

Distribution Future Energy Scenarios 2022

Local Authority:
Torbay

What are Distribution Future Energy Scenarios?

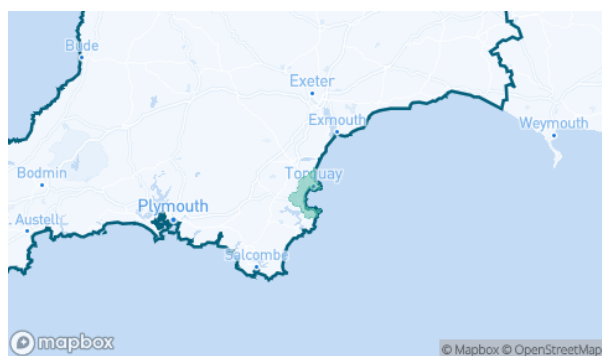
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 Torbay covered by the NGED licence areas.



Scenario Summary

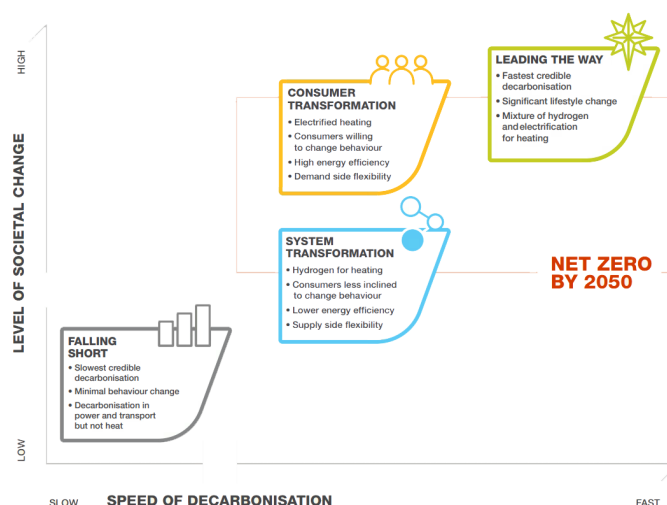
This DFES scenario framework includes three scenarios that are compliant with UK government targets of Net Zero greenhouse gas emissions by 2050. A summary of each scenario is below:

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 Torbay 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	426	1468	1194	1194	426	31290	16314	16314	426
Domestic	New dwellings	0	1368	1508	1508	1801	1974	1941	1941	1917
Electric vehicles	Electric vehicles	1420	11875	15641	28772	28832	93427	92287	91243	71609
EV Charge Point	EV charge points	757	5220	8188	15580	16983	50643	51882	52072	54347
Heat pumps	Heat pump installations	175	3919	2613	10543	16414	34553	39353	67982	59899
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.8
Non domestic	Floorspace (metres squared) of new I&C developments	0	124752	139449	139449	146587	162139	162139	162139	162139
Other Distributed Generation	MW (installed capacity)	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Resistive electric heating	Resistive electric heating units	13375	10827	10570	11220	10686	6524	2633	6932	7182
Solar Generation	MW (installed capacity)	9.5	13.5	21.2	35.2	36.1	29.0	65.3	123.9	129.9
Storage	MW (installed capacity)	0.0	0.2	1.2	3.0	3.9	4.1	10.9	29.5	37.8
Wind	MW (installed capacity)	0.0	0.0	0.0	0.3	0.2	0.1	0.4	1.7	1.4

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.

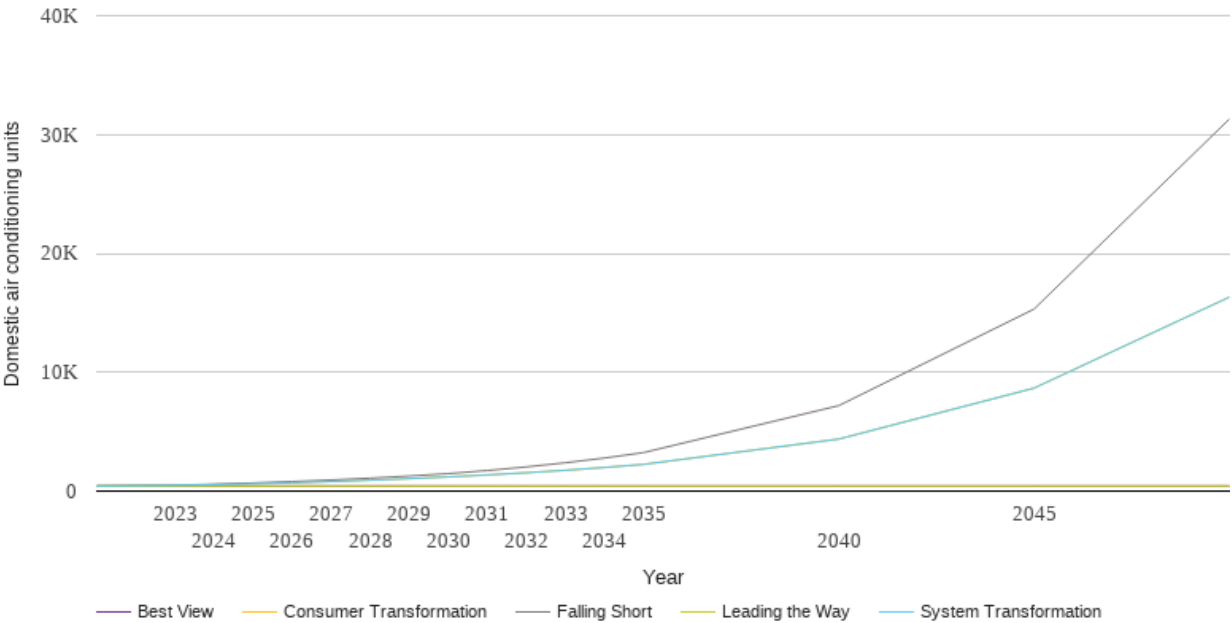
If you have any comments or queries regarding these reports, please contact

nged.energyplanning@nationalgrid.co.uk.

Technology Summary: Air conditioning

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

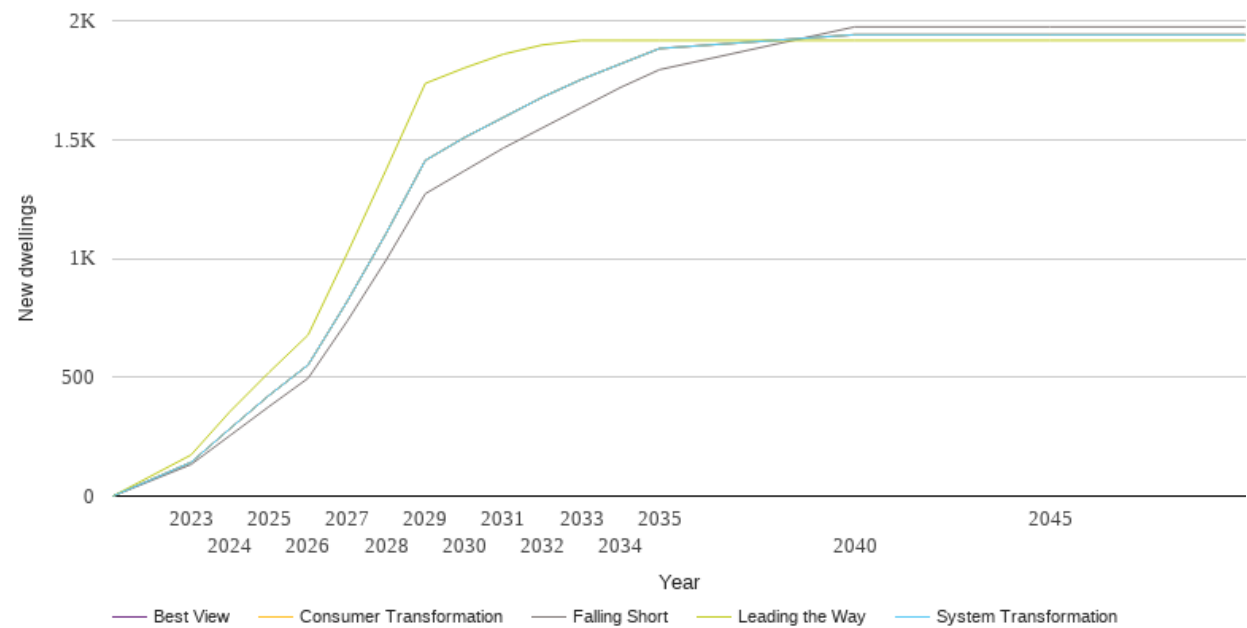
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	426	426	426	426	426
2023	490	482	482	426	426
2024	578	541	541	426	426
2025	682	610	610	426	426
2026	799	701	701	426	426
2027	933	803	803	426	426
2028	1086	919	919	426	426
2029	1265	1049	1049	426	426
2030	1468	1194	1194	426	426
2031	1732	1359	1359	426	426
2032	2034	1543	1543	426	426
2033	2383	1751	1751	426	426
2034	2782	1987	1987	426	426
2035	3239	2249	2249	426	426
2040	7190	4377	4377	426	426
2045	15309	8663	8663	426	426
2050	31290	16314	16314	426	426



Technology Summary: Domestic

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

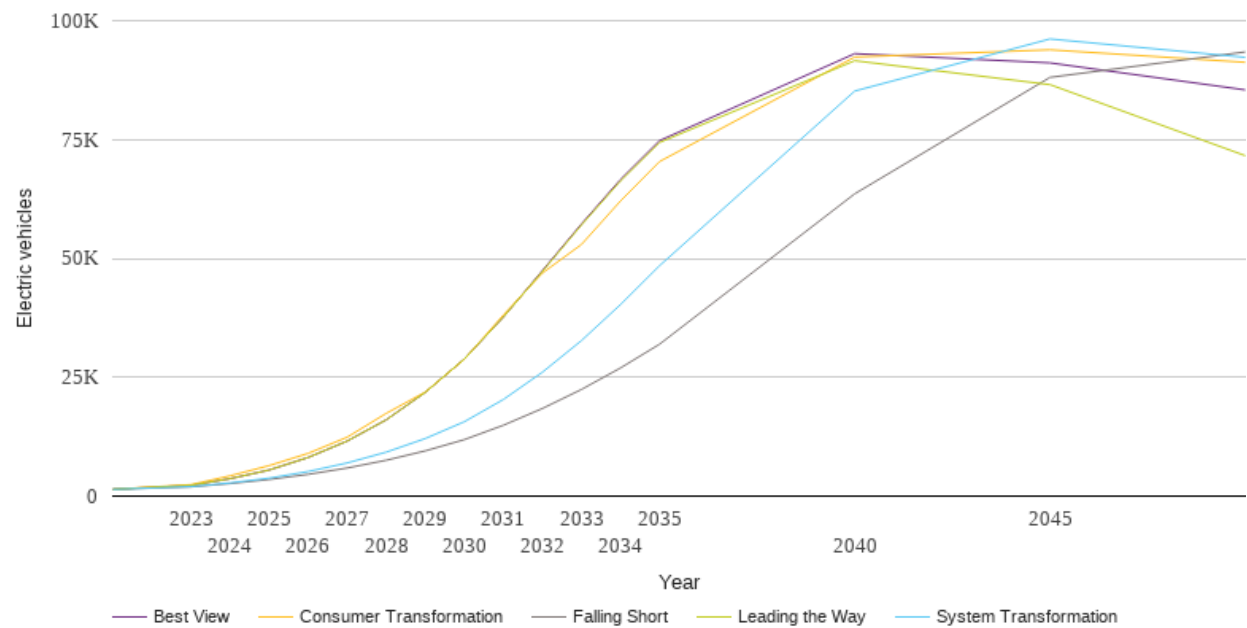
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	133	142	142	173	142
2024	255	284	284	356	284
2025	377	424	424	521	424
2026	496	552	552	678	552
2027	736	819	819	1021	819
2028	994	1106	1106	1374	1106
2029	1272	1412	1412	1736	1412
2030	1368	1508	1508	1801	1508
2031	1464	1593	1593	1859	1593
2032	1549	1678	1678	1898	1678
2033	1634	1753	1753	1917	1753
2034	1719	1818	1818	1917	1818
2035	1794	1883	1883	1917	1883
2040	1974	1941	1941	1917	1941
2045	1974	1941	1941	1917	1941
2050	1974	1941	1941	1917	1941



Technology Summary: Electric vehicles

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

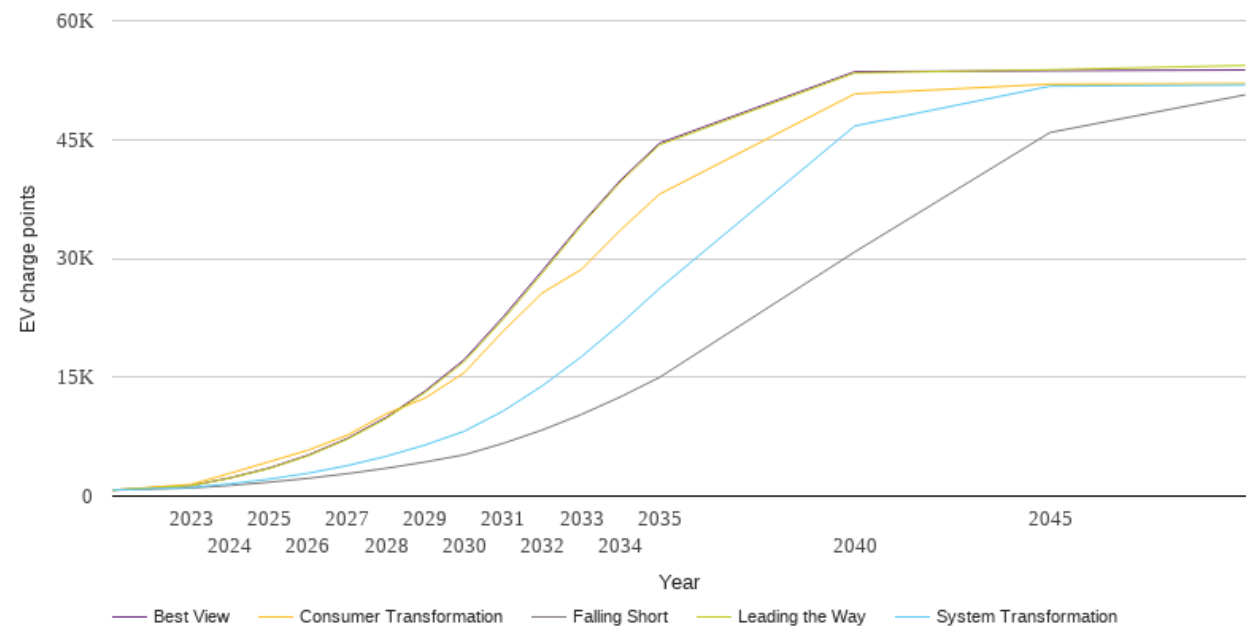
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1420	1420	1420	1420	1420
2023	1952	1996	2404	2264	2264
2024	2643	2772	4268	3659	3659
2025	3496	3771	6407	5487	5487
2026	4570	5165	8984	8121	8121
2027	5910	6972	12394	11576	11573
2028	7536	9248	17403	16042	16044
2029	9512	12106	21888	21818	21823
2030	11875	15641	28772	28832	28833
2031	14899	20319	38100	37656	37655
2032	18430	26056	46918	47269	47436
2033	22431	32709	52924	57025	57236
2034	26953	40284	62074	66301	66591
2035	31949	48463	70369	74373	74767
2040	63587	85197	92359	91582	93067
2045	88074	96156	93871	86551	91122
2050	93427	92287	91243	71609	85442



Technology Summary: EV Charge Point

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

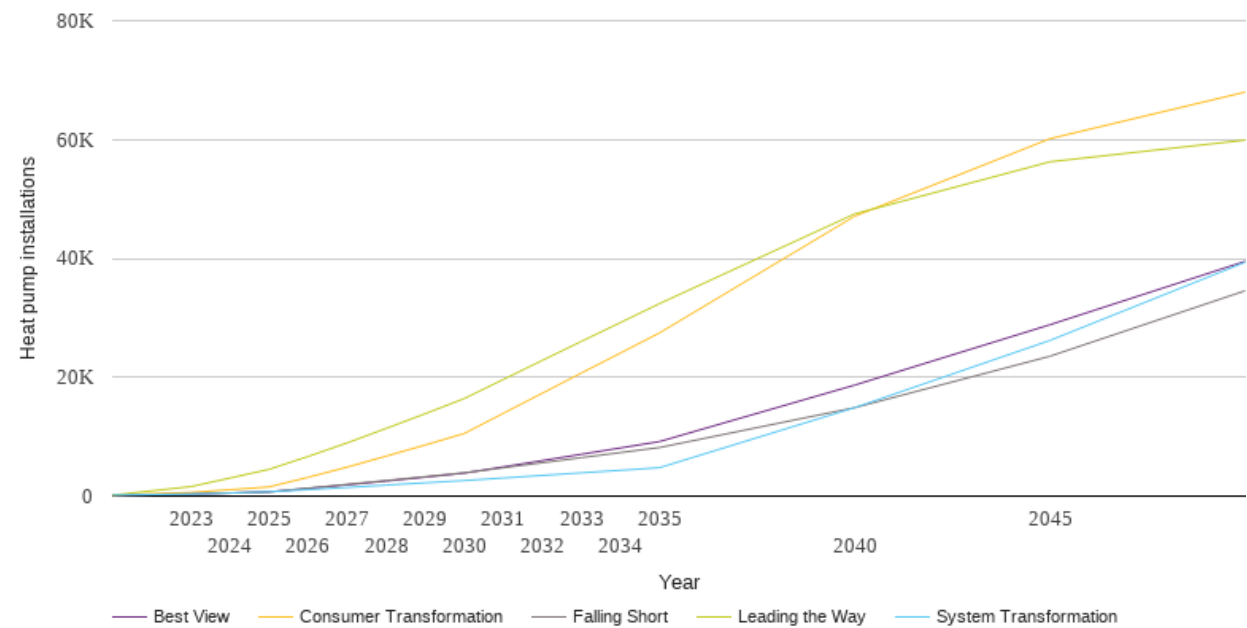
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	757	757	757	757	757
2023	1014	1090	1478	1309	1317
2024	1342	1549	2878	2267	2304
2025	1753	2137	4328	3483	3543
2026	2241	2890	5803	5088	5170
2027	2829	3844	7686	7175	7277
2028	3511	5023	10387	9790	9948
2029	4308	6458	12382	13098	13273
2030	5220	8188	15580	16983	17234
2031	6660	10753	20836	22321	22641
2032	8351	13925	25647	28141	28468
2033	10306	17598	28614	34145	34362
2034	12527	21729	33578	39658	39871
2035	14982	26213	38111	44327	44539
2040	30818	46713	50767	53406	53559
2045	45886	51734	51989	53813	53685
2050	50643	51882	52072	54347	53779



Technology Summary: Heat pumps

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

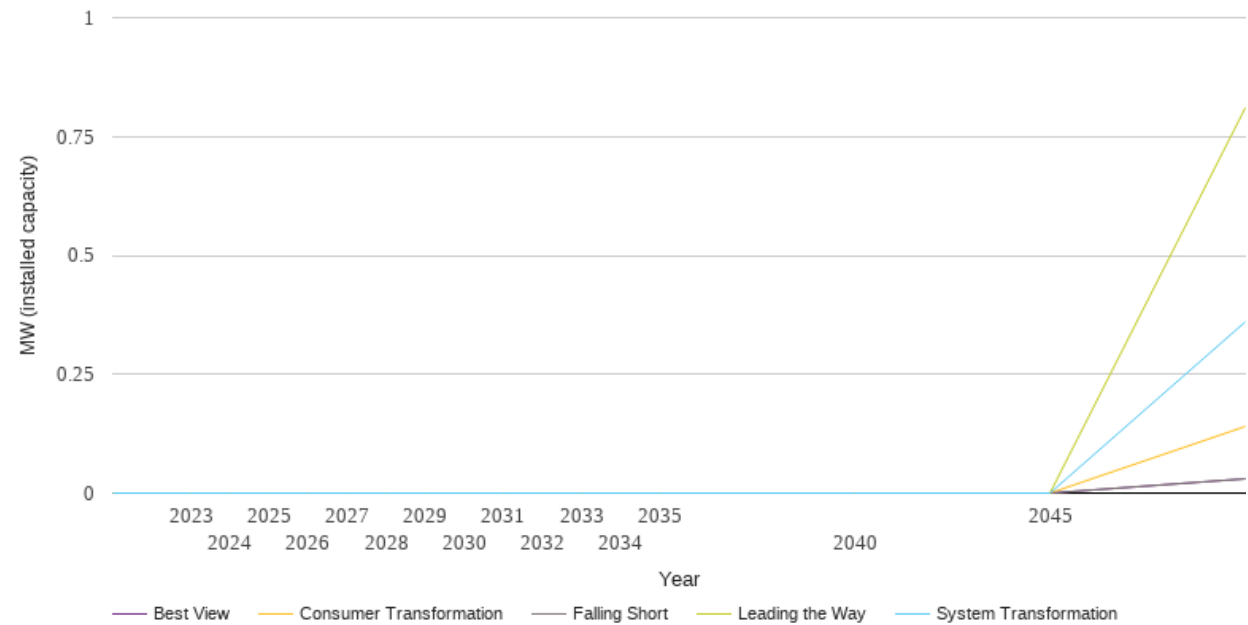
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	175	175	175	175	175
2023	348	344	617	1600	348
2024	522	526	1068	3036	522
2025	702	731	1545	4506	702
2026	1329	1078	3164	6676	1286
2027	1972	1450	4878	8958	1894
2028	2614	1850	6729	11393	2532
2029	3266	2233	8601	13868	3190
2030	3919	2613	10543	16414	3866
2031	4770	3047	13942	19633	4918
2032	5616	3476	17325	22839	5971
2033	6473	3910	20715	26037	7041
2034	7321	4338	24076	29202	8106
2035	8169	4779	27460	32390	9179
2040	14879	14888	47101	47488	18682
2045	23536	26193	60138	56258	28837
2050	34553	39353	67982	59899	39504



Technology Summary: Hydrogen electrolysis

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

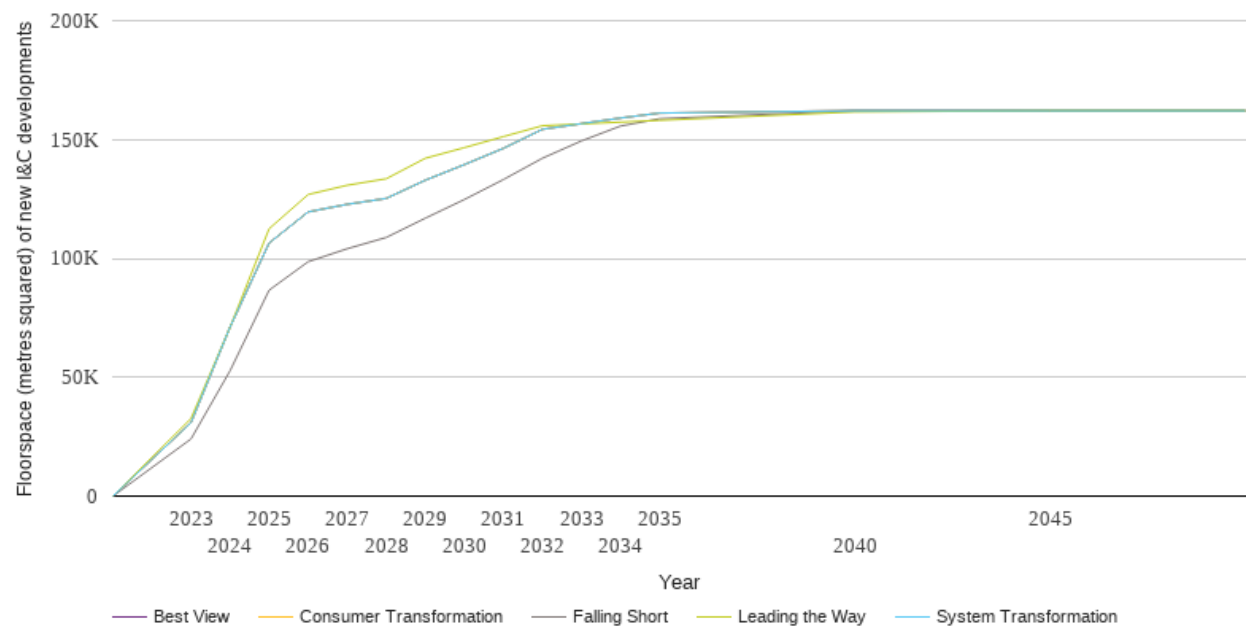
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	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	0.4	0.1	0.8	0.0



Technology Summary: Non domestic

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

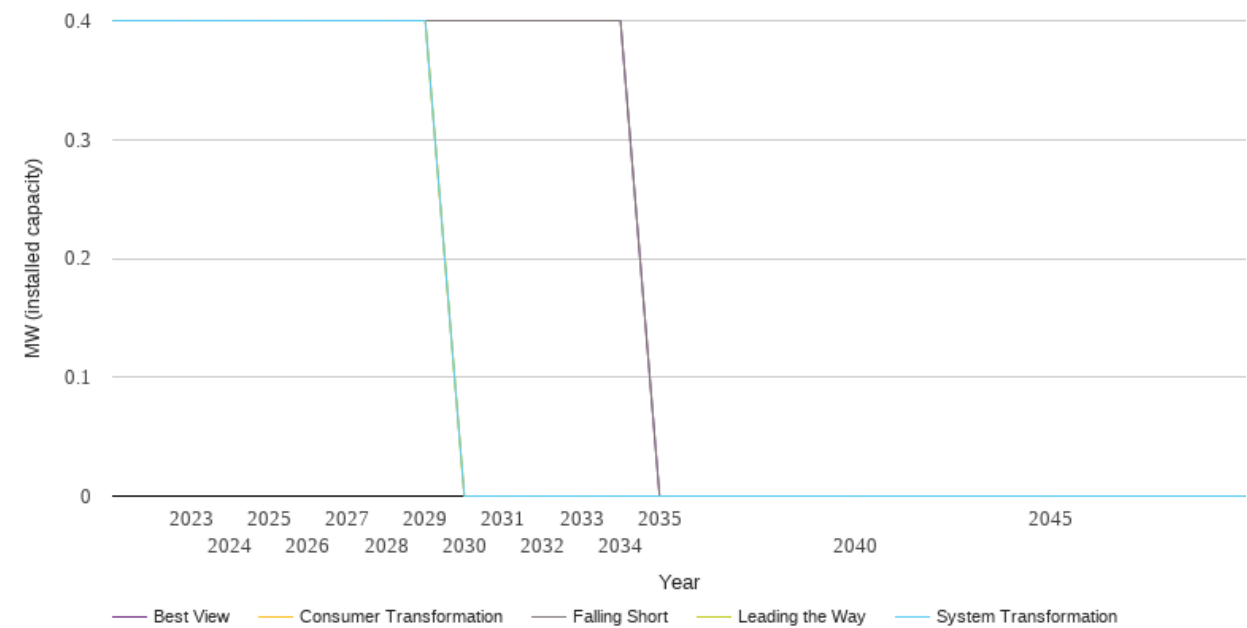
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	24043	30913	30913	32630	30913
2024	52733	71113	71113	71027	71113
2025	86638	106460	106460	112484	106460
2026	98594	119545	119545	126860	119545
2027	104063	122747	122747	130759	122747
2028	108810	125227	125227	133503	125227
2029	116907	132885	132885	142112	132885
2030	124752	139449	139449	146587	139449
2031	133162	146297	146297	151231	146297
2032	142136	154314	154314	155803	154314
2033	149416	156681	156681	156563	156681
2034	155665	159049	159049	157323	159049
2035	158749	161133	161133	158082	161133
2040	162139	162139	162139	161630	162139
2045	162139	162139	162139	162139	162139
2050	162139	162139	162139	162139	162139



Technology Summary: Other Distributed Generation

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

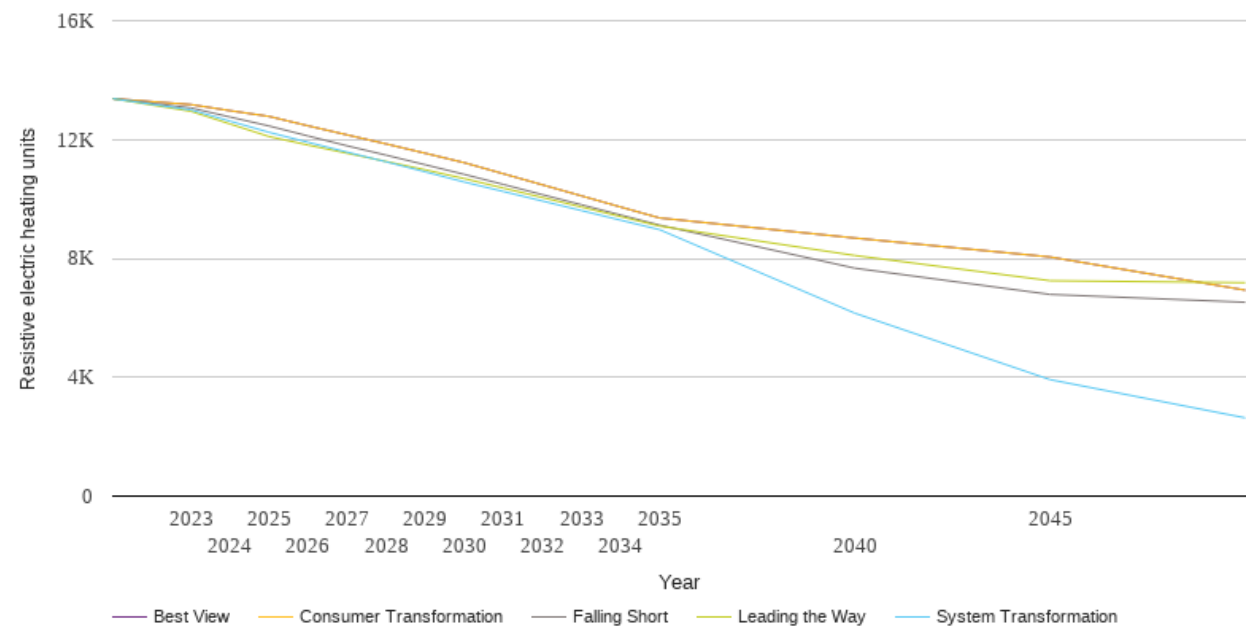
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.4	0.4	0.4	0.4	0.4
2023	0.4	0.4	0.4	0.4	0.4
2024	0.4	0.4	0.4	0.4	0.4
2025	0.4	0.4	0.4	0.4	0.4
2026	0.4	0.4	0.4	0.4	0.4
2027	0.4	0.4	0.4	0.4	0.4
2028	0.4	0.4	0.4	0.4	0.4
2029	0.4	0.4	0.4	0.4	0.4
2030	0.4	0.0	0.0	0.0	0.4
2031	0.4	0.0	0.0	0.0	0.4
2032	0.4	0.0	0.0	0.0	0.4
2033	0.4	0.0	0.0	0.0	0.4
2034	0.4	0.0	0.0	0.0	0.4
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.

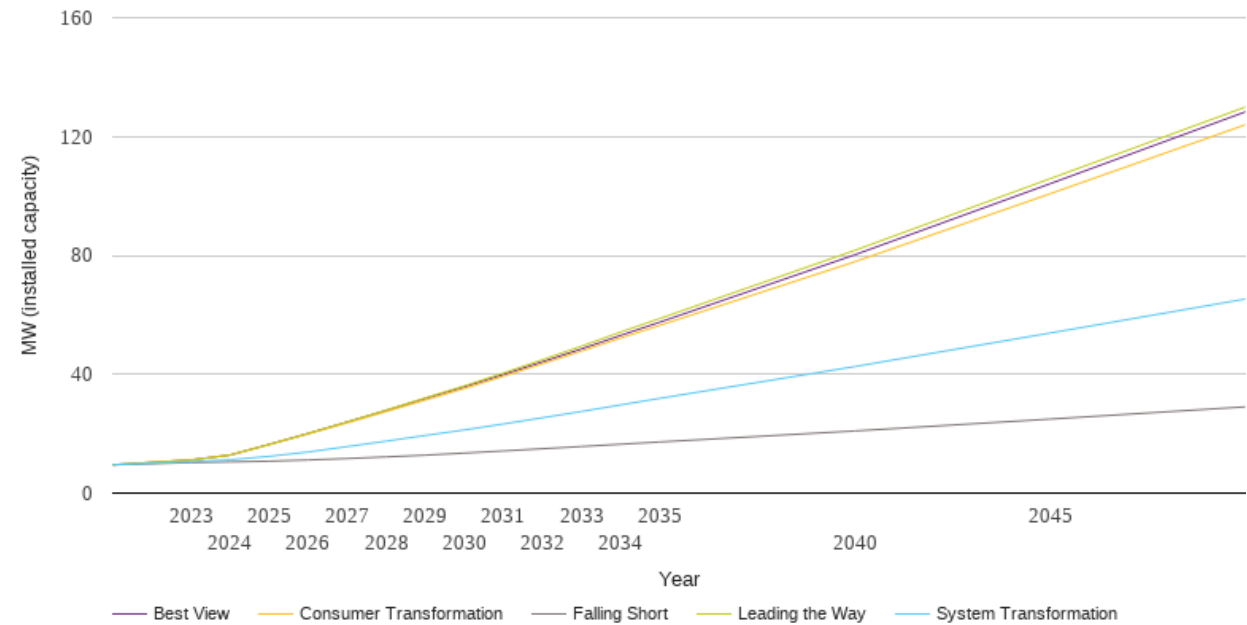
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	13375	13375	13375	13375	13375
2023	13064	12997	13176	12949	13176
2024	12758	12619	12972	12523	12972
2025	12456	12243	12778	12100	12778
2026	12119	11906	12461	11814	12461
2027	11788	11576	12156	11538	12156
2028	11474	11249	11852	11261	11852
2029	11151	10913	11538	10980	11538
2030	10827	10570	11220	10686	11220
2031	10489	10251	10848	10367	10848
2032	10145	9931	10476	10049	10476
2033	9805	9610	10104	9730	10104
2034	9462	9287	9730	9409	9730
2035	9121	8967	9362	9088	9362
2040	7671	6157	8685	8097	8685
2045	6787	3920	8048	7250	8048
2050	6524	2633	6932	7182	6932



Technology Summary: Solar Generation

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

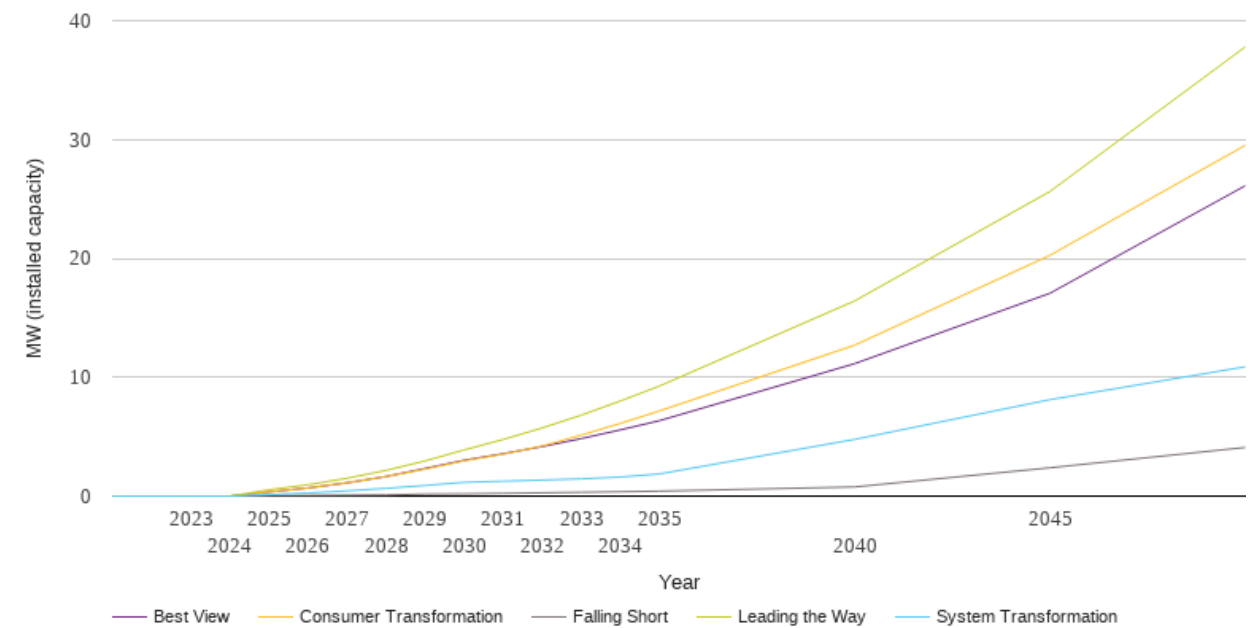
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	9.5	9.5	9.5	9.5	9.5
2023	10.3	10.5	11.1	11.1	11.1
2024	10.5	11.2	12.8	12.8	12.8
2025	10.7	12.4	16.3	16.4	16.4
2026	11.1	13.8	19.9	20.1	20.1
2027	11.6	15.6	23.6	23.9	23.9
2028	12.2	17.5	27.4	27.9	27.8
2029	12.8	19.4	31.3	32.0	31.8
2030	13.5	21.2	35.2	36.1	35.8
2031	14.2	23.3	39.3	40.4	39.9
2032	14.9	25.3	43.5	44.9	44.2
2033	15.7	27.5	47.8	49.4	48.5
2034	16.4	29.7	52.2	54.2	53.1
2035	17.2	31.9	56.4	58.7	57.5
2040	20.9	42.6	77.9	81.7	80.2
2045	24.9	53.9	100.7	105.8	104.1
2050	29.0	65.3	123.9	129.9	128.3



Technology Summary: Storage

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

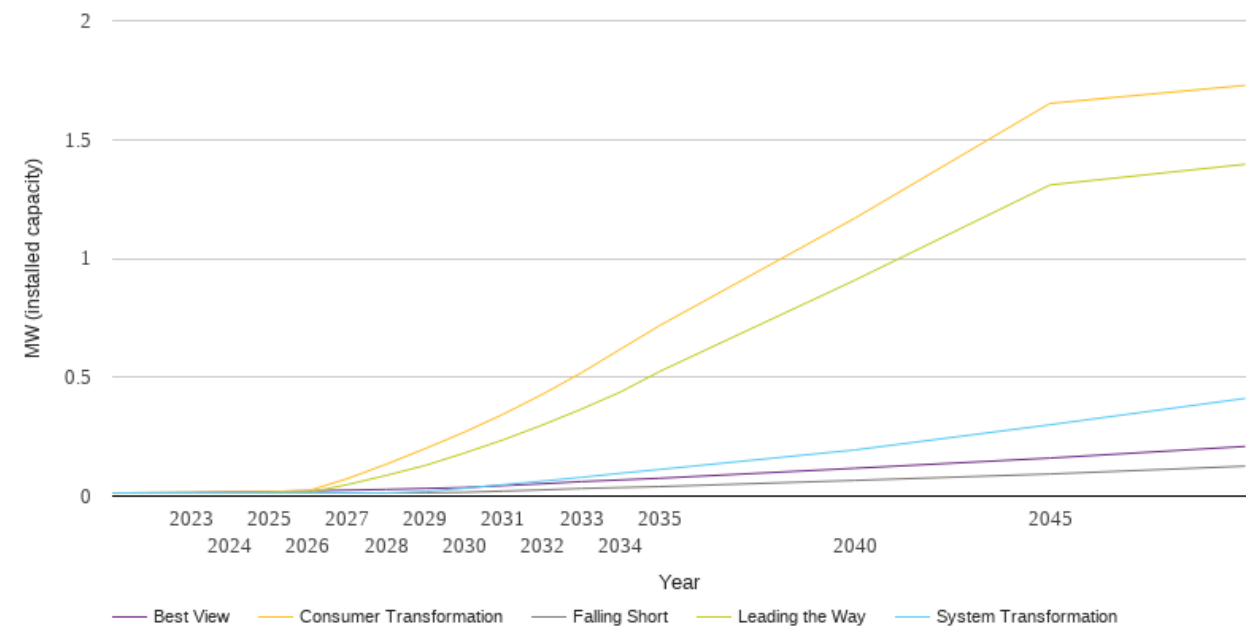
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.1	0.1	0.3	0.5	0.3
2026	0.1	0.3	0.7	1.0	0.7
2027	0.1	0.4	1.1	1.5	1.1
2028	0.1	0.7	1.6	2.2	1.6
2029	0.2	0.9	2.3	3.0	2.3
2030	0.2	1.2	3.0	3.9	3.0
2031	0.2	1.3	3.5	4.8	3.6
2032	0.3	1.3	4.2	5.7	4.2
2033	0.3	1.5	5.1	6.8	4.8
2034	0.4	1.6	6.1	8.0	5.6
2035	0.4	1.9	7.2	9.3	6.3
2040	0.8	4.8	12.7	16.4	11.1
2045	2.4	8.1	20.3	25.6	17.1
2050	4.1	10.9	29.5	37.8	26.1



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	0.0	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	0.1	0.0	0.0
2028	0.0	0.0	0.1	0.1	0.0
2029	0.0	0.0	0.2	0.1	0.0
2030	0.0	0.0	0.3	0.2	0.0
2031	0.0	0.0	0.3	0.2	0.0
2032	0.0	0.1	0.4	0.3	0.1
2033	0.0	0.1	0.5	0.4	0.1
2034	0.0	0.1	0.6	0.4	0.1
2035	0.0	0.1	0.7	0.5	0.1
2040	0.1	0.2	1.2	0.9	0.1
2045	0.1	0.3	1.7	1.3	0.2
2050	0.1	0.4	1.7	1.4	0.2



National Grid Electricity Distribution PLC 09223384)
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