

Distribution Future Energy Scenarios 2022

Local Authority:
Torridge

What are Distribution Future Energy Scenarios?

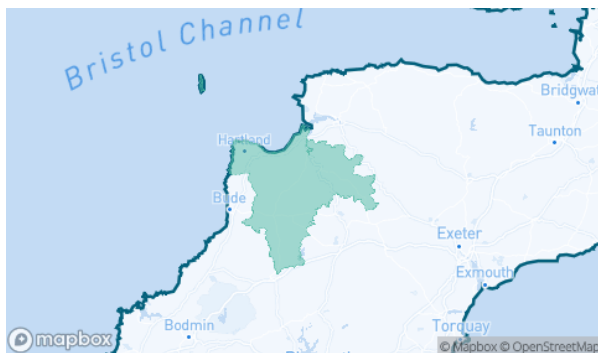
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 Torridge 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 Torridge 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	110	65	65	0	8727	3999	3999	0
Domestic	New dwellings	0	5740	6135	6135	7032	7795	7571	7571	7403
Electric vehicles	Electric vehicles	519	4445	5887	10902	10920	34820	32603	32085	26829
EV Charge Point	EV charge points	303	1985	3120	5946	6492	19442	19932	19869	20648
Heat pumps	Heat pump installations	936	4936	5955	9399	12480	19998	22732	34415	31407
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	2.5	0.2	0.0	3.7	37.7	27.8	37.0
Non domestic	Floorspace (metres squared) of new I&C developments	0	11067 6	14450 9	14450 9	14511 2	20686 6	20686 6	20686 6	20686 6
Other Distributed Generation	MW (installed capacity)	7.5	5.0	5.0	6.2	6.4	5.0	5.0	6.5	6.7
Resistive electric heating	Resistive electric heating units	7505	6762	6442	6781	6591	4543	2144	4541	4811
Solar Generation	MW (installed capacity)	22.9	30.7	41.1	48.3	55.7	106.5	200.9	228.4	250.0
Storage	MW (installed capacity)	0.0	0.1	1.1	2.0	3.2	3.3	8.4	18.3	25.3
Wind	MW (installed capacity)	10.7	11.0	11.9	20.8	18.6	20.9	45.7	121.0	101.2

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

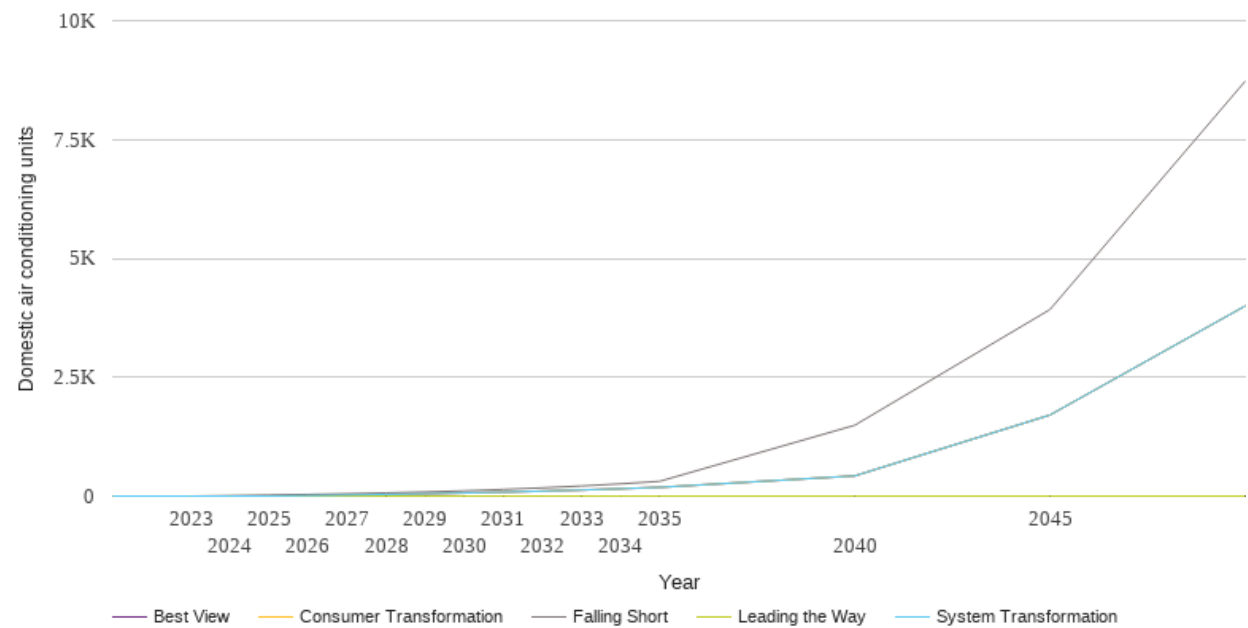
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

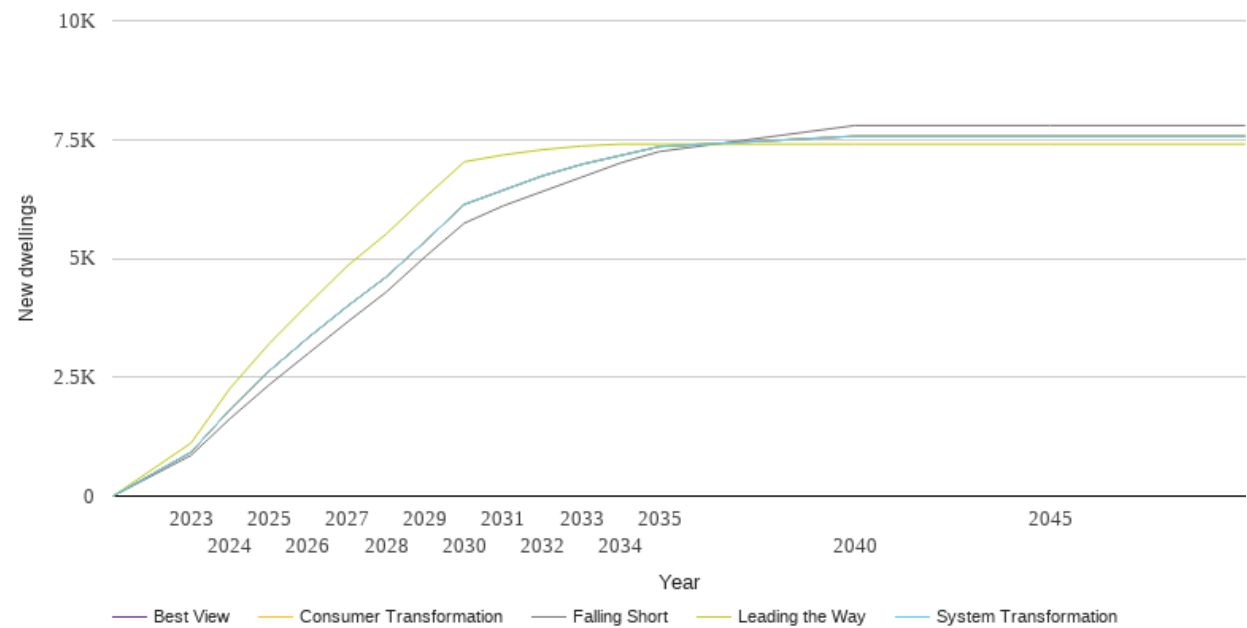
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	10	0	0	0	0
2025	22	0	0	0	0
2026	35	10	10	0	10
2027	50	21	21	0	21
2028	67	34	34	0	34
2029	87	49	49	0	49
2030	110	65	65	0	65
2031	140	84	84	0	84
2032	174	105	105	0	105
2033	213	128	128	0	128
2034	258	155	155	0	155
2035	310	184	184	0	184
2040	1490	425	425	0	425
2045	3924	1706	1706	0	1706
2050	8727	3999	3999	0	3999



Technology Summary: Domestic

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

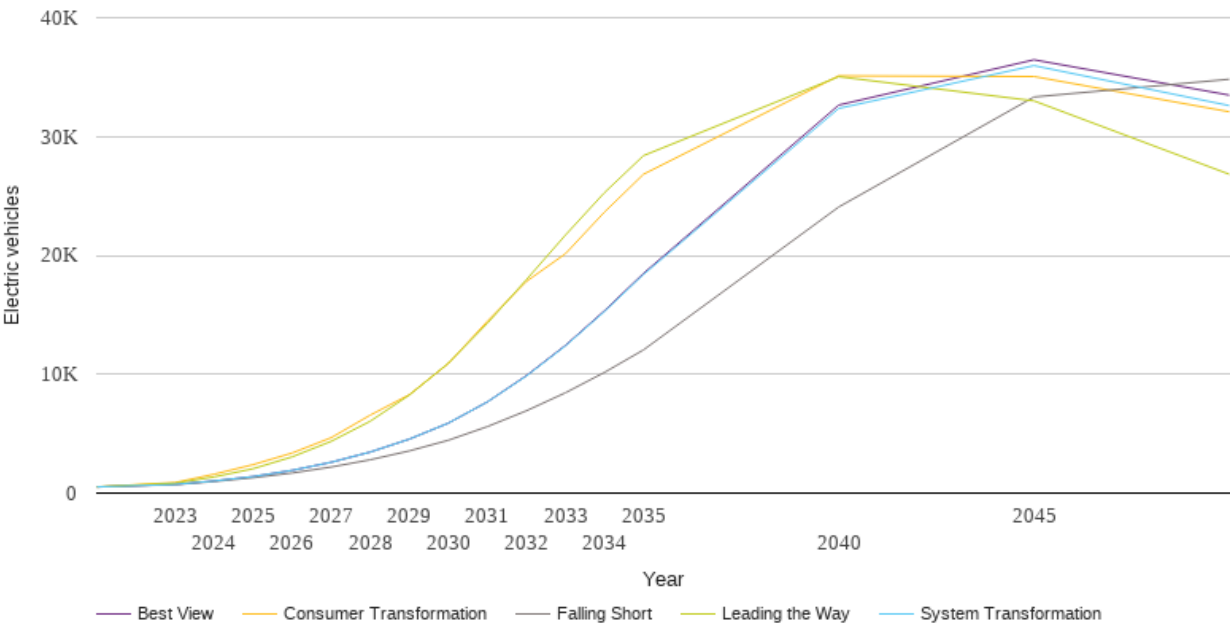
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	857	922	922	1116	922
2024	1630	1822	1822	2268	1822
2025	2340	2630	2630	3204	2630
2026	2999	3331	3331	4034	3331
2027	3658	3990	3990	4839	3990
2028	4292	4611	4611	5514	4611
2029	5038	5359	5359	6288	5359
2030	5740	6135	6135	7032	6135
2031	6107	6435	6435	7177	6435
2032	6407	6735	6735	7286	6735
2033	6707	6976	6976	7363	6976
2034	7007	7164	7164	7403	7164
2035	7248	7352	7352	7403	7352
2040	7795	7571	7571	7403	7571
2045	7795	7571	7571	7403	7571
2050	7795	7571	7571	7403	7571



Technology Summary: Electric vehicles

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

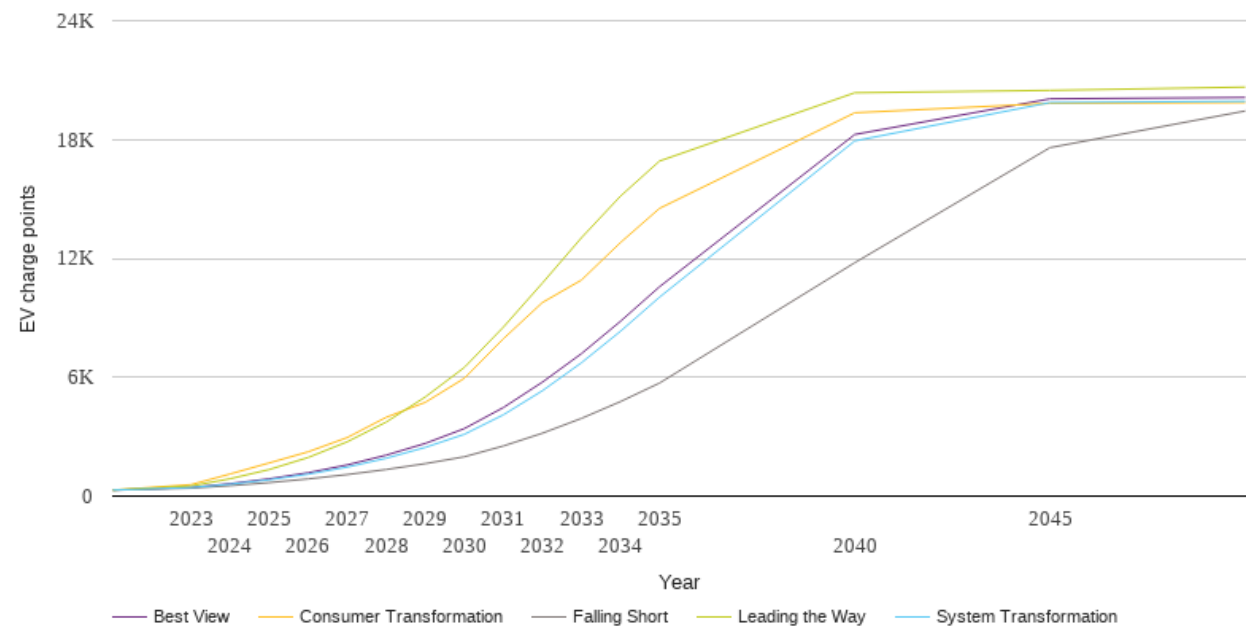
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	519	519	519	519	519
2023	716	731	887	836	731
2024	978	1019	1588	1360	1019
2025	1292	1389	2395	2052	1389
2026	1690	1913	3372	3048	1913
2027	2193	2594	4663	4356	2592
2028	2805	3454	6561	6047	3454
2029	3549	4539	8279	8246	4540
2030	4445	5887	10902	10920	5886
2031	5594	7670	14462	14287	7672
2032	6927	9850	17811	17957	9887
2033	8442	12386	20138	21710	12432
2034	10156	15278	23649	25284	15345
2035	12051	18395	26830	28396	18489
2040	24073	32368	35110	35037	32649
2045	33327	35966	35050	33001	36457
2050	34820	32603	32085	26829	33486



Technology Summary: EV Charge Point

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

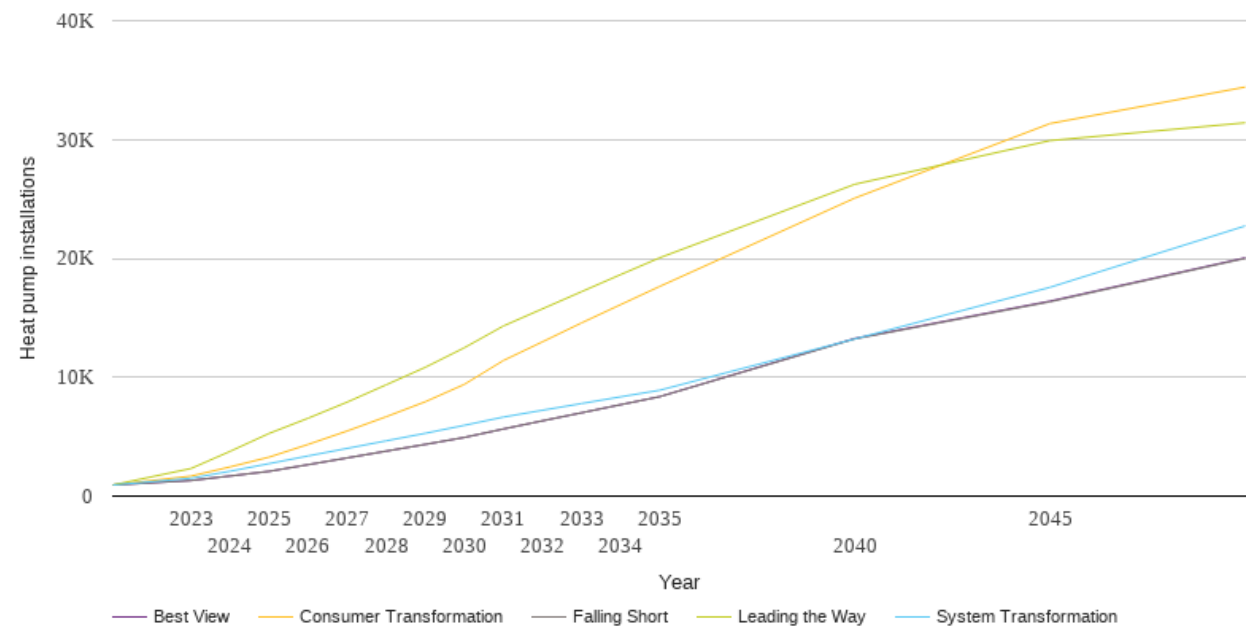
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	303	303	303	303	303
2023	400	431	577	509	436
2024	525	602	1115	875	627
2025	680	823	1673	1339	872
2026	867	1105	2236	1948	1180
2027	1087	1463	2954	2740	1575
2028	1342	1912	3979	3738	2068
2029	1639	2459	4734	5005	2660
2030	1985	3120	5946	6492	3407
2031	2530	4104	7943	8530	4471
2032	3175	5318	9773	10754	5753
2033	3922	6732	10907	13041	7192
2034	4772	8322	12800	15144	8825
2035	5707	10043	14525	16915	10569
2040	11781	17930	19352	20360	18254
2045	17591	19867	19827	20482	20055
2050	19442	19932	19869	20648	20124



Technology Summary: Heat pumps

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

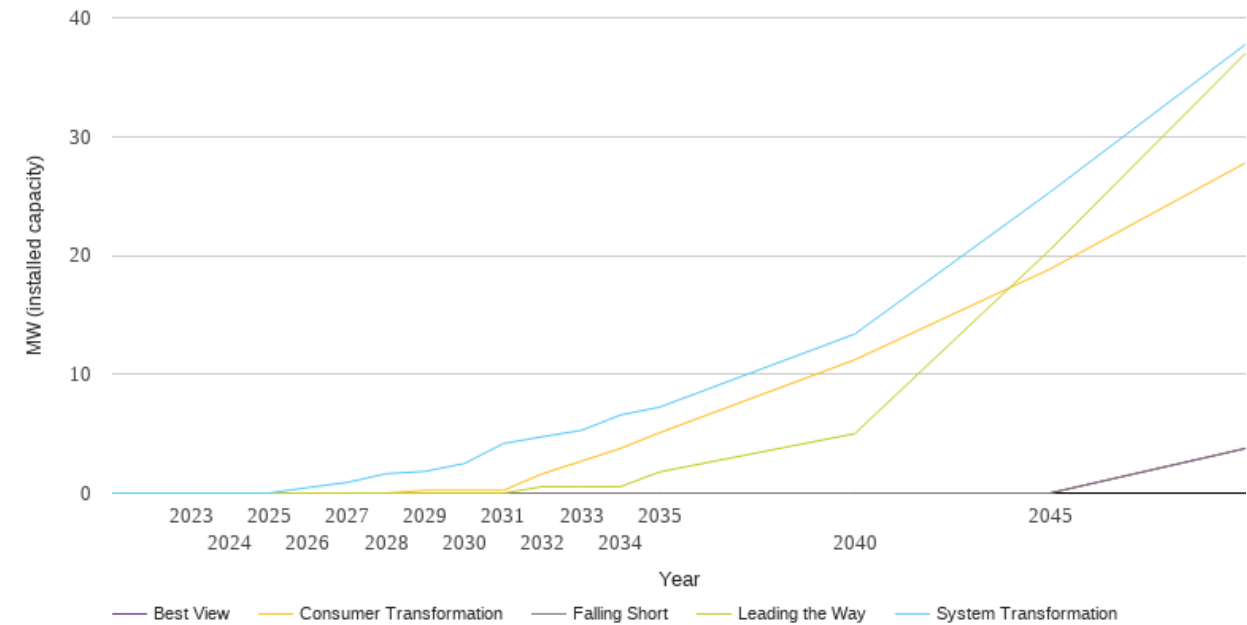
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	936	936	936	936	936
2023	1313	1499	1681	2322	1313
2024	1691	2092	2455	3764	1691
2025	2082	2731	3279	5272	2082
2026	2645	3379	4348	6553	2644
2027	3214	4015	5479	7908	3211
2028	3784	4650	6680	9365	3782
2029	4352	5283	7938	10836	4348
2030	4936	5955	9399	12480	4932
2031	5648	6648	11405	14312	5645
2032	6332	7221	12977	15754	6332
2033	7006	7786	14569	17195	7007
2034	7687	8349	16105	18632	7689
2035	8359	8904	17635	20045	8364
2040	13222	13222	25071	26235	13264
2045	16345	17564	31342	29910	16404
2050	19998	22732	34415	31407	20046



Technology Summary: Hydrogen electrolysis

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

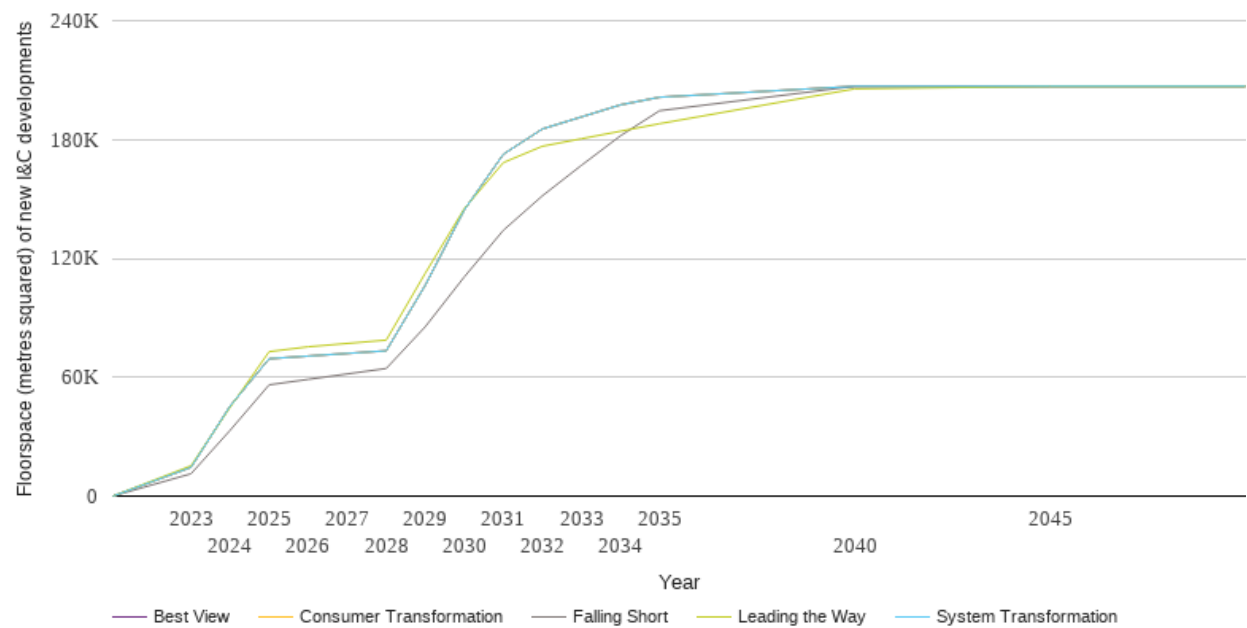
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.5	0.0	0.0	0.0
2027	0.0	0.9	0.0	0.0	0.0
2028	0.0	1.6	0.0	0.0	0.0
2029	0.0	1.8	0.2	0.0	0.0
2030	0.0	2.5	0.2	0.0	0.0
2031	0.0	4.2	0.2	0.0	0.0
2032	0.0	4.7	1.6	0.5	0.0
2033	0.0	5.3	2.7	0.5	0.0
2034	0.0	6.6	3.8	0.5	0.0
2035	0.0	7.2	5.1	1.8	0.0
2040	0.0	13.4	11.2	5.0	0.0
2045	0.0	25.3	18.9	20.5	0.0
2050	3.7	37.7	27.8	37.0	3.7



Technology Summary: Non domestic

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

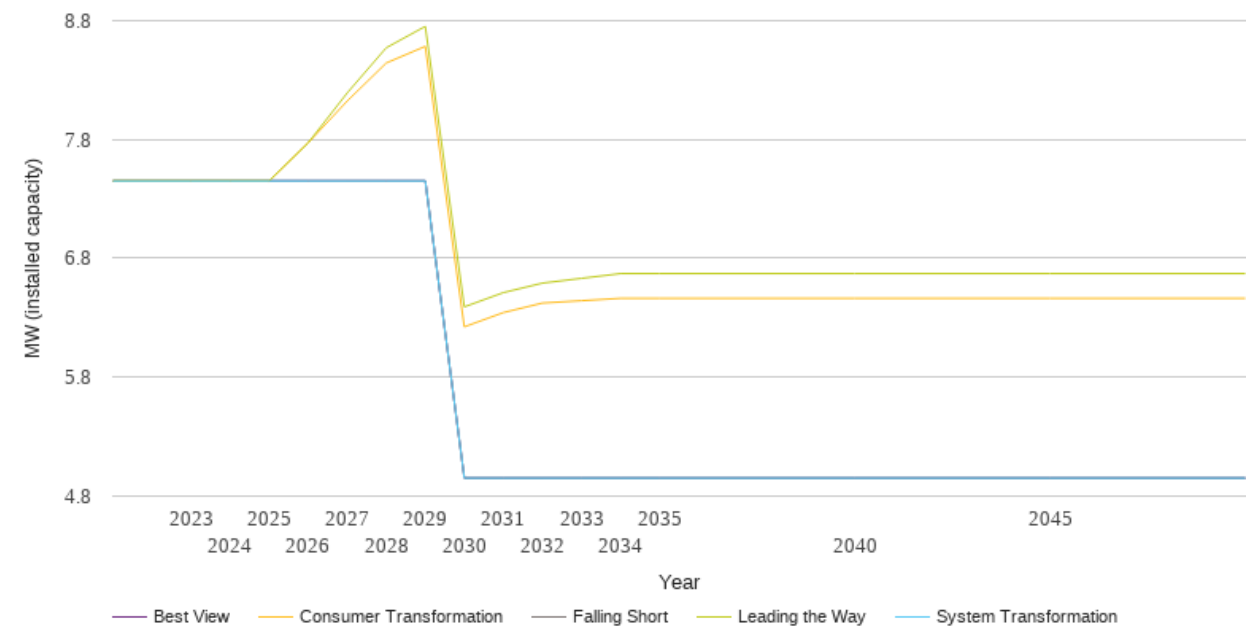
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	11280	14503	14503	15308	14503
2024	33179	45419	45419	44776	45419
2025	56165	69349	69349	72924	69349
2026	58915	70683	70683	75375	70683
2027	61665	72017	72017	77061	72017
2028	64416	73351	73351	78747	73351
2029	85514	106473	106473	112544	106473
2030	110676	144509	144509	145112	144509
2031	134203	172592	172592	168358	172592
2032	151596	185341	185341	176618	185341
2033	166990	191424	191424	180411	191424
2034	181900	197506	197506	184204	197506
2035	194543	201361	201361	187997	201361
2040	206866	206866	206866	205586	206866
2045	206866	206866	206866	206866	206866
2050	206866	206866	206866	206866	206866



Technology Summary: Other Distributed Generation

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

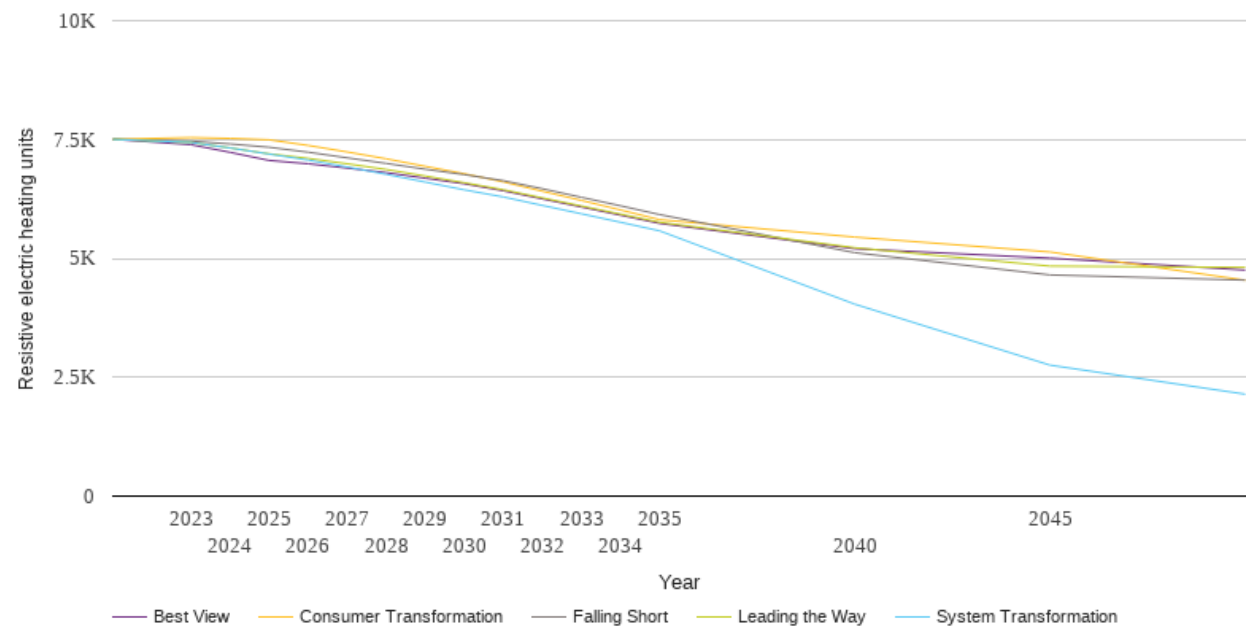
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	7.5	7.5	7.5	7.5	7.5
2023	7.5	7.5	7.5	7.5	7.5
2024	7.5	7.5	7.5	7.5	7.5
2025	7.5	7.5	7.5	7.5	7.5
2026	7.5	7.5	7.8	7.8	7.5
2027	7.5	7.5	8.1	8.2	7.5
2028	7.5	7.5	8.4	8.6	7.5
2029	7.5	7.5	8.6	8.8	7.5
2030	5.0	5.0	6.2	6.4	5.0
2031	5.0	5.0	6.3	6.5	5.0
2032	5.0	5.0	6.4	6.6	5.0
2033	5.0	5.0	6.4	6.6	5.0
2034	5.0	5.0	6.5	6.7	5.0
2035	5.0	5.0	6.5	6.7	5.0
2040	5.0	5.0	6.5	6.7	5.0
2045	5.0	5.0	6.5	6.7	5.0
2050	5.0	5.0	6.5	6.7	5.0



Technology Summary: Resistive electric heating

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

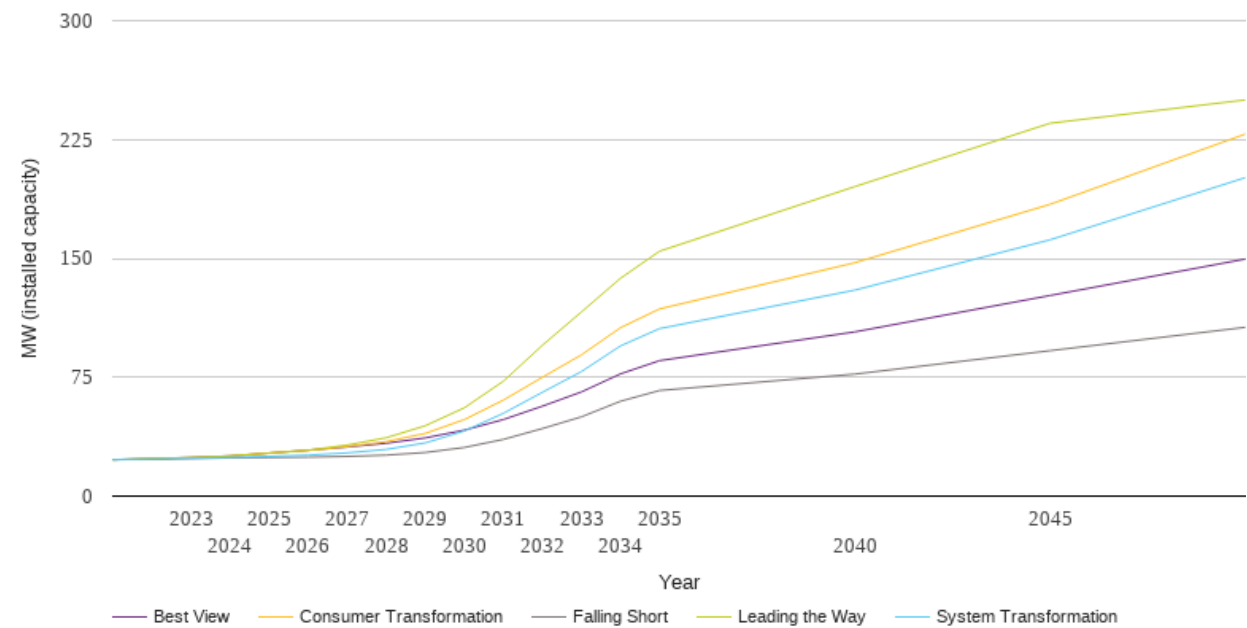
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	7505	7505	7505	7505	7505
2023	7466	7438	7541	7437	7392
2024	7407	7323	7524	7324	7231
2025	7338	7194	7494	7199	7060
2026	7234	7068	7376	7103	6990
2027	7115	6923	7239	6990	6900
2028	6998	6768	7095	6870	6803
2029	6876	6605	6936	6732	6687
2030	6762	6442	6781	6591	6570
2031	6635	6292	6609	6444	6422
2032	6465	6114	6413	6272	6251
2033	6285	5938	6219	6102	6081
2034	6106	5760	6019	5931	5909
2035	5922	5580	5815	5760	5736
2040	5120	4037	5448	5224	5203
2045	4652	2755	5135	4837	5005
2050	4543	2144	4541	4811	4755



Technology Summary: Solar Generation

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

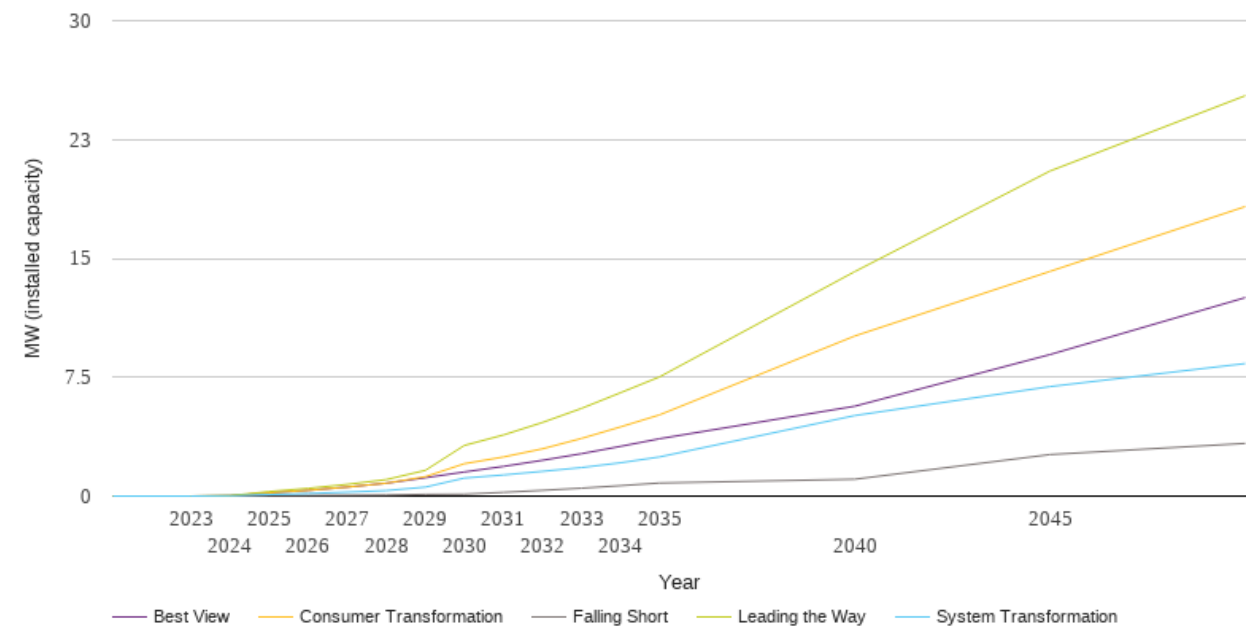
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	22.9	22.9	22.9	22.9	22.9
2023	23.6	24.0	24.3	24.3	24.3
2024	24.1	24.4	25.2	25.3	25.3
2025	24.3	25.1	27.0	27.1	27.1
2026	24.6	25.8	28.9	28.9	28.9
2027	25.0	27.3	31.2	32.2	31.0
2028	25.8	29.5	34.4	36.8	33.4
2029	27.5	33.6	39.6	44.4	36.7
2030	30.7	41.1	48.3	55.7	41.6
2031	35.8	52.2	60.6	72.5	48.3
2032	42.6	65.5	75.0	95.2	56.7
2033	50.0	78.6	89.1	116.2	65.7
2034	59.8	94.8	106.3	137.4	77.1
2035	66.6	105.7	118.1	154.5	85.5
2040	77.0	130.0	147.2	195.3	103.6
2045	91.7	161.7	184.1	235.3	126.6
2050	106.5	200.9	228.4	250.0	149.6



Technology Summary: Storage

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

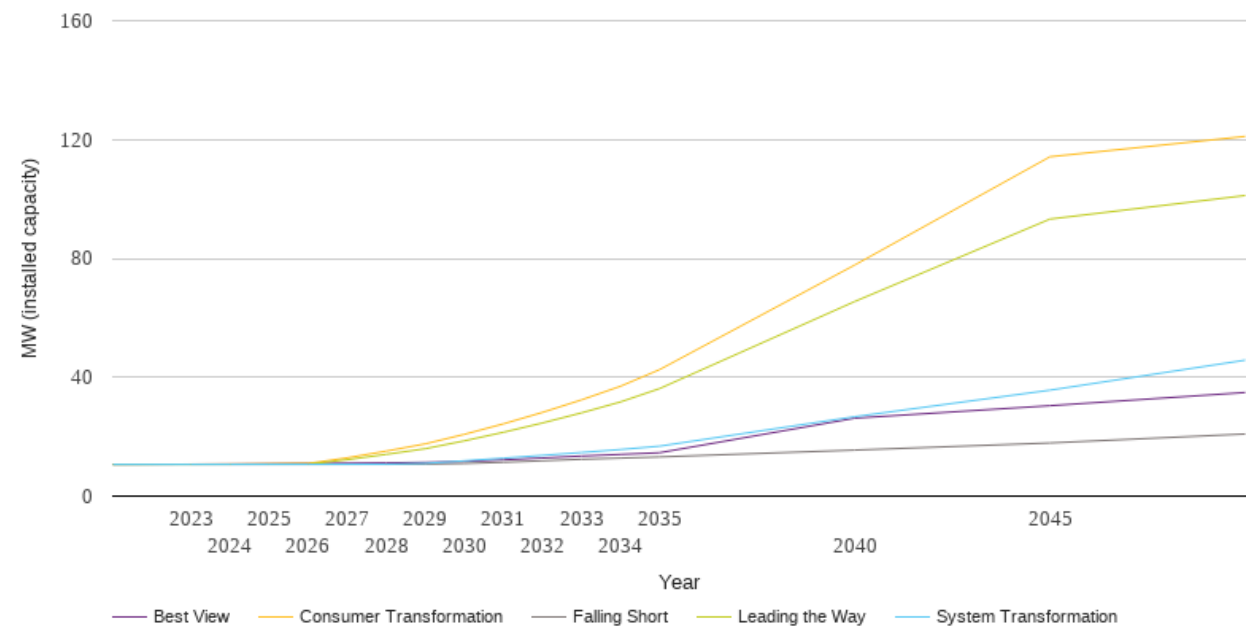
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.1	0.2	0.3	0.2
2026	0.1	0.2	0.4	0.5	0.4
2027	0.1	0.2	0.6	0.7	0.6
2028	0.1	0.3	0.8	1.0	0.8
2029	0.1	0.6	1.2	1.6	1.2
2030	0.1	1.1	2.0	3.2	1.5
2031	0.2	1.3	2.5	3.9	1.9
2032	0.4	1.6	3.0	4.6	2.3
2033	0.5	1.8	3.6	5.5	2.7
2034	0.7	2.1	4.4	6.5	3.1
2035	0.8	2.5	5.1	7.5	3.6
2040	1.1	5.1	10.1	14.2	5.7
2045	2.6	6.9	14.2	20.5	8.9
2050	3.3	8.4	18.3	25.3	12.5



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	10.7	10.7	10.7	10.7	10.7
2023	10.7	10.7	10.7	10.7	10.7
2024	10.7	10.7	10.8	10.7	10.8
2025	10.7	10.7	10.9	10.7	10.9
2026	10.7	10.7	11.0	10.8	11.0
2027	10.7	10.7	12.9	12.2	11.1
2028	10.7	10.7	15.1	14.0	11.2
2029	10.8	11.0	17.6	15.9	11.3
2030	11.0	11.9	20.8	18.6	11.7
2031	11.4	12.8	24.3	21.5	12.2
2032	11.9	13.7	28.2	24.6	12.8
2033	12.4	14.7	32.4	28.0	13.5
2034	12.8	15.7	37.0	31.7	14.0
2035	13.2	16.8	42.6	36.2	14.6
2040	15.5	26.7	77.8	65.5	26.2
2045	17.9	35.7	114.2	93.2	30.4
2050	20.9	45.7	121.0	101.2	34.9



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))
National Grid Electricity Distribution (South Wales) Plc (company number 02366985))
(collectively, “NGED”)

nged.networkstrategy@nationalgrid.co.uk

