

Distribution Future Energy Scenarios 2022

Local Authority:
East Devon

What are Distribution Future Energy Scenarios?

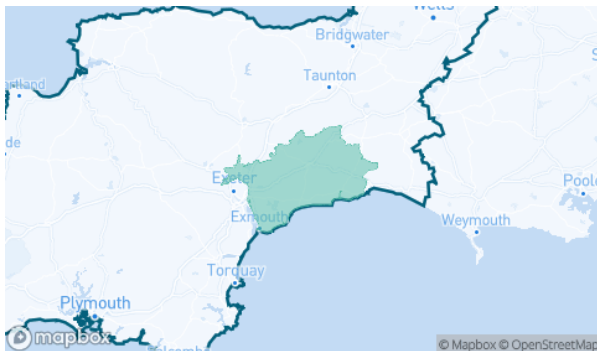
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 East Devon 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 East Devon 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	155	574	460	460	155	21254	10241	10240	155
Domestic	New dwellings	0	5269	5749	5749	6736	7538	7413	7413	7321
Electric vehicles	Electric vehicles	1592	13501	17156	31789	31701	99279	88216	88085	74787
EV Charge Point	EV charge points	901	6164	9293	17537	19283	55962	55031	55519	57818
Heat pumps	Heat pump installations	985	6790	6930	14390	21297	38544	45147	76286	69535
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.2	0.0	0.0	0.3	3.1	2.1	3.2
Non domestic	Floorspace (metres squared) of new I&C developments	0	35074 1	42150 6	42150 6	44221 0	68474 5	68423 7	68423 7	68474 5
Other Distributed Generation	MW (installed capacity)	7.3	18.4	18.8	18.5	17.2	18.4	17.0	15.3	15.8
Resistive electric heating	Resistive electric heating units	12916	10514	10236	10998	10435	6892	2690	6912	7391
Solar Generation	MW (installed capacity)	31.1	39.1	52.1	69.9	75.5	93.8	170.0	239.4	257.3
Storage	MW (installed capacity)	0.1	5.8	7.4	9.8	11.5	11.4	21.4	45.2	55.5
Wind	MW (installed capacity)	0.2	0.3	0.7	5.1	3.8	4.1	12.4	43.5	35.0

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

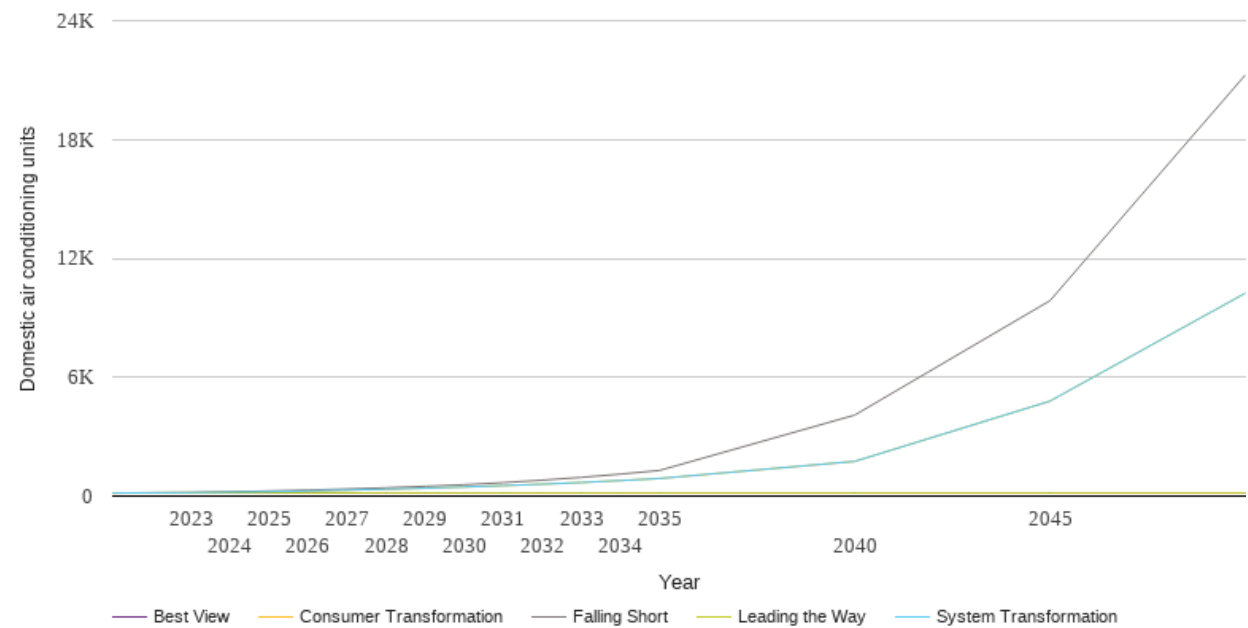
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

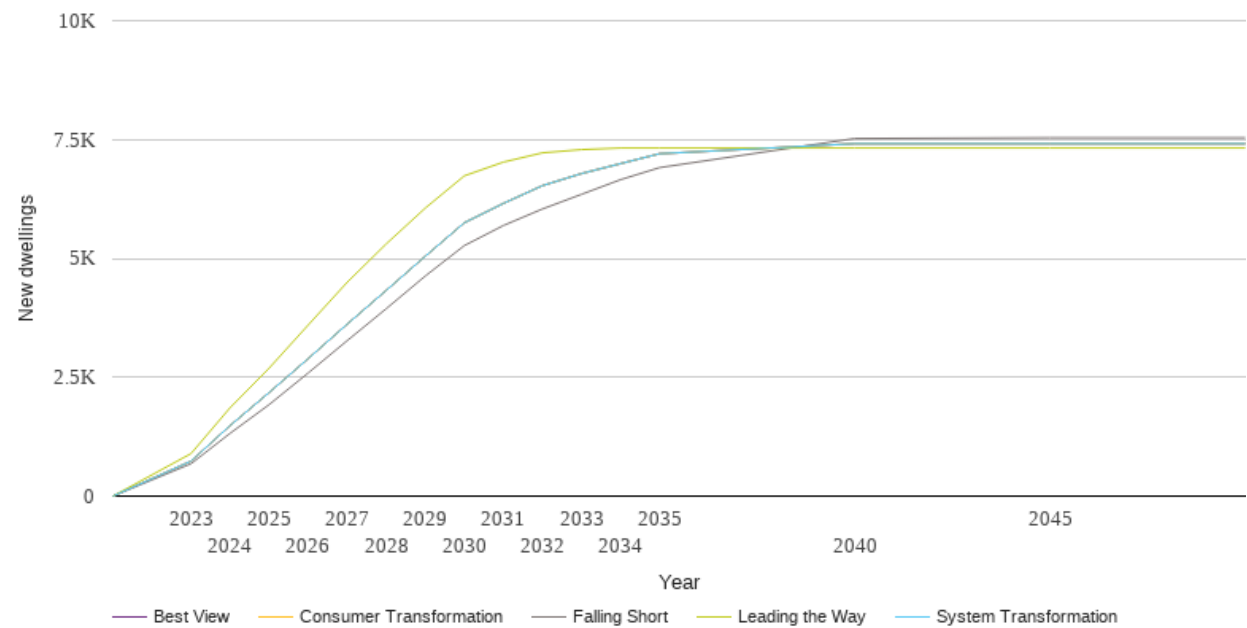
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	155	155	155	155	155
2023	178	176	176	155	155
2024	214	197	197	155	155
2025	256	222	222	155	155
2026	303	259	259	155	155
2027	357	300	300	155	155
2028	419	347	347	155	155
2029	492	400	400	155	155
2030	574	460	460	155	155
2031	681	527	527	155	155
2032	804	602	602	155	155
2033	946	687	687	155	155
2034	1109	783	783	155	155
2035	1294	889	889	155	155
2040	4091	1753	1752	155	155
2045	9864	4795	4794	155	155
2050	21254	10241	10240	155	155



Technology Summary: Domestic

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

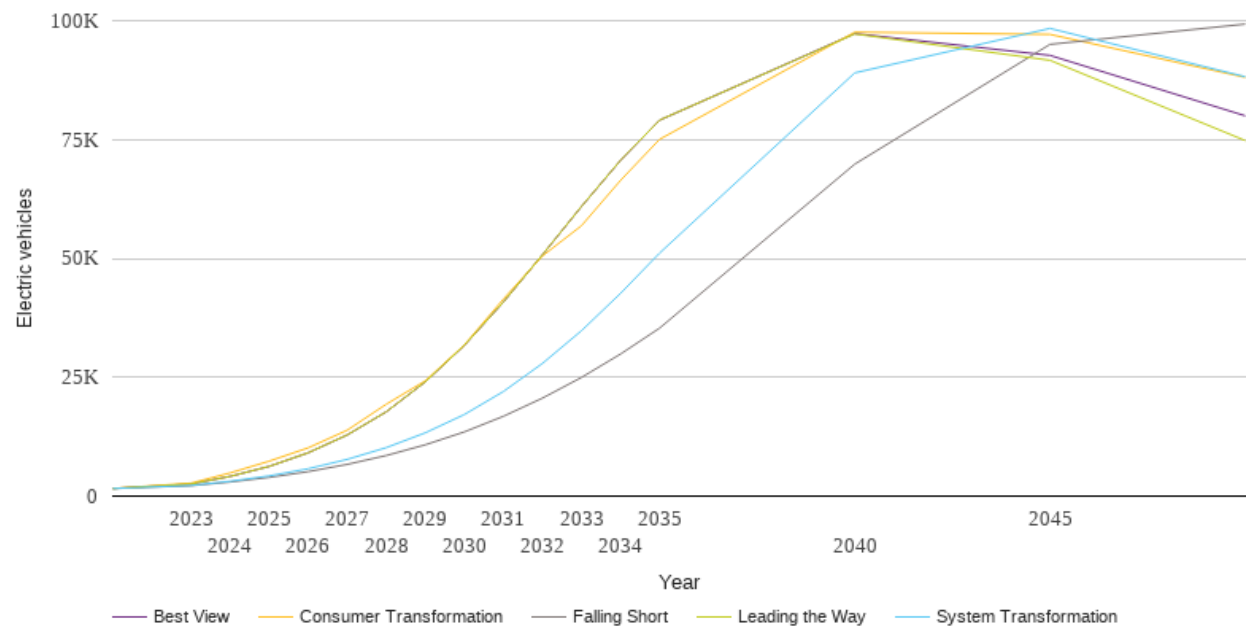
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	681	736	736	894	736
2024	1320	1483	1483	1858	1483
2025	1924	2178	2178	2691	2178
2026	2589	2891	2891	3597	2891
2027	3270	3617	3617	4498	3617
2028	3942	4327	4327	5305	4327
2029	4629	5045	5045	6058	5045
2030	5269	5749	5749	6736	5749
2031	5691	6156	6156	7025	6156
2032	6039	6530	6530	7220	6530
2033	6347	6784	6784	7288	6784
2034	6655	6993	6993	7321	6993
2035	6909	7202	7202	7321	7202
2040	7522	7413	7413	7321	7413
2045	7538	7413	7413	7321	7413
2050	7538	7413	7413	7321	7413



Technology Summary: Electric vehicles

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

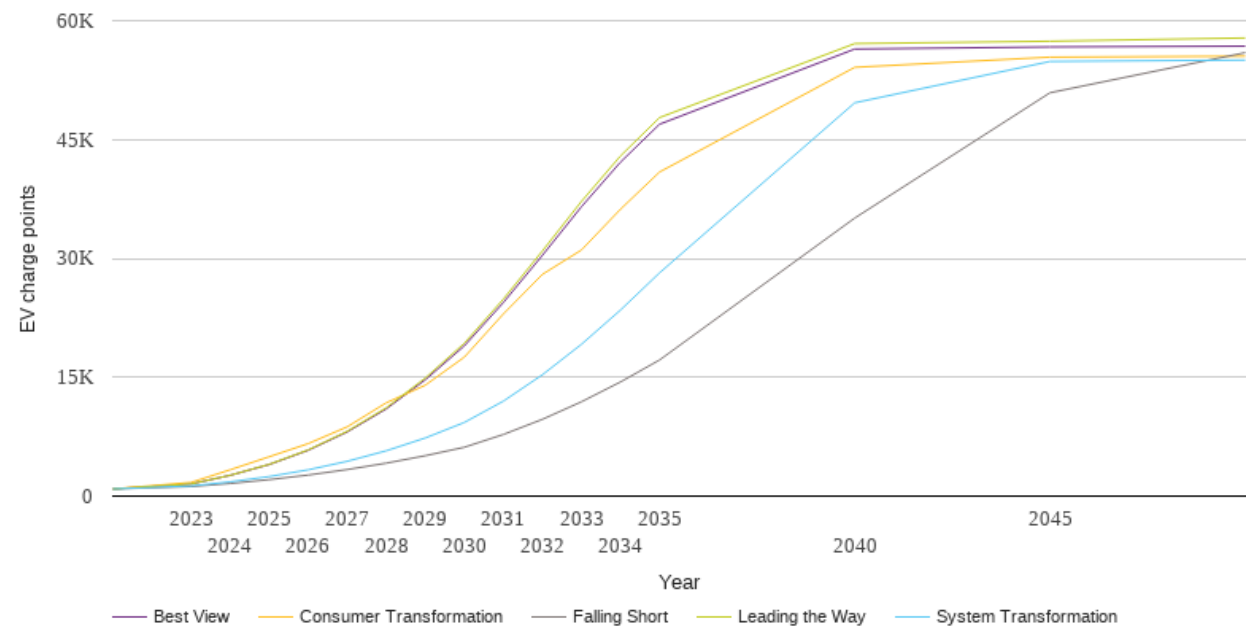
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1592	1592	1592	1592	1592
2023	2190	2238	2722	2550	2550
2024	2964	3111	4875	4140	4140
2025	3931	4245	7344	6242	6242
2026	5143	5751	10147	9104	9104
2027	6671	7719	13863	12864	12859
2028	8531	10194	19324	17731	17723
2029	10786	13309	24251	24035	24018
2030	13501	17156	31789	31701	31681
2031	16781	21995	41440	40822	40790
2032	20605	27899	50512	50765	50743
2033	24953	34783	56867	60930	60901
2034	29875	42630	66396	70631	70599
2035	35322	51105	75039	79089	79064
2040	69823	89017	97589	97212	97292
2045	95019	98373	97120	91669	92703
2050	99279	88216	88085	74787	79993



Technology Summary: EV Charge Point

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

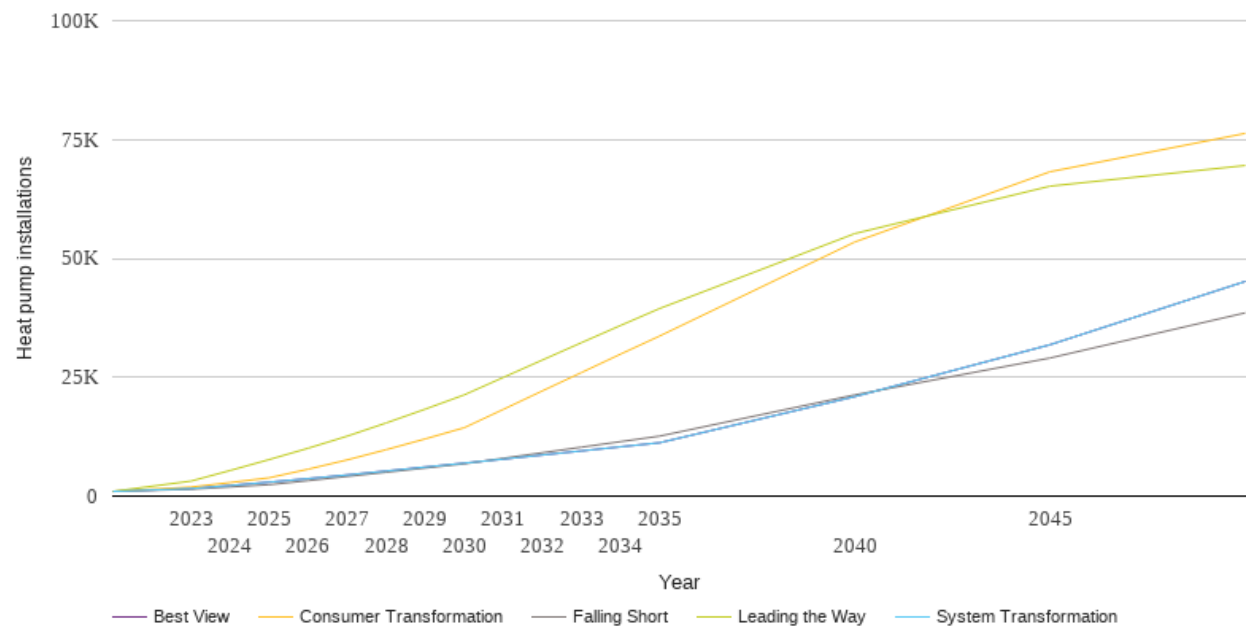
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	901	901	901	901	901
2023	1205	1281	1723	1528	1530
2024	1591	1799	3317	2622	2615
2025	2074	2464	4962	4003	3980
2026	2654	3316	6622	5823	5780
2027	3349	4392	8739	8177	8096
2028	4157	5718	11774	11142	11006
2029	5096	7336	13995	14898	14682
2030	6164	9293	17537	19283	18963
2031	7779	11984	22986	24862	24431
2032	9690	15311	27987	30940	30388
2033	11903	19159	31057	37194	36520
2034	14407	23481	36205	42931	42149
2035	17179	28175	40899	47770	46931
2040	35089	49636	54113	57108	56421
2045	50904	54853	55399	57409	56688
2050	55962	55031	55519	57818	56786



Technology Summary: Heat pumps

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

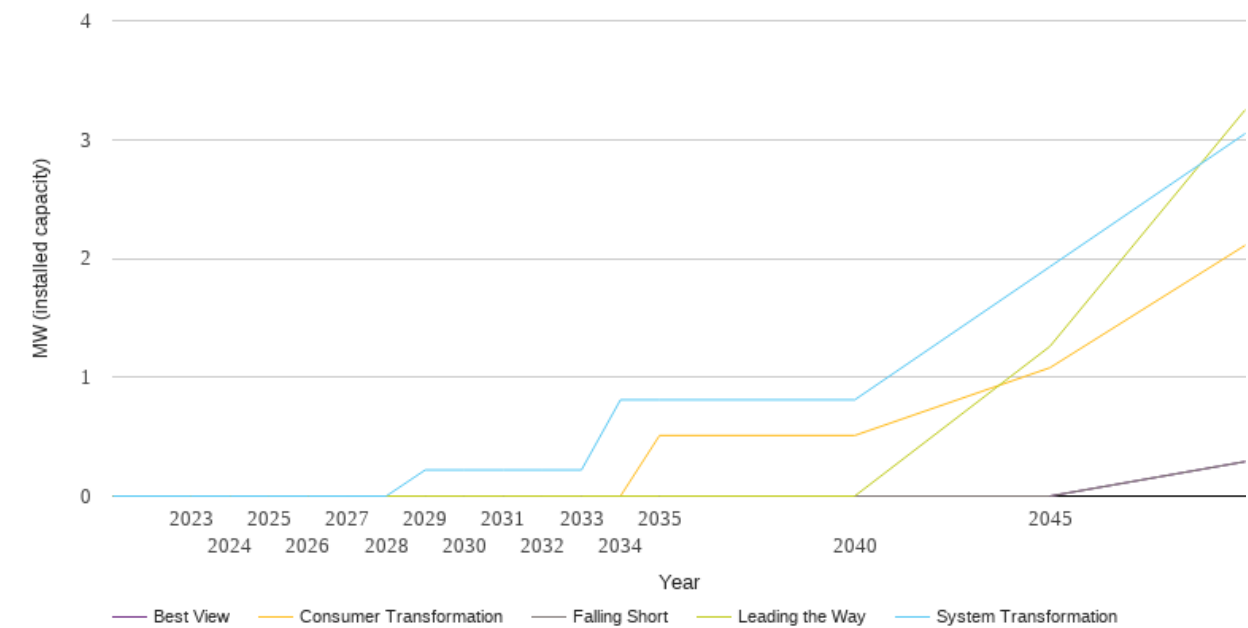
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	985	985	985	985	985
2023	1443	1580	1892	3152	1580
2024	1916	2229	2847	5380	2229
2025	2396	2927	3845	7681	2927
2026	3249	3665	5658	10067	3665
2027	4132	4444	7614	12606	4444
2028	5015	5268	9765	15385	5268
2029	5901	6107	12033	18295	6107
2030	6790	6930	14390	21297	6930
2031	7962	7774	18247	24967	7774
2032	9122	8645	22134	28623	8645
2033	10291	9503	25983	32270	9503
2034	11452	10363	29855	35883	10363
2035	12614	11219	33664	39447	11219
2040	21288	20921	53446	55212	20921
2045	29040	31832	68217	65190	31832
2050	38544	45147	76286	69535	45147



Technology Summary: Hydrogen electrolysis

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

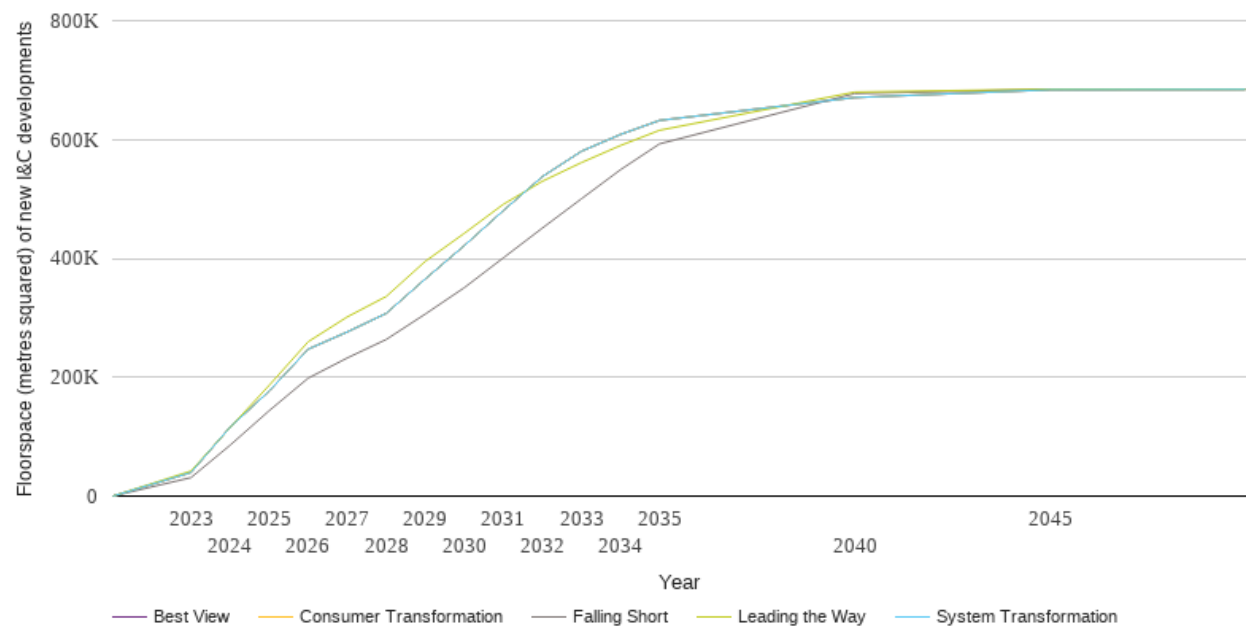
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.2	0.0	0.0	0.0
2030	0.0	0.2	0.0	0.0	0.0
2031	0.0	0.2	0.0	0.0	0.0
2032	0.0	0.2	0.0	0.0	0.0
2033	0.0	0.2	0.0	0.0	0.0
2034	0.0	0.8	0.0	0.0	0.0
2035	0.0	0.8	0.5	0.0	0.0
2040	0.0	0.8	0.5	0.0	0.0
2045	0.0	1.9	1.1	1.3	0.0
2050	0.3	3.1	2.1	3.2	0.3



Technology Summary: Non domestic

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

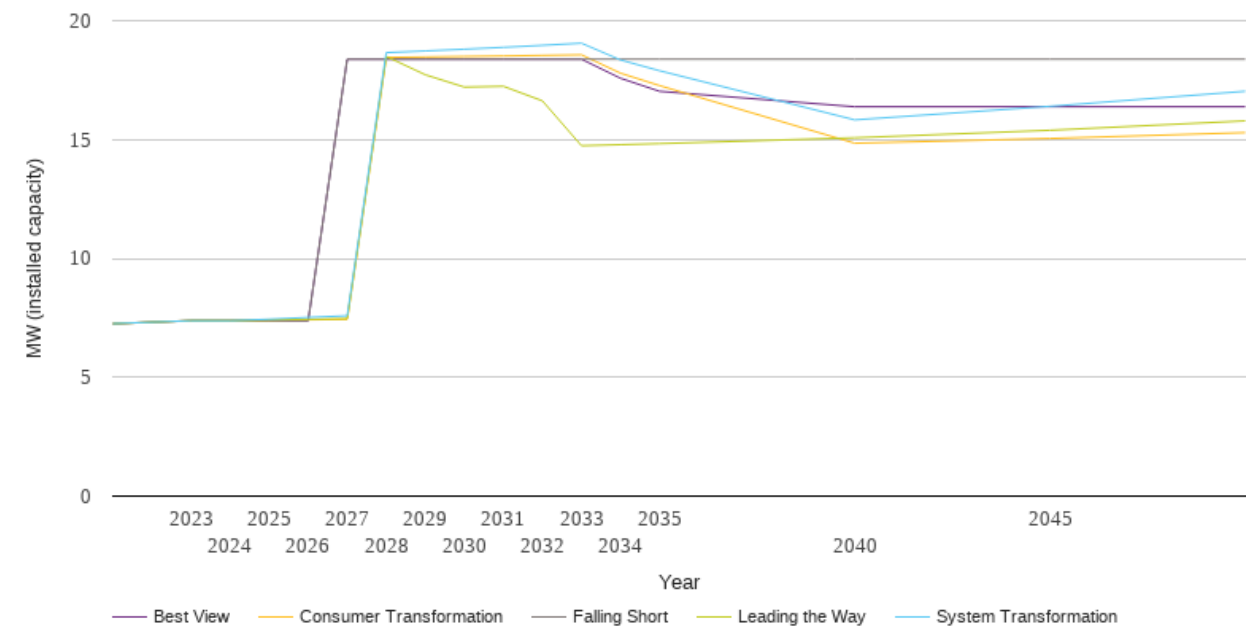
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	31175	39755	39755	42218	39755
2024	85545	116054	116054	115221	116054
2025	143611	176523	176523	186308	176523
2026	198447	247240	247240	259730	247240
2027	232418	276161	276161	301464	276161
2028	263585	307509	307509	335920	307509
2029	306348	365419	365419	395030	365419
2030	350741	421506	421506	442210	421506
2031	400943	480435	480435	491072	480435
2032	451067	537672	537672	529831	537672
2033	500303	580260	580260	561216	580260
2034	549172	608542	608542	589947	608542
2035	592717	632158	632158	615573	632158
2040	677462	670653	670653	679846	670653
2045	684745	683707	683707	684745	683707
2050	684745	684237	684237	684745	684237



Technology Summary: Other Distributed Generation

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

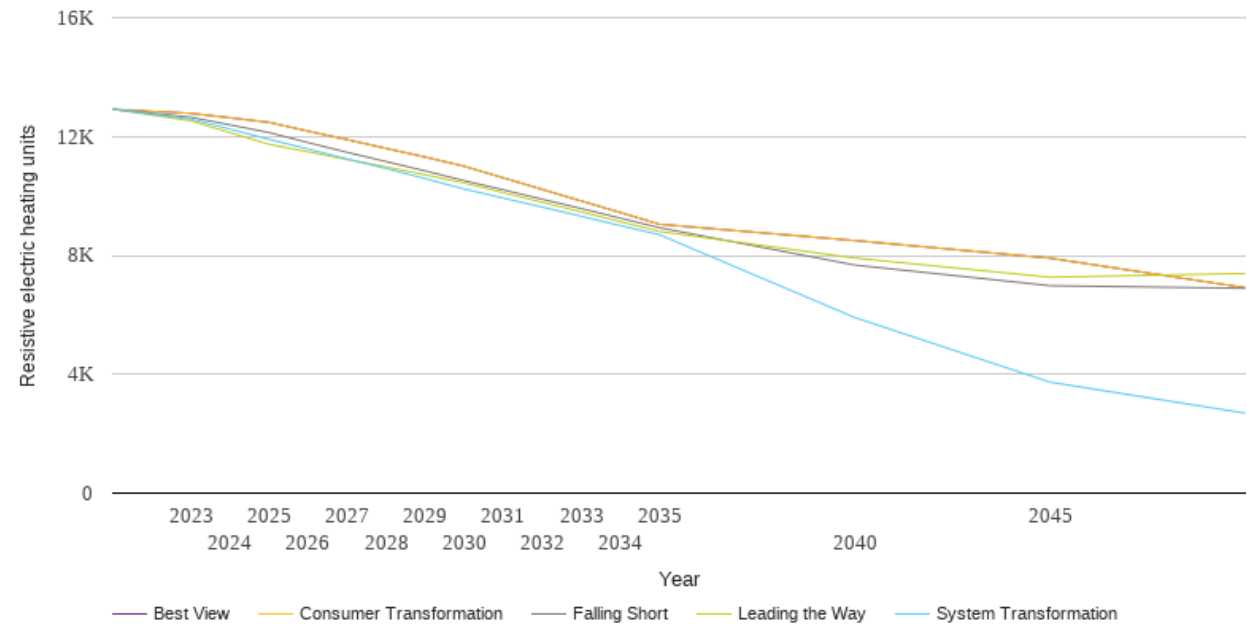
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	7.3	7.3	7.3	7.3	7.3
2023	7.4	7.4	7.4	7.4	7.4
2024	7.4	7.4	7.4	7.4	7.4
2025	7.4	7.4	7.4	7.4	7.4
2026	7.4	7.5	7.4	7.4	7.4
2027	18.4	7.6	7.4	7.5	18.4
2028	18.4	18.7	18.5	18.5	18.4
2029	18.4	18.7	18.5	17.7	18.4
2030	18.4	18.8	18.5	17.2	18.4
2031	18.4	18.9	18.5	17.2	18.4
2032	18.4	19.0	18.5	16.6	18.4
2033	18.4	19.1	18.6	14.7	18.4
2034	18.4	18.3	17.8	14.8	17.6
2035	18.4	17.9	17.3	14.8	17.0
2040	18.4	15.8	14.8	15.1	16.4
2045	18.4	16.4	15.0	15.4	16.4
2050	18.4	17.0	15.3	15.8	16.4



Technology Summary: Resistive electric heating

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

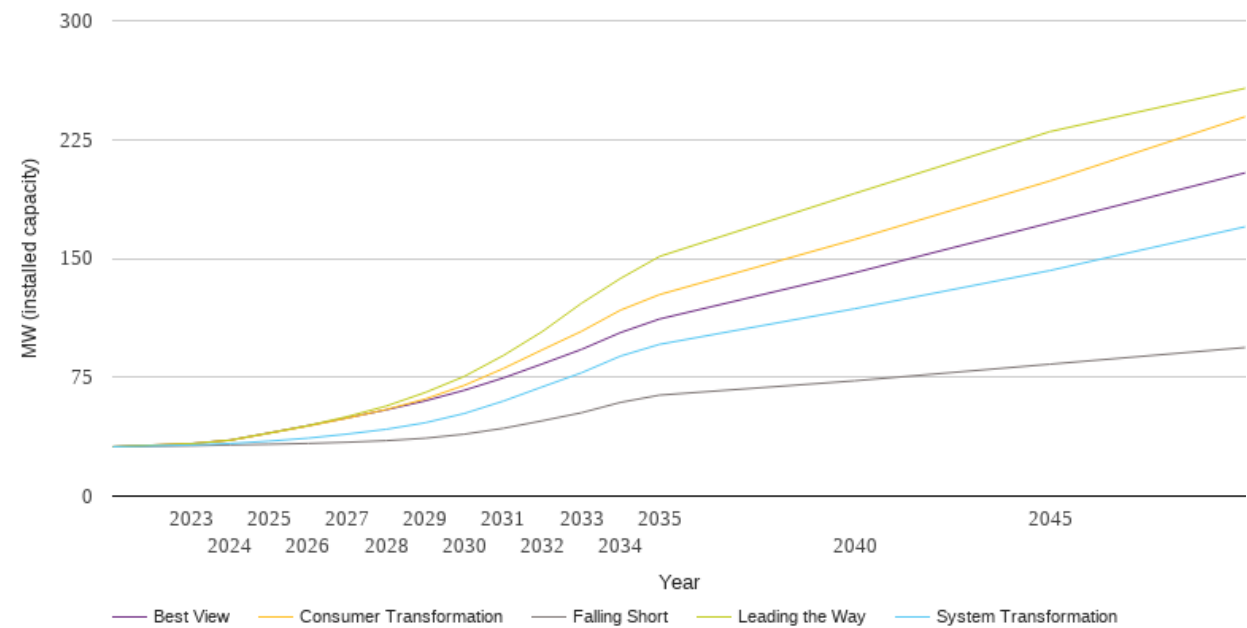
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	12916	12916	12916	12916	12916
2023	12648	12586	12779	12527	12779
2024	12391	12248	12631	12131	12631
2025	12133	11906	12477	11737	12477
2026	11795	11578	12180	11484	12180
2027	11468	11245	11896	11229	11896
2028	11157	10922	11599	10976	11599
2029	10843	10582	11309	10713	11309
2030	10514	10236	10998	10435	10998
2031	10205	9927	10609	10111	10609
2032	9890	9625	10219	9787	10219
2033	9575	9315	9829	9461	9829
2034	9253	9002	9442	9135	9442
2035	8931	8695	9046	8805	9046
2040	7674	5909	8500	7910	8500
2045	6980	3734	7907	7265	7907
2050	6892	2690	6912	7391	6912



Technology Summary: Solar Generation

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

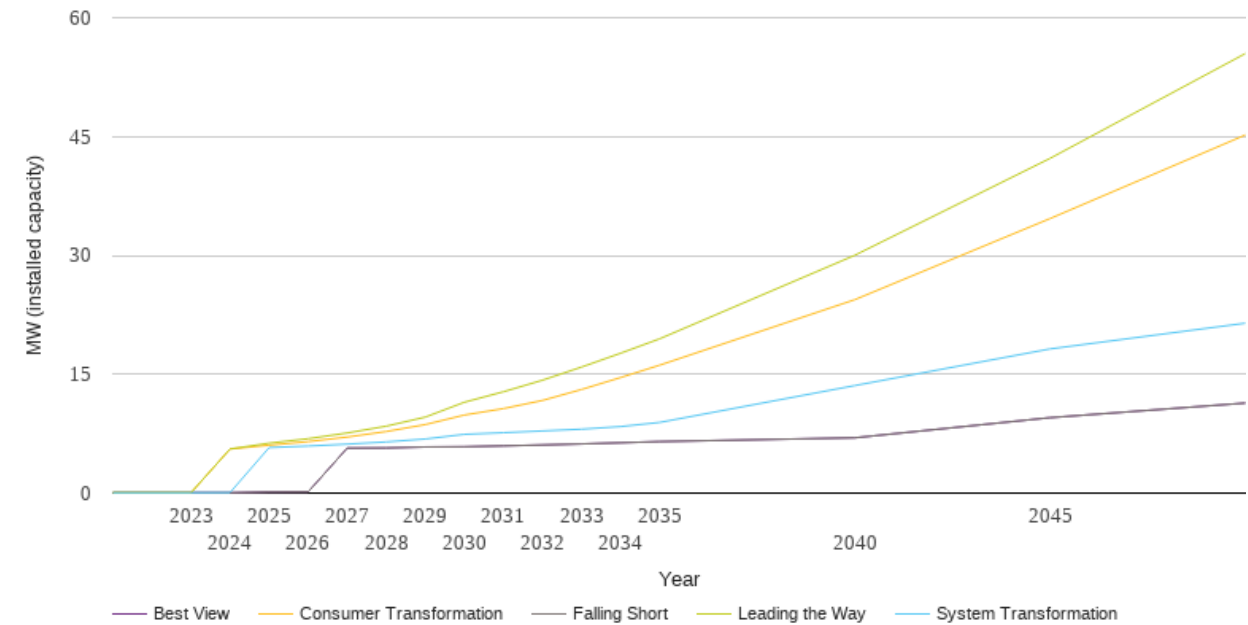
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	31.1	31.1	31.1	31.1	31.1
2023	31.7	32.2	33.0	33.1	33.1
2024	32.3	33.2	35.2	35.3	35.3
2025	32.7	34.7	39.7	39.8	39.8
2026	33.2	36.6	44.2	44.5	44.5
2027	34.0	39.1	49.2	50.2	49.3
2028	35.0	42.2	54.6	56.8	54.4
2029	36.5	46.3	61.3	65.4	60.1
2030	39.1	52.1	69.9	75.5	66.8
2031	42.8	60.0	80.5	88.7	74.6
2032	47.5	68.9	92.3	103.9	83.4
2033	52.6	77.8	104.0	121.6	92.5
2034	59.1	88.3	117.3	137.3	103.2
2035	63.7	95.8	127.1	151.2	111.7
2040	72.7	118.2	161.9	191.0	140.9
2045	83.2	142.3	198.9	230.0	172.4
2050	93.8	170.0	239.4	257.3	204.0



Technology Summary: Storage

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

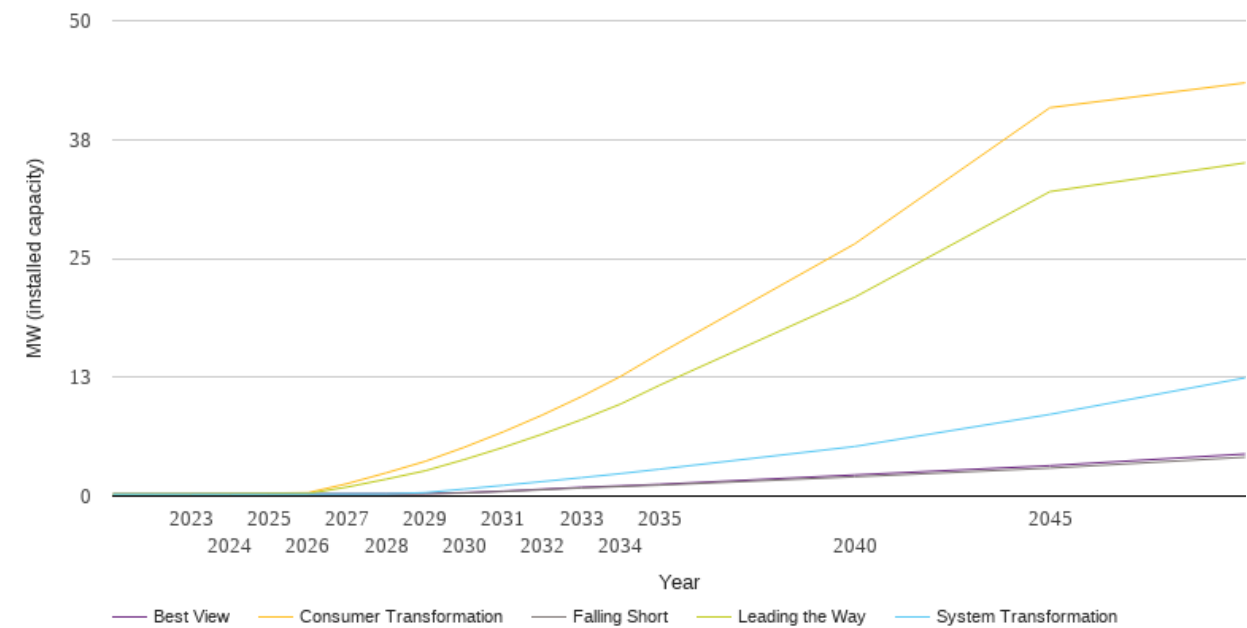
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.1	0.1	0.1	0.1	0.1
2023	0.1	0.1	0.1	0.1	0.1
2024	0.1	0.1	5.6	5.6	0.1
2025	0.1	5.7	6.0	6.3	0.1
2026	0.2	5.9	6.5	6.9	0.2
2027	5.7	6.2	7.1	7.6	5.7
2028	5.7	6.5	7.8	8.4	5.7
2029	5.8	6.8	8.6	9.6	5.8
2030	5.8	7.4	9.8	11.5	5.8
2031	6.0	7.6	10.7	12.8	6.0
2032	6.1	7.8	11.7	14.2	6.1
2033	6.2	8.1	13.1	15.9	6.2
2034	6.4	8.4	14.6	17.6	6.4
2035	6.5	8.9	16.1	19.5	6.5
2040	7.0	13.6	24.4	30.0	7.0
2045	9.5	18.2	34.6	42.2	9.5
2050	11.4	21.4	45.2	55.5	11.4



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	0.2	0.2	0.2	0.2	0.2
2023	0.2	0.2	0.2	0.2	0.2
2024	0.2	0.2	0.3	0.2	0.2
2025	0.2	0.2	0.3	0.2	0.2
2026	0.2	0.2	0.4	0.3	0.2
2027	0.2	0.2	1.3	1.0	0.2
2028	0.2	0.2	2.4	1.8	0.2
2029	0.2	0.4	3.7	2.7	0.3
2030	0.3	0.7	5.1	3.8	0.4
2031	0.5	1.1	6.8	5.1	0.5
2032	0.7	1.5	8.5	6.5	0.7
2033	0.9	1.9	10.5	8.0	0.9
2034	1.0	2.4	12.6	9.7	1.1
2035	1.2	2.8	15.0	11.7	1.2
2040	2.0	5.2	26.5	20.9	2.2
2045	2.9	8.6	40.9	32.0	3.2
2050	4.1	12.4	43.5	35.0	4.4



National Grid Electricity Distribution PLC 09223384)
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