

# Distribution Future Energy Scenarios 2022

Local Authority:  
Teignbridge

## What are Distribution Future Energy Scenarios?

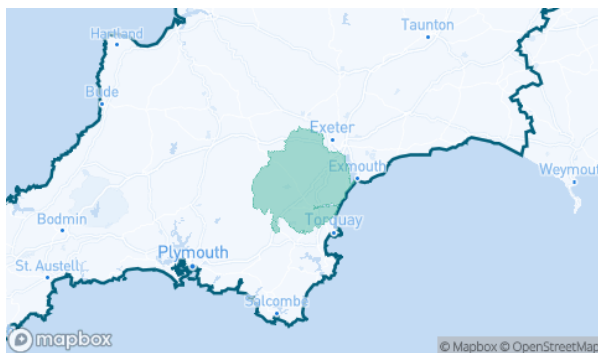
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 Teignbridge 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 Teignbridge 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	111	592	434	434	111	22008	10685	10684	111
Domestic	New dwellings	0	4641	5175	5175	6239	7822	7767	7767	7721
Electric vehicles	Electric vehicles	1480	12596	15695	28992	28911	88481	78732	78029	64783
EV Charge Point	EV charge points	834	5829	8639	16328	17944	51702	50188	50786	52948
Heat pumps	Heat pump installations	1061	6224	6116	12866	18998	34704	39883	66762	60477
Hydrogen electrolysis	MW (installed capacity)	0.0	0.8	7.3	2.4	1.2	1.9	21.3	13.9	8.5
Non domestic	Floorspace (metres squared) of new I&C developments	0	129553	157353	157353	165085	280855	279256	279256	280855
Other Distributed Generation	MW (installed capacity)	4.6	2.4	3.6	5.0	25.3	0.8	2.2	4.3	24.9
Resistive electric heating	Resistive electric heating units	12560	10198	9933	10628	10112	6354	2460	6547	6930
Solar Generation	MW (installed capacity)	21.3	28.9	41.7	57.8	63.5	87.9	170.1	233.9	250.4
Storage	MW (installed capacity)	0.0	0.2	2.2	4.4	5.9	4.9	13.0	33.6	44.0
Wind	MW (installed capacity)	0.1	0.2	0.7	5.8	4.5	5.5	16.6	55.6	44.7

## 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

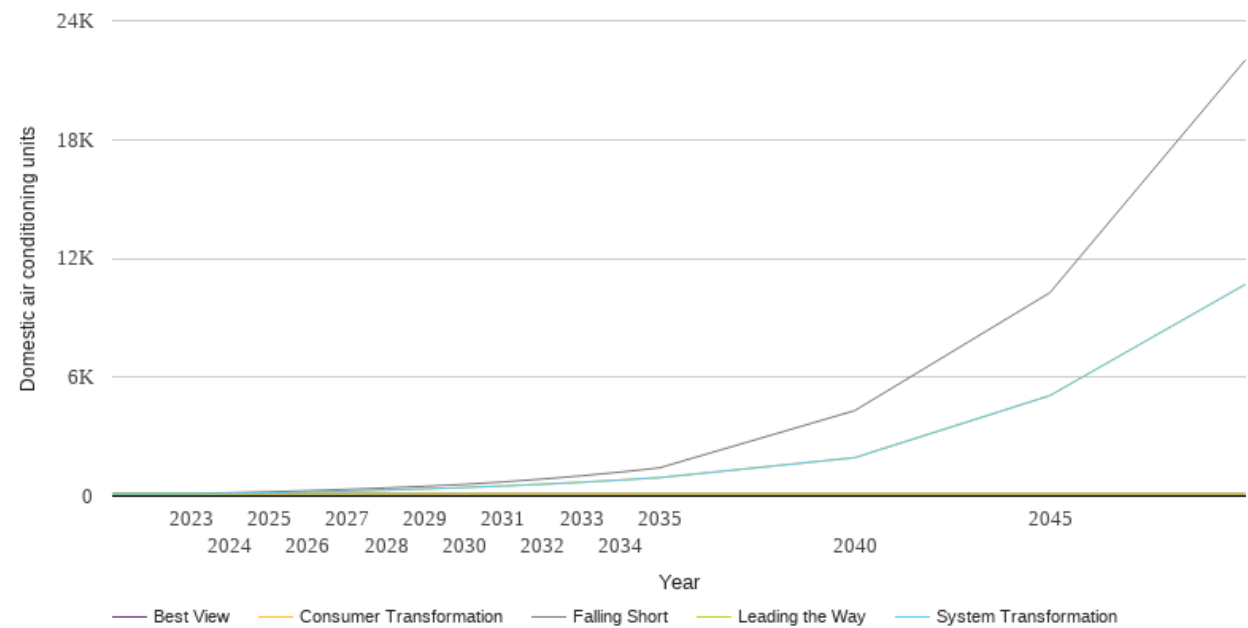
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

If you have any comments or queries regarding these reports, please contact [nged.energyplanning@nationalgrid.co.uk](mailto:nged.energyplanning@nationalgrid.co.uk).

# Technology Summary: Air conditioning

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

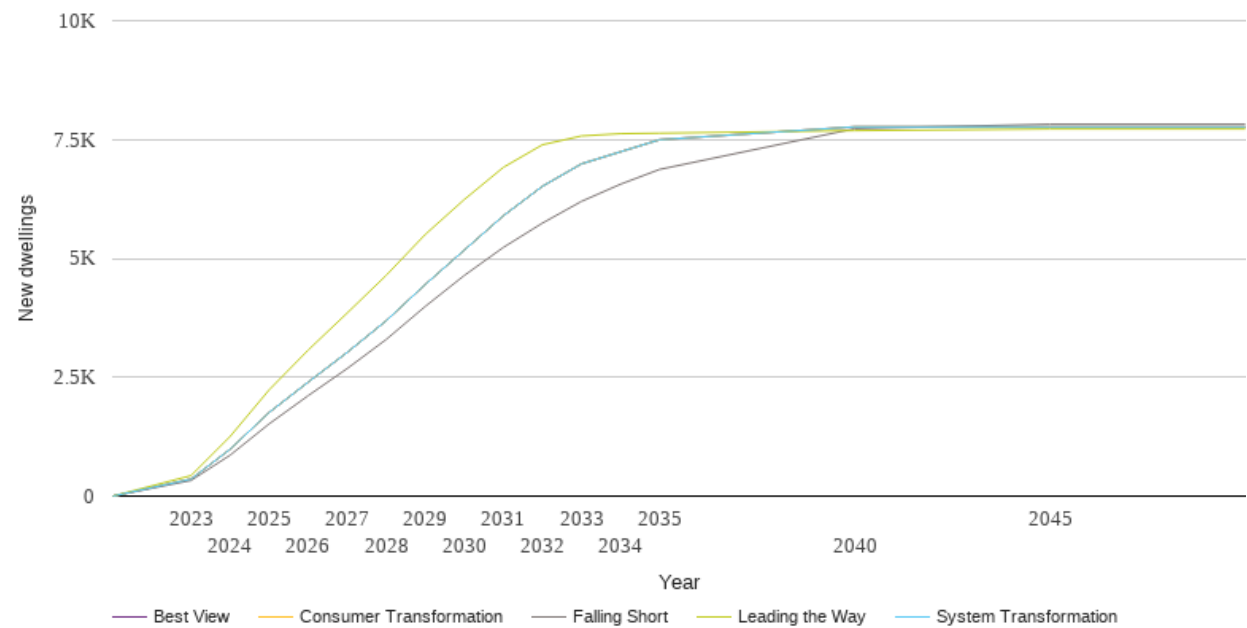
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	111	111	111	111	111
2023	128	126	126	111	111
2024	169	141	141	111	111
2025	218	159	159	111	111
2026	274	202	202	111	111
2027	339	250	250	111	111
2028	412	305	305	111	111
2029	497	366	366	111	111
2030	592	434	434	111	111
2031	717	512	512	111	111
2032	860	599	599	111	111
2033	1024	698	698	111	111
2034	1212	809	809	111	111
2035	1427	932	932	111	111
2040	4316	1939	1939	111	111
2045	10271	5076	5075	111	111
2050	22008	10685	10684	111	111



# Technology Summary: Domestic

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

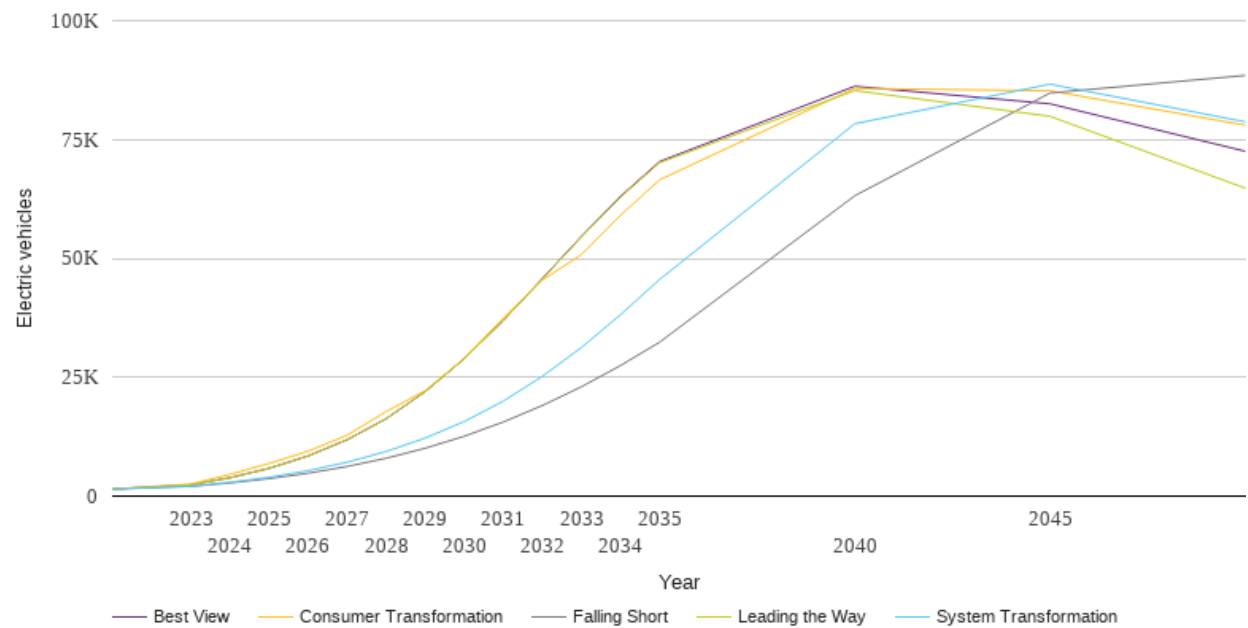
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	329	358	358	431	358
2024	860	985	985	1253	985
2025	1519	1759	1759	2234	1759
2026	2112	2397	2397	3071	2397
2027	2683	3023	3023	3851	3023
2028	3295	3689	3689	4644	3689
2029	3990	4452	4452	5504	4452
2030	4641	5175	5175	6239	5175
2031	5231	5897	5897	6915	5897
2032	5742	6516	6516	7390	6516
2033	6199	6988	6988	7575	6988
2034	6560	7242	7242	7623	7242
2035	6871	7496	7496	7634	7496
2040	7728	7767	7767	7688	7767
2045	7822	7767	7767	7721	7767
2050	7822	7767	7767	7721	7767



# Technology Summary: Electric vehicles

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

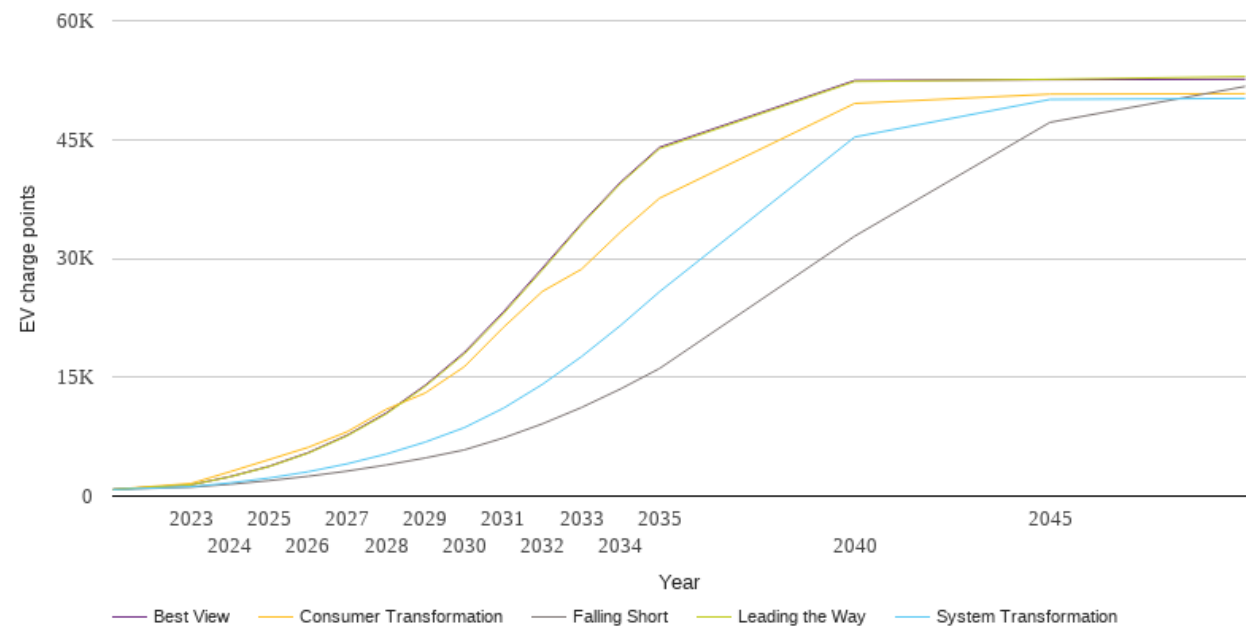
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1480	1480	1480	1480	1480
2023	2045	2085	2543	2382	2382
2024	2768	2906	4578	3881	3881
2025	3676	3966	6882	5838	5838
2026	4813	5346	9440	8450	8450
2027	6233	7129	12819	11868	11867
2028	7966	9385	17791	16287	16288
2029	10072	12212	22201	21997	22000
2030	12596	15695	28992	28911	28915
2031	15589	19979	37503	36956	36961
2032	19057	25195	45433	45675	45782
2033	23001	31255	50812	54496	54628
2034	27453	38150	59065	62865	63042
2035	32357	45549	66521	70124	70360
2040	63178	78315	85756	85299	86207
2045	84778	86645	85256	79888	82515
2050	88481	78732	78029	64783	72536



# 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	834	834	834	834	834
2023	1122	1184	1596	1415	1422
2024	1490	1665	3074	2433	2460
2025	1951	2282	4605	3719	3765
2026	2501	3070	6151	5414	5478
2027	3157	4073	8121	7607	7691
2028	3924	5308	10949	10365	10493
2029	4811	6821	13018	13861	13996
2030	5829	8639	16328	17944	18134
2031	7340	11086	21291	23014	23245
2032	9118	14101	25835	28539	28778
2033	11180	17598	28631	34229	34400
2034	13520	21530	33323	39450	39616
2035	16106	25794	37596	43852	44019
2040	32809	45317	49561	52327	52453
2045	47168	50058	50727	52595	52551
2050	51702	50188	50786	52948	52620

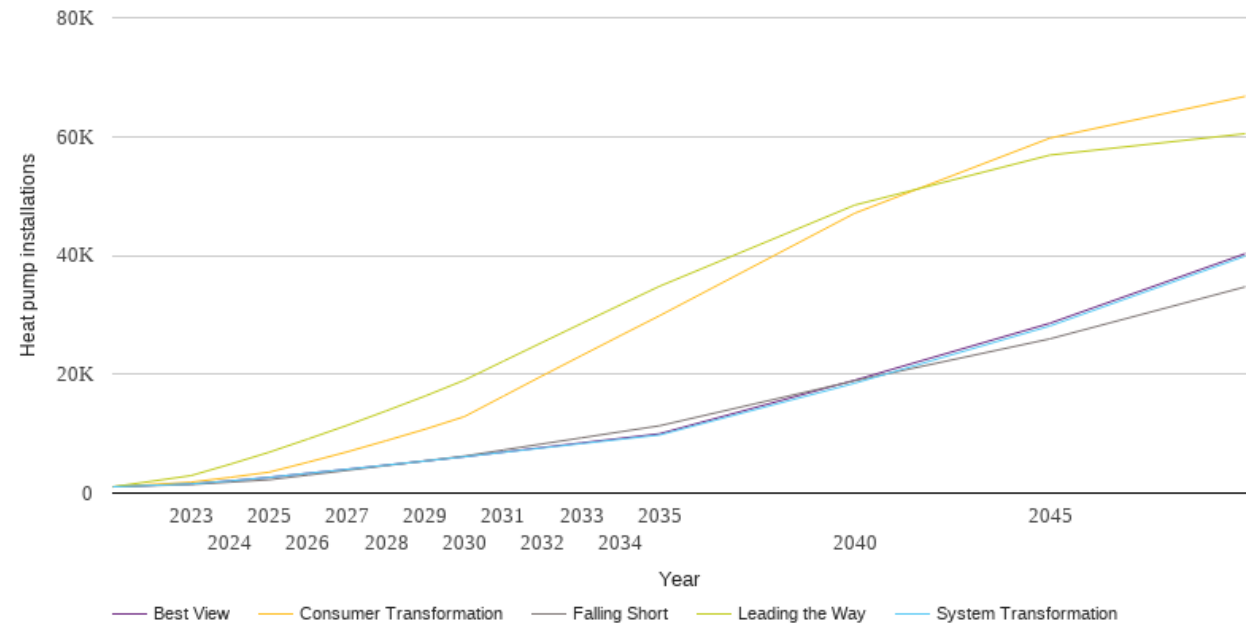




# Technology Summary: Heat pumps

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

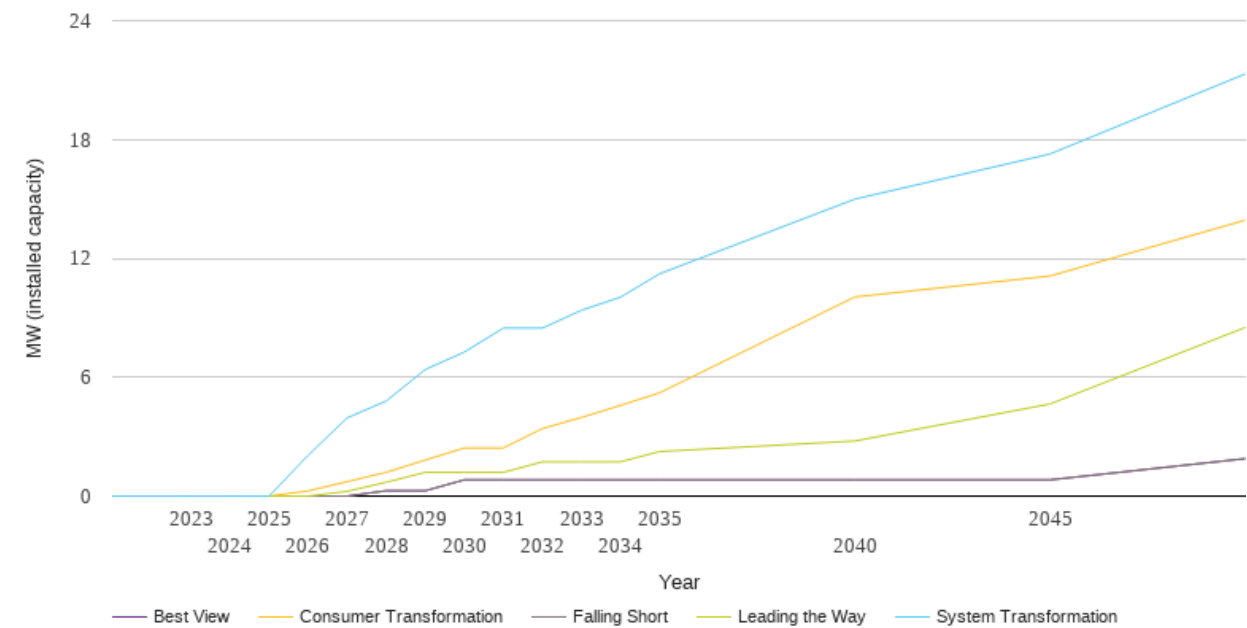
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1061	1061	1061	1061	1061
2023	1447	1542	1837	2941	1542
2024	1840	2053	2638	4851	2053
2025	2244	2641	3516	6875	2641
2026	3032	3336	5207	9107	3334
2027	3822	4002	6939	11402	4002
2028	4624	4700	8817	13836	4702
2029	5425	5400	10758	16341	5405
2030	6224	6116	12866	18998	6119
2031	7256	6861	16308	22192	6902
2032	8278	7598	19751	25368	7675
2033	9296	8331	23133	28539	8449
2034	10317	9054	26503	31684	9214
2035	11329	9778	29849	34804	9981
2040	18901	18494	47096	48465	18995
2045	25955	28121	59738	56880	28583
2050	34704	39883	66762	60477	40292



# Technology Summary: Hydrogen electrolysis

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

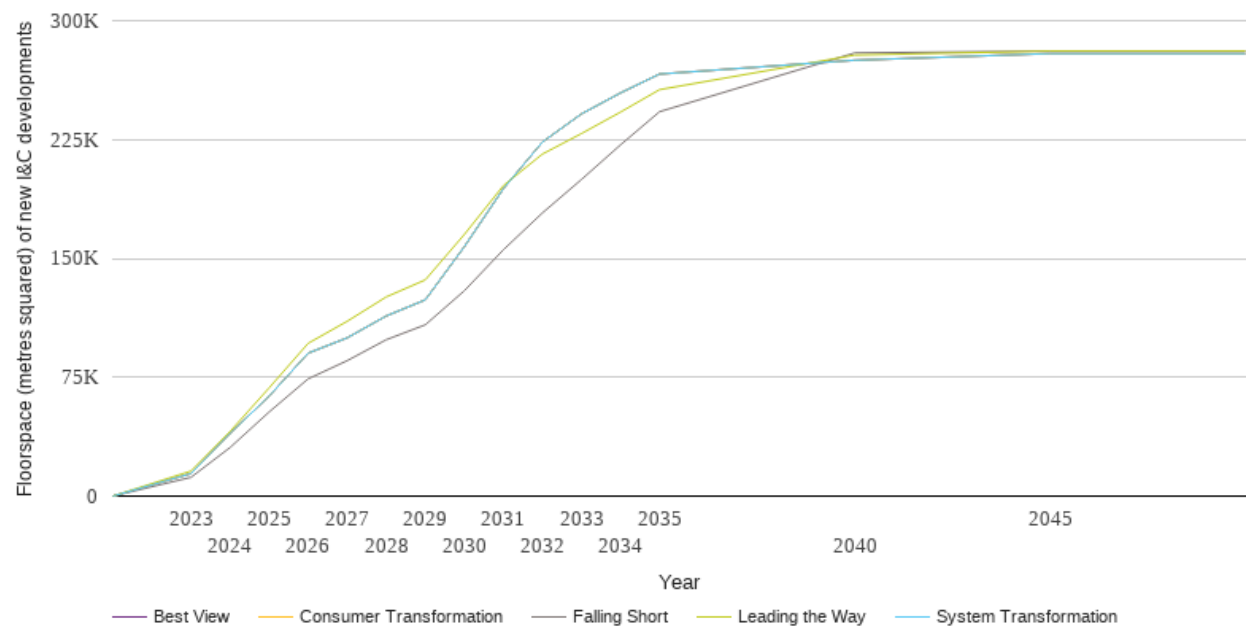
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	2.1	0.3	0.0	0.0
2027	0.0	4.0	0.7	0.2	0.0
2028	0.3	4.8	1.2	0.7	0.3
2029	0.3	6.4	1.8	1.2	0.3
2030	0.8	7.3	2.4	1.2	0.8
2031	0.8	8.5	2.4	1.2	0.8
2032	0.8	8.5	3.4	1.7	0.8
2033	0.8	9.4	4.0	1.7	0.8
2034	0.8	10.0	4.6	1.7	0.8
2035	0.8	11.2	5.2	2.2	0.8
2040	0.8	15.0	10.0	2.8	0.8
2045	0.8	17.3	11.1	4.6	0.8
2050	1.9	21.3	13.9	8.5	1.9



# Technology Summary: Non domestic

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

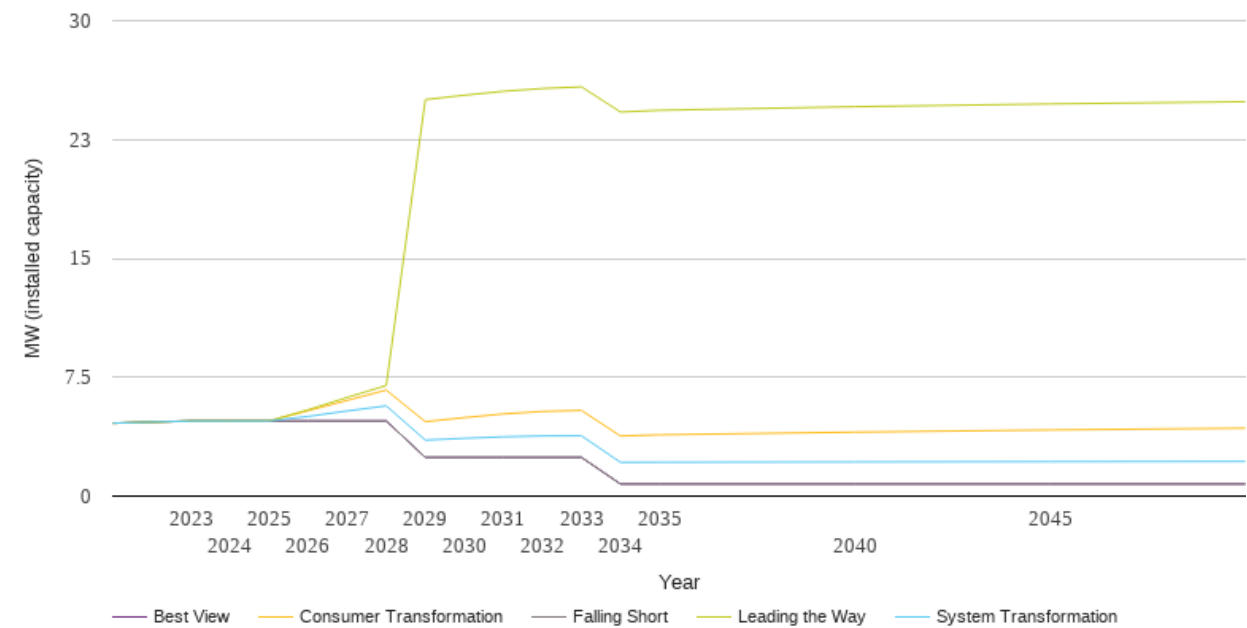
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	11862	14223	14223	15813	14223
2024	30636	39539	39539	40757	39539
2025	53068	63052	63052	68288	63052
2026	73989	90197	90197	96404	90197
2027	85467	99861	99861	110305	99861
2028	98664	113659	113659	125670	113659
2029	108082	123825	123825	136432	123825
2030	129553	157353	157353	165085	157353
2031	155439	193988	193988	195932	193988
2032	178678	223433	223433	215827	223433
2033	199784	241166	241166	228774	241166
2034	221615	254400	254400	242320	254400
2035	242571	266327	266327	256467	266327
2040	279655	275056	275056	278279	275056
2045	280855	279256	279256	280855	279256
2050	280855	279256	279256	280855	279256



# Technology Summary: Other Distributed Generation

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

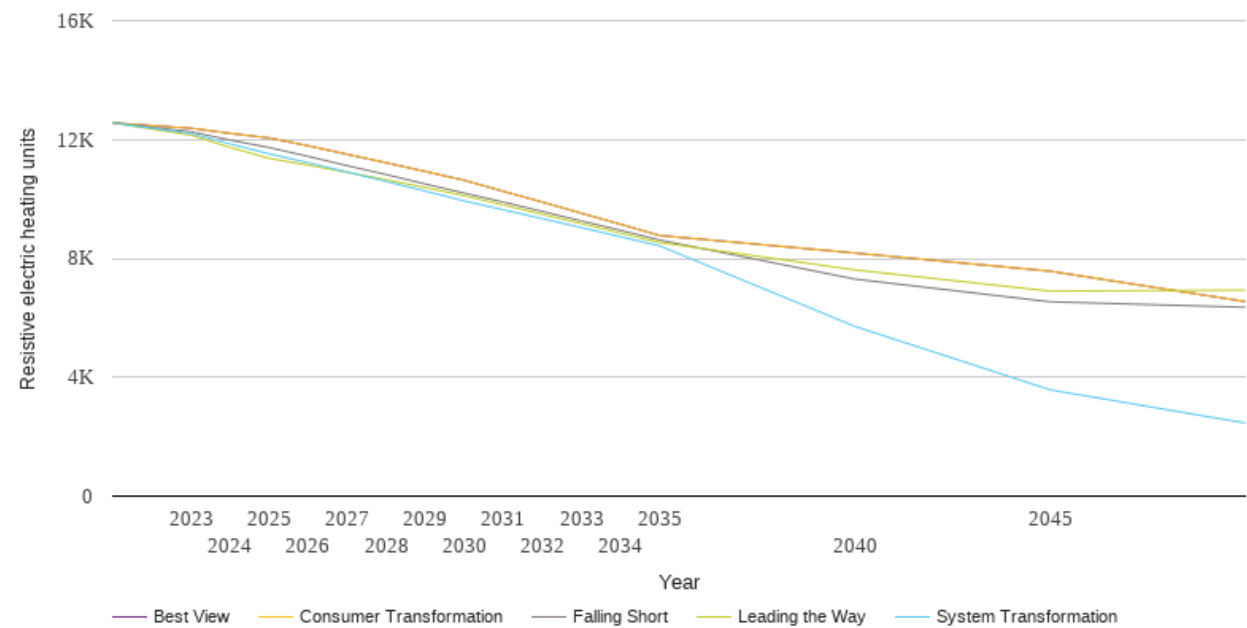
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	4.6	4.6	4.6	4.6	4.6
2023	4.7	4.7	4.7	4.7	4.7
2024	4.7	4.7	4.7	4.7	4.7
2025	4.7	4.7	4.7	4.7	4.7
2026	4.7	5.0	5.4	5.4	4.7
2027	4.7	5.4	6.0	6.2	4.7
2028	4.7	5.7	6.7	7.0	4.7
2029	2.4	3.5	4.7	25.0	2.4
2030	2.4	3.6	5.0	25.3	2.4
2031	2.4	3.7	5.2	25.5	2.4
2032	2.4	3.8	5.3	25.7	2.4
2033	2.4	3.8	5.4	25.8	2.4
2034	0.8	2.1	3.8	24.2	0.8
2035	0.8	2.1	3.9	24.3	0.8
2040	0.8	2.2	4.0	24.6	0.8
2045	0.8	2.2	4.2	24.7	0.8
2050	0.8	2.2	4.3	24.9	0.8



# Technology Summary: Resistive electric heating

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

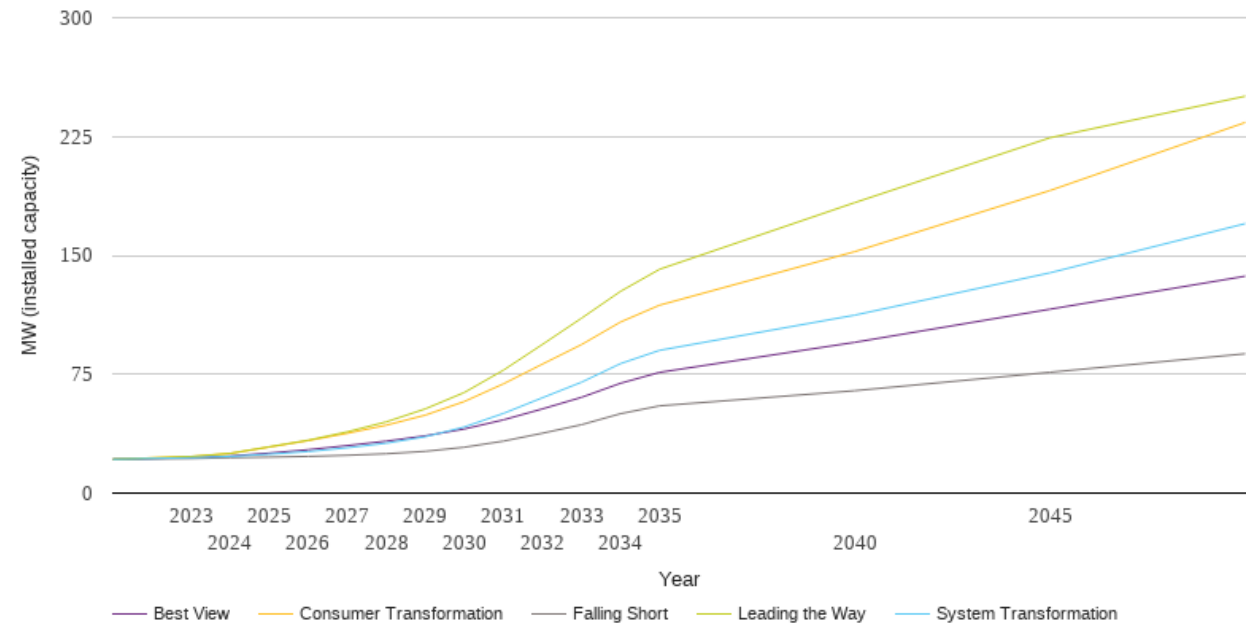
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	12560	12560	12560	12560	12560
2023	12262	12203	12380	12146	12380
2024	11982	11853	12208	11736	12208
2025	11731	11519	12053	11366	12053
2026	11433	11221	11790	11141	11790
2027	11121	10907	11504	10897	11504
2028	10821	10589	11218	10645	11218
2029	10505	10266	10927	10385	10927
2030	10198	9933	10628	10112	10628
2031	9894	9635	10258	9799	10258
2032	9578	9338	9894	9483	9894
2033	9260	9036	9520	9172	9520
2034	8944	8730	9149	8854	9149
2035	8619	8423	8771	8535	8771
2040	7303	5713	8181	7612	8181
2045	6540	3578	7570	6898	7570
2050	6354	2460	6547	6930	6547



# Technology Summary: Solar Generation

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

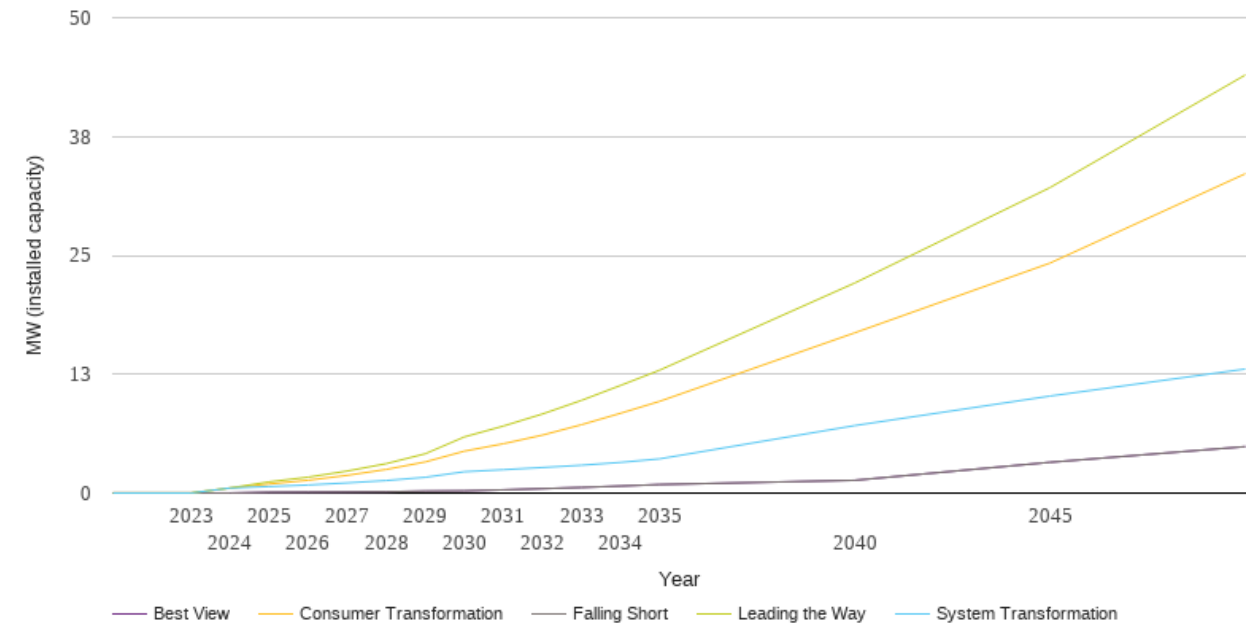
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	21.3	21.3	21.3	21.3	21.3
2023	21.8	22.3	23.0	23.1	22.4
2024	22.3	23.1	25.0	25.1	23.4
2025	22.7	24.5	29.0	29.2	25.2
2026	23.1	26.2	33.1	33.3	27.4
2027	23.9	28.6	37.7	38.6	30.0
2028	24.8	31.5	42.8	44.9	32.8
2029	26.3	35.6	49.2	53.1	36.1
2030	28.9	41.7	57.8	63.5	40.5
2031	32.8	50.3	68.9	77.5	46.2
2032	37.8	60.2	81.4	93.8	53.1
2033	43.1	70.0	93.7	110.3	60.4
2034	50.1	81.7	108.0	127.3	69.3
2035	55.1	90.1	118.6	141.2	76.2
2040	64.6	112.3	152.4	183.3	95.1
2045	76.2	139.0	190.9	224.2	116.0
2050	87.9	170.1	233.9	250.4	136.9



# Technology Summary: Storage

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

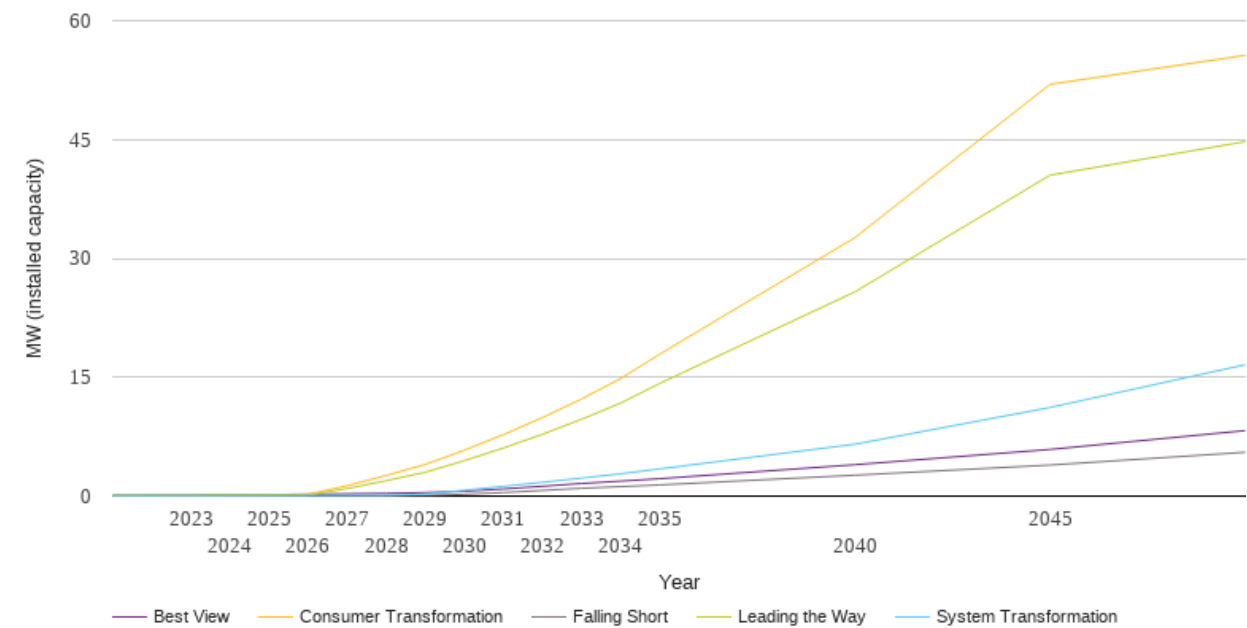
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.5	0.5	0.5	0.0
2025	0.1	0.7	1.0	1.2	0.1
2026	0.1	0.9	1.3	1.7	0.1
2027	0.1	1.1	1.9	2.3	0.1
2028	0.1	1.3	2.5	3.1	0.1
2029	0.2	1.7	3.3	4.1	0.2
2030	0.2	2.2	4.4	5.9	0.2
2031	0.3	2.5	5.2	7.1	0.3
2032	0.5	2.7	6.1	8.3	0.5
2033	0.6	2.9	7.2	9.7	0.6
2034	0.7	3.2	8.4	11.3	0.7
2035	0.9	3.6	9.6	12.9	0.9
2040	1.3	7.1	16.9	22.1	1.3
2045	3.2	10.2	24.2	32.1	3.2
2050	4.9	13.0	33.6	44.0	4.9



# 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	0.2	0.1	0.2
2026	0.1	0.1	0.2	0.1	0.2
2027	0.1	0.1	1.3	1.0	0.3
2028	0.1	0.1	2.6	1.9	0.3
2029	0.1	0.3	4.0	3.0	0.4
2030	0.2	0.7	5.8	4.5	0.6
2031	0.4	1.2	7.8	6.1	0.9
2032	0.7	1.7	9.9	7.8	1.2
2033	1.0	2.3	12.3	9.7	1.6
2034	1.2	2.8	14.8	11.7	1.9
2035	1.4	3.4	17.9	14.2	2.2
2040	2.6	6.5	32.6	25.8	4.0
2045	3.9	11.2	52.0	40.5	5.9
2050	5.5	16.6	55.6	44.7	8.3





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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