

# Distribution Future Energy Scenarios 2022

Local Authority:  
North West Leicestershire

## 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 North West Leicestershire 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 North West Leicestershire 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	149	89	89	0	19000	8413	8413	0
Domestic	New dwellings	0	3434	3764	3764	4451	6916	6837	6837	6785
Electric vehicles	Electric vehicles	1615	10247	12646	23312	23241	70432	60269	60173	51450
EV Charge Point	EV charge points	783	4587	6706	12579	13899	39037	37811	40067	39863
Heat pumps	Heat pump installations	1010	4130	4601	9491	14298	25246	29875	52268	47780
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	2.1	0.0	2.1	12.0	4.1	1.6	7.4
Non domestic	Floorspace (metres squared) of new I&C developments	0	751439	802308	802308	909476	953650	951064	951064	953650
Other Distributed Generation	MW (installed capacity)	11.0	11.0	9.0	11.0	8.6	2.9	0.0	2.0	0.0
Resistive electric heating	Resistive electric heating units	4699	4108	3914	4167	4014	3568	1644	3160	3387
Solar Generation	MW (installed capacity)	27.6	33.0	40.2	50.6	48.5	60.5	109.4	153.3	152.5
Storage	MW (installed capacity)	0.0	0.1	1.0	2.3	3.3	3.1	8.1	21.3	28.1
Wind	MW (installed capacity)	4.4	4.5	4.7	8.3	7.1	6.9	14.7	40.5	34.3

## 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.

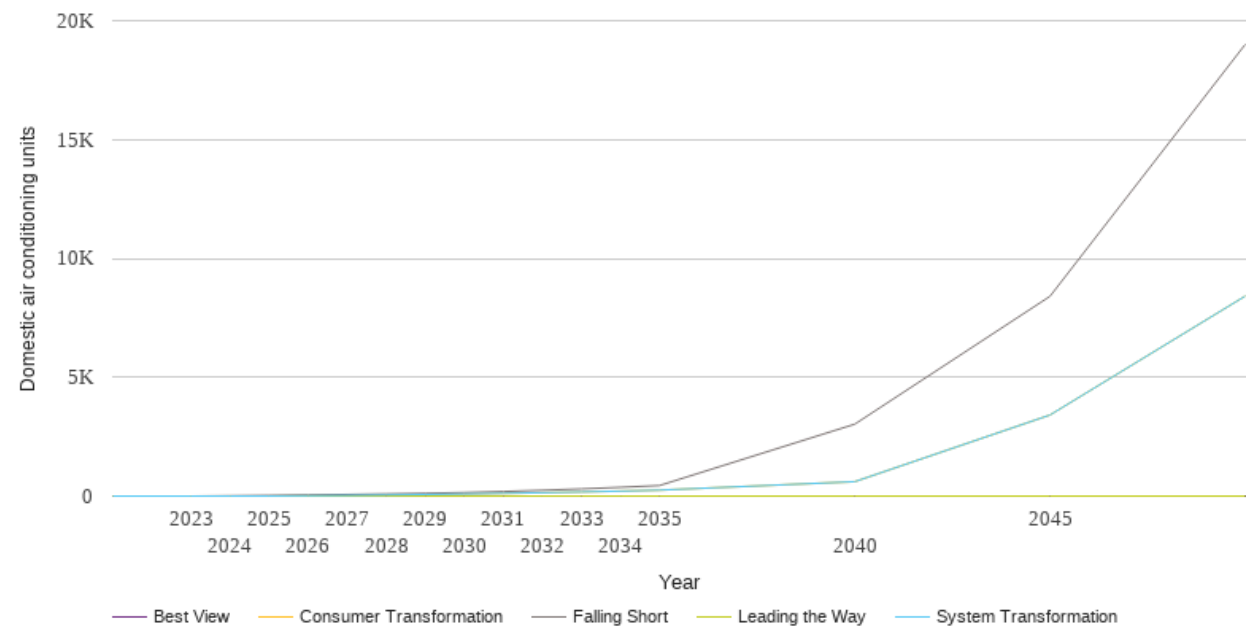
If you have any comments or queries regarding these reports, please contact

[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.

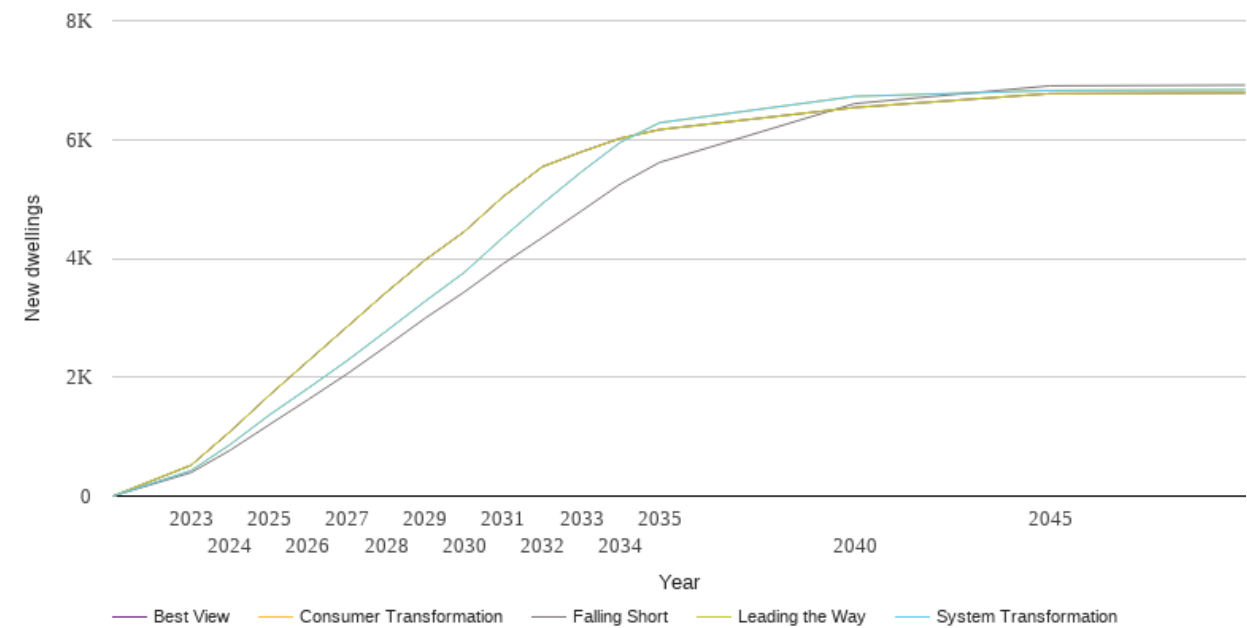
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	13	0	0	0	0
2025	29	0	0	0	0
2026	47	14	14	0	0
2027	68	29	29	0	0
2028	91	47	47	0	0
2029	118	67	67	0	0
2030	149	89	89	0	0
2031	193	114	114	0	0
2032	244	142	142	0	0
2033	302	174	174	0	0
2034	369	210	210	0	0
2035	445	250	250	0	0
2040	3025	607	607	0	0
2045	8404	3411	3411	0	0
2050	19000	8413	8413	0	0



# Technology Summary: Domestic

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

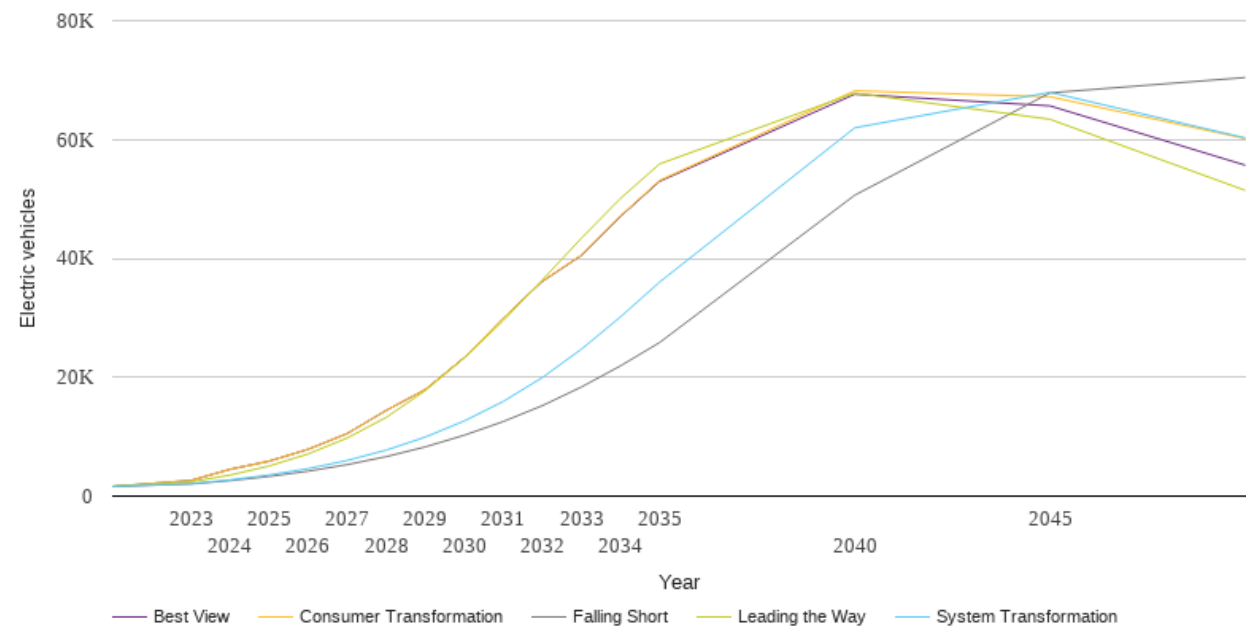
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	396	428	428	519	519
2024	771	867	867	1085	1085
2025	1200	1362	1362	1693	1693
2026	1624	1815	1815	2273	2273
2027	2057	2280	2280	2850	2850
2028	2520	2776	2776	3428	3428
2029	2995	3280	3280	3975	3975
2030	3434	3764	3764	4451	4451
2031	3912	4357	4357	5043	5043
2032	4350	4921	4921	5543	5543
2033	4799	5457	5457	5793	5793
2034	5253	5955	5955	6021	6021
2035	5615	6282	6282	6167	6167
2040	6605	6726	6726	6539	6539
2045	6904	6825	6825	6773	6773
2050	6916	6837	6837	6785	6785



# Technology Summary: Electric vehicles

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

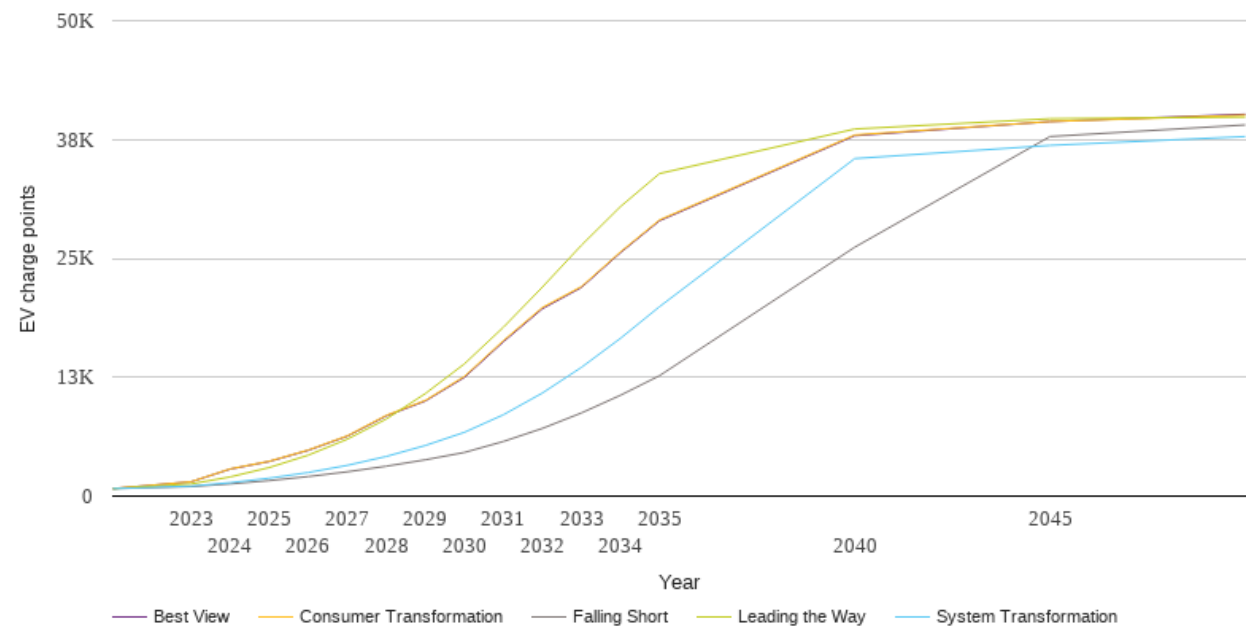
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1615	1615	1615	1615	1615
2023	2045	2085	2633	2400	2633
2024	2603	2725	4509	3533	4509
2025	3309	3550	5880	5063	5880
2026	4195	4618	7874	7095	7875
2027	5300	5993	10526	9774	10528
2028	6642	7736	14423	13249	14425
2029	8279	9932	17927	17759	17928
2030	10247	12646	23312	23241	23312
2031	12552	15940	29956	29532	29957
2032	15225	19952	36192	36384	36132
2033	18364	24725	40584	43412	40511
2034	21912	30152	47172	50095	47065
2035	25830	36003	53114	55893	52961
2040	50638	61976	68204	67827	67633
2045	67853	67944	67200	63410	65666
2050	70432	60269	60173	51450	55684



# 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	783	783	783	783	783
2023	999	1047	1509	1278	1500
2024	1281	1410	2854	2013	2833
2025	1630	1880	3663	2999	3639
2026	2052	2478	4840	4303	4808
2027	2554	3231	6333	5982	6297
2028	3142	4169	8491	8100	8431
2029	3817	5320	10063	10779	10000
2030	4587	6706	12579	13899	12481
2031	5745	8554	16353	17756	16231
2032	7120	10841	19839	21983	19713
2033	8747	13541	22038	26387	21946
2034	10606	16594	25689	30448	25601
2035	12665	19925	29049	33921	28961
2040	26178	35498	37983	38607	37905
2045	37816	36885	39394	39692	39390
2050	39037	37811	40067	39863	40157

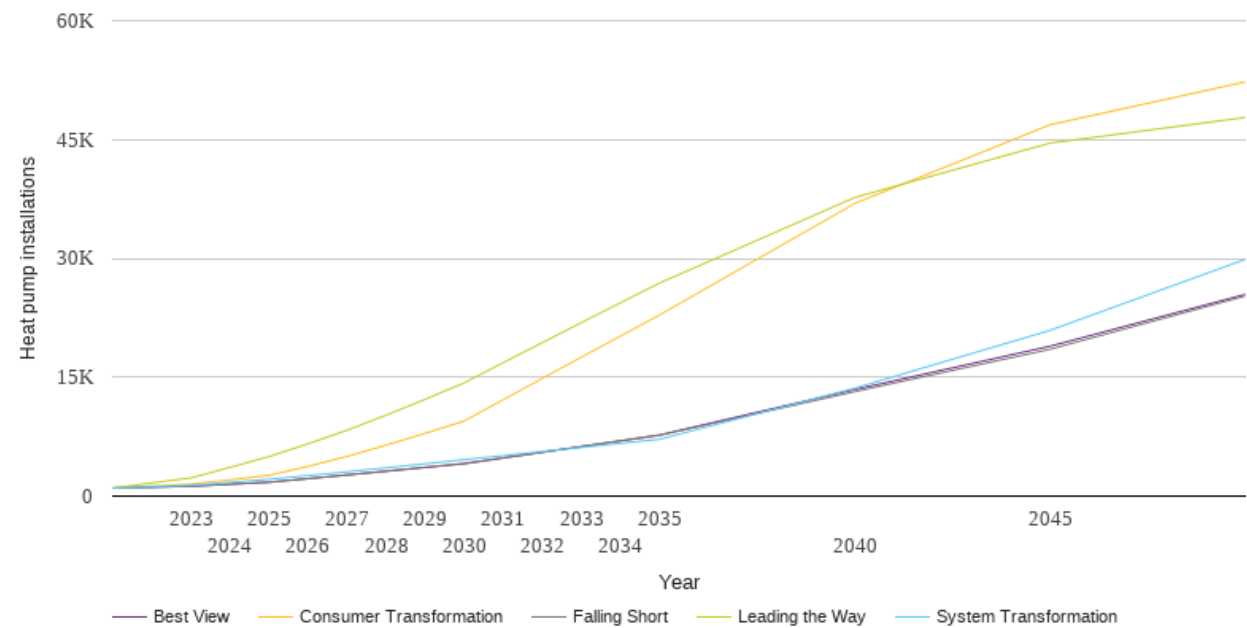




# Technology Summary: Heat pumps

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

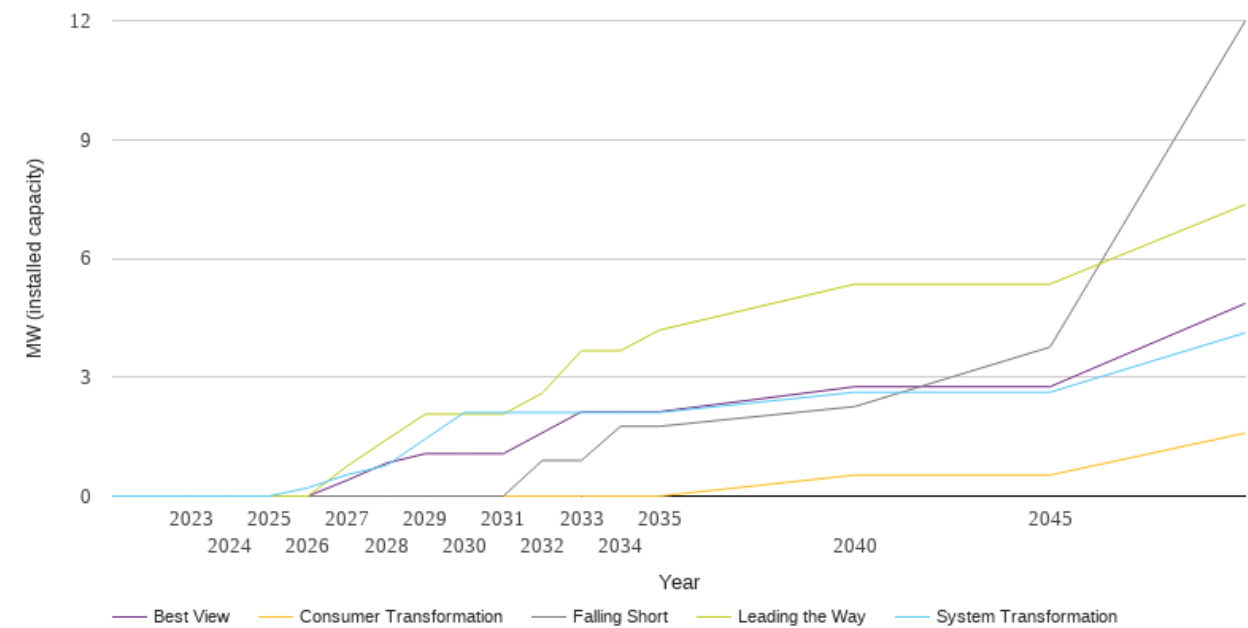
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1010	1010	1010	1010	1010
2023	1247	1350	1512	2298	1247
2024	1499	1724	2046	3626	1499
2025	1751	2128	2610	4988	1751
2026	2213	2582	3757	6604	2203
2027	2682	3060	5013	8322	2666
2028	3162	3568	6428	10223	3137
2029	3646	4084	7929	12220	3610
2030	4130	4601	9491	14298	4086
2031	4835	5112	12176	16850	4806
2032	5545	5624	14857	19371	5529
2033	6259	6139	17536	21893	6258
2034	6964	6660	20191	24391	6978
2035	7674	7174	22860	26886	7704
2040	13183	13617	36933	37687	13447
2045	18527	20913	46858	44550	18908
2050	25246	29875	52268	47780	25452



# Technology Summary: Hydrogen electrolysis

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

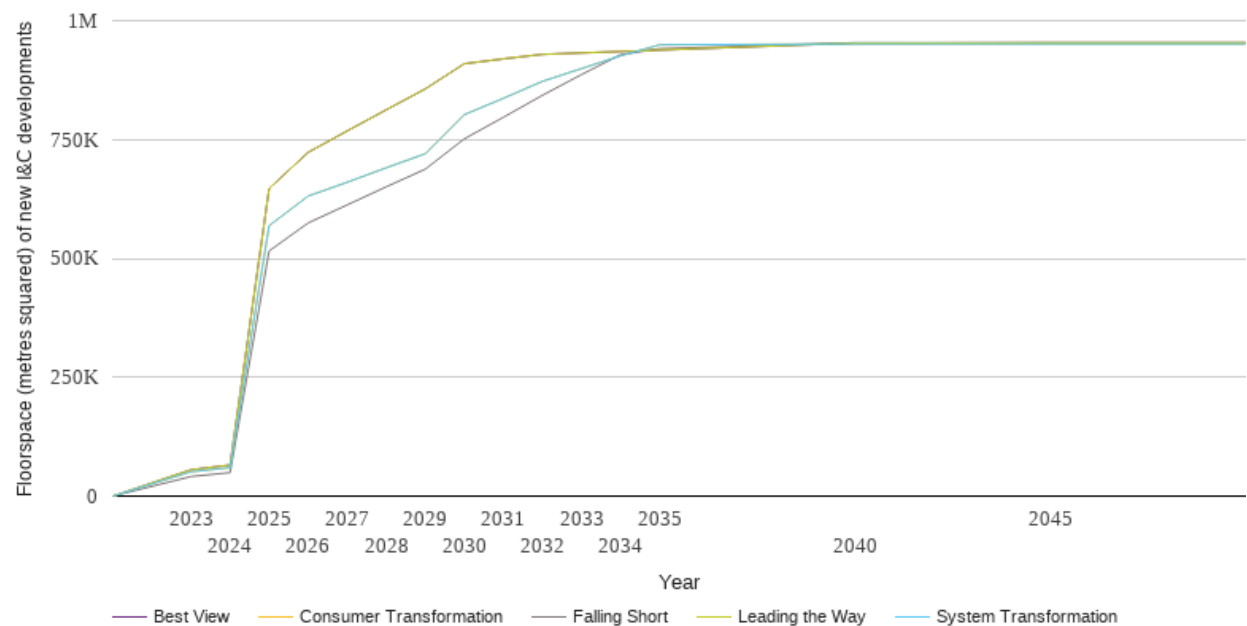
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.2	0.0	0.0	0.0
2027	0.0	0.5	0.0	0.8	0.4
2028	0.0	0.8	0.0	1.4	0.8
2029	0.0	1.4	0.0	2.1	1.1
2030	0.0	2.1	0.0	2.1	1.1
2031	0.0	2.1	0.0	2.1	1.1
2032	0.9	2.1	0.0	2.6	1.6
2033	0.9	2.1	0.0	3.7	2.1
2034	1.8	2.1	0.0	3.7	2.1
2035	1.8	2.1	0.0	4.2	2.1
2040	2.3	2.6	0.5	5.4	2.8
2045	3.8	2.6	0.5	5.4	2.8
2050	12.0	4.1	1.6	7.4	4.9



# Technology Summary: Non domestic

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

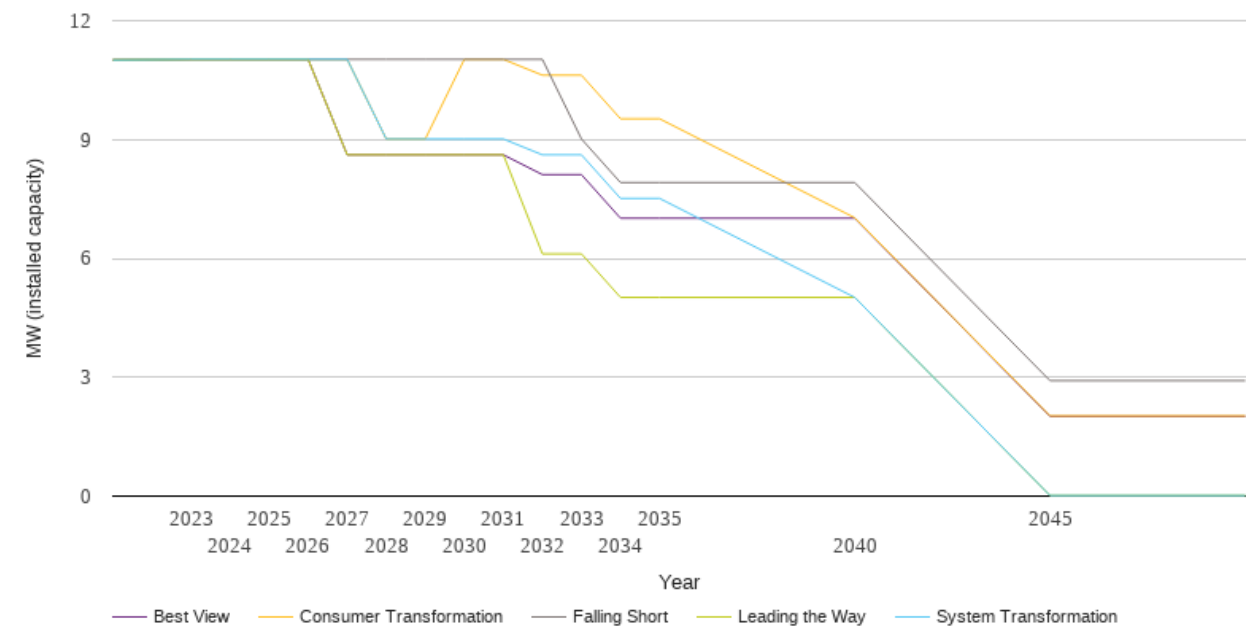
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	41137	51227	51227	55366	55366
2024	49375	59848	59848	65191	65191
2025	515526	568726	568726	647074	647074
2026	574538	631093	631093	722997	722997
2027	612551	660182	660182	768111	768111
2028	650564	690598	690598	812515	812515
2029	687691	720142	720142	856478	856478
2030	751439	802308	802308	909476	909476
2031	796771	836663	836663	919632	919632
2032	842988	872354	872354	929177	929177
2033	886549	899190	899190	932170	932170
2034	928403	926027	926027	935163	935163
2035	941018	949204	949204	938155	938155
2040	953650	951064	951064	952853	952853
2045	953650	951064	951064	953650	953650
2050	953650	951064	951064	953650	953650



# Technology Summary: Other Distributed Generation

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

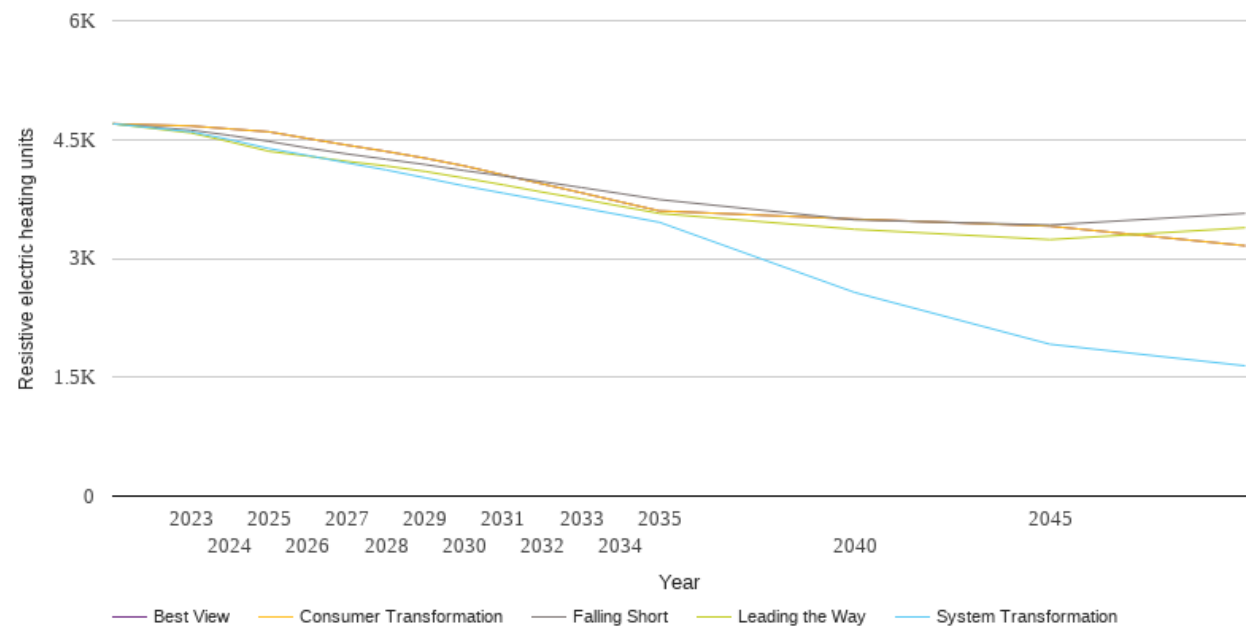
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	11.0	11.0	11.0	11.0	11.0
2023	11.0	11.0	11.0	11.0	11.0
2024	11.0	11.0	11.0	11.0	11.0
2025	11.0	11.0	11.0	11.0	11.0
2026	11.0	11.0	11.0	11.0	11.0
2027	11.0	11.0	11.0	8.6	8.6
2028	11.0	9.0	9.0	8.6	8.6
2029	11.0	9.0	9.0	8.6	8.6
2030	11.0	9.0	11.0	8.6	8.6
2031	11.0	9.0	11.0	8.6	8.6
2032	11.0	8.6	10.6	6.1	8.1
2033	9.0	8.6	10.6	6.1	8.1
2034	7.9	7.5	9.5	5.0	7.0
2035	7.9	7.5	9.5	5.0	7.0
2040	7.9	5.0	7.0	5.0	7.0
2045	2.9	0.0	2.0	0.0	2.0
2050	2.9	0.0	2.0	0.0	2.0



# Technology Summary: Resistive electric heating

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

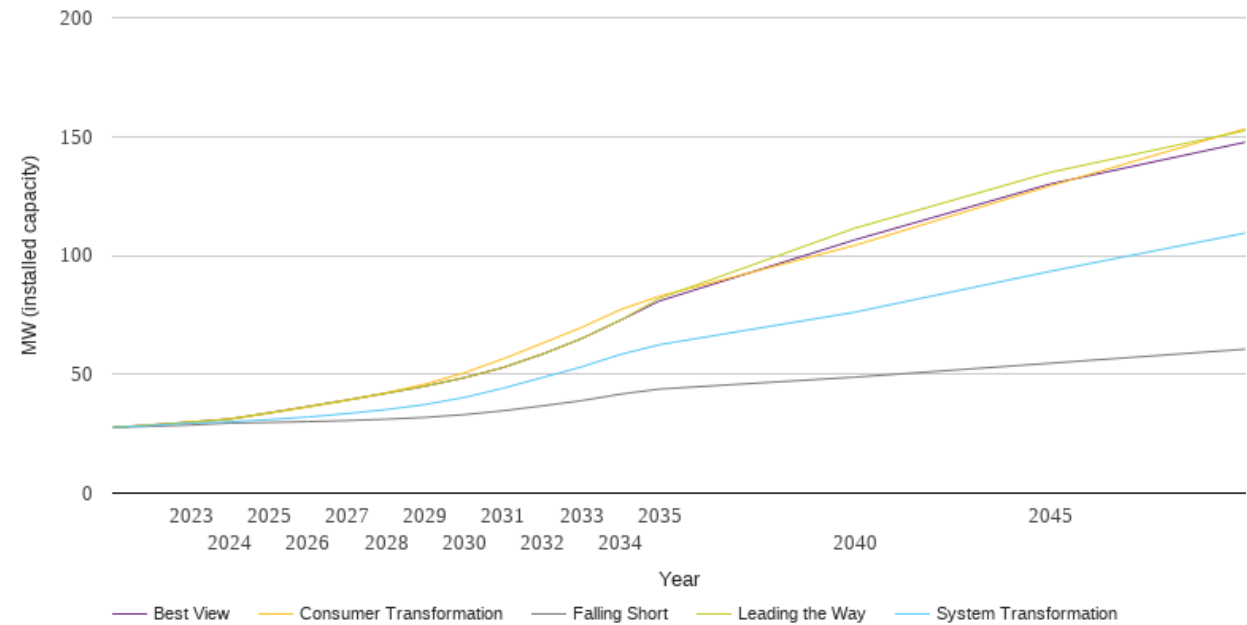
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	4699	4699	4699	4699	4699
2023	4619	4597	4671	4583	4671
2024	4552	4498	4634	4471	4634
2025	4476	4386	4597	4351	4597
2026	4392	4298	4512	4290	4512
2027	4318	4205	4429	4224	4429
2028	4251	4116	4350	4167	4350
2029	4184	4016	4264	4097	4264
2030	4108	3914	4167	4014	4167
2031	4040	3823	4053	3928	4053
2032	3968	3732	3940	3836	3940
2033	3894	3639	3828	3750	3828
2034	3818	3548	3713	3658	3713
2035	3742	3455	3599	3567	3599
2040	3486	2570	3496	3367	3496
2045	3421	1917	3407	3237	3407
2050	3568	1644	3160	3387	3160



# Technology Summary: Solar Generation

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

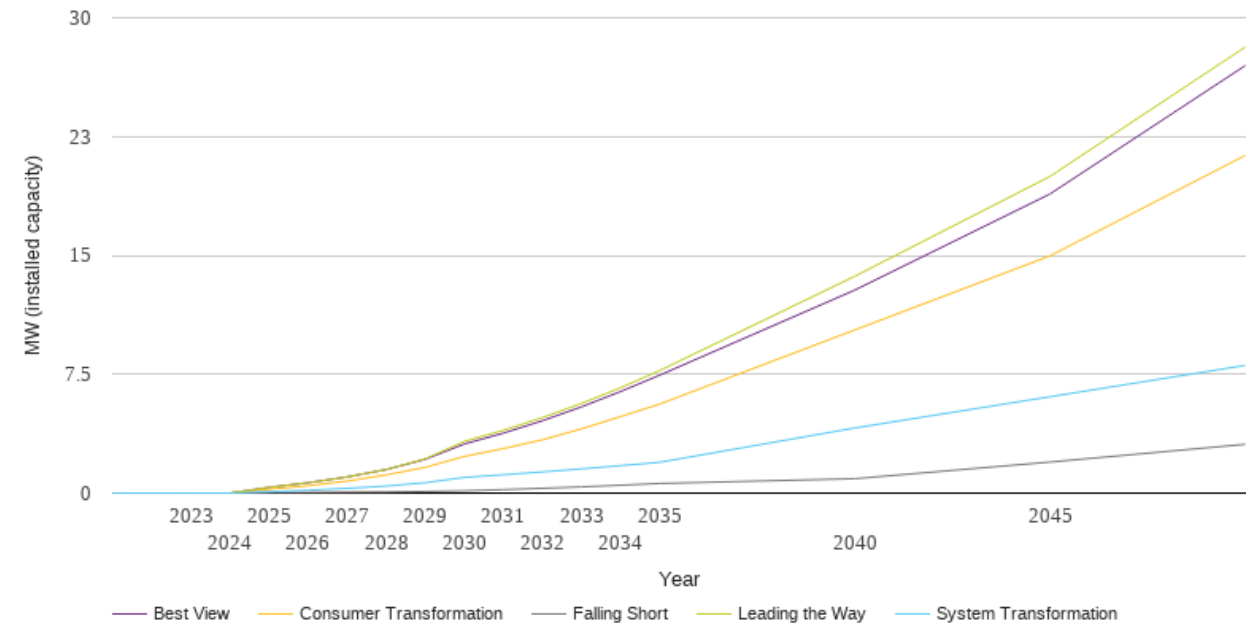
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	27.6	27.6	27.6	27.6	27.6
2023	28.6	29.4	29.8	29.9	29.9
2024	29.5	30.0	31.1	31.2	31.2
2025	29.7	30.9	33.6	33.8	33.8
2026	30.1	32.0	36.2	36.4	36.4
2027	30.5	33.5	39.0	39.2	39.2
2028	31.1	35.1	42.2	42.0	42.0
2029	31.8	37.3	45.9	45.0	45.0
2030	33.0	40.2	50.6	48.5	48.5
2031	34.6	44.1	56.5	52.9	52.9
2032	36.7	48.6	63.0	58.4	58.4
2033	38.9	53.1	69.7	65.0	65.0
2034	41.6	58.3	77.2	72.7	72.7
2035	43.8	62.4	82.8	82.0	80.8
2040	48.8	76.1	104.2	111.4	106.5
2045	54.6	93.3	129.2	134.9	130.0
2050	60.5	109.4	153.3	152.5	147.6



# Technology Summary: Storage

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

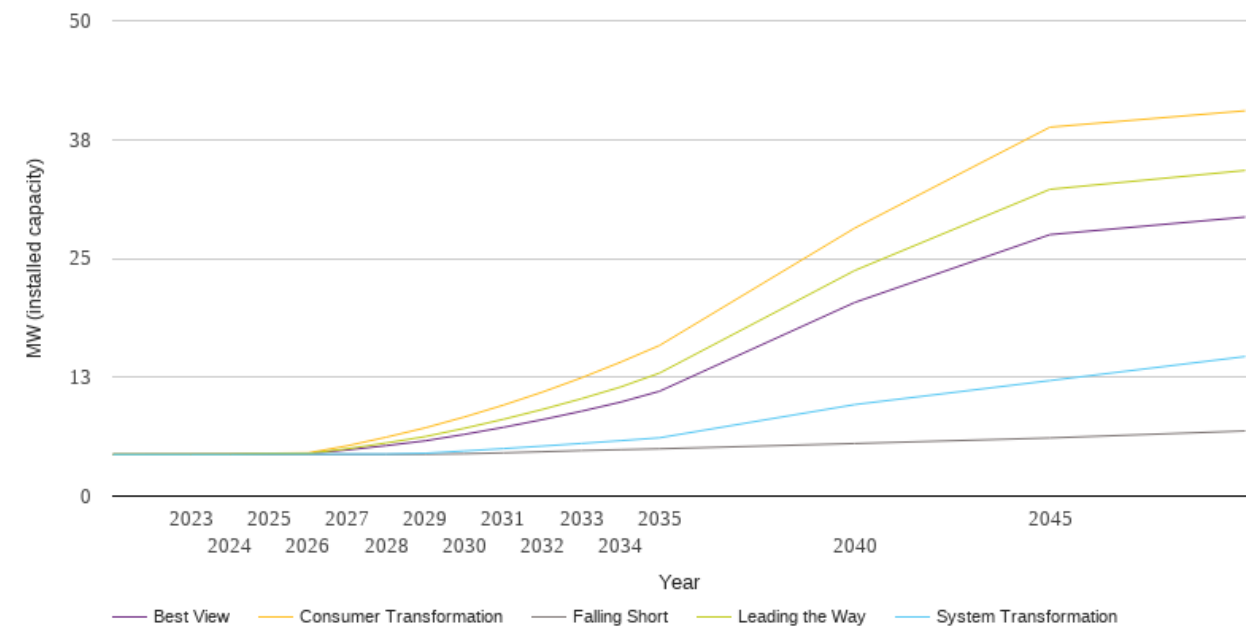
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.1	0.2	0.4	0.4
2026	0.1	0.2	0.5	0.7	0.7
2027	0.1	0.3	0.8	1.0	1.0
2028	0.1	0.4	1.1	1.5	1.5
2029	0.1	0.7	1.6	2.2	2.1
2030	0.1	1.0	2.3	3.3	3.1
2031	0.2	1.2	2.8	4.0	3.8
2032	0.3	1.3	3.4	4.8	4.6
2033	0.4	1.5	4.1	5.7	5.4
2034	0.5	1.7	4.8	6.6	6.4
2035	0.6	1.9	5.6	7.7	7.4
2040	0.9	4.1	10.3	13.7	12.8
2045	2.0	6.1	15.0	20.0	18.9
2050	3.1	8.1	21.3	28.1	27.0



# 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	4.4	4.4	4.4	4.4	4.4
2023	4.4	4.4	4.4	4.4	4.4
2024	4.4	4.4	4.4	4.4	4.4
2025	4.4	4.4	4.5	4.5	4.5
2026	4.4	4.4	4.5	4.5	4.5
2027	4.4	4.4	5.3	5.0	4.8
2028	4.4	4.4	6.2	5.6	5.3
2029	4.4	4.5	7.2	6.3	5.8
2030	4.5	4.7	8.3	7.1	6.5
2031	4.5	5.0	9.6	8.1	7.2
2032	4.7	5.3	10.9	9.1	8.0
2033	4.8	5.5	12.4	10.2	8.9
2034	4.9	5.8	14.1	11.5	9.9
2035	5.0	6.1	15.8	12.9	11.0
2040	5.5	9.6	28.2	23.7	20.4
2045	6.1	12.1	38.8	32.3	27.5
2050	6.9	14.7	40.5	34.3	29.3





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)

