

Distribution Future Energy Scenarios 2022

Local Authority:
Dorset

What are Distribution Future Energy Scenarios?

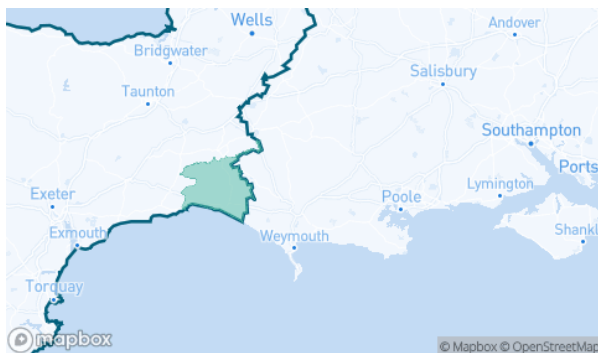
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 Dorset covered by the NGED licence areas.



Scenario Summary

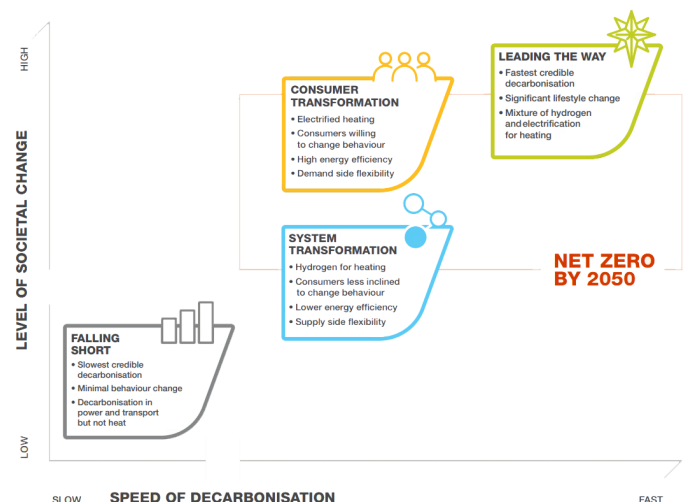
This DFES scenario framework includes three scenarios that are compliant with UK government targets of Net Zero greenhouse gas emissions by 2050. A summary of each scenario is below:

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 Dorset 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	66	40	40	0	4626	2143	2143	0
Domestic	New dwellings	0	857	960	960	1159	1652	1642	1642	1633
Electric vehicles	Electric vehicles	396	334 0	4343	8010	8035	2510 9	2140 0	2123 4	1920 5
EV Charge Point	EV charge points	222	149 1	2246	4186	4615	1359 9	1356 9	1353 7	1408 4
Heat pumps	Heat pump installations	316	224 0	2050	4180	6076	9891	1123 8	1785 8	1610 5
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
Non domestic	Floorspace (metres squared) of new I&C developments	0	983 3	1785 7	1785 7	1610 2	2204 2	2204 2	2204 2	2204 2
Other Distributed Generation	MW (installed capacity)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Resistive electric heating	Resistive electric heating units	4664	369 9	3621	3868	3668	2123	810	2322	2434
Solar Generation	MW (installed capacity)	6.2	7.6	10.3	15.0	15.2	12.1	23.3	42.4	43.1
Storage	MW (installed capacity)	0.1	0.8	1.1	1.7	2.0	2.0	4.5	10.3	12.3
Wind	MW (installed capacity)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2

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

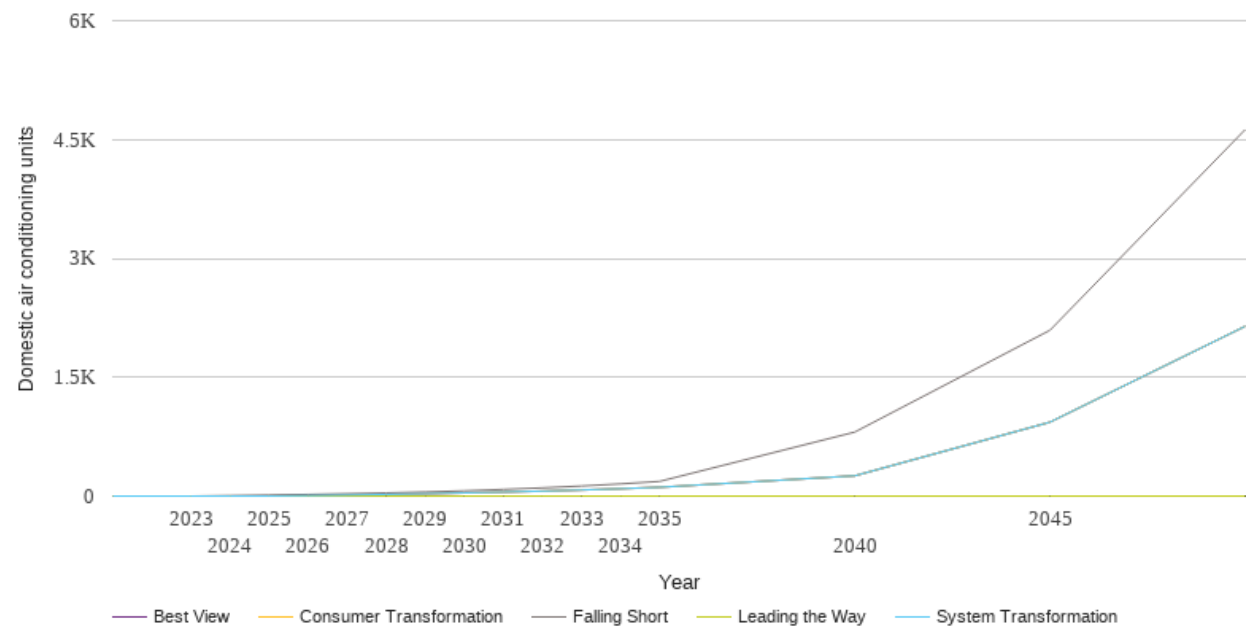
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

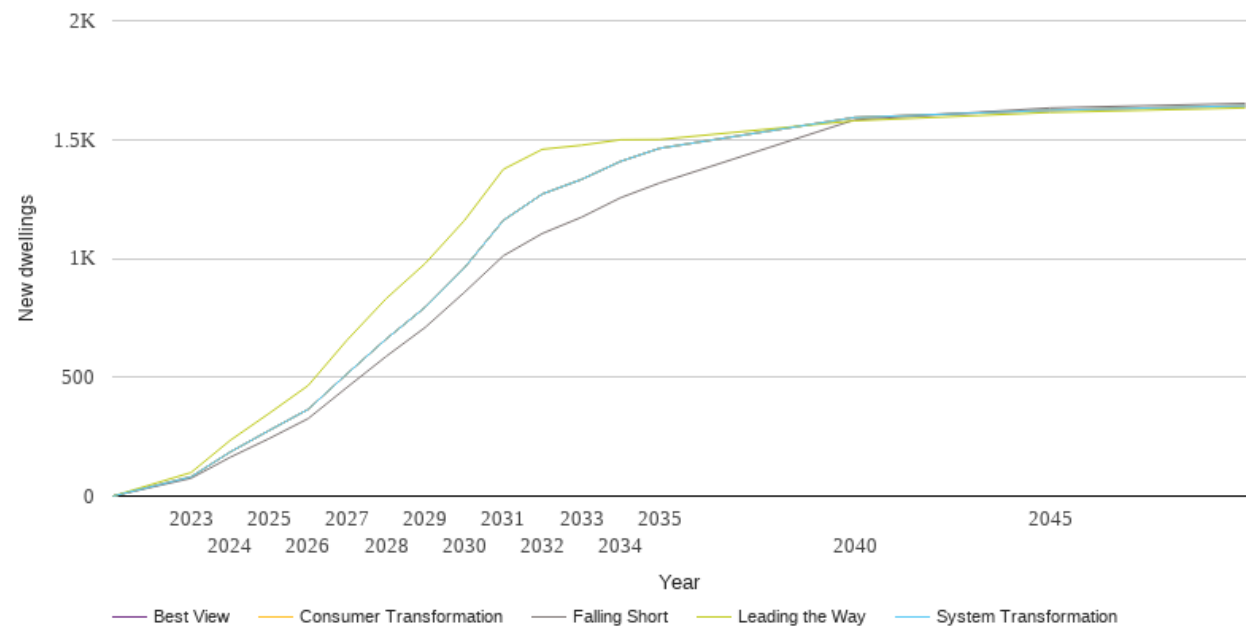
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	6	0	0	0	0
2025	13	0	0	0	0
2026	21	6	6	0	6
2027	30	13	13	0	13
2028	40	21	21	0	21
2029	52	30	30	0	30
2030	66	40	40	0	40
2031	84	51	51	0	51
2032	104	63	63	0	63
2033	127	77	77	0	77
2034	154	93	93	0	93
2035	185	111	111	0	111
2040	808	256	256	0	256
2045	2093	933	933	0	933
2050	4626	2143	2143	0	2143



Technology Summary: Domestic

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

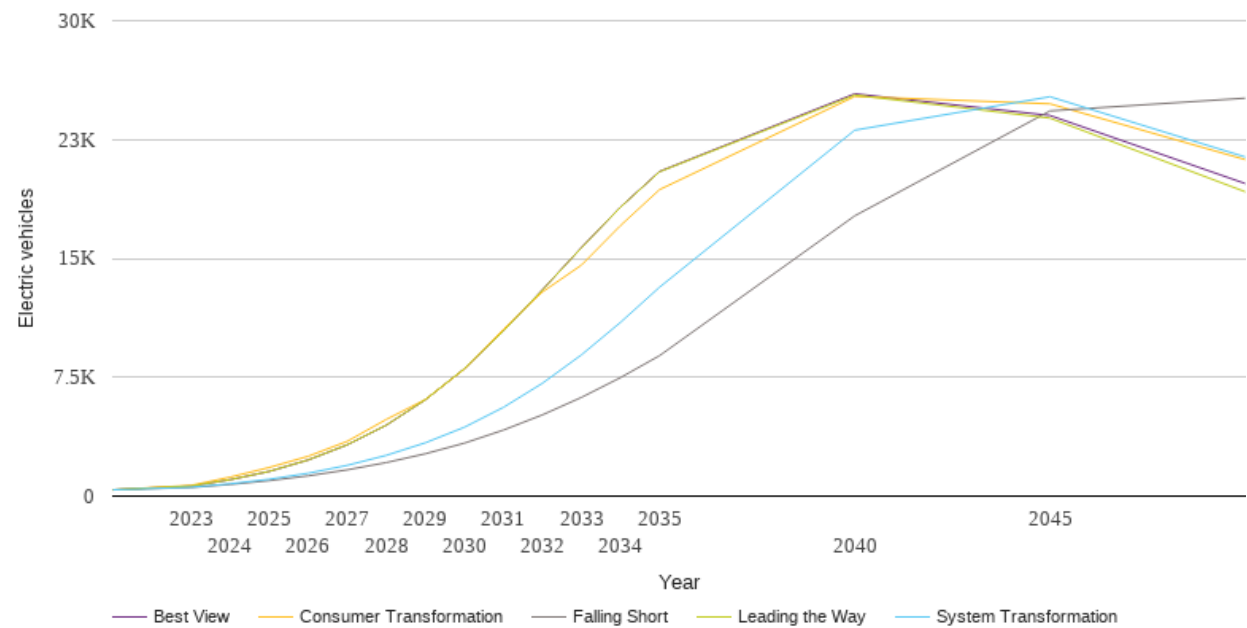
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	75	81	81	99	81
2024	163	185	185	234	185
2025	242	276	276	348	276
2026	326	365	365	465	365
2027	458	515	515	657	515
2028	588	661	661	831	661
2029	710	795	795	979	795
2030	857	960	960	1159	960
2031	1011	1160	1160	1375	1160
2032	1105	1271	1271	1459	1271
2033	1173	1332	1332	1476	1332
2034	1255	1408	1408	1499	1408
2035	1317	1463	1463	1500	1463
2040	1583	1593	1593	1579	1593
2045	1633	1623	1623	1614	1623
2050	1652	1642	1642	1633	1642



Technology Summary: Electric vehicles

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

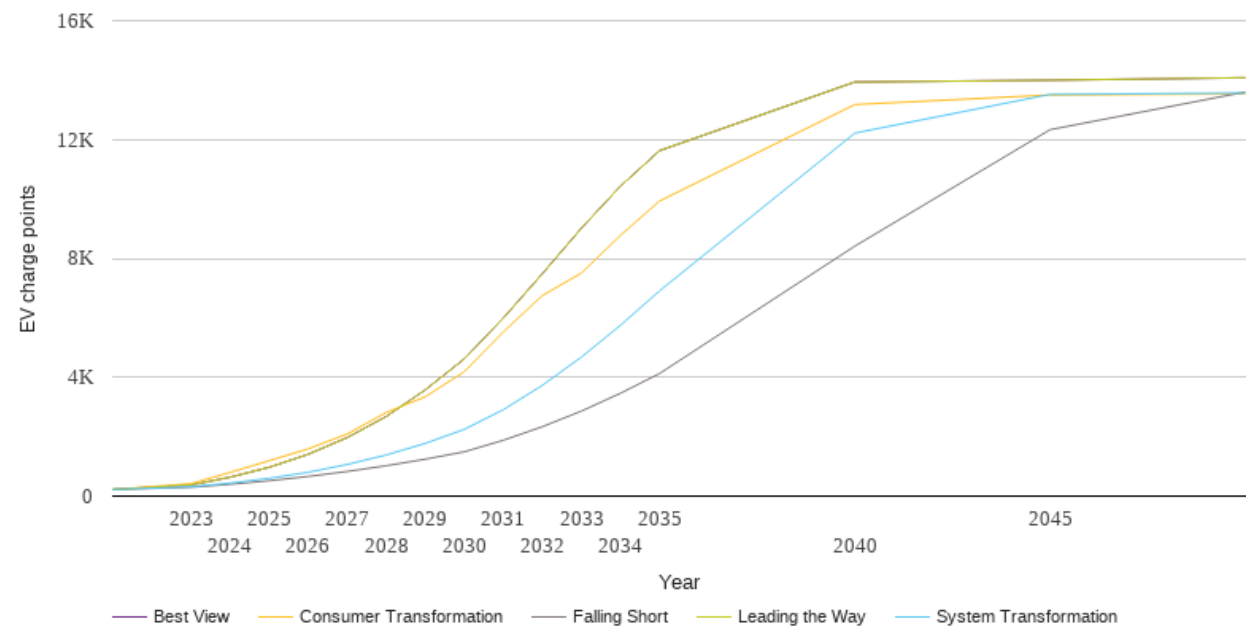
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	396	396	396	396	396
2023	544	558	673	636	636
2024	734	777	1197	1033	1032
2025	976	1060	1804	1557	1556
2026	1277	1441	2512	2281	2280
2027	1657	1940	3456	3238	3233
2028	2114	2570	4835	4476	4472
2029	2670	3362	6092	6079	6076
2030	3340	4343	8010	8035	8033
2031	4164	5597	10523	10412	10414
2032	5125	7120	12880	13003	13019
2033	6229	8914	14577	15671	15686
2034	7478	10962	17072	18229	18243
2035	8862	13182	19340	20468	20485
2040	17684	23091	25220	25305	25385
2045	24305	25202	24754	23852	24018
2050	25109	21400	21234	19205	19725



Technology Summary: EV Charge Point

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

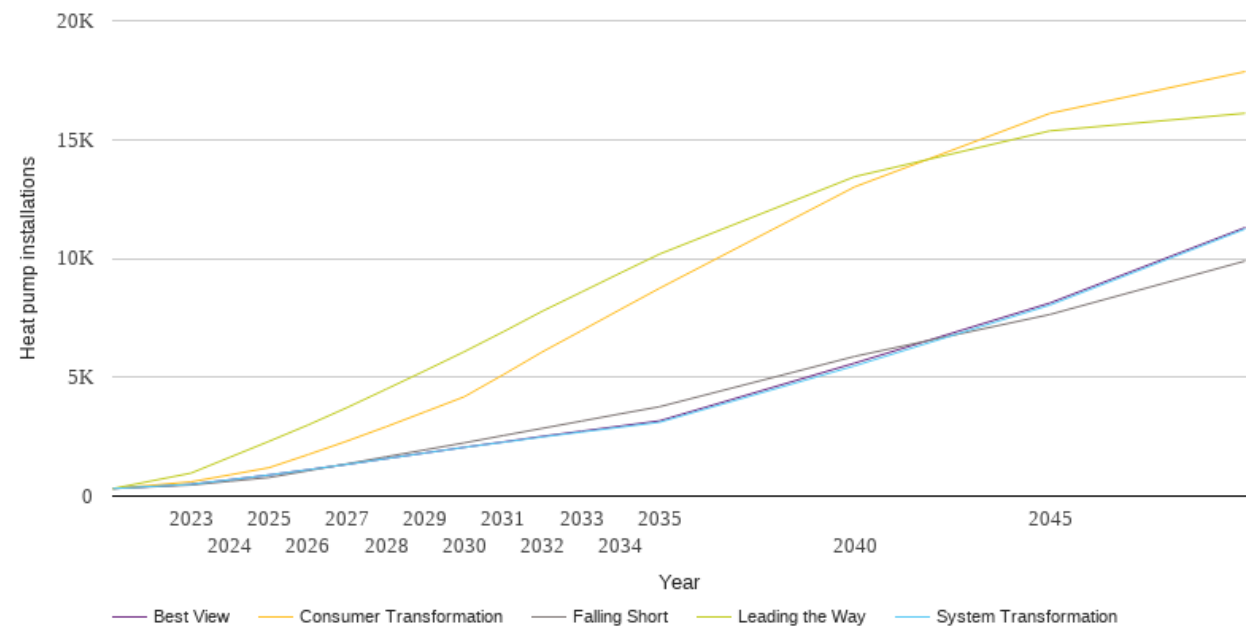
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	222	222	222	222	222
2023	298	313	419	373	373
2024	397	438	796	635	636
2025	517	597	1190	968	969
2026	660	802	1587	1406	1407
2027	829	1064	2093	1971	1971
2028	1022	1384	2815	2676	2680
2029	1242	1775	3342	3575	3576
2030	1491	2246	4186	4615	4619
2031	1880	2910	5527	5986	5994
2032	2336	3729	6751	7479	7486
2033	2862	4681	7506	9016	9020
2034	3461	5748	8776	10431	10434
2035	4124	6907	9931	11624	11625
2040	8411	12215	13176	13932	13936
2045	12330	13518	13499	13995	13995
2050	13599	13569	13537	14084	14081



Technology Summary: Heat pumps

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

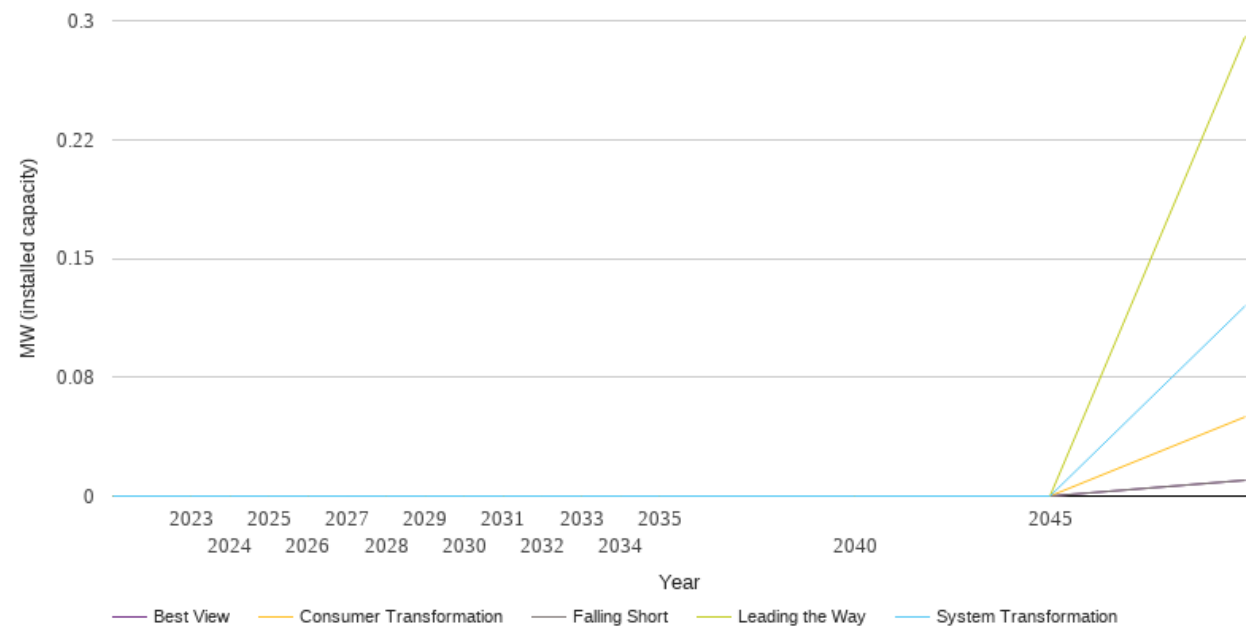
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	316	316	316	316	316
2023	466	496	600	966	496
2024	624	686	894	1636	686
2025	781	887	1196	2305	887
2026	1068	1107	1745	2993	1108
2027	1357	1336	2318	3727	1336
2028	1655	1576	2920	4499	1578
2029	1948	1815	3548	5280	1816
2030	2240	2050	4180	6076	2053
2031	2548	2264	5110	6914	2278
2032	2851	2489	6069	7780	2514
2033	3155	2695	6958	8582	2730
2034	3461	2898	7855	9387	2947
2035	3759	3106	8743	10181	3165
2040	5877	5479	13009	13438	5595
2045	7641	8037	16102	15364	8123
2050	9891	11238	17858	16105	11299



Technology Summary: Hydrogen electrolysis

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

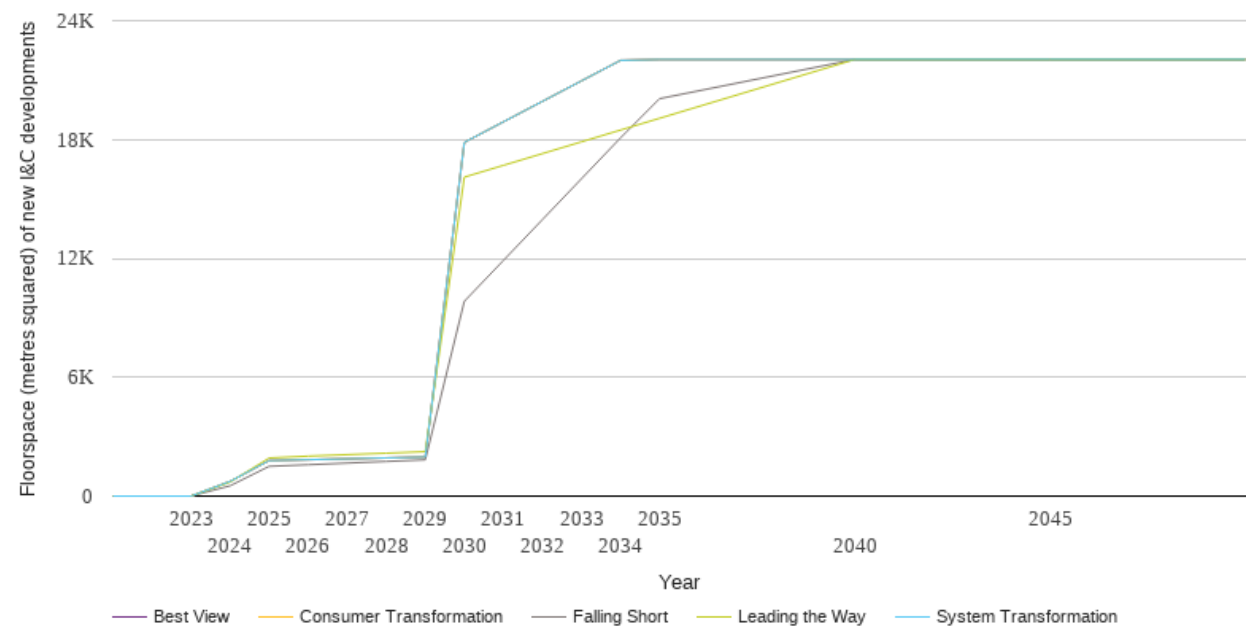
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	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	0.1	0.1	0.3	0.0



Technology Summary: Non domestic

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

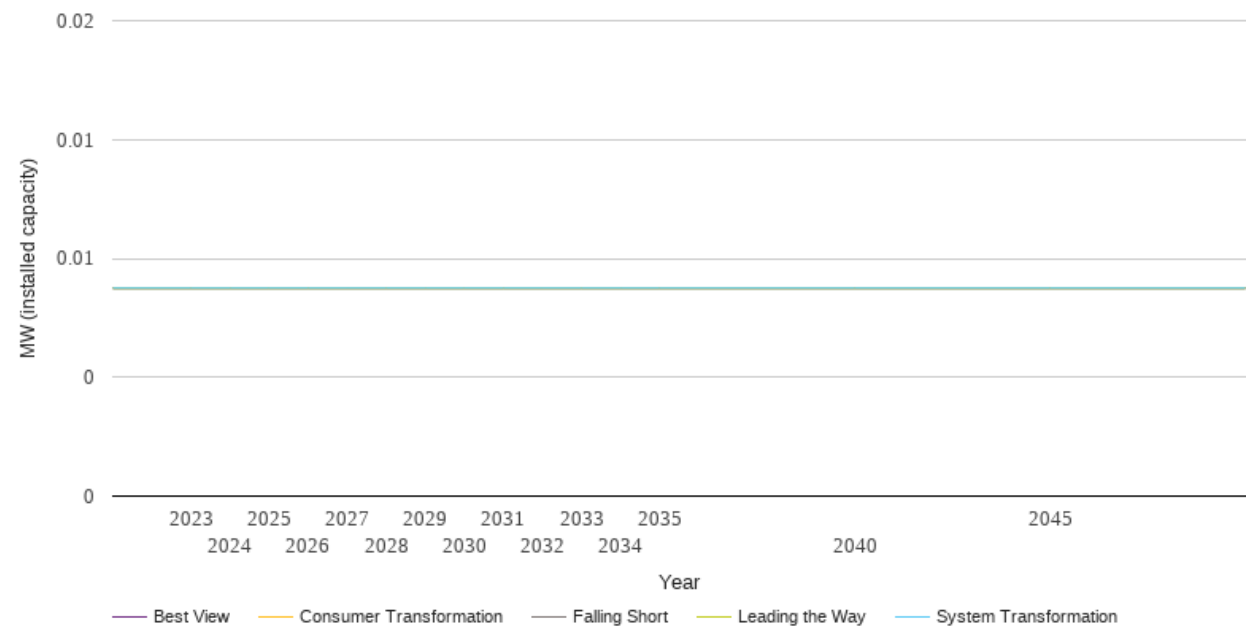
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	519	742	742	705	742
2025	1502	1792	1792	1923	1792
2026	1584	1837	1837	2017	1837
2027	1666	1882	1882	2092	1882
2028	1748	1927	1927	2167	1927
2029	1831	1972	1972	2242	1972
2030	9833	17857	17857	16102	17857
2031	11895	18892	18892	16696	18892
2032	13957	19927	19927	17290	19927
2033	16020	20962	20962	17884	20962
2034	18082	21997	21997	18478	21997
2035	20062	22042	22042	19072	22042
2040	22042	22042	22042	22042	22042
2045	22042	22042	22042	22042	22042
2050	22042	22042	22042	22042	22042



Technology Summary: Other Distributed Generation

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

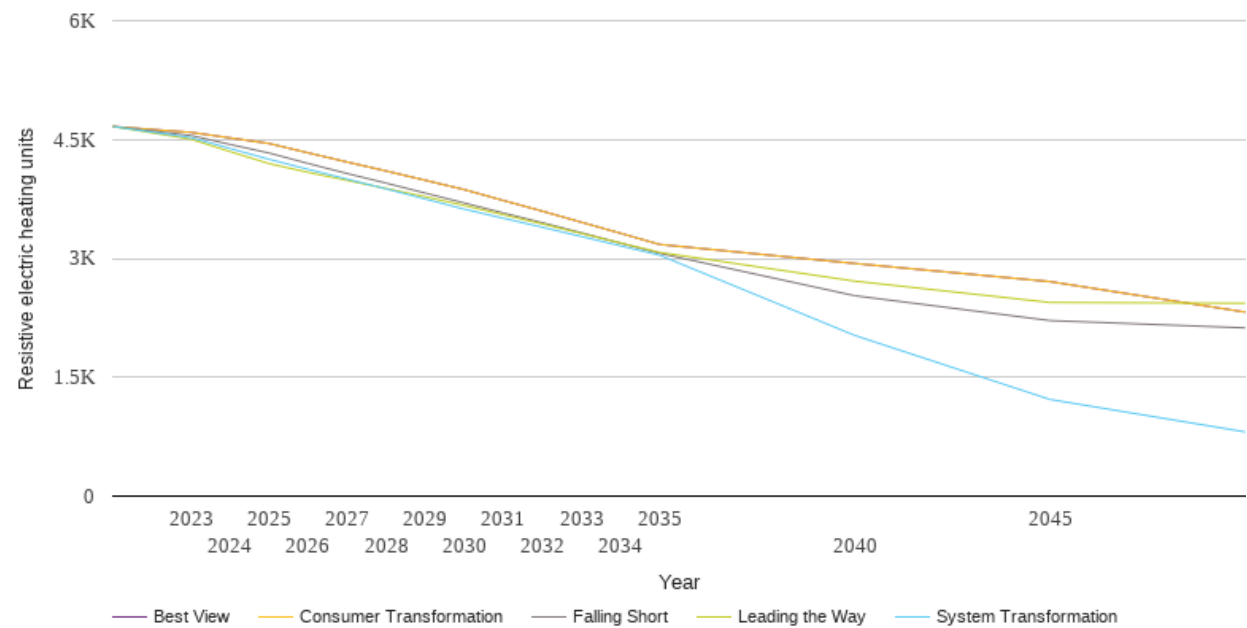
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0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

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

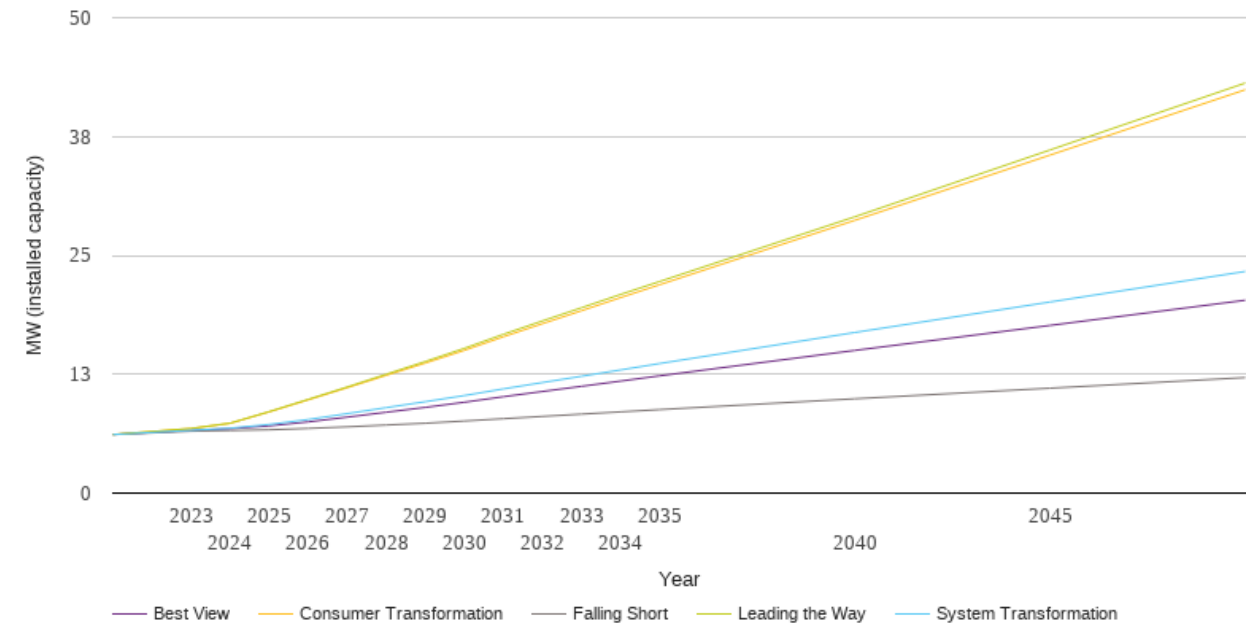
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	4664	4664	4664	4664	4664
2023	4551	4524	4590	4504	4590
2024	4438	4387	4521	4348	4521
2025	4330	4251	4450	4196	4450
2026	4198	4124	4332	4086	4332
2027	4071	4000	4216	3984	4216
2028	3950	3877	4103	3882	4103
2029	3824	3750	3986	3778	3986
2030	3699	3621	3868	3668	3868
2031	3573	3507	3731	3551	3731
2032	3450	3393	3596	3435	3596
2033	3323	3276	3456	3314	3456
2034	3193	3159	3317	3194	3317
2035	3064	3041	3176	3076	3176
2040	2529	2028	2936	2713	2936
2045	2215	1220	2707	2444	2707
2050	2123	810	2322	2434	2322



Technology Summary: Solar Generation

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

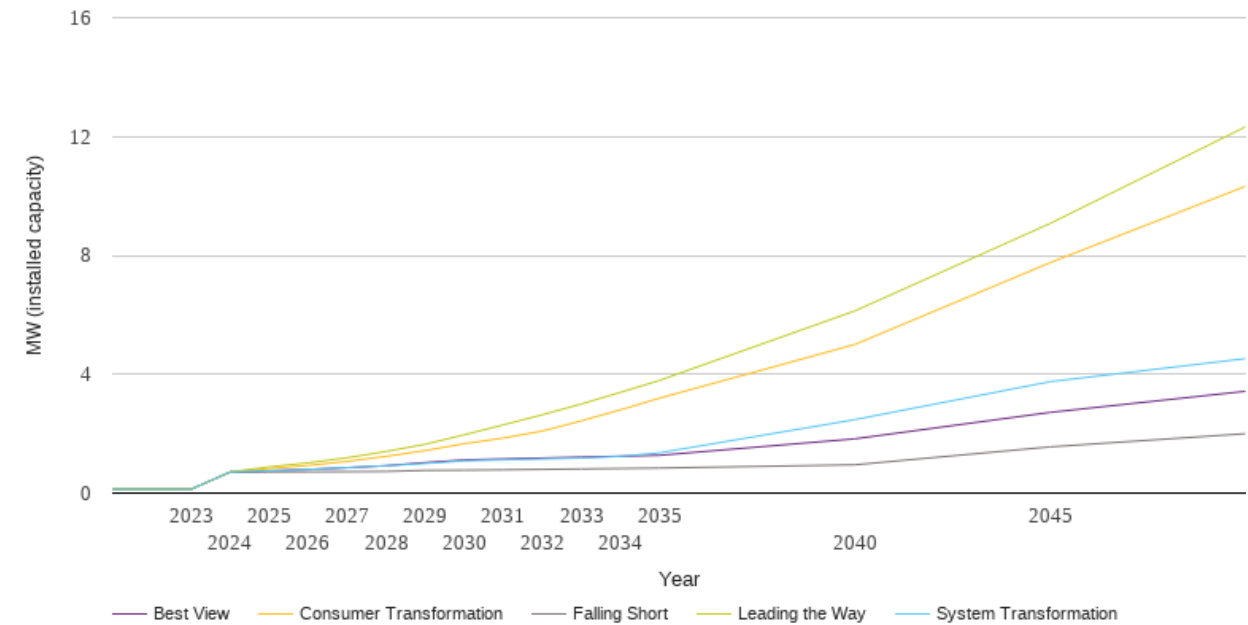
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6.2	6.2	6.2	6.2	6.2
2023	6.5	6.6	6.8	6.8	6.6
2024	6.6	6.8	7.3	7.4	6.8
2025	6.7	7.2	8.5	8.6	7.1
2026	6.8	7.7	9.8	9.9	7.5
2027	7.0	8.4	11.1	11.2	8.0
2028	7.2	9.0	12.4	12.5	8.5
2029	7.3	9.6	13.7	13.8	9.0
2030	7.6	10.3	15.0	15.2	9.6
2031	7.8	11.0	16.4	16.7	10.1
2032	8.1	11.6	17.8	18.1	10.7
2033	8.3	12.3	19.2	19.5	11.2
2034	8.5	13.0	20.6	20.9	11.8
2035	8.8	13.6	21.9	22.2	12.3
2040	9.9	16.9	28.7	29.1	15.0
2045	11.0	20.1	35.5	36.1	17.6
2050	12.1	23.3	42.4	43.1	20.3



Technology Summary: Storage

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

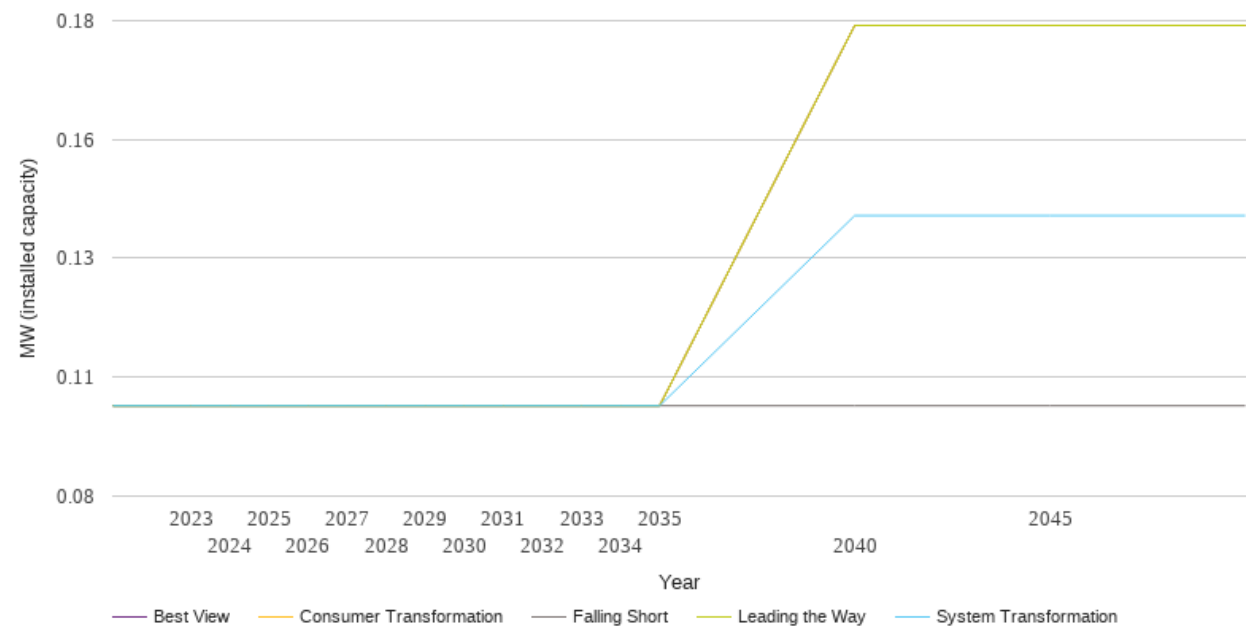
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.1	0.1	0.1	0.1	0.1
2023	0.1	0.1	0.1	0.1	0.1
2024	0.7	0.7	0.7	0.7	0.7
2025	0.7	0.7	0.8	0.9	0.7
2026	0.7	0.8	0.9	1.0	0.8
2027	0.7	0.9	1.1	1.2	0.9
2028	0.7	0.9	1.2	1.4	0.9
2029	0.8	1.0	1.4	1.6	1.0
2030	0.8	1.1	1.7	2.0	1.1
2031	0.8	1.1	1.9	2.3	1.1
2032	0.8	1.1	2.1	2.6	1.2
2033	0.8	1.2	2.4	3.0	1.2
2034	0.8	1.2	2.8	3.4	1.2
2035	0.8	1.4	3.2	3.8	1.3
2040	1.0	2.5	5.0	6.1	1.8
2045	1.6	3.7	7.8	9.1	2.7
2050	2.0	4.5	10.3	12.3	3.4



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	0.1	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	0.1	0.1	0.2	0.2	0.2
2045	0.1	0.1	0.2	0.2	0.2
2050	0.1	0.1	0.2	0.2	0.2



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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