

Distribution Future Energy Scenarios 2022

Local Authority:
South Somerset

What are Distribution Future Energy Scenarios?

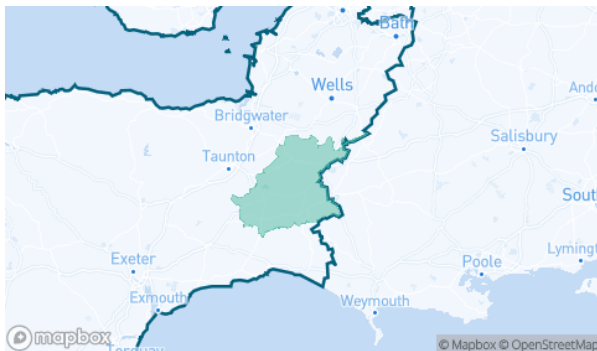
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 South Somerset 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 South Somerset 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	68	40	40	0	12090	5320	5320	0
Domestic	New dwellings	0	3346	3748	3748	4535	6041	6004	6004	5964
Electric vehicles	Electric vehicles	1058	9160	11553	21415	21366	65904	56833	56430	49085
EV Charge Point	EV charge points	590	4111	6148	11590	12774	37005	36070	36317	37835
Heat pumps	Heat pump installations	2069	6962	6686	11169	15268	25474	28241	42706	38701
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.2	0.0	0.0	0.2	2.1	1.4	2.5
Non domestic	Floorspace (metres squared) of new I&C developments	0	243601	286220	286220	312230	380973	380773	380773	380973
Other Distributed Generation	MW (installed capacity)	5.1	11.9	13.3	15.4	25.7	11.9	13.7	15.9	20.5
Resistive electric heating	Resistive electric heating units	11098	8439	8311	9082	8481	4522	1328	5006	5315
Solar Generation	MW (installed capacity)	32.9	38.0	46.4	58.5	62.8	68.7	116.9	164.3	175.4
Storage	MW (installed capacity)	0.1	0.2	1.3	2.9	4.1	3.5	9.5	25.1	31.9
Wind	MW (installed capacity)	0.0	0.1	0.4	3.5	2.5	2.5	7.8	28.6	23.0

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

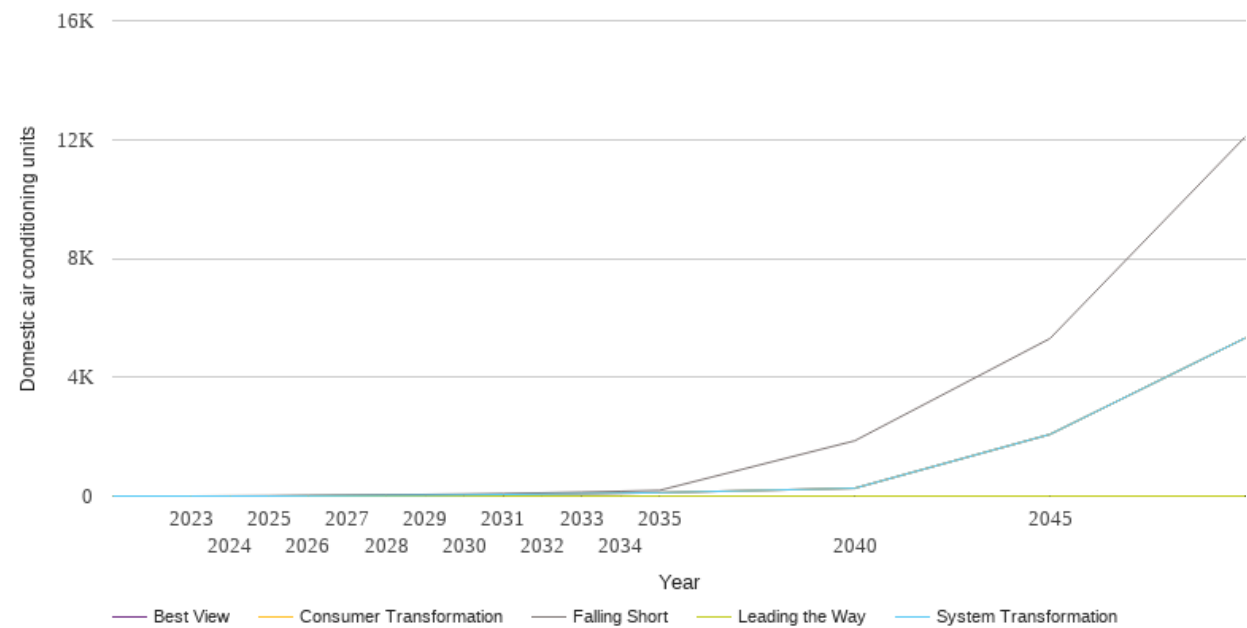
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

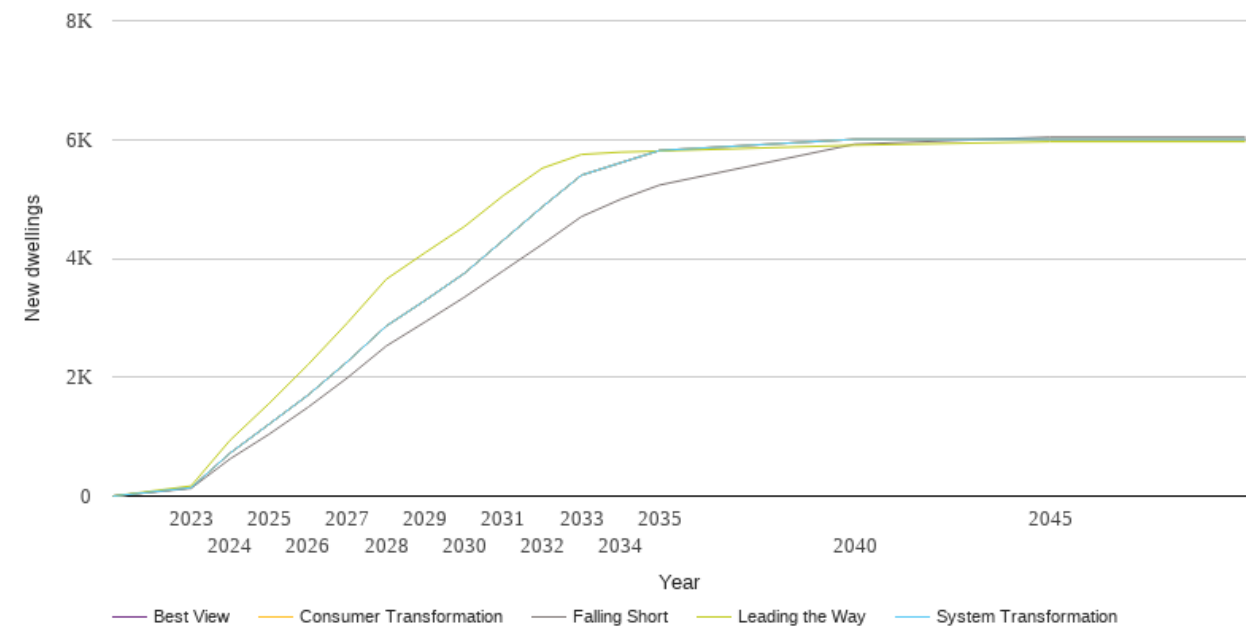
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	6	0	0	0	0
2025	13	0	0	0	0
2026	21	6	6	0	6
2027	30	13	13	0	13
2028	41	21	21	0	21
2029	54	30	30	0	30
2030	68	40	40	0	40
2031	87	52	52	0	52
2032	108	65	65	0	65
2033	133	80	80	0	80
2034	161	97	97	0	97
2035	193	115	115	0	115
2040	1862	265	265	0	265
2045	5302	2077	2077	0	2077
2050	12090	5320	5320	0	5320



Technology Summary: Domestic

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

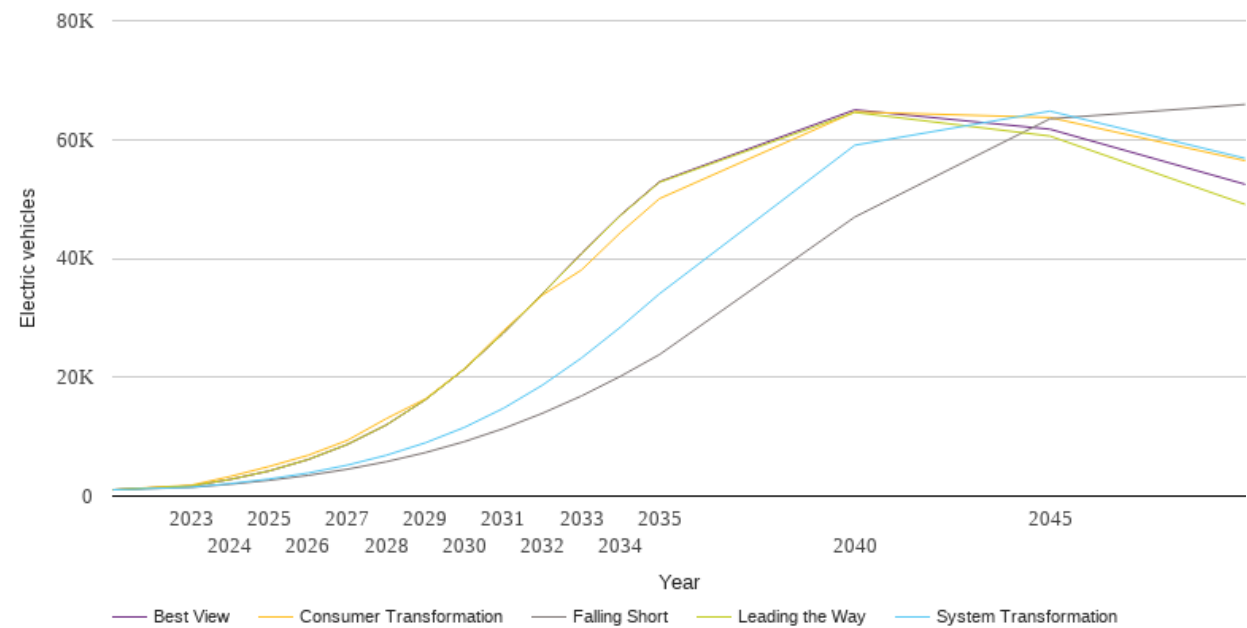
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	130	140	140	170	140
2024	626	723	723	940	723
2025	1042	1211	1211	1559	1211
2026	1496	1701	1701	2214	1701
2027	1988	2260	2260	2912	2260
2028	2525	2861	2861	3649	2861
2029	2932	3295	3295	4098	3295
2030	3346	3748	3748	4535	3748
2031	3793	4307	4307	5058	4307
2032	4238	4868	4868	5518	4868
2033	4703	5400	5400	5749	5400
2034	4993	5608	5608	5788	5608
2035	5234	5816	5816	5807	5816
2040	5922	6004	6004	5905	6004
2045	6041	6004	6004	5964	6004
2050	6041	6004	6004	5964	6004



Technology Summary: Electric vehicles

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

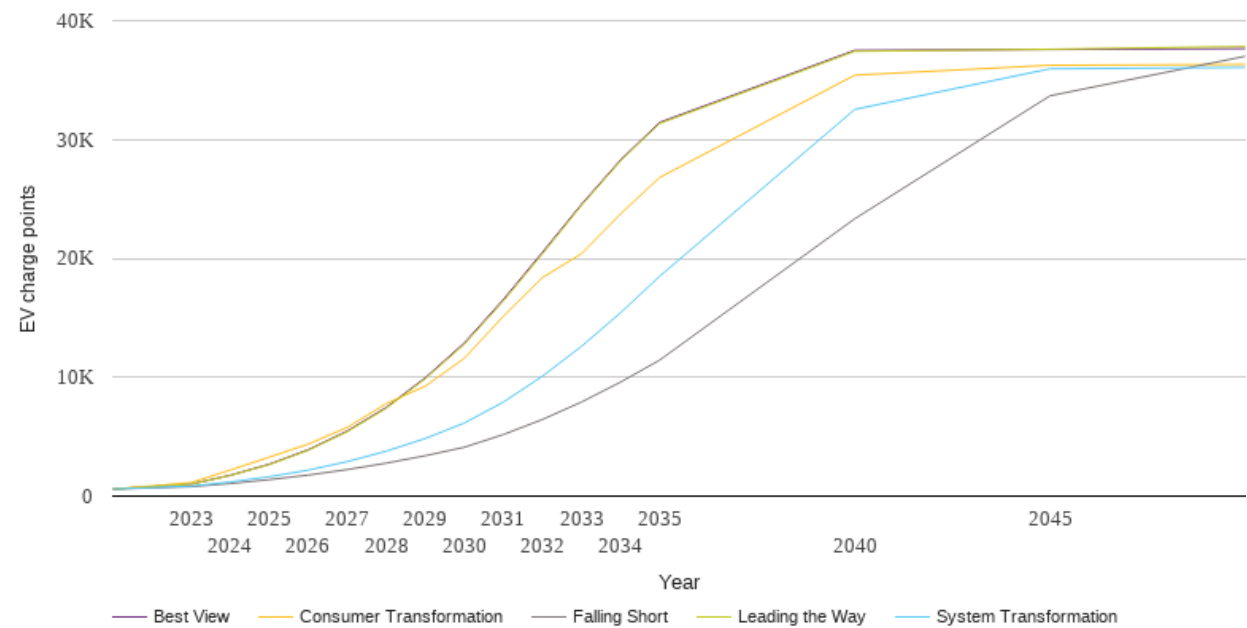
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1058	1058	1058	1058	1058
2023	1460	1499	1829	1707	1707
2024	1991	2101	3297	2794	2794
2025	2654	2875	4982	4231	4231
2026	3486	3887	6867	6157	6157
2027	4518	5203	9365	8685	8683
2028	5778	6867	13028	11959	11961
2029	7315	8963	16343	16206	16211
2030	9160	11553	21415	21366	21374
2031	11365	14763	27820	27421	27433
2032	13930	18668	33824	34021	34079
2033	16851	23233	38049	40766	40827
2034	20160	28434	44351	47206	47283
2035	23819	34053	50059	52813	52913
2040	46959	59039	64651	64576	65000
2045	63487	64777	63702	60585	61737
2050	65904	56833	56430	49085	52466



Technology Summary: EV Charge Point

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

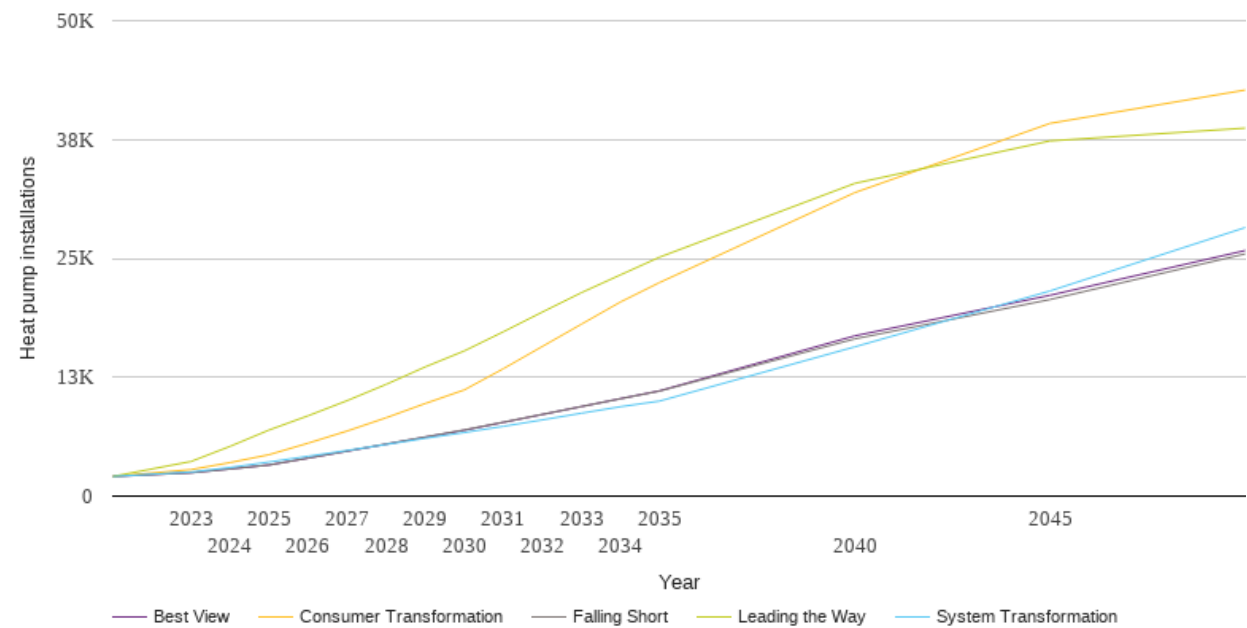
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	590	590	590	590	590
2023	794	841	1133	1005	1008
2024	1054	1184	2186	1731	1749
2025	1380	1624	3272	2648	2679
2026	1767	2184	4373	3852	3898
2027	2232	2900	5771	5416	5473
2028	2771	3779	7781	7385	7464
2029	3397	4849	9251	9871	9953
2030	4111	6148	11590	12774	12884
2031	5179	7908	15135	16411	16540
2032	6448	10084	18389	20372	20505
2033	7913	12598	20388	24450	24543
2034	9587	15421	23738	28187	28275
2035	11435	18483	26803	31342	31433
2040	23336	32534	35415	37422	37503
2045	33677	35951	36248	37598	37579
2050	37005	36070	36317	37835	37656



Technology Summary: Heat pumps

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

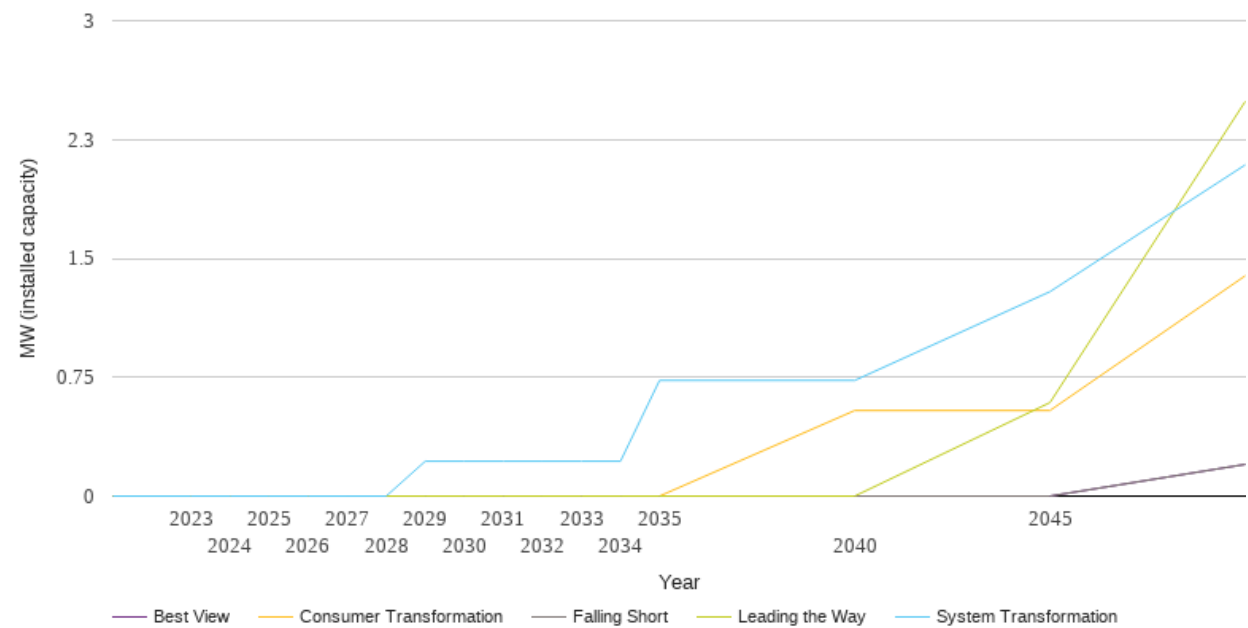
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	2069	2069	2069	2069	2069
2023	2458	2534	2786	3641	2458
2024	2854	3010	3524	5229	2854
2025	3273	3584	4356	6952	3273
2026	4001	4189	5568	8449	3995
2027	4741	4798	6848	10043	4726
2028	5480	5427	8243	11753	5457
2029	6222	6080	9739	13588	6196
2030	6962	6686	11169	15268	6926
2031	7777	7339	13401	17284	7752
2032	8594	8016	15741	19359	8585
2033	9416	8718	18085	21399	9417
2034	10234	9401	20415	23269	10252
2035	11041	9993	22459	25128	11071
2040	16534	15693	31916	32886	16853
2045	20671	21573	39198	37356	21116
2050	25474	28241	42706	38701	25827



Technology Summary: Hydrogen electrolysis

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

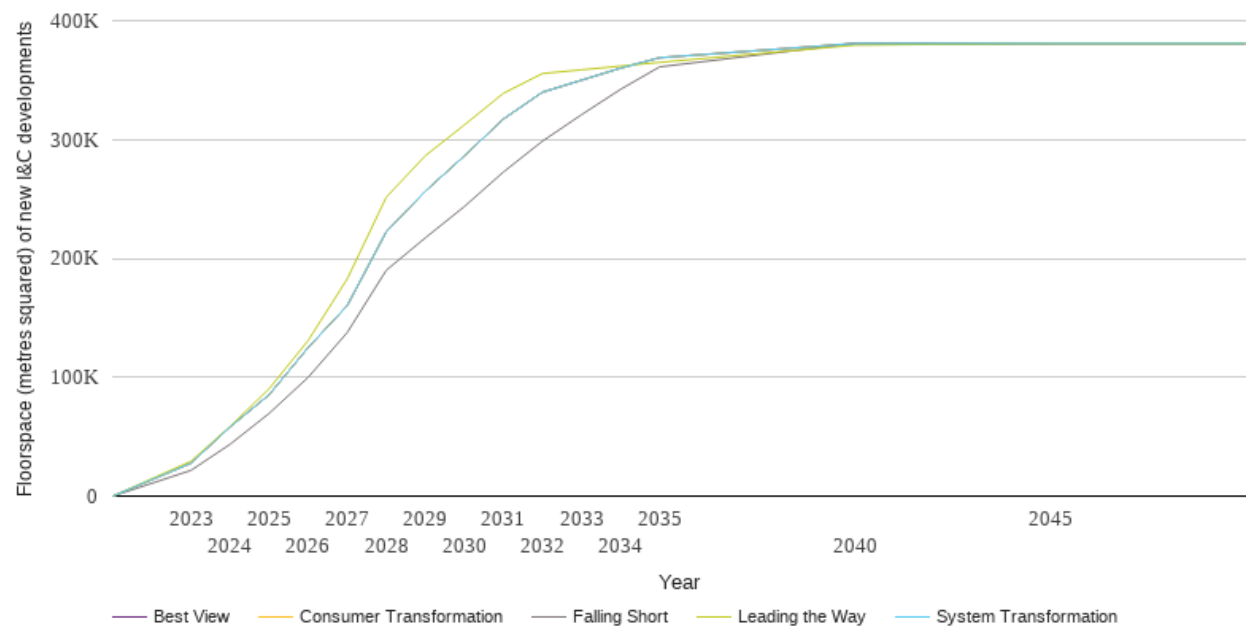
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.2	0.0	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	0.2	0.0	0.0	0.0
2035	0.0	0.7	0.0	0.0	0.0
2040	0.0	0.7	0.5	0.0	0.0
2045	0.0	1.3	0.5	0.6	0.0
2050	0.2	2.1	1.4	2.5	0.2



Technology Summary: Non domestic

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

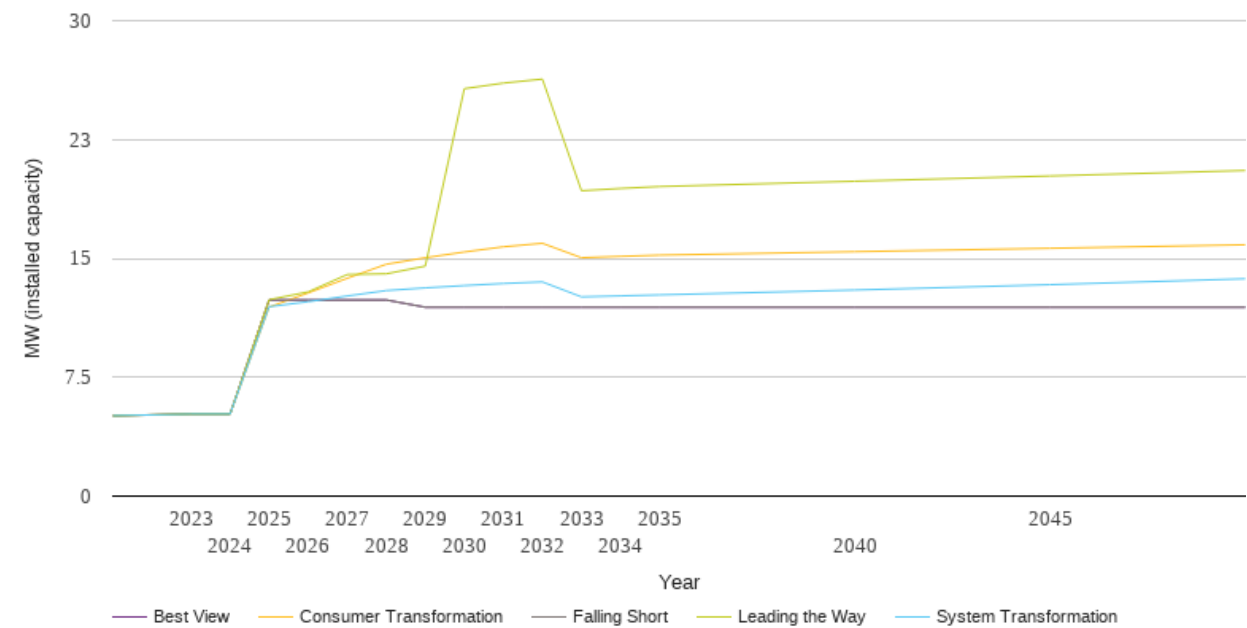
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	21657	27716	27716	29356	27716
2024	43593	58206	58206	58606	58206
2025	69571	85245	85245	90320	85245
2026	99863	124909	124909	130870	124909
2027	137603	160225	160225	182688	160225
2028	189988	222361	222361	251443	222361
2029	217254	256561	256561	286386	256561
2030	243601	286220	286220	312230	286220
2031	272620	317215	317215	338874	317215
2032	298607	339789	339789	355500	339789
2033	320859	349914	349914	358636	349914
2034	342188	360039	360039	361771	360039
2035	361110	368828	368828	364907	368828
2040	380973	380773	380773	379425	380773
2045	380973	380773	380773	380973	380773
2050	380973	380773	380773	380973	380773



Technology Summary: Other Distributed Generation

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

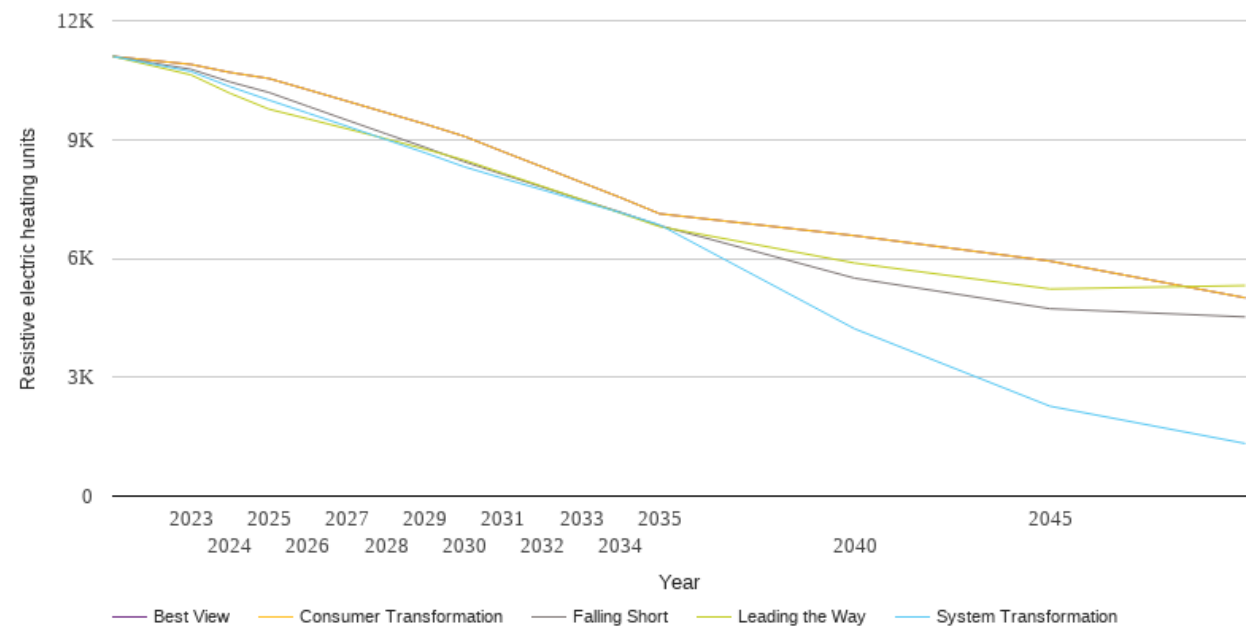
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	5.1	5.1	5.1	5.1	5.1
2023	5.2	5.2	5.2	5.2	5.2
2024	5.2	5.2	5.2	5.2	5.2
2025	12.4	12.0	11.9	12.4	12.4
2026	12.4	12.3	12.8	12.9	12.4
2027	12.4	12.6	13.7	14.0	12.4
2028	12.4	13.0	14.6	14.0	12.4
2029	11.9	13.1	15.0	14.5	11.9
2030	11.9	13.3	15.4	25.7	11.9
2031	11.9	13.4	15.7	26.1	11.9
2032	11.9	13.5	16.0	26.3	11.9
2033	11.9	12.6	15.0	19.3	11.9
2034	11.9	12.6	15.1	19.4	11.9
2035	11.9	12.7	15.2	19.5	11.9
2040	11.9	13.0	15.4	19.9	11.9
2045	11.9	13.3	15.6	20.2	11.9
2050	11.9	13.7	15.9	20.5	11.9



Technology Summary: Resistive electric heating

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

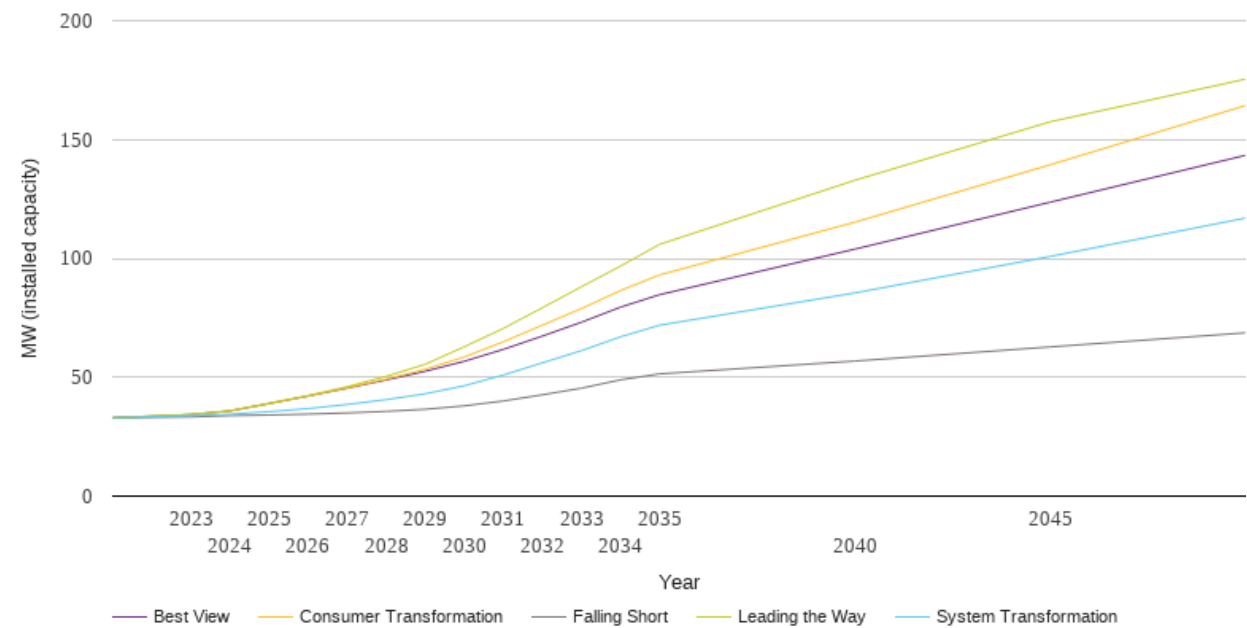
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	11098	11098	11098	11098	11098
2023	10773	10718	10896	10631	10896
2024	10454	10335	10694	10167	10694
2025	10187	9994	10539	9765	10539
2026	9836	9665	10255	9520	10255
2027	9488	9333	9967	9270	9967
2028	9143	8997	9678	9018	9678
2029	8802	8663	9389	8757	9389
2030	8439	8311	9082	8481	9082
2031	8115	8017	8691	8146	8691
2032	7799	7731	8308	7818	8308
2033	7480	7440	7920	7485	7920
2034	7167	7154	7535	7143	7535
2035	6828	6848	7128	6803	7128
2040	5500	4221	6573	5882	6573
2045	4729	2269	5932	5228	5932
2050	4522	1328	5006	5315	5006



Technology Summary: Solar Generation

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

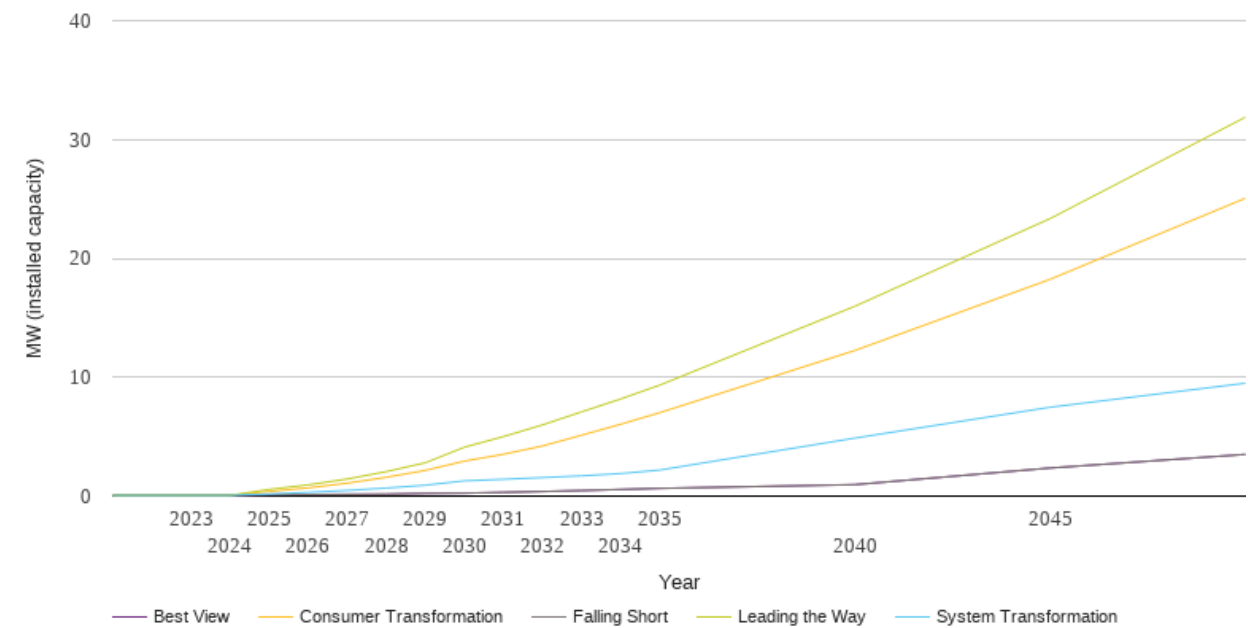
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	32.9	32.9	32.9	32.9	32.9
2023	33.3	33.8	34.3	34.3	34.3
2024	33.8	34.5	35.8	35.9	35.8
2025	34.1	35.5	38.9	39.0	38.9
2026	34.5	36.8	42.1	42.3	42.1
2027	35.0	38.6	45.5	46.0	45.4
2028	35.6	40.6	49.2	50.4	48.9
2029	36.5	43.0	53.4	55.4	52.5
2030	38.0	46.4	58.5	62.8	56.7
2031	40.0	50.9	64.9	70.5	61.7
2032	42.6	56.1	71.9	79.2	67.3
2033	45.4	61.2	78.9	88.1	73.1
2034	48.9	67.0	86.5	96.7	79.5
2035	51.4	71.9	93.0	105.9	84.7
2040	56.8	85.4	115.2	132.8	103.9
2045	62.8	100.8	139.4	157.4	123.6
2050	68.7	116.9	164.3	175.4	143.3



Technology Summary: Storage

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

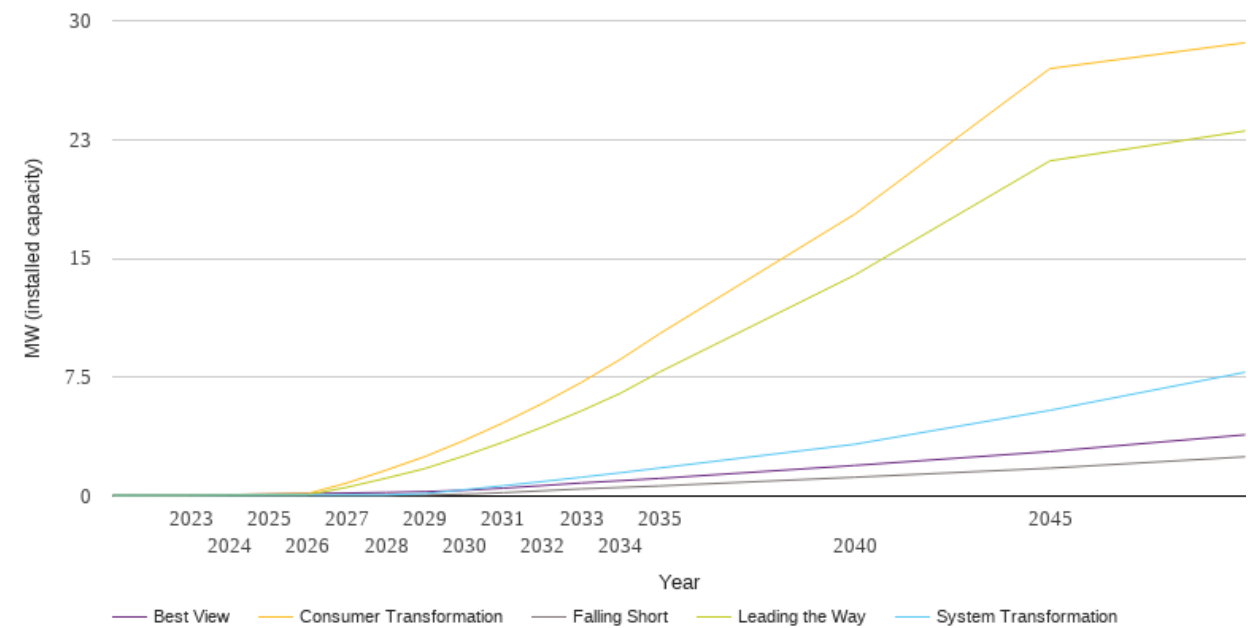
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.1	0.1	0.1	0.1	0.1
2023	0.1	0.1	0.1	0.1	0.1
2024	0.1	0.1	0.1	0.1	0.1
2025	0.1	0.2	0.4	0.6	0.1
2026	0.1	0.3	0.7	0.9	0.1
2027	0.1	0.5	1.1	1.4	0.1
2028	0.2	0.7	1.6	2.1	0.2
2029	0.2	0.9	2.2	2.8	0.2
2030	0.2	1.3	2.9	4.1	0.2
2031	0.3	1.4	3.5	5.0	0.3
2032	0.4	1.6	4.2	6.0	0.4
2033	0.5	1.7	5.1	7.1	0.5
2034	0.6	1.9	6.0	8.2	0.6
2035	0.6	2.2	7.0	9.3	0.6
2040	1.0	4.9	12.2	16.0	1.0
2045	2.4	7.5	18.2	23.3	2.4
2050	3.5	9.5	25.1	31.9	3.5



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	0.1	0.1	0.1	0.1
2024	0.0	0.1	0.1	0.1	0.1
2025	0.0	0.1	0.1	0.1	0.1
2026	0.0	0.1	0.2	0.1	0.2
2027	0.0	0.1	0.8	0.6	0.2
2028	0.0	0.1	1.6	1.1	0.2
2029	0.1	0.2	2.5	1.7	0.3
2030	0.1	0.4	3.5	2.5	0.4
2031	0.2	0.7	4.6	3.4	0.5
2032	0.3	0.9	5.8	4.4	0.7
2033	0.5	1.2	7.2	5.4	0.8
2034	0.5	1.5	8.6	6.5	1.0
2035	0.6	1.8	10.2	7.8	1.1
2040	1.2	3.3	17.8	13.9	1.9
2045	1.8	5.4	27.0	21.2	2.8
2050	2.5	7.8	28.6	23.0	3.9



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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