

Distribution Future Energy Scenarios 2022

Local Authority:
Somerset West and Taunton

What are Distribution Future Energy Scenarios?

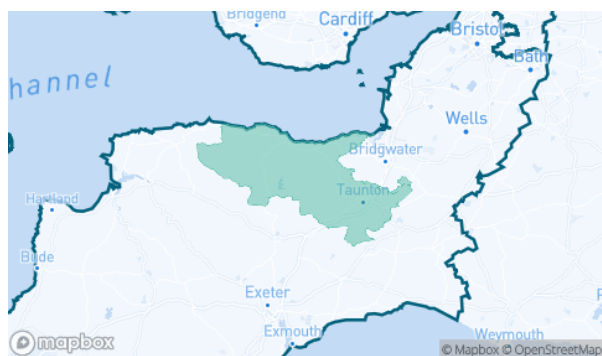
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 Somerset West and Taunton 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 Somerset West and Taunton 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	205	757	602	602	205	24700	12082	12082	205
Domestic	New dwellings	0	5964	6678	6678	8178	14053	13926	13926	13851
Electric vehicles	Electric vehicles	1715	14577	18504	34170	34141	107505	96313	96643	81180
EV Charge Point	EV charge points	913	6376	9508	17941	19669	57291	56071	56603	58999
Heat pumps	Heat pump installations	1562	10136	9988	18835	27195	43389	49010	80773	72624
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.7	0.0	0.5	0.7	7.1	4.7	7.7
Non domestic	Floorspace (metres squared) of new I&C developments	0	194561	211852	211852	227646	229777	229777	229777	229777
Other Distributed Generation	MW (installed capacity)	14.8	15.1	15.9	16.8	17.1	13.8	7.5	8.9	9.4
Resistive electric heating	Resistive electric heating units	13872	11061	10795	11669	11016	6921	2450	7020	7427
Solar Generation	MW (installed capacity)	36.1	44.6	59.1	78.6	85.9	105.8	205.5	284.8	308.4
Storage	MW (installed capacity)	0.0	0.3	2.1	4.7	6.6	6.1	17.2	42.7	54.2
Wind	MW (installed capacity)	0.1	0.2	0.7	4.9	3.7	4.0	12.3	42.8	34.5

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

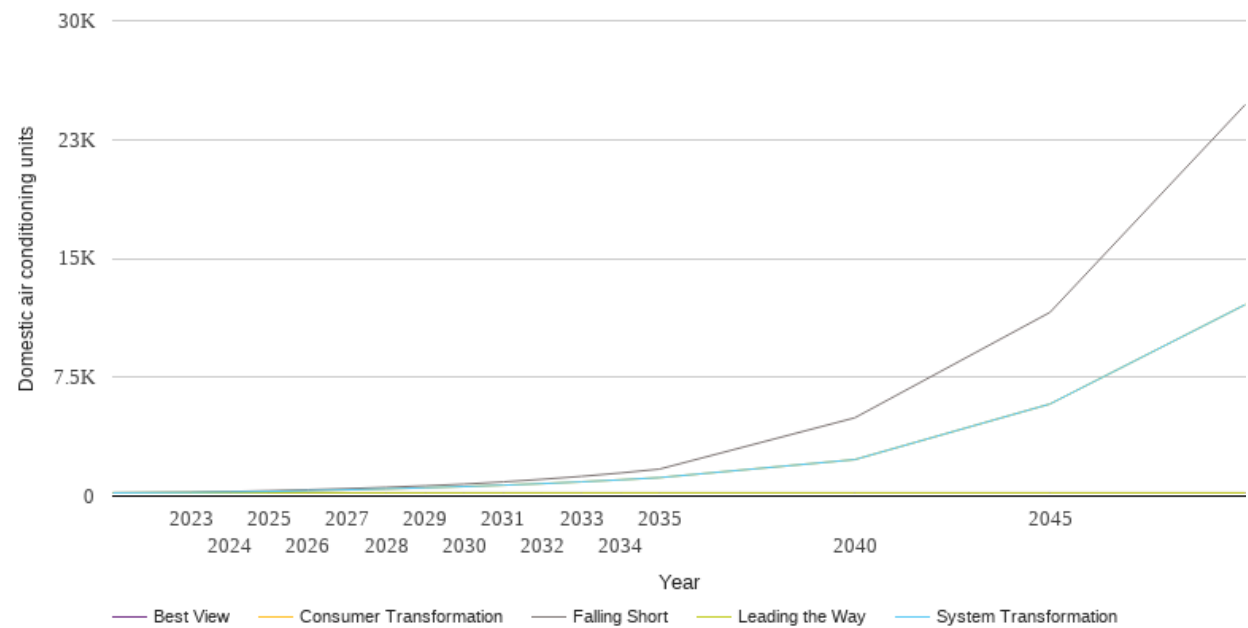
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

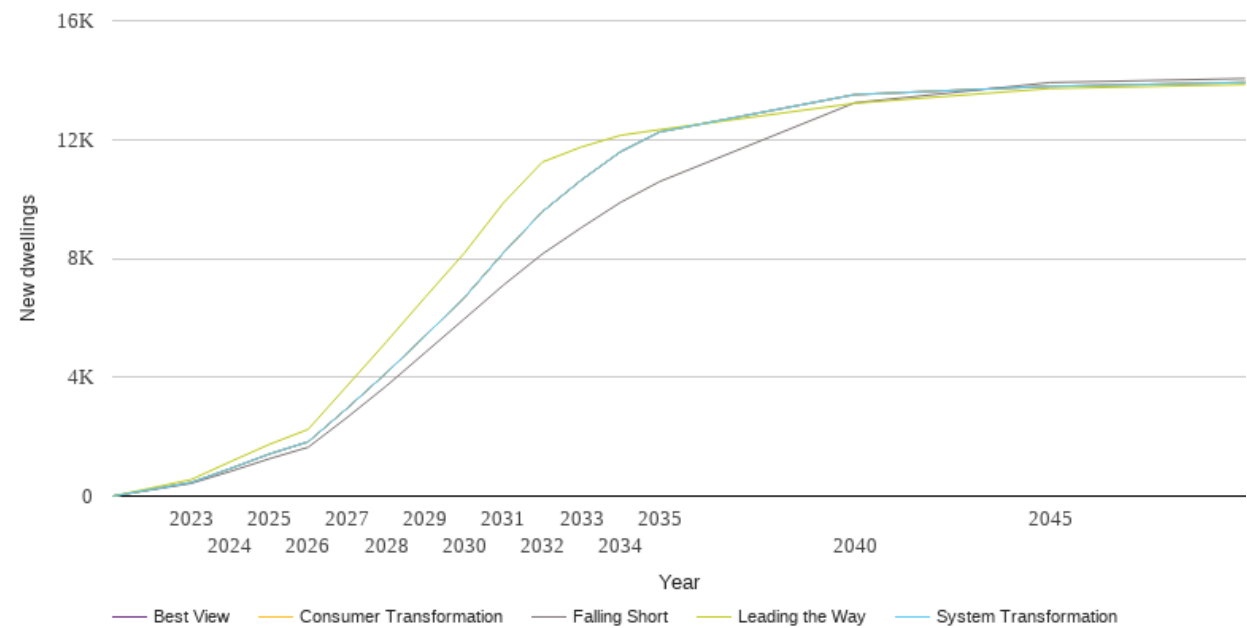
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	205	205	205	205	205
2023	236	232	232	205	205
2024	283	260	260	205	205
2025	339	293	293	205	205
2026	401	340	340	205	205
2027	473	394	394	205	205
2028	554	455	455	205	205
2029	650	525	525	205	205
2030	757	602	602	205	205
2031	898	689	689	205	205
2032	1060	788	788	205	205
2033	1246	900	900	205	205
2034	1459	1026	1026	205	205
2035	1703	1165	1165	205	205
2040	4939	2302	2302	205	205
2045	11594	5813	5813	205	205
2050	24700	12082	12082	205	205



Technology Summary: Domestic

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

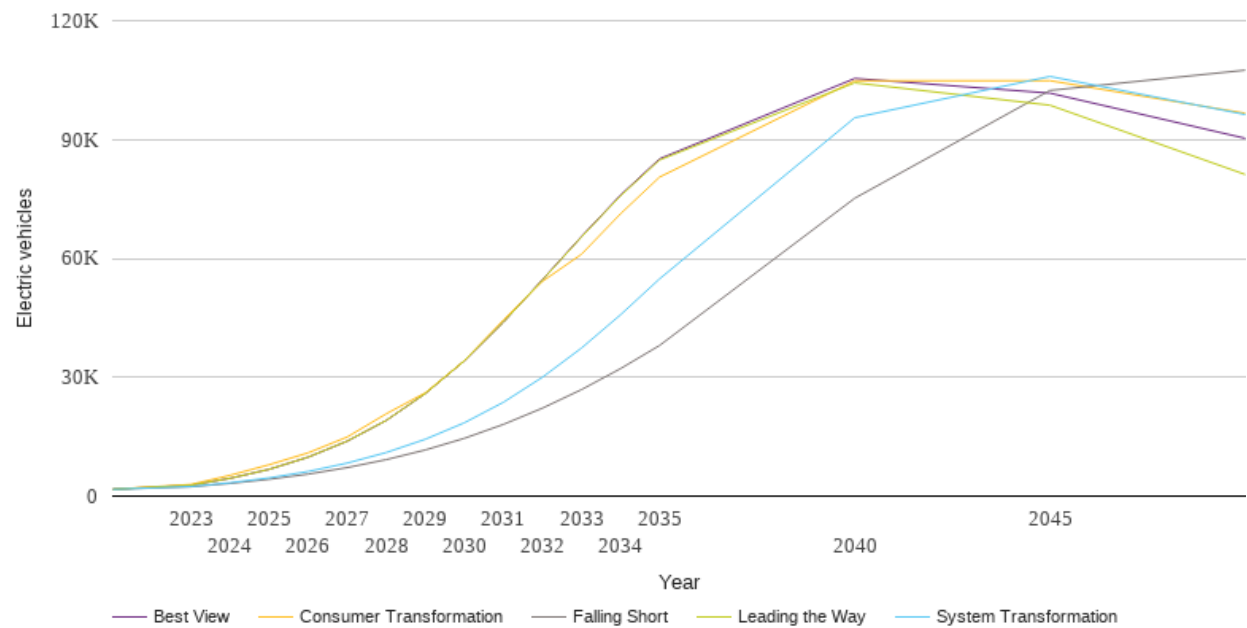
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	427	456	456	555	456
2024	827	922	922	1153	922
2025	1254	1413	1413	1738	1413
2026	1643	1827	1827	2245	1827
2027	2649	2958	2958	3713	2958
2028	3704	4141	4141	5185	4141
2029	4833	5397	5397	6695	5397
2030	5964	6678	6678	8178	6678
2031	7098	8184	8184	9865	8184
2032	8148	9573	9573	11242	9573
2033	9037	10640	10640	11750	10640
2034	9885	11588	11588	12140	11588
2035	10584	12254	12254	12332	12254
2040	13236	13512	13512	13220	13512
2045	13918	13791	13791	13716	13791
2050	14053	13926	13926	13851	13926



Technology Summary: Electric vehicles

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

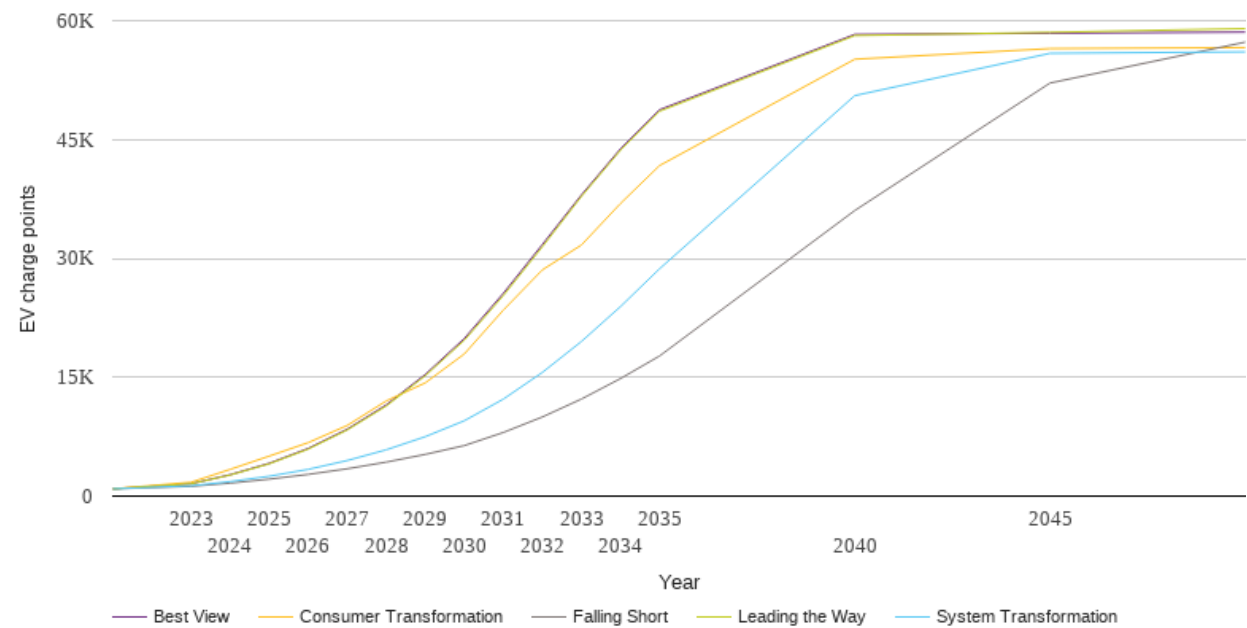
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1715	1715	1715	1715	1715
2023	2363	2414	2935	2747	2747
2024	3200	3364	5254	4481	4480
2025	4243	4590	7920	6757	6756
2026	5546	6210	10921	9831	9827
2027	7197	8332	14917	13874	13859
2028	9200	10995	20775	19105	19093
2029	11641	14346	26070	25885	25874
2030	14577	18504	34170	34141	34120
2031	18094	23676	44460	43898	43873
2032	22198	29995	54194	54538	54632
2033	26876	37361	61039	65395	65518
2034	32164	45755	71246	75775	75963
2035	38019	54827	80523	84839	85127
2040	75186	95512	104841	104323	105414
2045	102395	105928	104851	98663	101714
2050	107505	96313	96643	81180	90310



Technology Summary: EV Charge Point

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

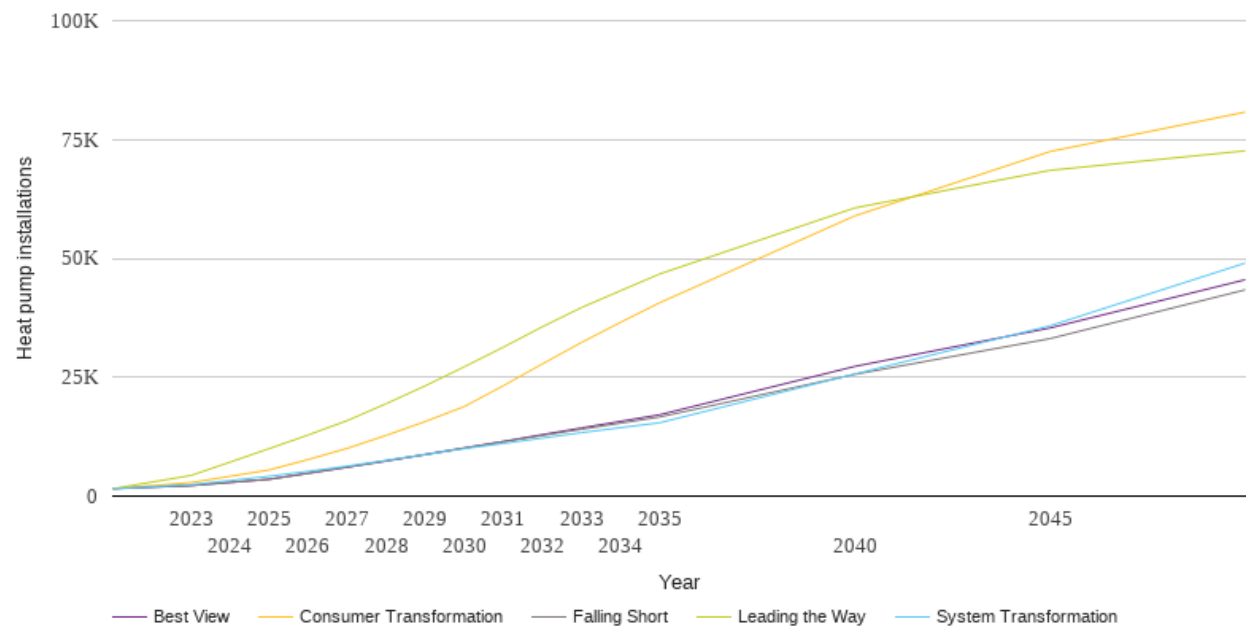
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	913	913	913	913	913
2023	1231	1301	1745	1549	1556
2024	1636	1828	3367	2658	2695
2025	2136	2505	5044	4071	4130
2026	2736	3372	6743	5930	6012
2027	3447	4487	8911	8345	8443
2028	4289	5843	12009	11370	11513
2029	5264	7499	14292	15197	15350
2030	6376	9508	17941	19669	19894
2031	8032	12242	23480	25323	25597
2032	9988	15614	28554	31483	31758
2033	12251	19517	31691	37832	38009
2034	14832	23915	36931	43657	43830
2035	17683	28688	41711	48577	48757
2040	36038	50541	55136	58125	58265
2045	52130	55878	56476	58524	58420
2050	57291	56071	56603	58999	58557



Technology Summary: Heat pumps

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

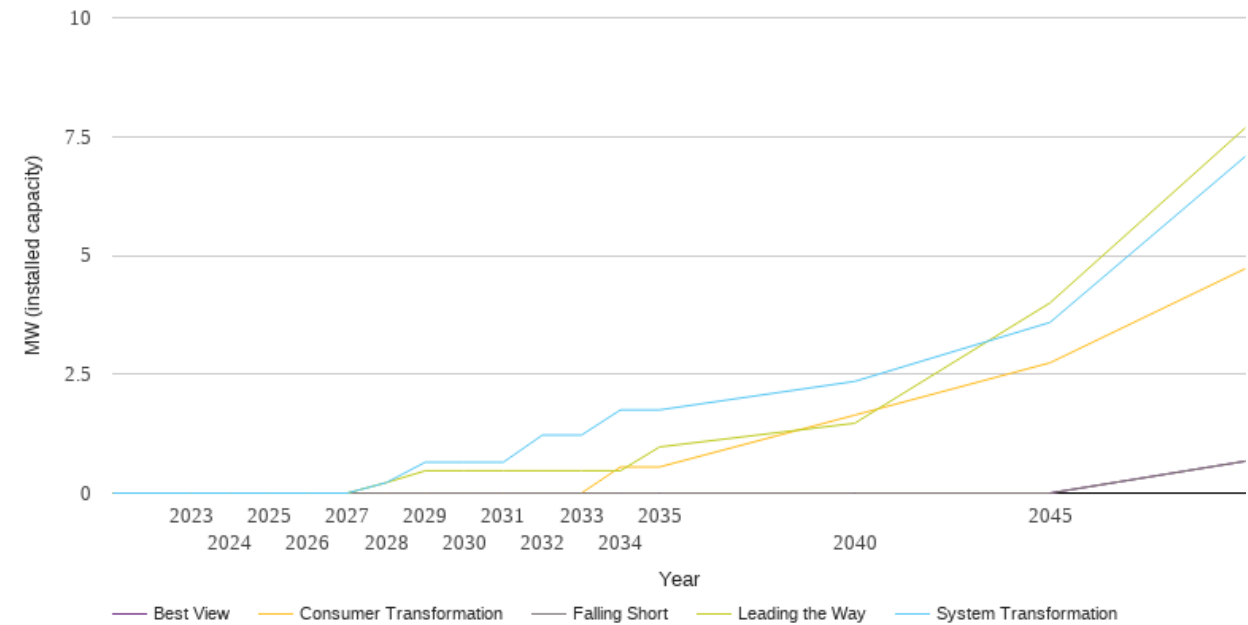
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1562	1562	1562	1562	1562
2023	2217	2405	2839	4341	2217
2024	2876	3266	4160	7141	2876
2025	3535	4162	5496	9991	3535
2026	4817	5213	7692	12848	4790
2027	6116	6300	10040	15878	6066
2028	7438	7512	12772	19440	7378
2029	8779	8740	15689	23201	8722
2030	10136	9988	18835	27195	10097
2031	11445	11072	23215	31320	11489
2032	12754	12209	27806	35621	12924
2033	14053	13345	32315	39645	14330
2034	15339	14393	36540	43194	15719
2035	16630	15416	40656	46713	17102
2040	25606	25682	58937	60612	27274
2045	33117	35815	72468	68519	35358
2050	43389	49010	80773	72624	45507



Technology Summary: Hydrogen electrolysis

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

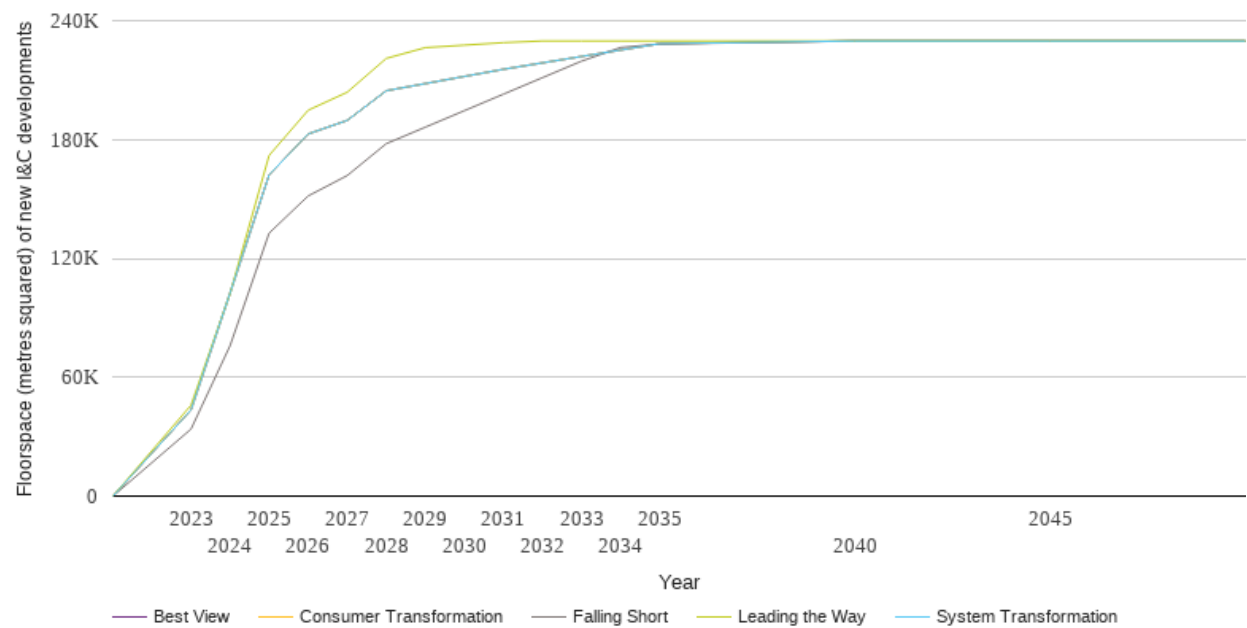
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.2	0.0	0.2	0.0
2029	0.0	0.7	0.0	0.5	0.0
2030	0.0	0.7	0.0	0.5	0.0
2031	0.0	0.7	0.0	0.5	0.0
2032	0.0	1.2	0.0	0.5	0.0
2033	0.0	1.2	0.0	0.5	0.0
2034	0.0	1.8	0.6	0.5	0.0
2035	0.0	1.8	0.6	1.0	0.0
2040	0.0	2.4	1.6	1.5	0.0
2045	0.0	3.6	2.7	4.0	0.0
2050	0.7	7.1	4.7	7.7	0.7



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	33832	43498	43498	45915	43498
2024	75918	102516	102516	102272	102516
2025	132761	162164	162164	171995	162164
2026	151507	182804	182804	194797	182804
2027	161814	189666	189666	203869	189666
2028	177896	204629	204629	220942	204629
2029	186228	208241	208241	226390	208241
2030	194561	211852	211852	227646	211852
2031	202893	215463	215463	228902	215463
2032	211225	218693	218693	229777	218693
2033	219558	221923	221923	229777	221923
2034	226440	225153	225153	229777	225153
2035	228227	228382	228382	229777	228382
2040	229777	229777	229777	229777	229777
2045	229777	229777	229777	229777	229777
2050	229777	229777	229777	229777	229777



Technology Summary: Other Distributed Generation

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

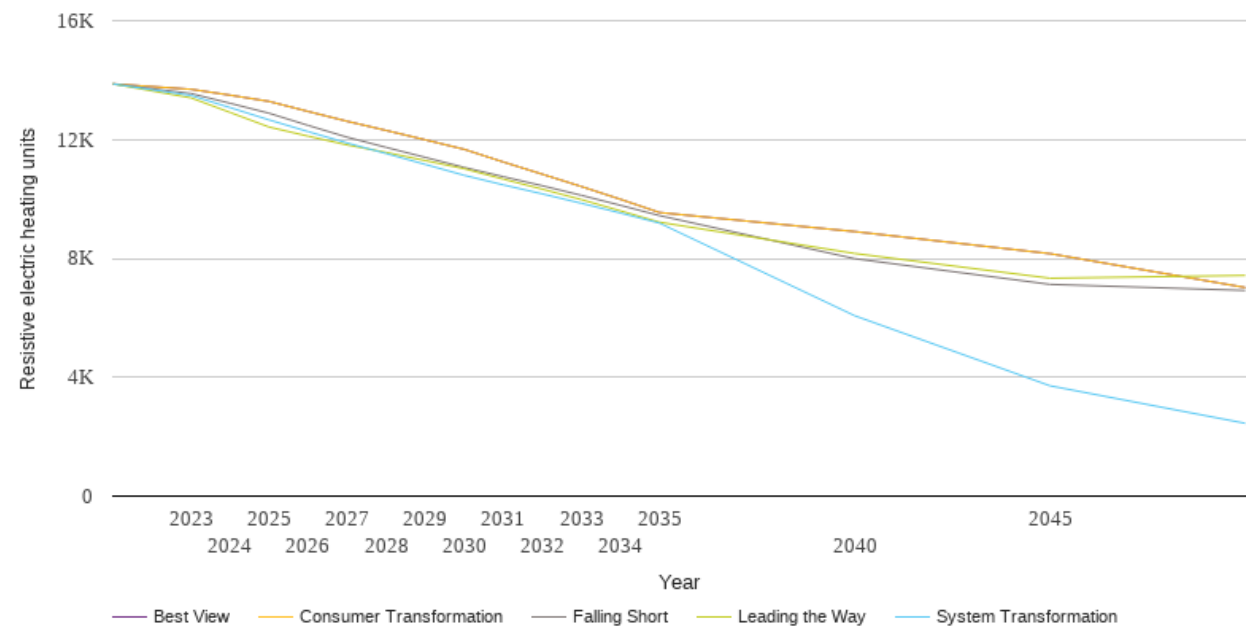
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	14.8	14.8	14.8	14.8	14.8
2023	15.1	15.1	15.1	15.1	15.1
2024	15.1	15.1	15.1	15.1	15.1
2025	15.1	15.1	15.1	15.1	15.1
2026	15.1	15.3	15.5	15.6	15.1
2027	15.1	15.5	16.0	16.1	15.1
2028	15.1	15.7	16.4	16.6	15.1
2029	15.1	15.8	16.6	16.9	15.1
2030	15.1	15.9	16.8	17.1	15.1
2031	15.1	16.0	17.0	17.2	15.1
2032	15.1	16.0	17.1	17.4	15.1
2033	15.1	16.0	17.1	17.4	15.1
2034	15.1	16.0	17.1	17.5	15.1
2035	13.8	14.8	15.9	9.0	13.8
2040	13.8	14.8	16.1	9.2	13.8
2045	13.8	7.5	8.8	9.3	13.8
2050	13.8	7.5	8.9	9.4	13.8



Technology Summary: Resistive electric heating

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

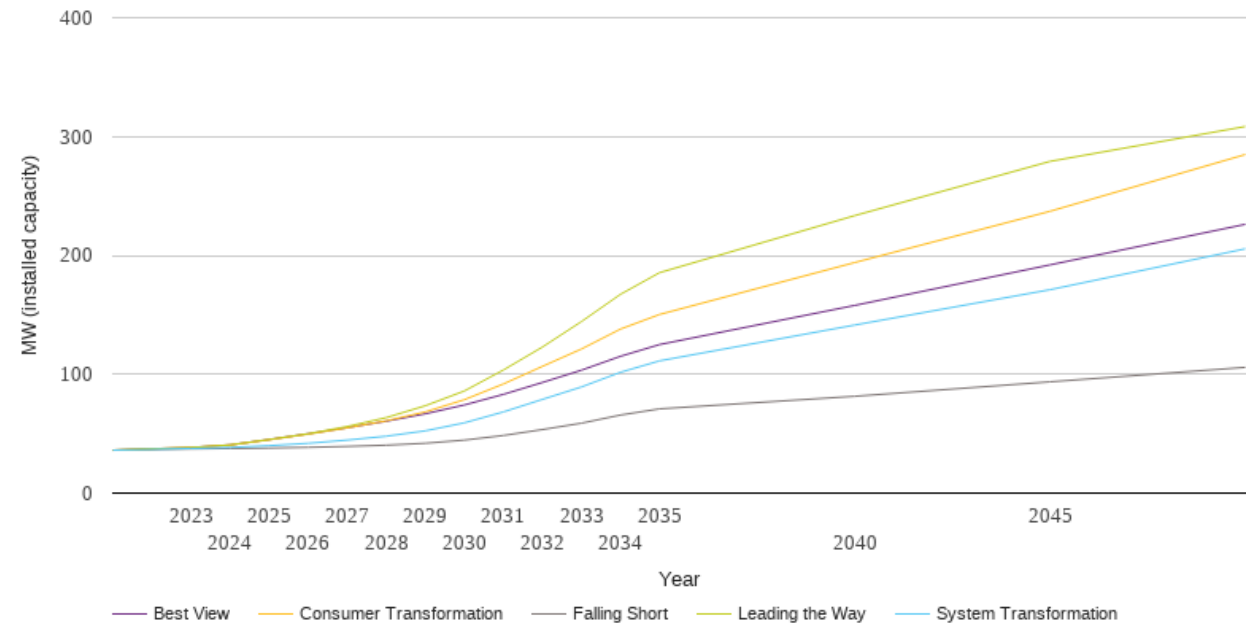
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	13872	13872	13872	13872	13872
2023	13548	13482	13691	13402	13691
2024	13221	13076	13494	12913	13494
2025	12885	12661	13283	12420	13283
2026	12475	12266	12945	12113	12945
2027	12078	11883	12614	11818	12614
2028	11735	11527	12306	11566	12306
2029	11399	11163	11990	11292	11990
2030	11061	10795	11669	11016	11669
2031	10750	10474	11244	10668	11244
2032	10444	10170	10832	10330	10832
2033	10122	9854	10418	9978	10418
2034	9786	9527	9989	9600	9989
2035	9440	9187	9543	9218	9543
2040	7990	6070	8902	8165	8902
2045	7125	3713	8160	7332	8160
2050	6921	2450	7020	7427	7020



Technology Summary: Solar Generation

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

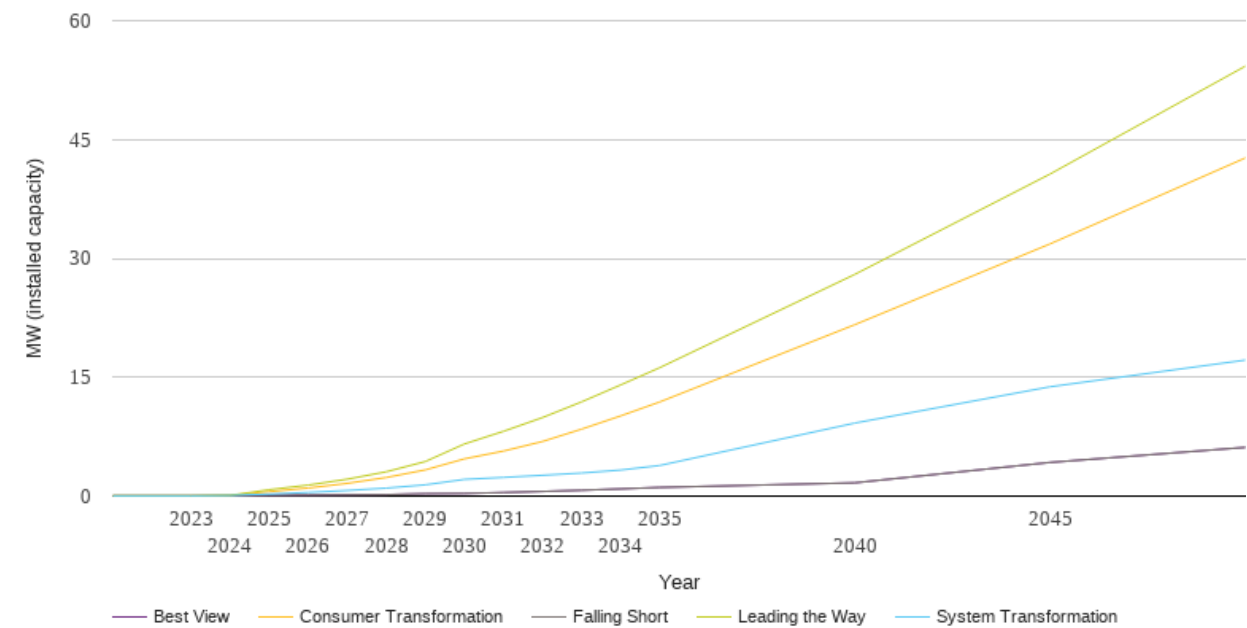
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	36.1	36.1	36.1	36.1	36.1
2023	37.2	37.5	38.3	38.3	38.3
2024	37.5	38.4	40.4	40.5	40.5
2025	37.9	39.9	44.9	45.1	45.1
2026	38.5	41.9	49.6	49.9	49.9
2027	39.3	44.6	54.8	56.0	55.0
2028	40.3	47.9	60.8	63.5	60.5
2029	41.9	52.4	68.3	73.5	66.7
2030	44.6	59.1	78.6	85.9	74.1
2031	48.5	68.3	91.8	103.6	83.1
2032	53.5	78.8	106.6	122.9	93.1
2033	58.8	89.3	121.3	144.3	103.4
2034	65.7	101.6	138.0	167.3	115.1
2035	70.9	111.2	150.3	185.5	125.0
2040	81.5	141.4	194.0	233.5	157.9
2045	93.6	171.1	237.1	279.1	192.0
2050	105.8	205.5	284.8	308.4	226.1



Technology Summary: Storage

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

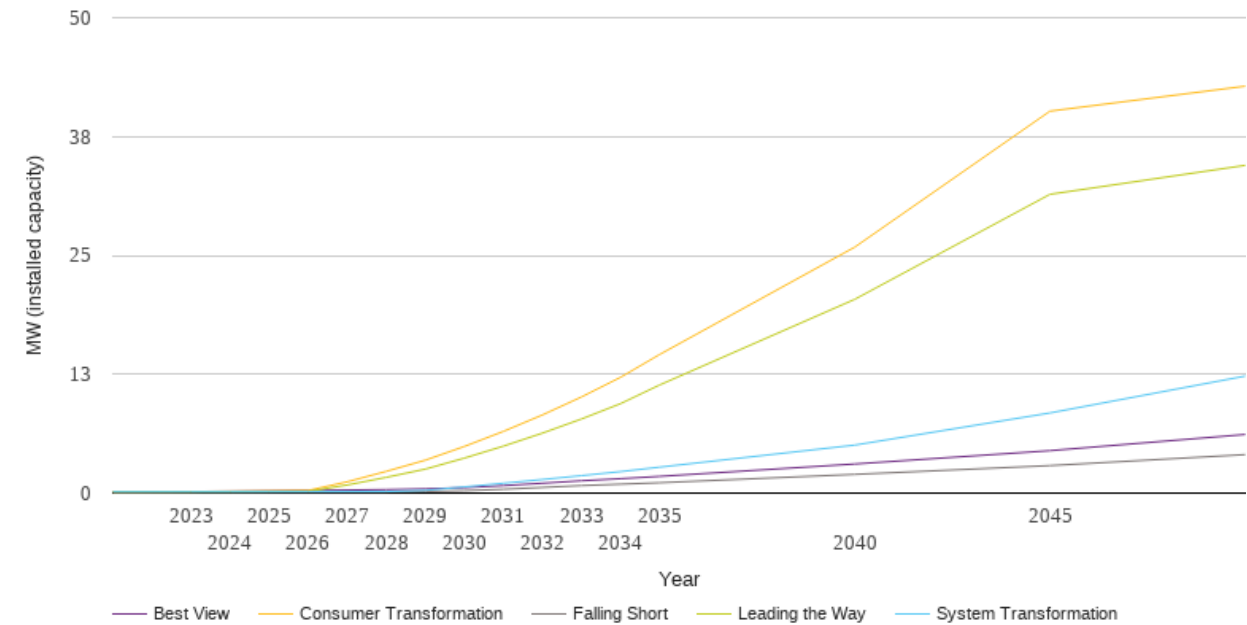
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.1	0.1	0.1	0.0
2025	0.1	0.3	0.6	0.8	0.1
2026	0.1	0.5	1.0	1.4	0.1
2027	0.2	0.7	1.6	2.1	0.2
2028	0.2	1.0	2.3	3.1	0.2
2029	0.3	1.4	3.3	4.4	0.3
2030	0.3	2.1	4.7	6.6	0.3
2031	0.5	2.4	5.7	8.2	0.5
2032	0.6	2.6	6.9	9.9	0.6
2033	0.7	2.9	8.4	11.9	0.7
2034	0.9	3.3	10.1	14.0	0.9
2035	1.1	3.9	11.9	16.2	1.1
2040	1.7	9.2	21.6	28.0	1.7
2045	4.2	13.8	31.8	40.6	4.2
2050	6.1	17.2	42.7	54.2	6.1



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	0.1	0.1	0.1	0.1	0.1
2023	0.1	0.1	0.2	0.1	0.2
2024	0.1	0.1	0.2	0.1	0.2
2025	0.1	0.1	0.2	0.2	0.2
2026	0.1	0.1	0.3	0.2	0.3
2027	0.1	0.1	1.2	0.9	0.3
2028	0.1	0.2	2.3	1.7	0.4
2029	0.2	0.3	3.5	2.5	0.4
2030	0.2	0.7	4.9	3.7	0.6
2031	0.4	1.0	6.5	4.9	0.8
2032	0.6	1.4	8.2	6.3	1.0
2033	0.8	1.8	10.1	7.8	1.3
2034	0.9	2.3	12.2	9.4	1.5
2035	1.1	2.7	14.6	11.4	1.8
2040	2.0	5.0	25.9	20.4	3.1
2045	2.9	8.4	40.2	31.4	4.5
2050	4.0	12.3	42.8	34.5	6.2



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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