

Distribution Future Energy Scenarios 2022

Local Authority:
Nuneaton and Bedworth

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 Nuneaton and Bedworth 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 Nuneaton and Bedworth 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	315	1388	1067	1067	315	37083	18782	18782	315
Domestic	New dwellings	0	5229	5577	5577	6372	7760	7559	7559	7425
Electric vehicles	Electric vehicles	1894	11888	15247	27925	27915	88498	83643	83222	66061
EV Charge Point	EV charge points	951	5384	8259	15559	17104	49026	49894	52600	52146
Heat pumps	Heat pump installations	290	3213	3059	9722	15335	29438	34489	60452	53076
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.2	1.0
Non domestic	Floorspace (metres squared) of new I&C developments	0	50354 7	56729 0	56729 0	59627 6	80856 9	80106 9	80106 9	80856 9
Other Distributed Generation	MW (installed capacity)	1.2	1.2	1.2	1.2	1.2	1.2	0.0	0.0	0.0
Resistive electric heating	Resistive electric heating units	6421	5671	5422	5774	5563	4102	1858	3939	4156
Solar Generation	MW (installed capacity)	6.0	11.6	18.1	29.0	29.5	26.4	58.1	103.7	106.8
Storage	MW (installed capacity)	0.0	0.2	1.1	2.6	3.3	3.7	9.3	24.4	31.2
Wind	MW (installed capacity)	0.0	0.0	0.0	0.1	0.1	0.2	0.6	1.8	1.5

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

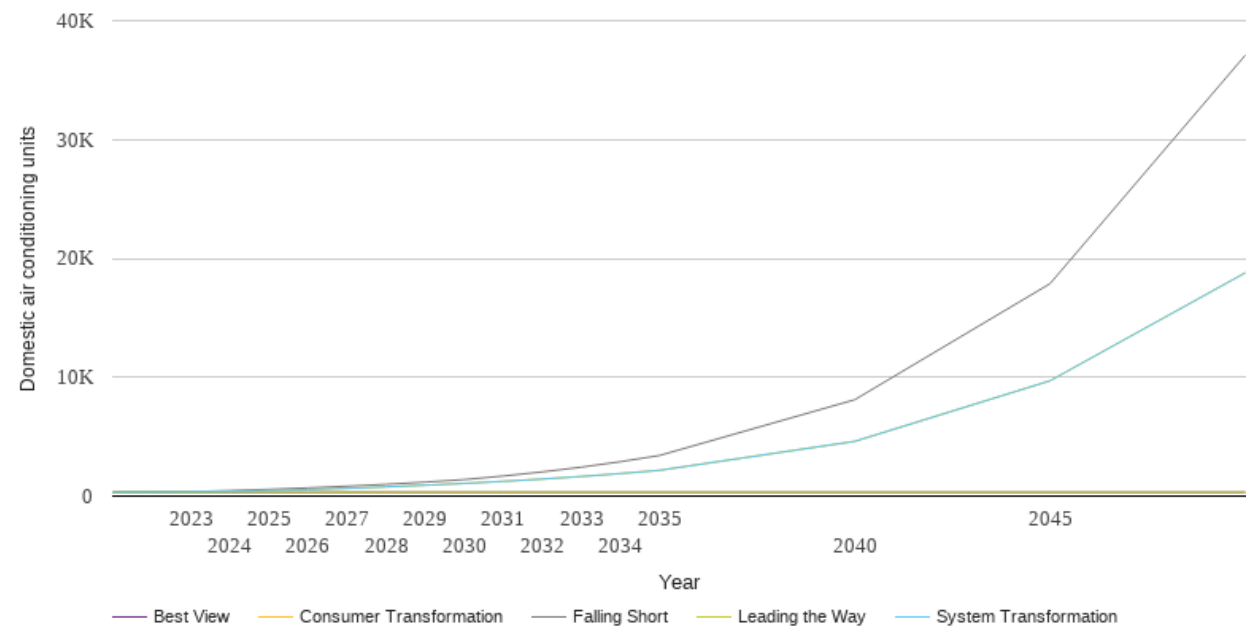
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

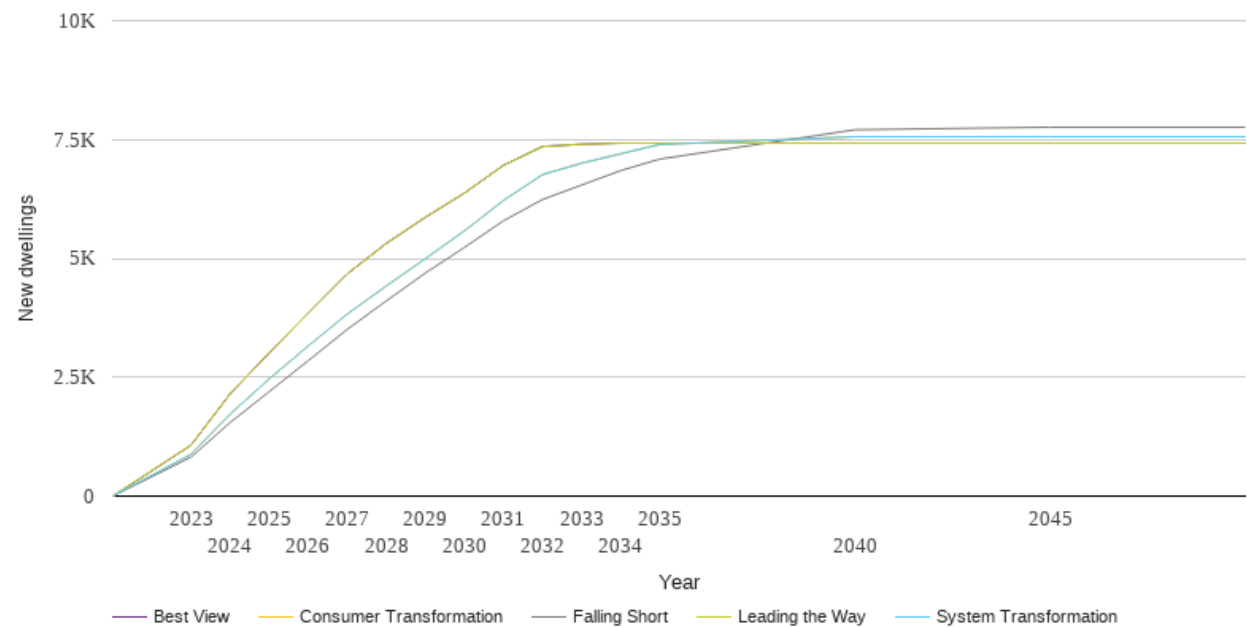
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	315	315	315	315	315
2023	363	357	357	315	315
2024	456	401	401	315	315
2025	564	452	452	315	315
2026	688	547	547	315	315
2027	830	654	654	315	315
2028	990	777	777	315	315
2029	1177	915	915	315	315
2030	1388	1067	1067	315	315
2031	1691	1240	1240	315	315
2032	2038	1433	1433	315	315
2033	2437	1650	1650	315	315
2034	2895	1897	1897	315	315
2035	3418	2169	2169	315	315
2040	8109	4606	4606	315	315
2045	17868	9701	9701	315	315
2050	37083	18782	18782	315	315



Technology Summary: Domestic

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

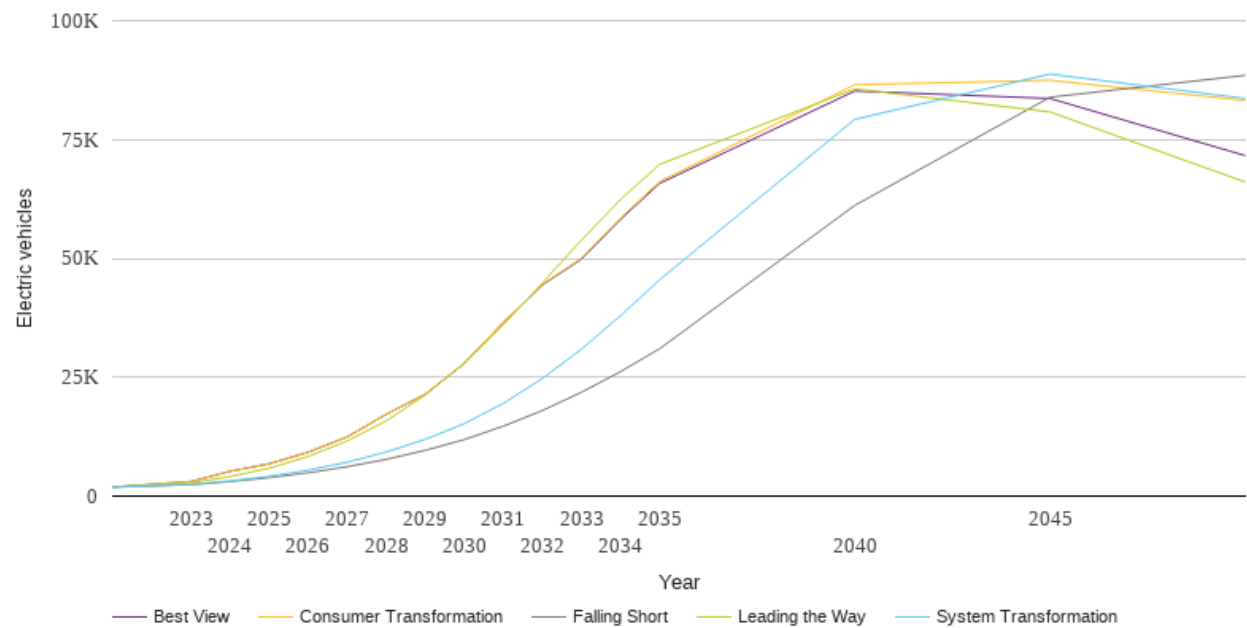
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	821	881	881	1071	1071
2024	1546	1723	1723	2150	2150
2025	2195	2464	2464	3010	3010
2026	2845	3155	3155	3847	3847
2027	3505	3828	3828	4673	4673
2028	4104	4419	4419	5315	5315
2029	4691	4992	4992	5863	5863
2030	5229	5577	5577	6372	6372
2031	5790	6218	6218	6957	6957
2032	6238	6761	6761	7353	7353
2033	6542	7003	7003	7401	7401
2034	6846	7199	7199	7425	7425
2035	7088	7395	7395	7425	7425
2040	7705	7559	7559	7425	7425
2045	7760	7559	7559	7425	7425
2050	7760	7559	7559	7425	7425



Technology Summary: Electric vehicles

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

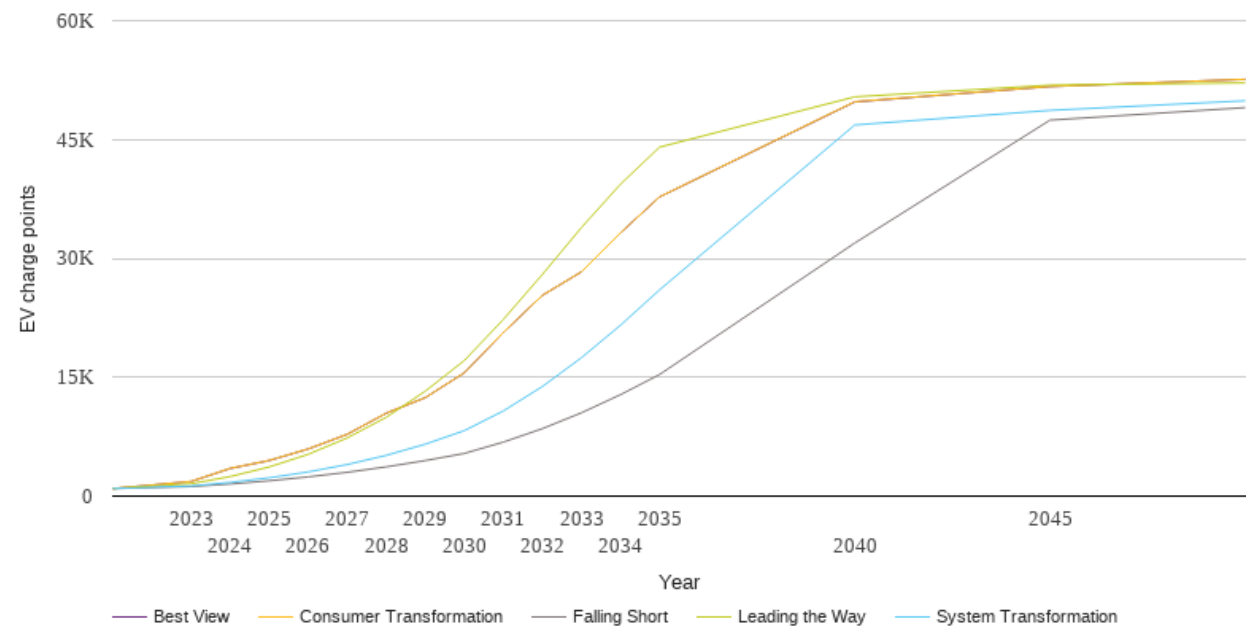
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1894	1894	1894	1894	1894
2023	2400	2441	3065	2798	3065
2024	3054	3193	5217	4102	5217
2025	3876	4150	6790	5853	6789
2026	4902	5449	9221	8335	9225
2027	6180	7133	12451	11598	12455
2028	7738	9267	17209	15825	17214
2029	9625	11945	21421	21286	21425
2030	11888	15247	27925	27915	27933
2031	14712	19510	36517	36026	36525
2032	17999	24737	44569	44856	44434
2033	21841	30907	50032	53849	49853
2034	26179	37926	58473	62372	58213
2035	30971	45489	66137	69776	65772
2040	61143	79242	86531	85649	85198
2045	83896	88767	87456	80803	83635
2050	88498	83643	83222	66061	71614



Technology Summary: EV Charge Point

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

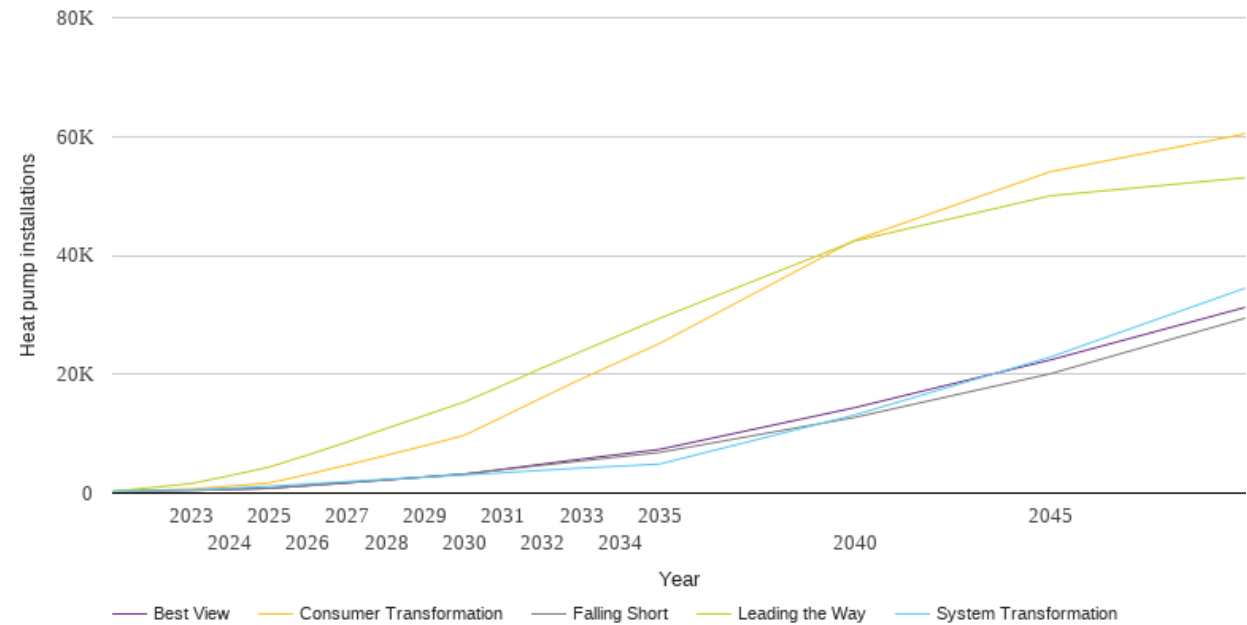
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	951	951	951	951	951
2023	1201	1274	1844	1563	1839
2024	1526	1722	3496	2459	3481
2025	1930	2307	4497	3672	4485
2026	2421	3049	5953	5273	5943
2027	3004	3984	7799	7338	7796
2028	3690	5140	10468	9945	10464
2029	4483	6555	12427	13246	12423
2030	5384	8259	15559	17104	15552
2031	6816	10748	20650	22292	20641
2032	8513	13833	25346	27977	25337
2033	10515	17466	28302	33896	28301
2034	12800	21561	33229	39369	33224
2035	15339	26027	37763	44040	37755
2040	31935	46840	49776	50384	49745
2045	47448	48678	51699	51867	51694
2050	49026	49894	52600	52146	52591



Technology Summary: Heat pumps

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

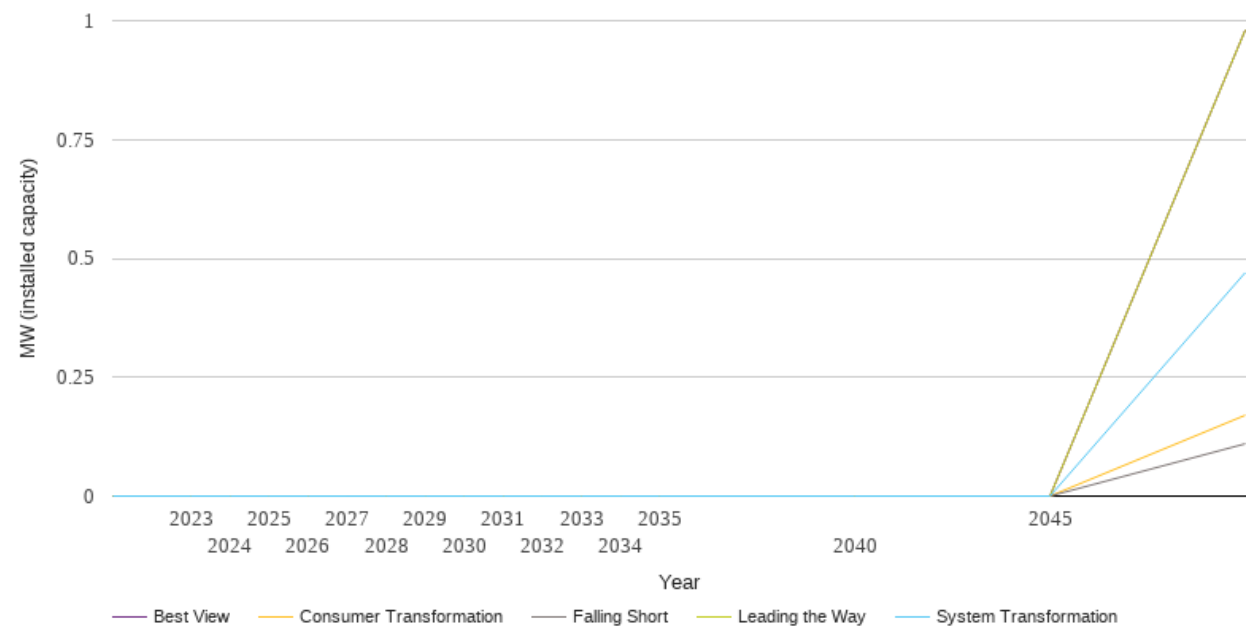
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	290	290	290	290	290
2023	458	536	711	1594	458
2024	630	825	1182	2947	630
2025	806	1159	1692	4377	806
2026	1285	1552	3169	6438	1263
2027	1762	1944	4723	8596	1726
2028	2251	2327	6350	10868	2213
2029	2734	2697	8010	13096	2695
2030	3213	3059	9722	15335	3181
2031	3950	3433	12875	18172	4023
2032	4686	3835	16088	21076	4881
2033	5410	4212	19212	23850	5717
2034	6124	4543	22187	26625	6532
2035	6839	4885	25171	29396	7348
2040	12735	13147	42556	42426	14381
2045	20060	22870	54067	50024	22387
2050	29438	34489	60452	53076	31256



Technology Summary: Hydrogen electrolysis

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

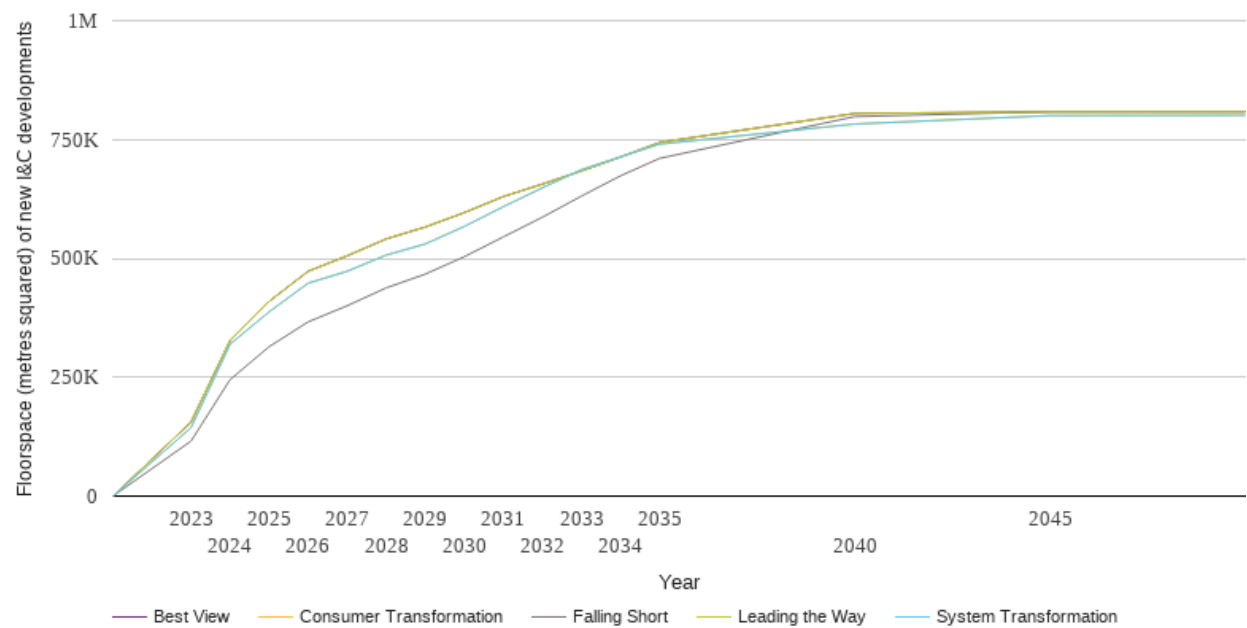
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	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	0.1	0.5	0.2	1.0	1.0



Technology Summary: Non domestic

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

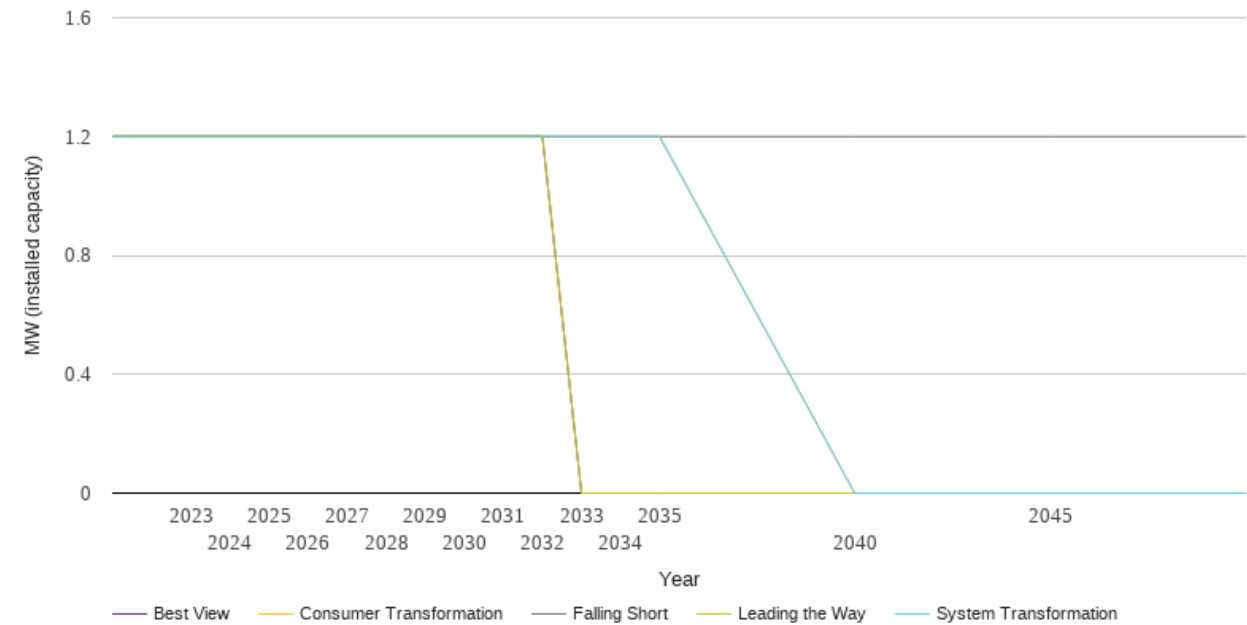
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	115750	144000	144000	155750	155750
2024	244977	319596	319596	327276	327276
2025	314136	387531	387531	409569	409569
2026	366459	447861	447861	472858	472858
2027	400384	472881	472881	505447	505447
2028	437930	506970	506970	540925	540925
2029	466911	530314	530314	565953	565953
2030	503547	567290	567290	596276	596276
2031	545229	608788	608788	630047	630047
2032	586665	648464	648464	656313	656313
2033	631073	686654	686654	684034	684034
2034	673655	713696	713696	713240	713240
2035	710337	740368	740368	743933	743933
2040	798275	782611	782611	804840	804840
2045	808569	800337	800337	808569	808569
2050	808569	801069	801069	808569	808569



Technology Summary: Other Distributed Generation

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

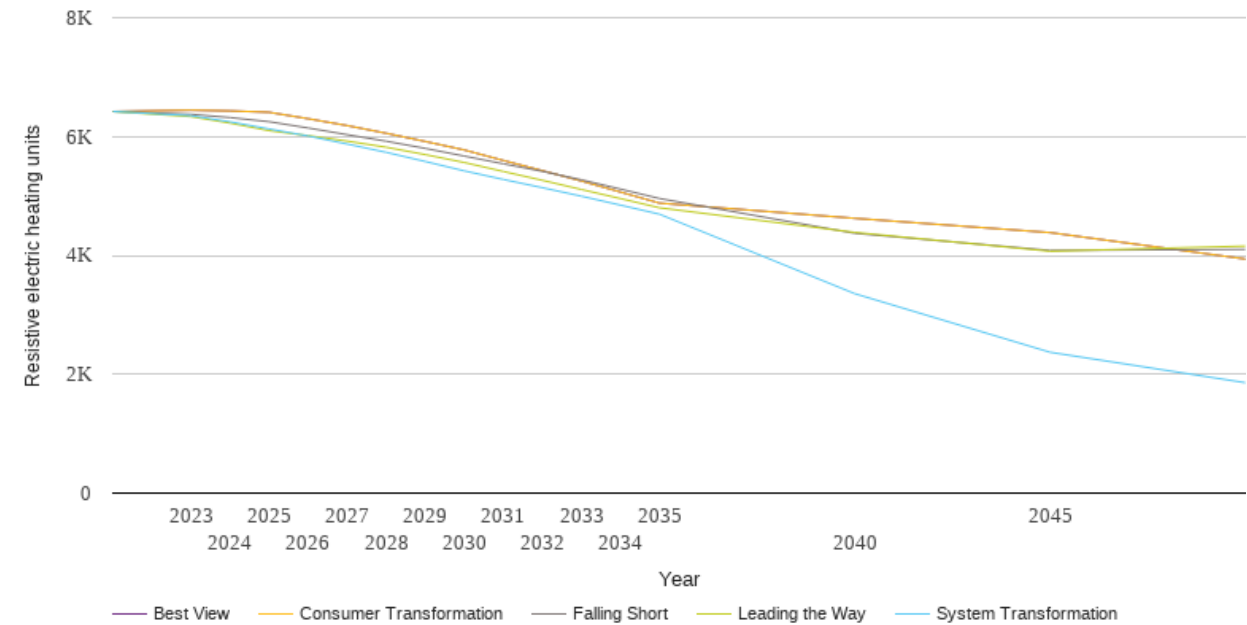
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1.2	1.2	1.2	1.2	1.2
2023	1.2	1.2	1.2	1.2	1.2
2024	1.2	1.2	1.2	1.2	1.2
2025	1.2	1.2	1.2	1.2	1.2
2026	1.2	1.2	1.2	1.2	1.2
2027	1.2	1.2	1.2	1.2	1.2
2028	1.2	1.2	1.2	1.2	1.2
2029	1.2	1.2	1.2	1.2	1.2
2030	1.2	1.2	1.2	1.2	1.2
2031	1.2	1.2	1.2	1.2	1.2
2032	1.2	1.2	1.2	1.2	1.2
2033	1.2	1.2	1.2	1.2	1.2
2034	1.2	1.2	1.2	0.0	0.0
2035	1.2	1.2	1.2	0.0	0.0
2040	1.2	0.0	0.0	0.0	0.0
2045	1.2	0.0	0.0	0.0	0.0
2050	1.2	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.

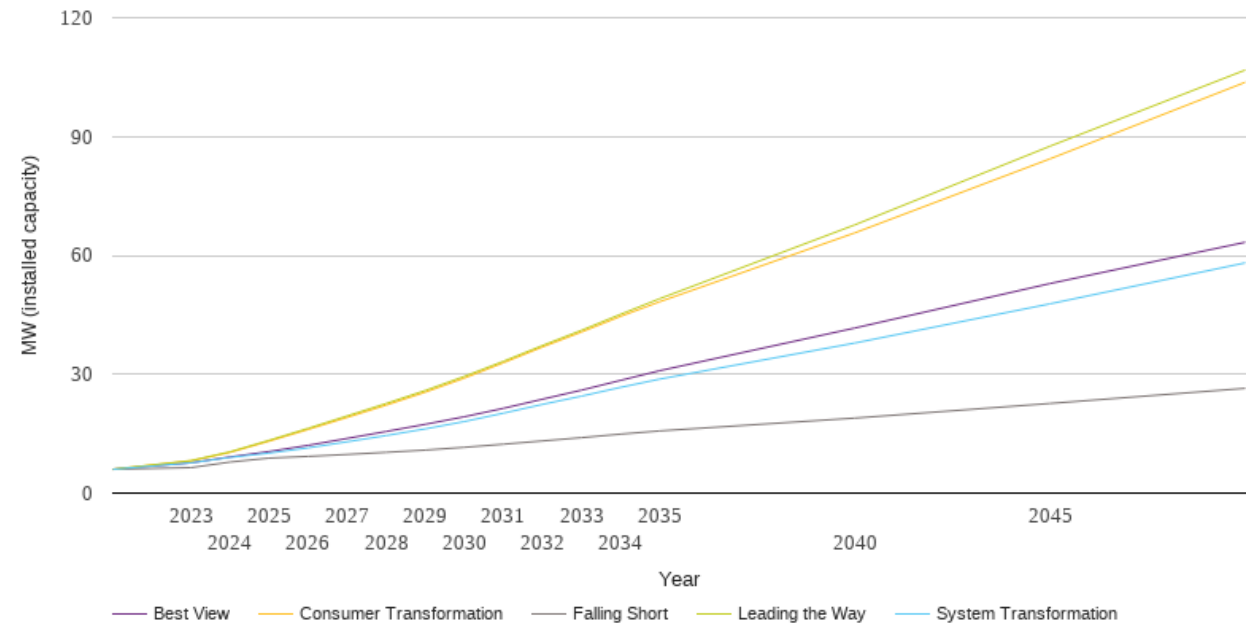
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6421	6421	6421	6421	6421
2023	6374	6351	6444	6335	6444
2024	6319	6248	6432	6226	6432
2025	6250	6128	6408	6099	6408
2026	6144	6009	6300	6015	6300
2027	6031	5874	6184	5923	6184
2028	5921	5734	6055	5820	6055
2029	5801	5580	5917	5696	5917
2030	5671	5422	5774	5563	5774
2031	5541	5278	5597	5412	5597
2032	5414	5139	5426	5263	5426
2033	5272	4996	5251	5109	5251
2034	5116	4846	5066	4956	5066
2035	4957	4693	4880	4801	4880
2040	4372	3356	4624	4387	4624
2045	4084	2370	4384	4070	4384
2050	4102	1858	3939	4156	3939



Technology Summary: Solar Generation

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

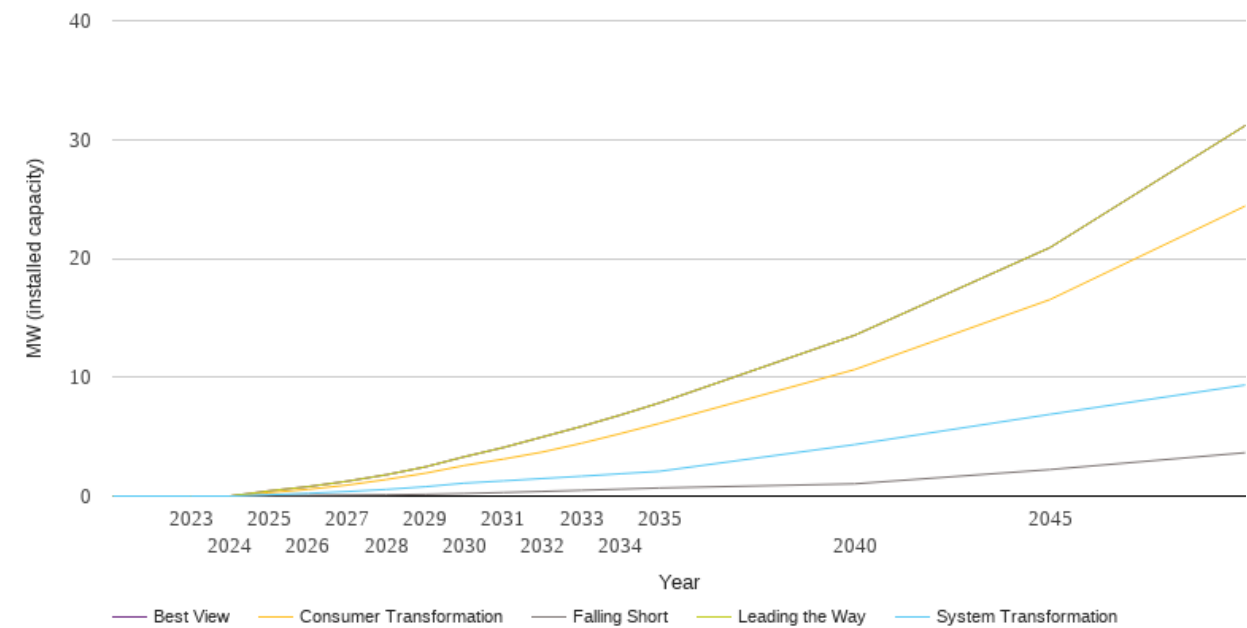
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6.0	6.0	6.0	6.0	6.0
2023	6.4	7.6	8.1	8.2	7.7
2024	7.8	9.0	10.3	10.4	9.1
2025	8.8	10.1	13.1	13.3	10.5
2026	9.3	11.4	16.1	16.4	12.1
2027	9.8	13.0	19.1	19.5	13.8
2028	10.3	14.5	22.2	22.6	15.6
2029	10.8	16.2	25.5	25.9	17.4
2030	11.6	18.1	29.0	29.5	19.3
2031	12.3	20.2	32.9	33.3	21.4
2032	13.2	22.4	36.9	37.2	23.7
2033	14.0	24.5	40.6	41.1	26.0
2034	14.9	26.7	44.6	45.1	28.4
2035	15.7	28.8	48.3	49.1	30.9
2040	18.9	37.9	65.7	67.7	41.7
2045	22.6	47.8	84.4	87.6	52.9
2050	26.4	58.1	103.7	106.8	63.3



Technology Summary: Storage

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

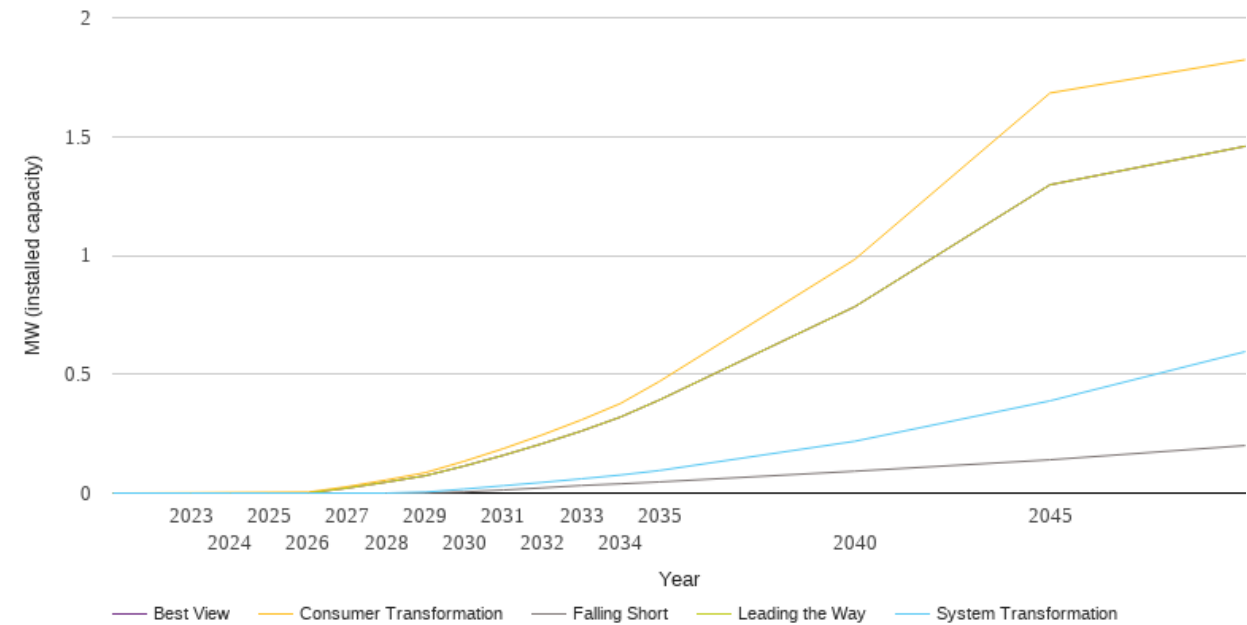
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.1	0.1	0.3	0.4	0.4
2026	0.1	0.2	0.6	0.8	0.8
2027	0.1	0.4	0.9	1.2	1.2
2028	0.1	0.6	1.4	1.8	1.8
2029	0.1	0.8	1.9	2.5	2.5
2030	0.2	1.1	2.6	3.3	3.3
2031	0.3	1.3	3.1	4.1	4.1
2032	0.4	1.5	3.7	5.0	5.0
2033	0.5	1.7	4.4	5.9	5.9
2034	0.6	1.9	5.3	6.8	6.8
2035	0.7	2.1	6.1	7.8	7.8
2040	1.0	4.3	10.6	13.5	13.5
2045	2.2	6.9	16.5	20.9	20.9
2050	3.7	9.3	24.4	31.2	31.2



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	0.1	0.0	0.0
2029	0.0	0.0	0.1	0.1	0.1
2030	0.0	0.0	0.1	0.1	0.1
2031	0.0	0.0	0.2	0.2	0.2
2032	0.0	0.0	0.2	0.2	0.2
2033	0.0	0.1	0.3	0.3	0.3
2034	0.0	0.1	0.4	0.3	0.3
2035	0.0	0.1	0.5	0.4	0.4
2040	0.1	0.2	1.0	0.8	0.8
2045	0.1	0.4	1.7	1.3	1.3
2050	0.2	0.6	1.8	1.5	1.5



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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