	1.5	2.0	1.5
2033	0.2	0.6	1.8	2.3	1.8
2034	0.2	0.7	2.1	2.7	2.1
2035	0.2	0.8	2.5	3.2	2.5
2040	0.4	1.7	4.4	5.8	4.4
2045	0.9	2.7	7.0	9.1	7.0
2050	1.5	3.8	10.5	13.7	10.5



# 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))  
National Grid Electricity Distribution (South West) Plc (company number 02366894))  
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