

# Distribution Future Energy Scenarios 2022

Local Authority:  
Mendip

## What are Distribution Future Energy Scenarios?

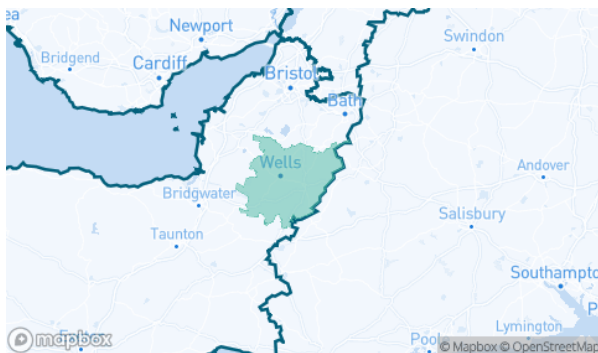
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 Mendip 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 Mendip 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	157	93	93	0	10430	4853	4853	0
Domestic	New dwellings	0	1331	1457	1457	1731	2047	2017	2017	2004
Electric vehicles	Electric vehicles	909	7772	9714	17993	17964	55787	47765	48235	41799
EV Charge Point	EV charge points	503	3450	5022	9495	10459	30015	28781	29210	30425
Heat pumps	Heat pump installations	543	3649	3798	7088	10478	20104	22651	35938	32362
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	2.2	0.5	2.8	1.1	12.0	8.6	14.6
Non domestic	Floorspace (metres squared) of new I&C developments	0	70697	85662	85662	87463	160686	160601	160601	160686
Other Distributed Generation	MW (installed capacity)	1.5	6.5	2.5	2.9	3.0	6.5	2.5	3.2	3.4
Resistive electric heating	Resistive electric heating units	6152	4994	4858	5174	4928	3157	1288	3270	3458
Solar Generation	MW (installed capacity)	26.0	31.9	41.1	51.0	56.9	86.8	155.1	194.3	214.0
Storage	MW (installed capacity)	0.0	0.1	1.1	2.4	3.4	3.8	10.1	23.6	30.3
Wind	MW (installed capacity)	0.6	0.7	1.2	6.0	4.7	5.3	15.3	50.9	41.1

## 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

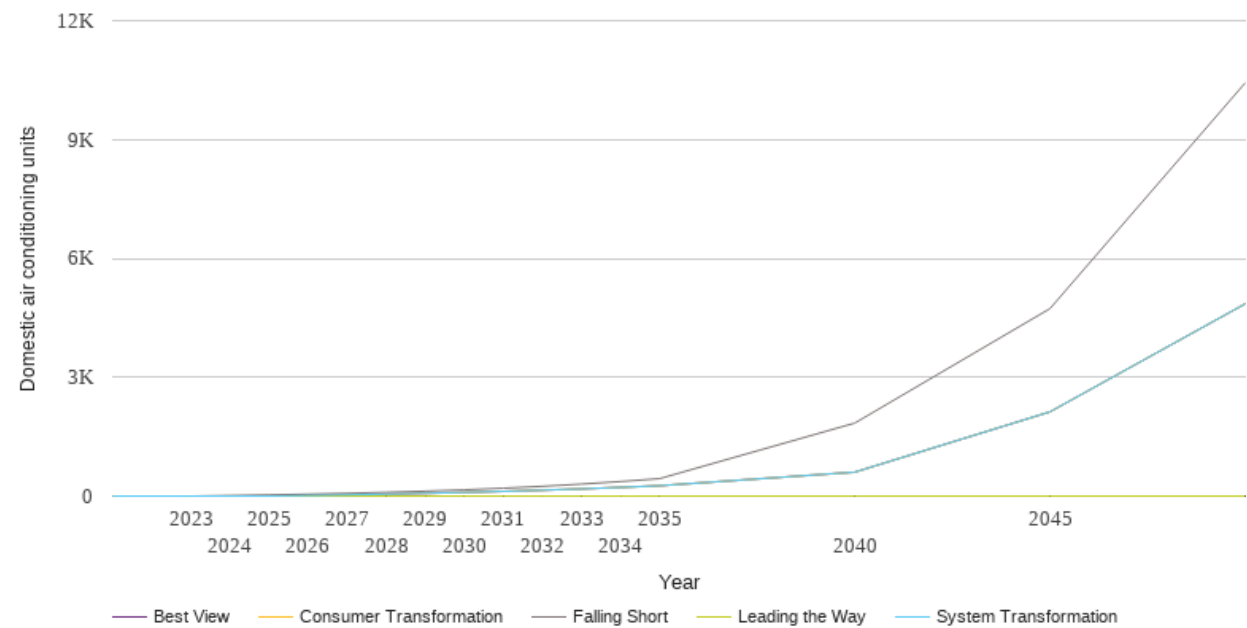
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

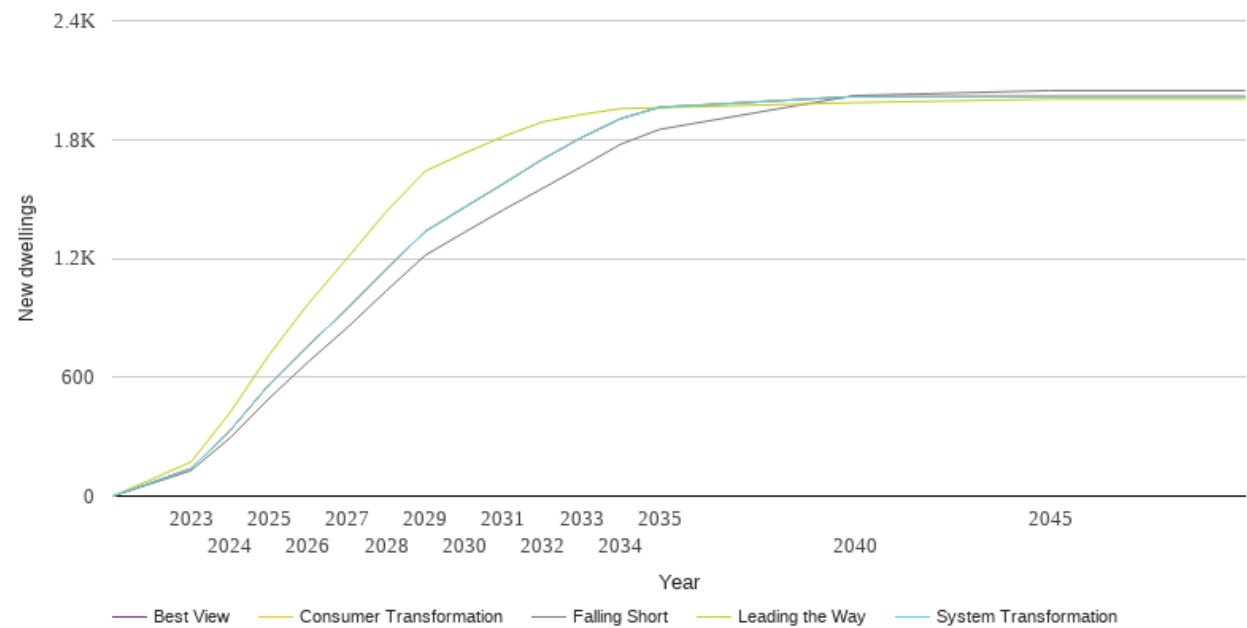
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	14	0	0	0	0
2025	30	0	0	0	0
2026	49	14	14	0	14
2027	70	30	30	0	30
2028	95	49	49	0	49
2029	124	70	70	0	70
2030	157	93	93	0	93
2031	199	120	120	0	120
2032	247	149	149	0	149
2033	303	182	182	0	182
2034	367	220	220	0	220
2035	440	262	262	0	262
2040	1843	604	604	0	604
2045	4732	2127	2127	0	2127
2050	10430	4853	4853	0	4853



# Technology Summary: Domestic

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

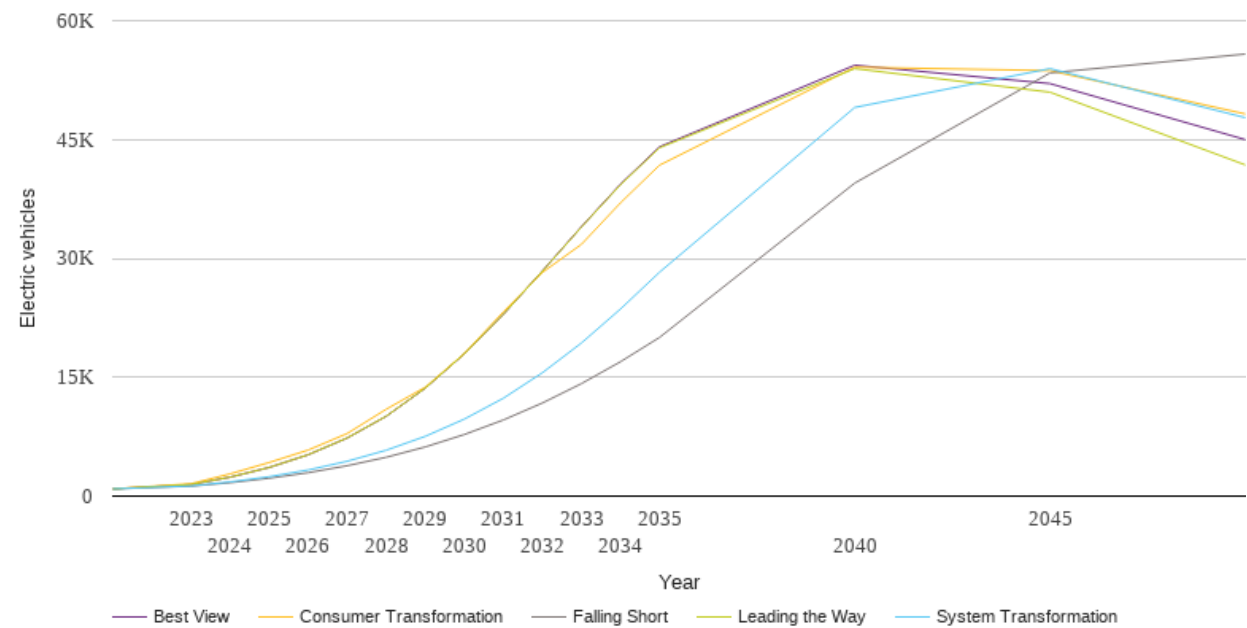
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	129	139	139	172	139
2024	294	331	331	422	331
2025	493	563	563	713	563
2026	677	759	759	970	759
2027	850	946	946	1201	946
2028	1036	1146	1146	1436	1146
2029	1216	1336	1336	1641	1336
2030	1331	1457	1457	1731	1457
2031	1445	1577	1577	1815	1577
2032	1553	1700	1700	1889	1700
2033	1663	1810	1810	1926	1810
2034	1776	1905	1905	1956	1905
2035	1851	1963	1963	1961	1963
2040	2022	2017	2017	1986	2017
2045	2047	2017	2017	2004	2017
2050	2047	2017	2017	2004	2017



# Technology Summary: Electric vehicles

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

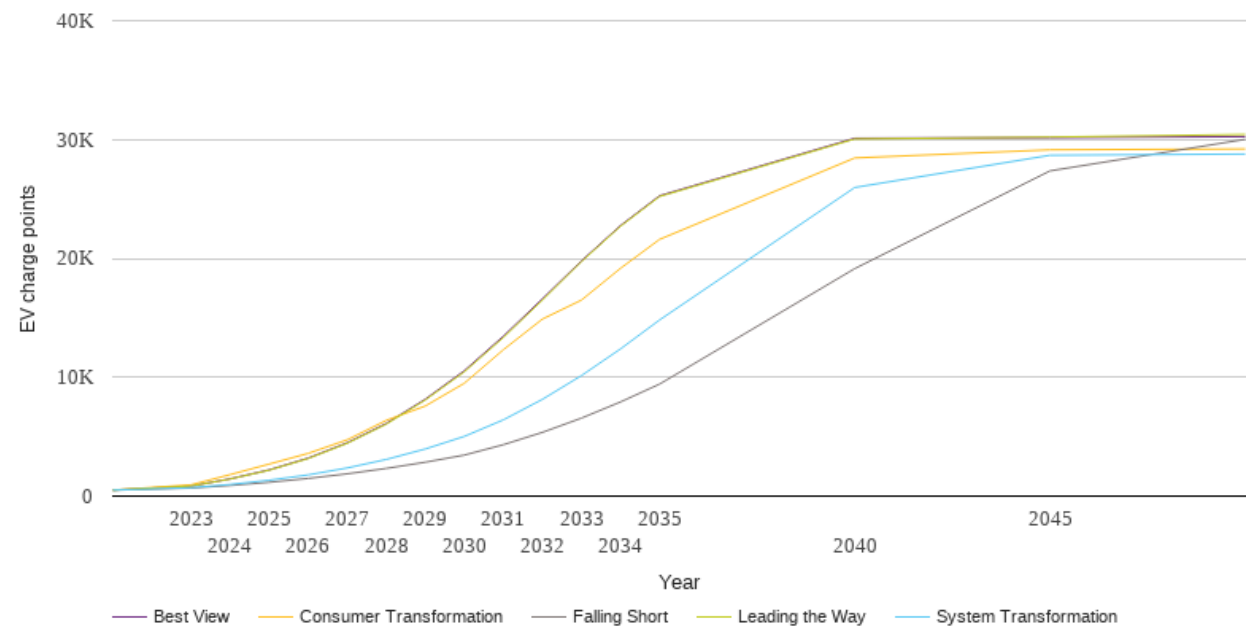
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	909	909	909	909	909
2023	1255	1282	1560	1463	1463
2024	1694	1789	2805	2390	2389
2025	2253	2444	4236	3612	3610
2026	2953	3293	5807	5220	5215
2027	3832	4398	7899	7340	7329
2028	4900	5789	10964	10083	10073
2029	6204	7541	13748	13636	13626
2030	7772	9714	17993	17964	17949
2031	9608	12351	23256	22948	22931
2032	11751	15568	28230	28388	28419
2033	14197	19326	31773	33956	34003
2034	16959	23613	37008	39293	39370
2035	20024	28257	41767	43960	44079
2040	39501	49051	54132	53949	54381
2045	53404	53954	53696	50974	52060
2050	55787	47765	48235	41799	44994



# 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	503	503	503	503	503
2023	676	703	945	841	843
2024	893	978	1804	1435	1449
2025	1162	1332	2694	2180	2204
2026	1485	1784	3592	3162	3196
2027	1873	2367	4735	4443	4484
2028	2328	3083	6373	6051	6110
2029	2851	3964	7578	8089	8148
2030	3450	5022	9495	10459	10546
2031	4324	6416	12315	13345	13453
2032	5362	8140	14895	16489	16593
2033	6561	10138	16492	19730	19790
2034	7921	12382	19162	22701	22758
2035	9422	14818	21598	25207	25267
2040	19140	25965	28449	30050	30107
2045	27360	28675	29133	30206	30165
2050	30015	28781	29210	30425	30242

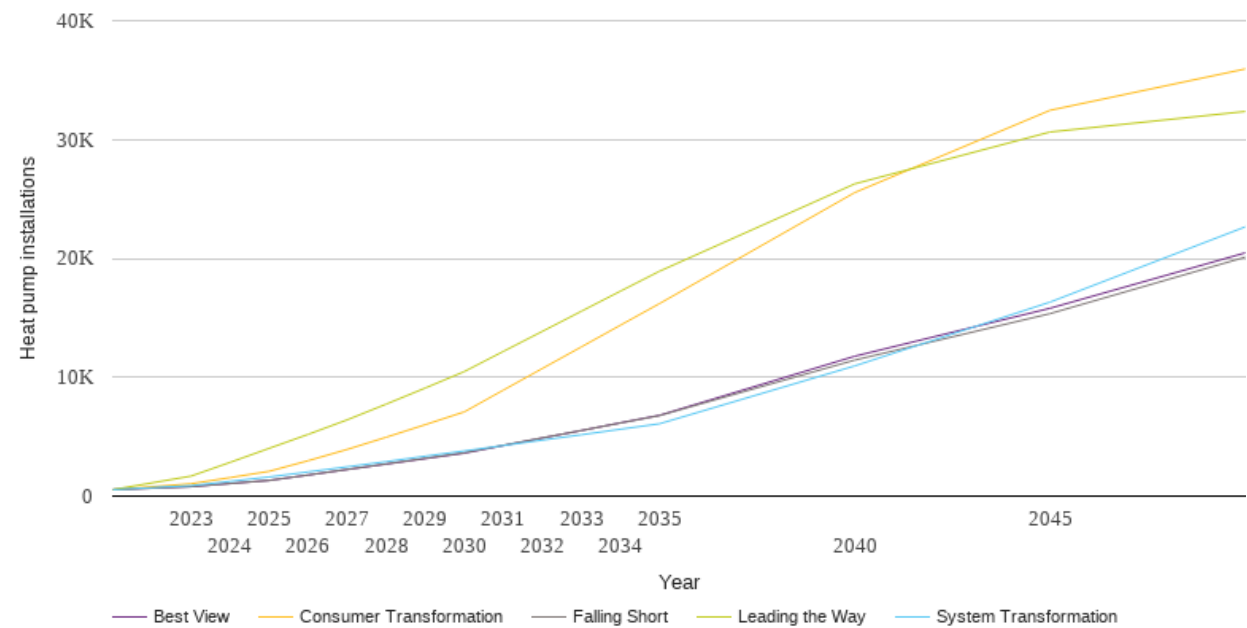




# Technology Summary: Heat pumps

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

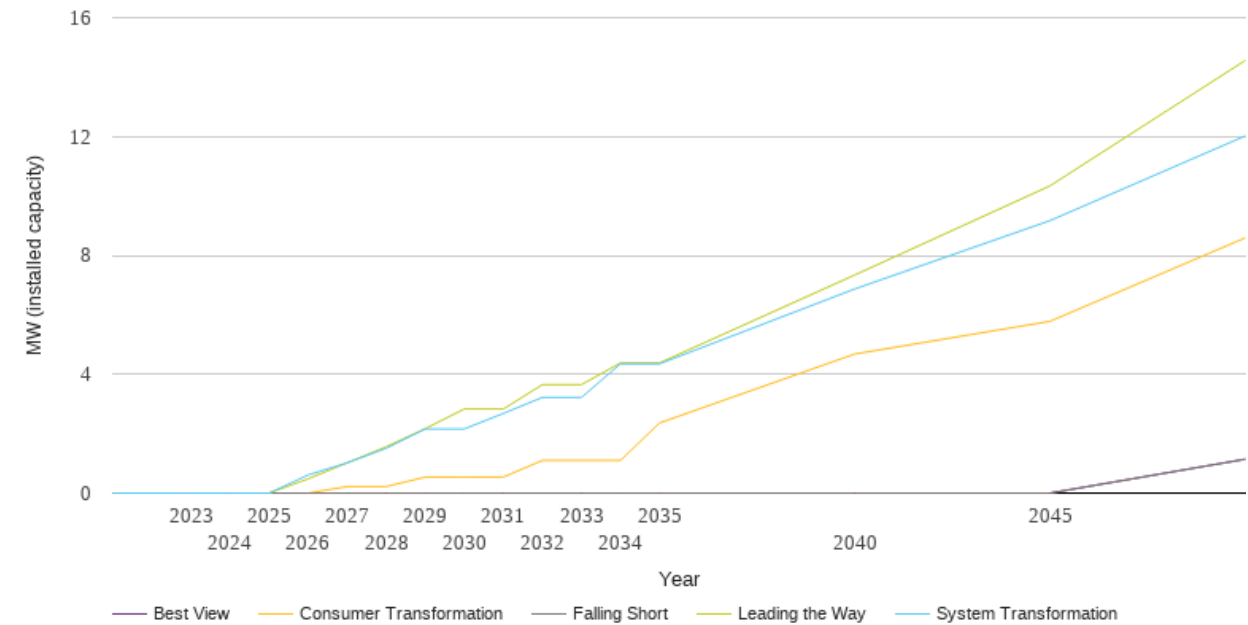
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	543	543	543	543	543
2023	795	880	1037	1681	795
2024	1059	1239	1554	2835	1059
2025	1318	1608	2086	4017	1318
2026	1775	2034	2978	5193	1769
2027	2249	2464	3927	6417	2233
2028	2713	2899	4952	7740	2692
2029	3185	3358	6010	9094	3154
2030	3649	3798	7088	10478	3610
2031	4278	4253	8919	12175	4253
2032	4898	4711	10738	13862	4888
2033	5517	5162	12557	15555	5518
2034	6149	5626	14383	17245	6167
2035	6771	6085	16199	18920	6799
2040	11444	10954	25539	26270	11767
2045	15350	16320	32457	30632	15802
2050	20104	22651	35938	32362	20466



# Technology Summary: Hydrogen electrolysis

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

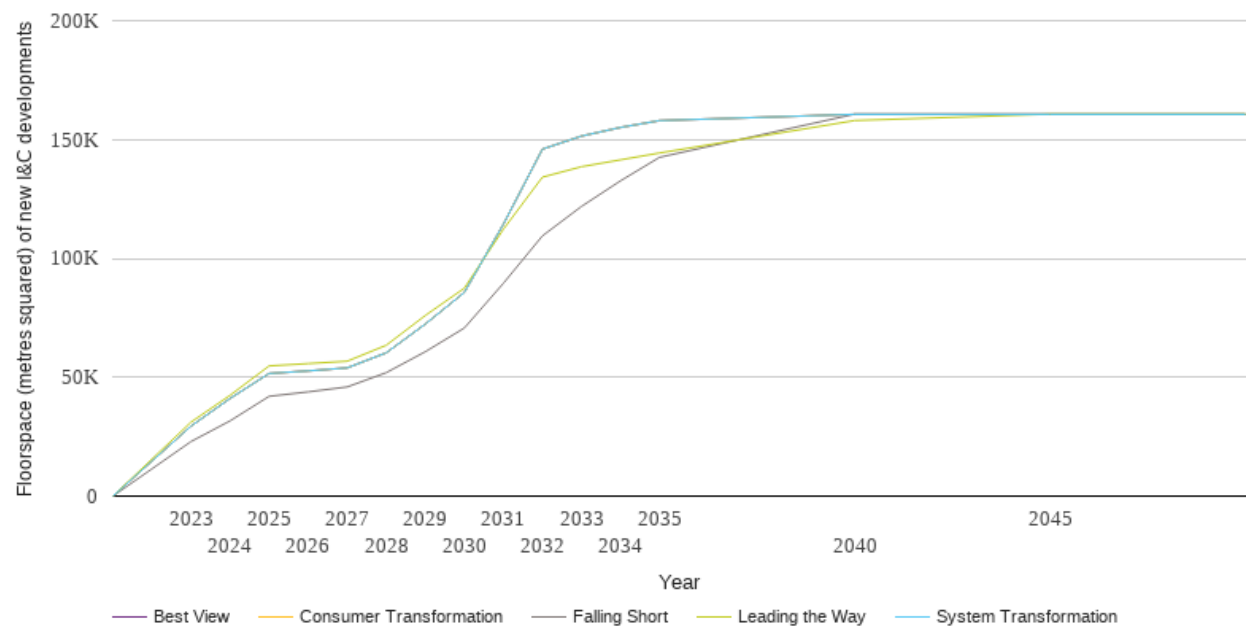
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.6	0.0	0.5	0.0
2027	0.0	1.0	0.2	1.0	0.0
2028	0.0	1.5	0.2	1.6	0.0
2029	0.0	2.2	0.5	2.2	0.0
2030	0.0	2.2	0.5	2.8	0.0
2031	0.0	2.7	0.5	2.8	0.0
2032	0.0	3.2	1.1	3.7	0.0
2033	0.0	3.2	1.1	3.7	0.0
2034	0.0	4.3	1.1	4.4	0.0
2035	0.0	4.3	2.4	4.4	0.0
2040	0.0	6.9	4.7	7.3	0.0
2045	0.0	9.2	5.8	10.3	0.0
2050	1.1	12.0	8.6	14.6	1.1



# Technology Summary: Non domestic

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

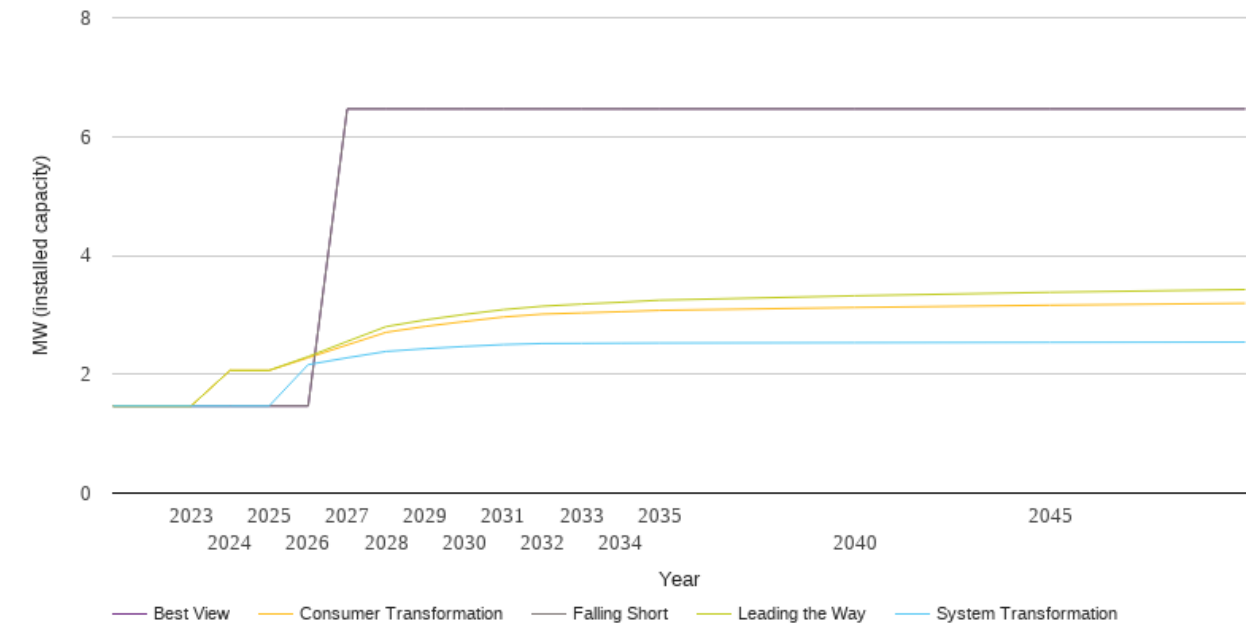
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	22945	29446	29446	31125	29446
2024	31646	41067	41067	42403	41067
2025	41970	51580	51580	54762	51580
2026	43844	52657	52657	55741	52657
2027	45918	53934	53934	56745	53934
2028	51933	60277	60277	63456	60277
2029	60732	72375	72375	75975	72375
2030	70697	85662	85662	87463	85662
2031	89513	114375	114375	112240	114375
2032	109479	145962	145962	134171	145962
2033	121844	151450	151450	138561	151450
2034	132628	155087	155087	141451	155087
2035	142520	157966	157966	144341	157966
2040	160686	160601	160601	158001	160601
2045	160686	160601	160601	160686	160601
2050	160686	160601	160601	160686	160601



# Technology Summary: Other Distributed Generation

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

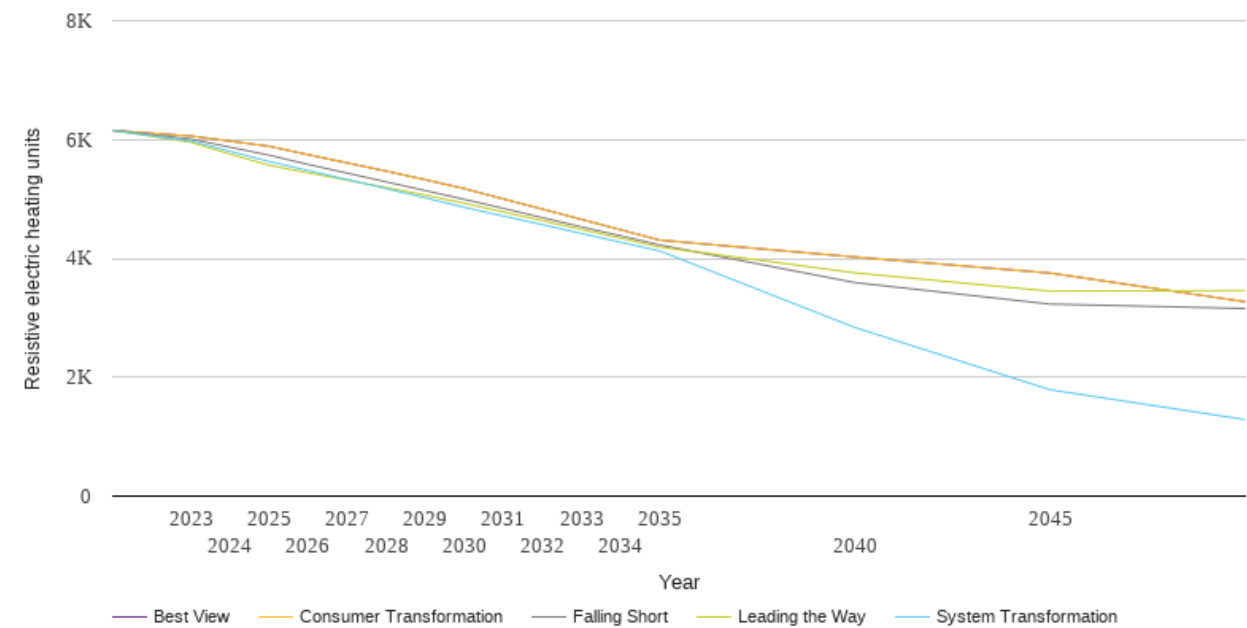
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1.5	1.5	1.5	1.5	1.5
2023	1.5	1.5	1.5	1.5	1.5
2024	1.5	1.5	2.1	2.1	1.5
2025	1.5	1.5	2.1	2.1	1.5
2026	1.5	2.2	2.3	2.3	1.5
2027	6.5	2.3	2.5	2.6	6.5
2028	6.5	2.4	2.7	2.8	6.5
2029	6.5	2.4	2.8	2.9	6.5
2030	6.5	2.5	2.9	3.0	6.5
2031	6.5	2.5	3.0	3.1	6.5
2032	6.5	2.5	3.0	3.1	6.5
2033	6.5	2.5	3.0	3.2	6.5
2034	6.5	2.5	3.1	3.2	6.5
2035	6.5	2.5	3.1	3.2	6.5
2040	6.5	2.5	3.1	3.3	6.5
2045	6.5	2.5	3.2	3.4	6.5
2050	6.5	2.5	3.2	3.4	6.5



# Technology Summary: Resistive electric heating

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

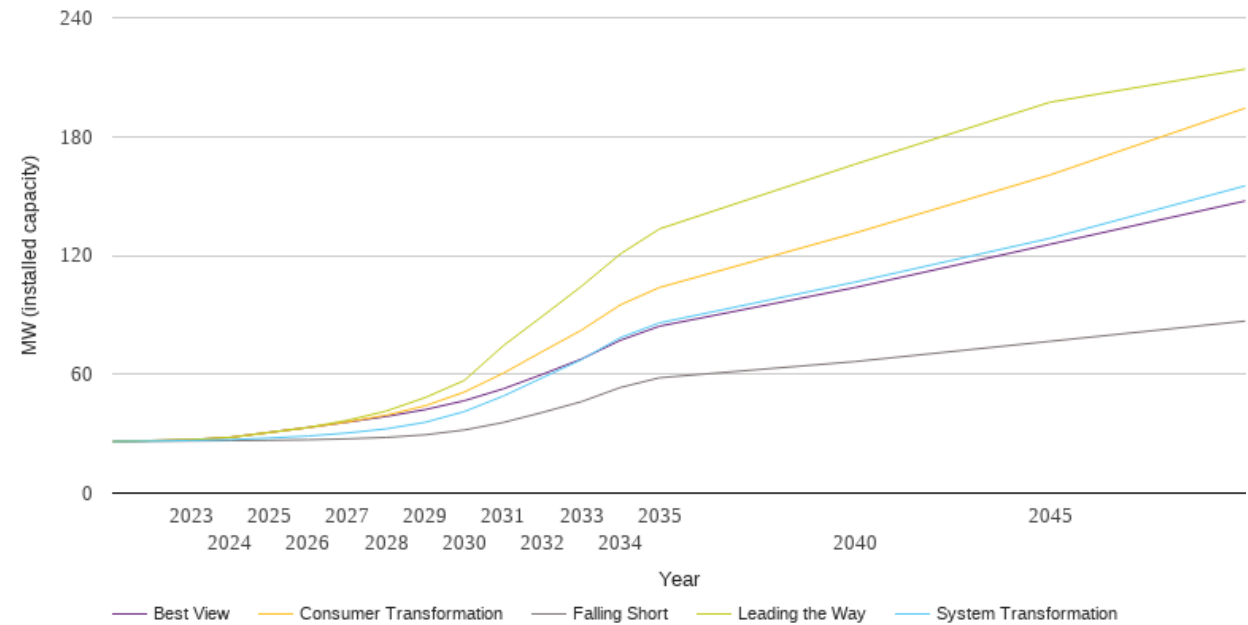
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6152	6152	6152	6152	6152
2023	6008	5976	6059	5954	6059
2024	5871	5802	5973	5756	5973
2025	5737	5630	5887	5567	5887
2026	5581	5478	5745	5441	5745
2027	5435	5327	5607	5317	5607
2028	5288	5174	5469	5192	5469
2029	5141	5020	5324	5065	5324
2030	4994	4858	5174	4928	5174
2031	4842	4713	5000	4782	5000
2032	4685	4568	4830	4635	4830
2033	4530	4419	4656	4487	4656
2034	4380	4272	4482	4341	4482
2035	4227	4126	4308	4191	4308
2040	3593	2838	4023	3757	4023
2045	3231	1790	3753	3448	3753
2050	3157	1288	3270	3458	3270



# Technology Summary: Solar Generation

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

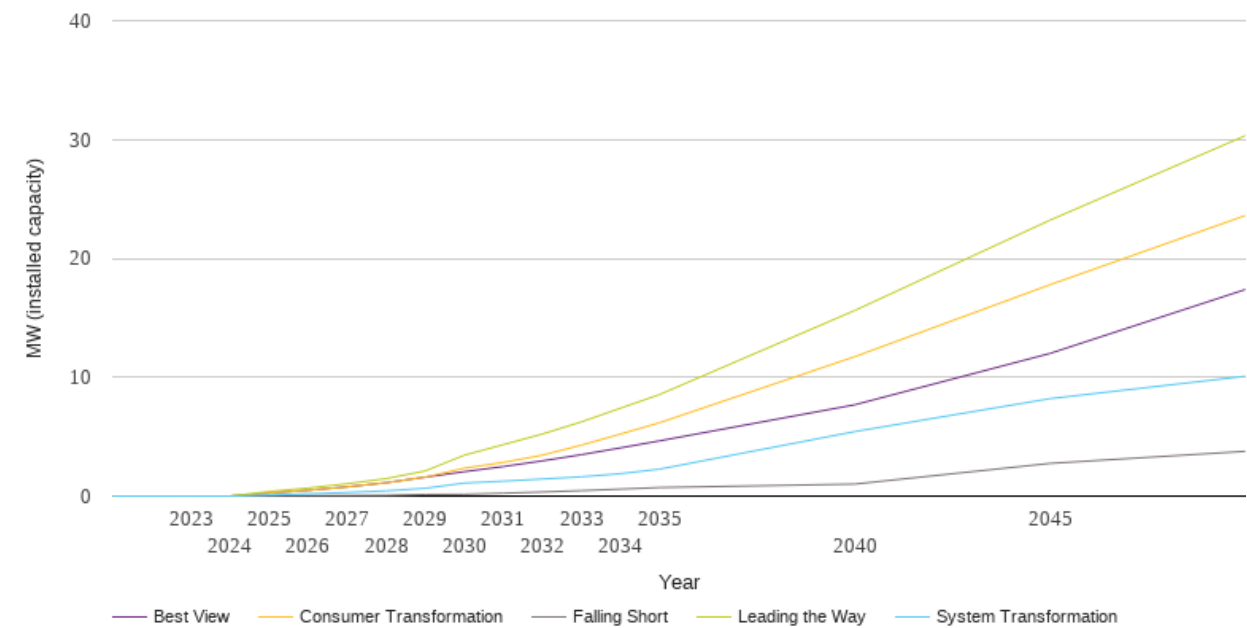
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	26.0	26.0	26.0	26.0	26.0
2023	26.3	26.5	26.9	27.0	27.0
2024	26.5	27.0	28.1	28.1	28.1
2025	26.7	27.8	30.6	30.6	30.6
2026	26.9	28.8	33.0	33.1	33.1
2027	27.4	30.3	35.9	36.7	35.8
2028	28.1	32.4	39.3	41.4	38.7
2029	29.4	35.8	44.1	48.2	42.2
2030	31.9	41.1	51.0	56.9	46.6
2031	35.7	49.0	60.5	74.4	52.7
2032	40.7	58.2	71.5	89.3	60.0
2033	46.2	67.4	82.3	104.4	67.7
2034	53.3	78.5	95.1	120.8	77.1
2035	58.2	85.9	103.8	133.4	84.3
2040	66.4	106.5	131.3	166.0	103.7
2045	76.6	128.6	160.6	197.3	125.6
2050	86.8	155.1	194.3	214.0	147.5



# Technology Summary: Storage

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

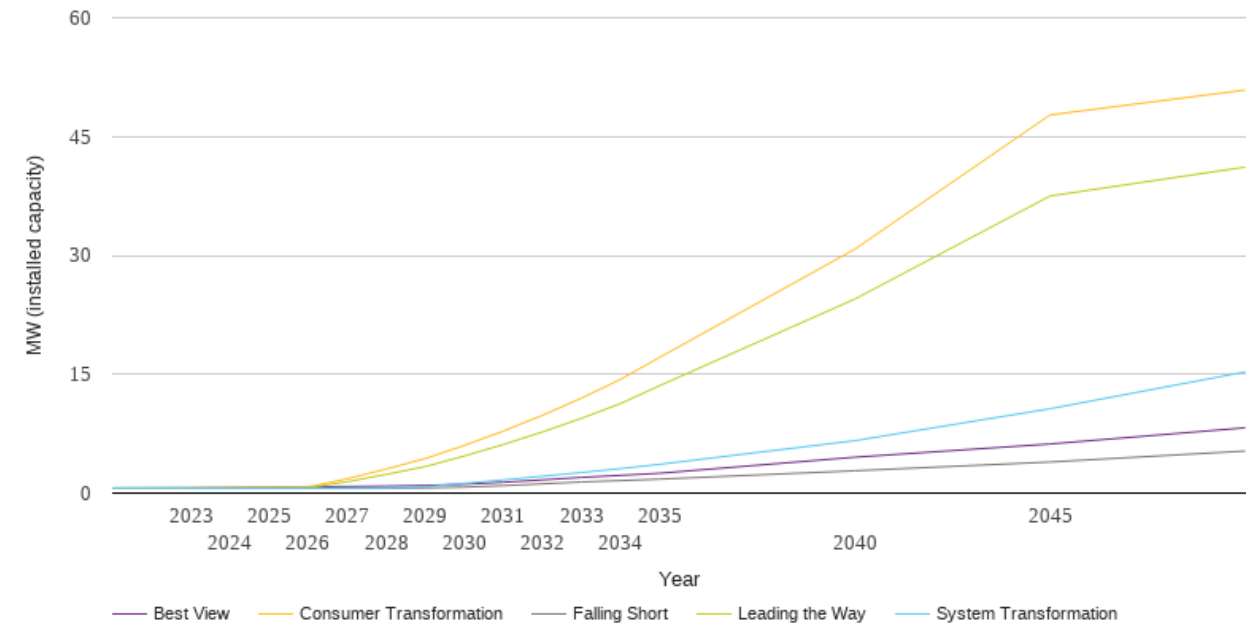
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.1	0.2	0.4	0.2
2026	0.0	0.2	0.5	0.7	0.5
2027	0.1	0.3	0.8	1.0	0.8
2028	0.1	0.4	1.1	1.5	1.1
2029	0.1	0.7	1.6	2.1	1.6
2030	0.1	1.1	2.4	3.4	2.1
2031	0.2	1.3	2.8	4.3	2.5
2032	0.3	1.4	3.4	5.2	3.0
2033	0.5	1.6	4.3	6.2	3.5
2034	0.6	1.9	5.2	7.4	4.1
2035	0.7	2.3	6.2	8.5	4.6
2040	1.0	5.4	11.7	15.6	7.7
2045	2.7	8.2	17.8	23.2	12.0
2050	3.8	10.1	23.6	30.3	17.4



# 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	0.6	0.6	0.6	0.6	0.6
2023	0.6	0.6	0.6	0.6	0.6
2024	0.6	0.6	0.7	0.6	0.7
2025	0.6	0.6	0.7	0.6	0.7
2026	0.6	0.6	0.8	0.7	0.8
2027	0.6	0.6	1.8	1.4	0.8
2028	0.6	0.6	3.0	2.4	0.9
2029	0.7	0.8	4.4	3.3	1.0
2030	0.7	1.2	6.0	4.7	1.1
2031	0.9	1.7	7.8	6.1	1.4
2032	1.2	2.1	9.8	7.7	1.7
2033	1.4	2.6	12.0	9.4	2.0
2034	1.6	3.1	14.3	11.3	2.2
2035	1.8	3.6	17.1	13.6	2.5
2040	2.8	6.6	30.8	24.5	4.5
2045	3.9	10.6	47.7	37.5	6.2
2050	5.3	15.3	50.9	41.1	8.2





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