

Distribution Future Energy Scenarios 2022

Local Authority:
Hinckley and Bosworth

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 Hinckley and Bosworth 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 Hinckley and Bosworth 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	362	214	214	0	25090	11571	11571	0
Domestic	New dwellings	0	1742	1905	1905	2211	2572	2544	2544	2520
Electric vehicles	Electric vehicles	1831	11671	14312	26294	26205	77862	66651	65722	55635
EV Charge Point	EV charge points	946	5460	7988	14969	16541	46195	44807	47619	47242
Heat pumps	Heat pump installations	398	3249	3409	8724	13959	27259	31873	55059	49560
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.7	0.0	0.8	1.1	5.0	2.4	5.4
Non domestic	Floorspace (metres squared) of new I&C developments	0	227514	260409	260409	279053	310596	308910	308910	310596
Other Distributed Generation	MW (installed capacity)	25.5	25.5	25.5	25.8	25.8	22.7	22.7	0.3	34.3
Resistive electric heating	Resistive electric heating units	4322	3697	3545	3778	3626	2964	1265	2670	2857
Solar Generation	MW (installed capacity)	28.7	33.7	41.7	51.4	54.1	72.2	124.9	166.0	171.4
Storage	MW (installed capacity)	0.1	0.2	1.1	2.5	3.3	3.6	8.9	23.3	31.3
Wind	MW (installed capacity)	3.7	3.8	4.0	6.1	5.6	6.5	13.7	34.3	28.8

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.

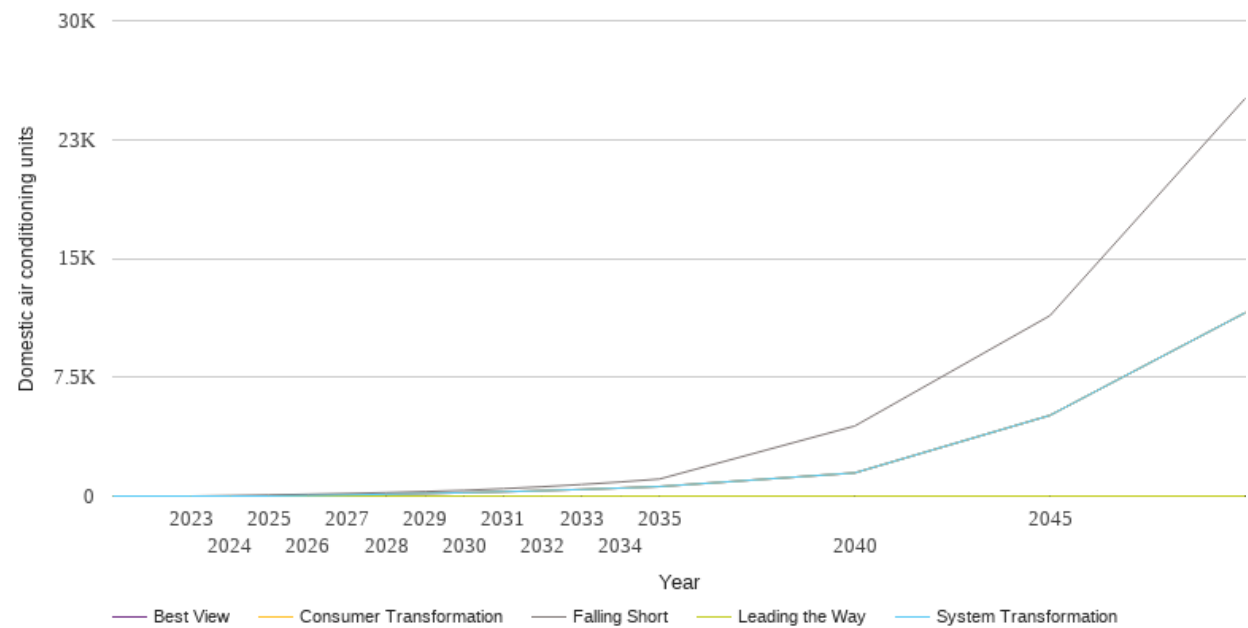
If you have any comments or queries regarding these reports, please contact

nged.energyplanning@nationalgrid.co.uk.

Technology Summary: Air conditioning

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

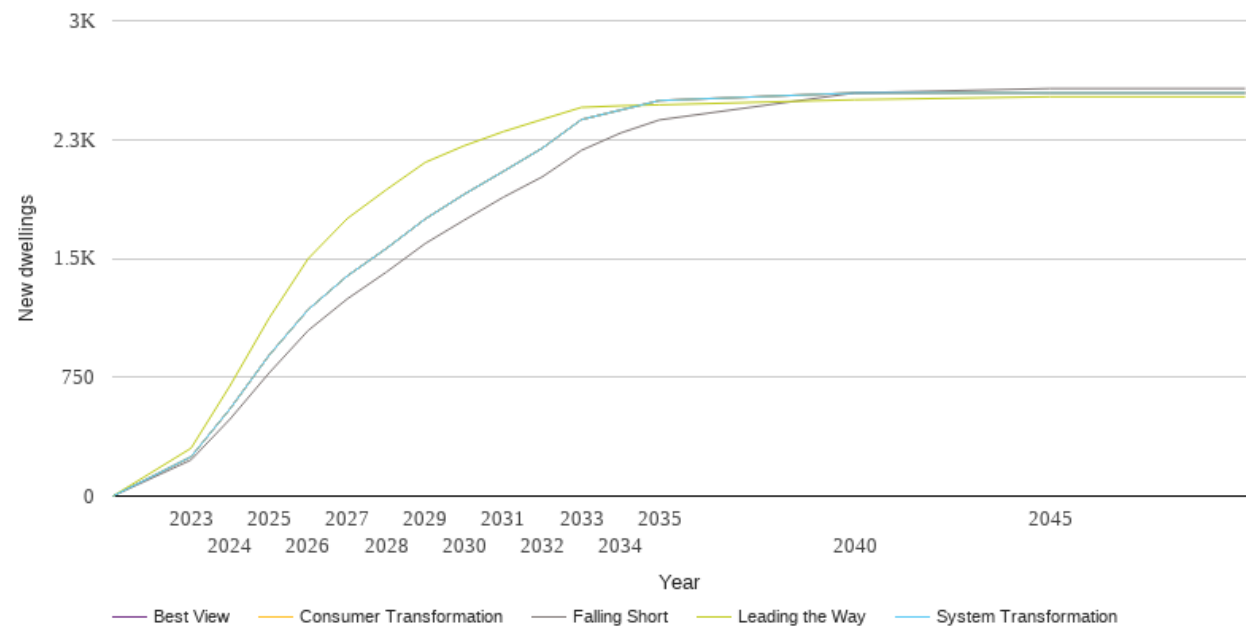
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	33	0	0	0	0
2025	71	0	0	0	0
2026	115	33	33	0	33
2027	165	71	71	0	71
2028	221	113	113	0	113
2029	287	161	161	0	161
2030	362	214	214	0	214
2031	468	274	274	0	274
2032	590	342	342	0	342
2033	731	419	419	0	419
2034	892	505	505	0	505
2035	1077	601	601	0	601
2040	4422	1463	1463	0	1463
2045	11387	5094	5094	0	5094
2050	25090	11571	11571	0	11571



Technology Summary: Domestic

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

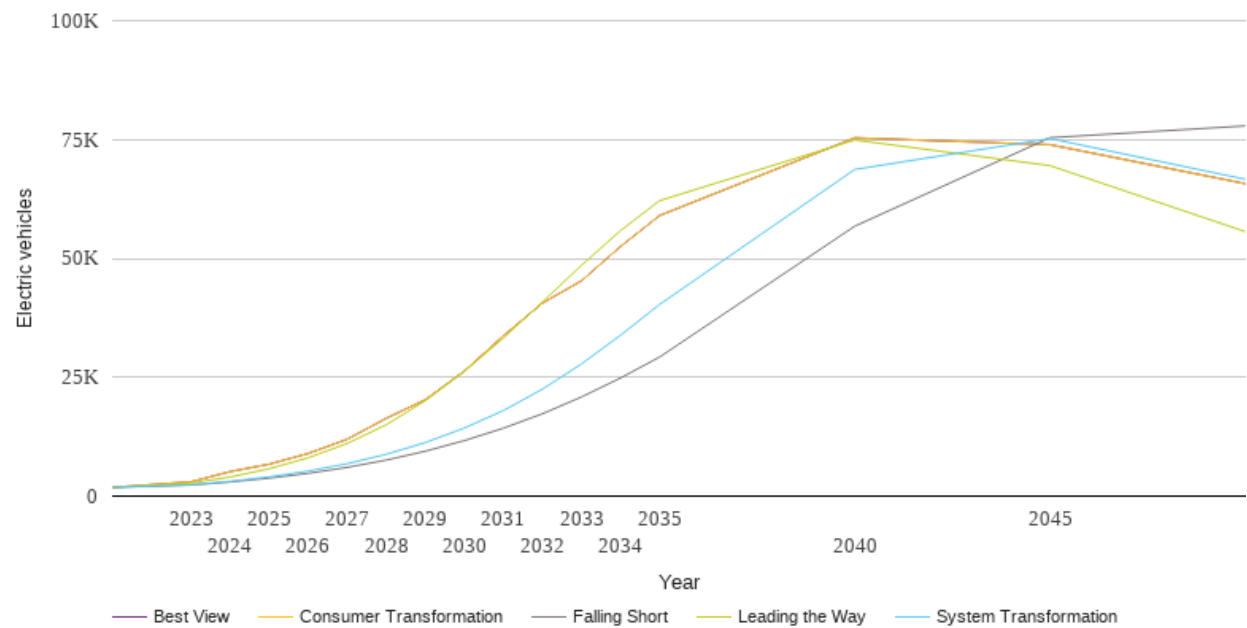
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	228	248	248	302	248
2024	486	551	551	697	551
2025	777	889	889	1123	889
2026	1045	1177	1177	1498	1177
2027	1244	1389	1389	1751	1389
2028	1413	1562	1562	1933	1562
2029	1594	1749	1749	2106	1749
2030	1742	1905	1905	2211	1905
2031	1886	2049	2049	2300	2049
2032	2015	2196	2196	2377	2196
2033	2182	2376	2376	2453	2376
2034	2291	2436	2436	2463	2436
2035	2374	2496	2496	2469	2496
2040	2544	2544	2544	2501	2544
2045	2572	2544	2544	2520	2544
2050	2572	2544	2544	2520	2544



Technology Summary: Electric vehicles

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

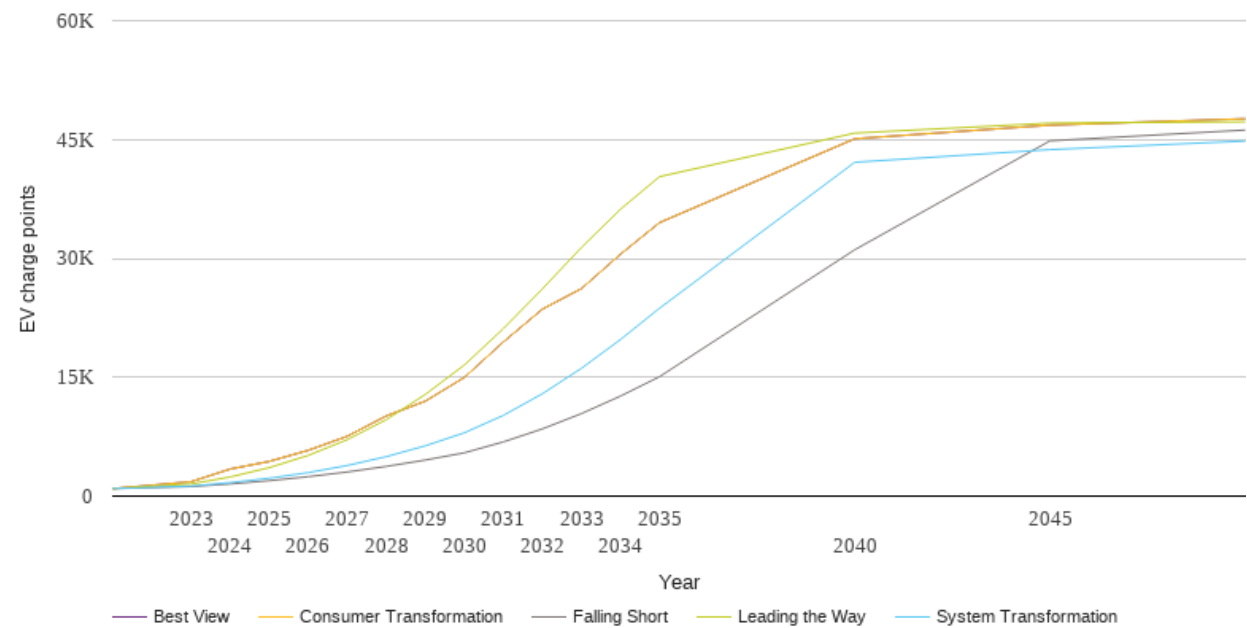
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1831	1831	1831	1831	1831
2023	2328	2368	2998	2722	2998
2024	2968	3100	5150	4013	5150
2025	3774	4043	6705	5753	6705
2026	4783	5255	8961	8056	8961
2027	6043	6814	11956	11081	11956
2028	7577	8792	16366	15000	16366
2029	9439	11265	20268	20066	20268
2030	11671	14312	26294	26205	26294
2031	14282	18001	33714	33229	33714
2032	17308	22485	40592	40821	40592
2033	20847	27797	45281	48541	45281
2034	24842	33825	52500	55839	52500
2035	29233	40297	59007	62136	59007
2040	56777	68703	75352	74896	75352
2045	75384	75210	73924	69513	73924
2050	77862	66651	65722	55635	65722



Technology Summary: EV Charge Point

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

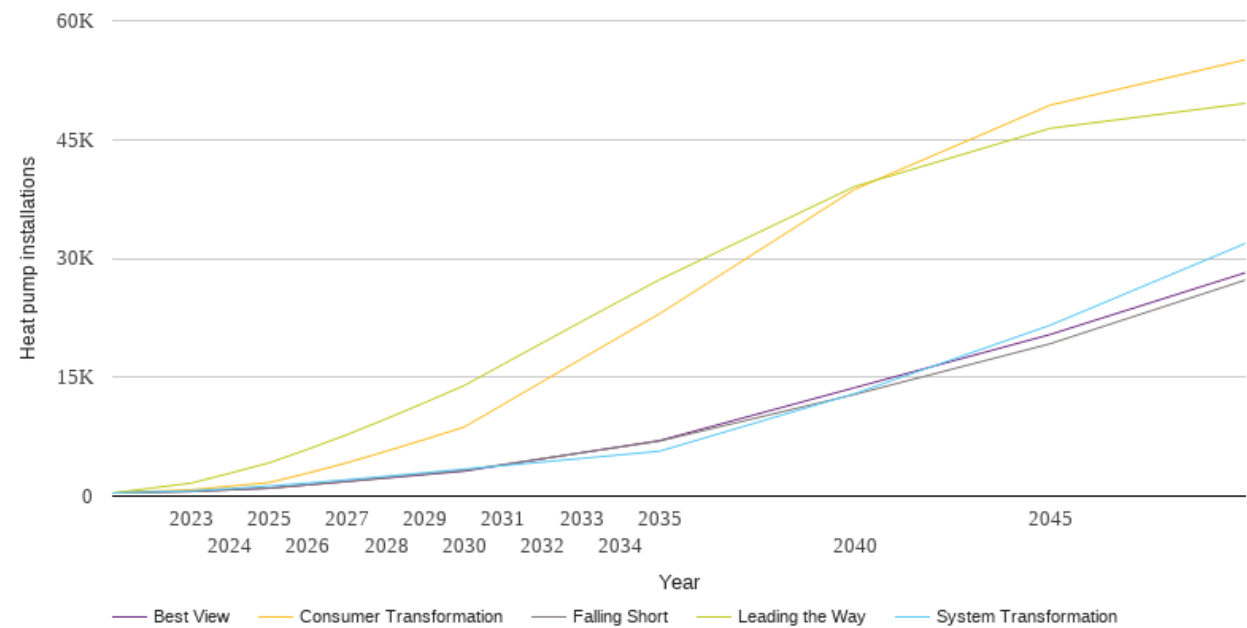
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	946	946	946	946	946
2023	1203	1262	1810	1538	1810
2024	1532	1694	3411	2409	3411
2025	1947	2252	4373	3584	4373
2026	2448	2962	5775	5132	5775
2027	3043	3862	7549	7123	7549
2028	3745	4978	10115	9641	10115
2029	4549	6344	11983	12825	11983
2030	5460	7988	14969	16541	14969
2031	6843	10190	19455	21130	19455
2032	8484	12920	23593	26150	23593
2033	10415	16128	26190	31380	26190
2034	12622	19757	30525	36206	30525
2035	15072	23708	34517	40318	34517
2040	31091	42129	45097	45813	45097
2045	44836	43729	46821	47074	46821
2050	46195	44807	47619	47242	47619



Technology Summary: Heat pumps

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

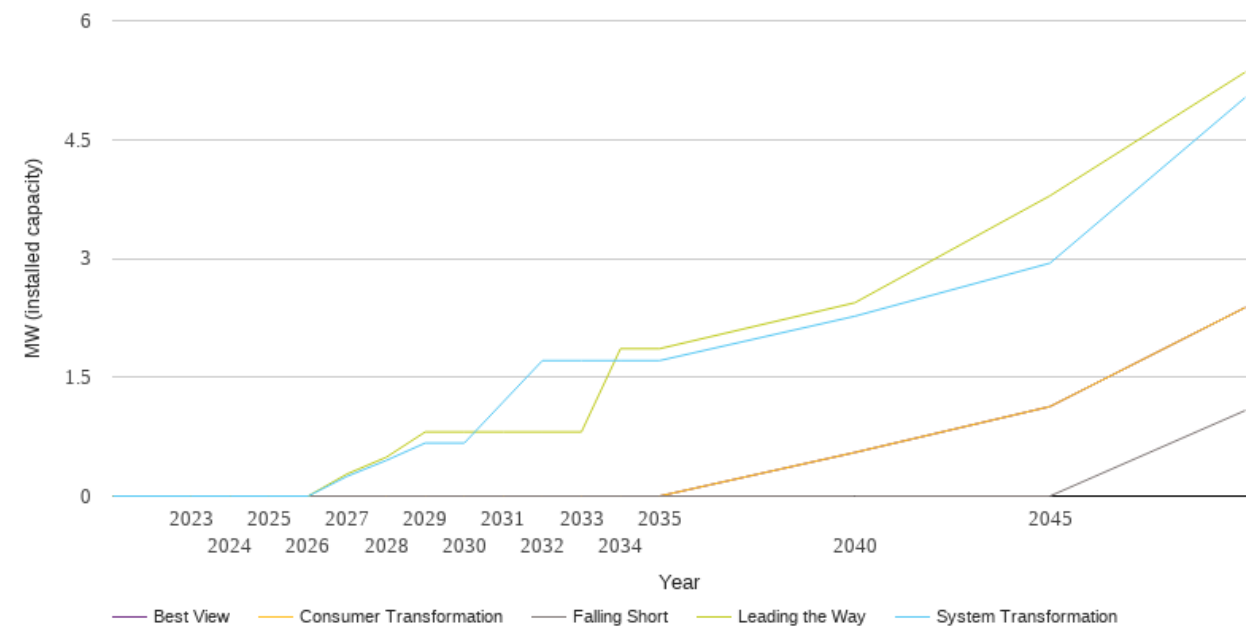
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	398	398	398	398	398
2023	586	662	805	1631	586
2024	793	952	1243	2892	793
2025	994	1273	1703	4197	994
2026	1433	1651	2907	5922	1412
2027	1878	2067	4214	7765	1837
2028	2337	2511	5663	9757	2279
2029	2797	2959	7167	11826	2716
2030	3249	3409	8724	13959	3150
2031	3990	3853	11585	16645	3923
2032	4730	4301	14451	19334	4698
2033	5472	4755	17317	22021	5470
2034	6203	5211	20165	24672	6234
2035	6941	5661	23006	27313	7007
2040	12832	12938	38720	39073	13685
2045	19218	21551	49334	46406	20386
2050	27259	31873	55059	49560	28183



Technology Summary: Hydrogen electrolysis

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

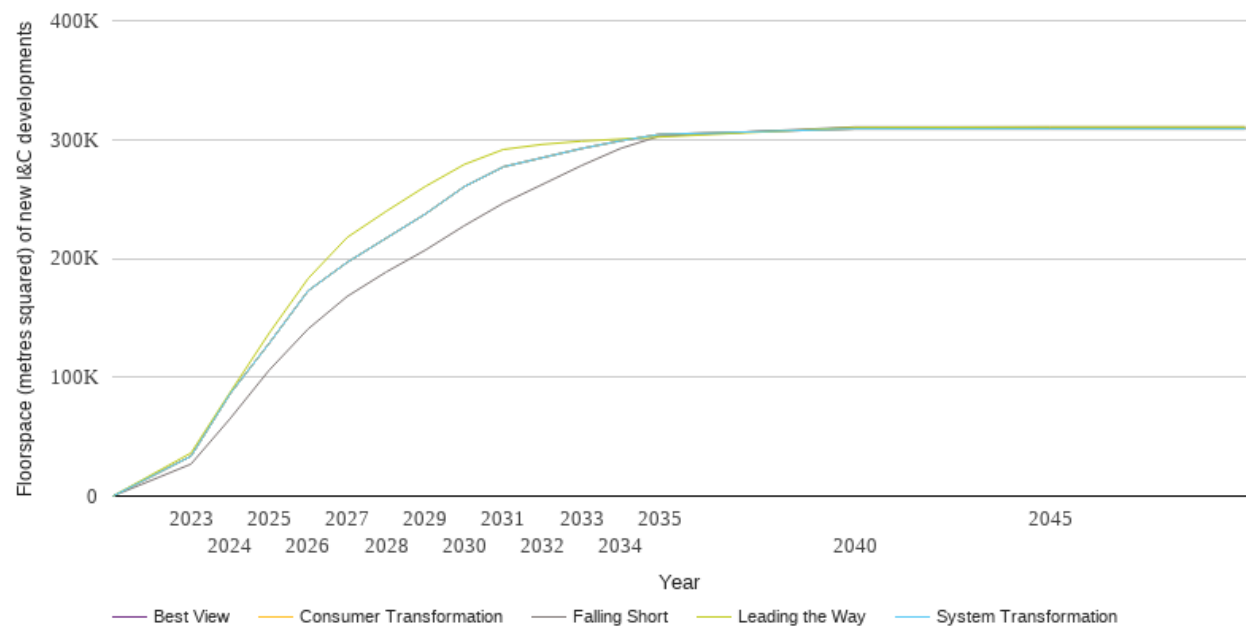
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.3	0.0	0.3	0.0
2028	0.0	0.5	0.0	0.5	0.0
2029	0.0	0.7	0.0	0.8	0.0
2030	0.0	0.7	0.0	0.8	0.0
2031	0.0	1.2	0.0	0.8	0.0
2032	0.0	1.7	0.0	0.8	0.0
2033	0.0	1.7	0.0	0.8	0.0
2034	0.0	1.7	0.0	1.9	0.0
2035	0.0	1.7	0.0	1.9	0.0
2040	0.0	2.3	0.6	2.4	0.6
2045	0.0	2.9	1.1	3.8	1.1
2050	1.1	5.0	2.4	5.4	2.4



Technology Summary: Non domestic

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

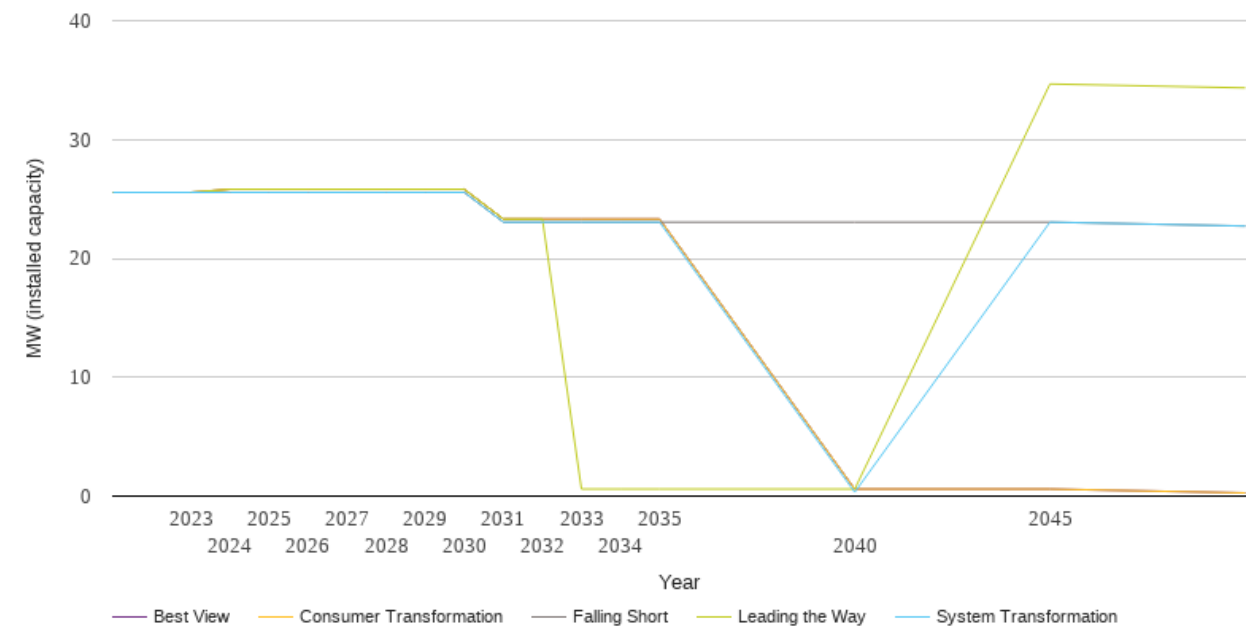
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	26960	33579	33579	36288	33579
2024	65130	86050	86050	87202	86050
2025	105906	128474	128474	137059	128474
2026	140657	172770	172770	183093	172770
2027	168019	196683	196683	217677	196683
2028	188574	217047	217047	239635	217047
2029	206958	237317	237317	260506	237317
2030	227514	260409	260409	279053	260409
2031	246453	277011	277011	291622	277011
2032	262211	284732	284732	295920	284732
2033	278092	292392	292392	298611	292392
2034	292484	298914	298914	300380	298914
2035	302944	304350	304350	302148	304350
2040	310596	308910	308910	310155	308910
2045	310596	308910	308910	310596	308910
2050	310596	308910	308910	310596	308910



Technology Summary: Other Distributed Generation

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

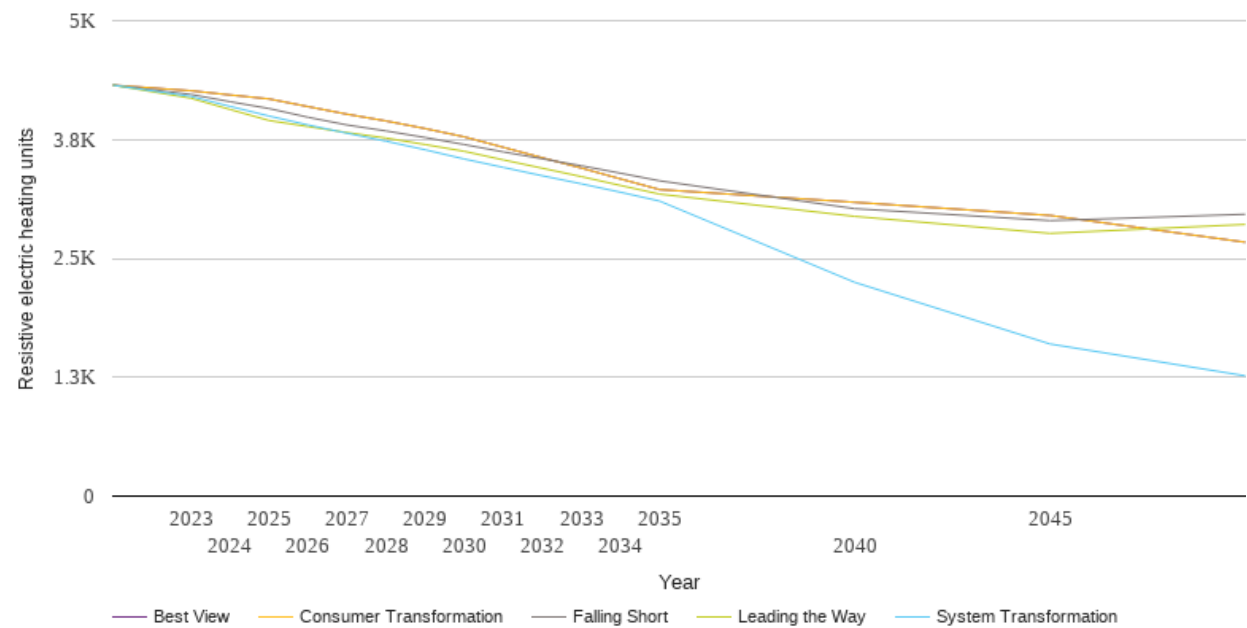
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	25.5	25.5	25.5	25.5	25.5
2023	25.5	25.5	25.5	25.5	25.5
2024	25.5	25.5	25.8	25.8	25.8
2025	25.5	25.5	25.8	25.8	25.8
2026	25.5	25.5	25.8	25.8	25.8
2027	25.5	25.5	25.8	25.8	25.8
2028	25.5	25.5	25.8	25.8	25.8
2029	25.5	25.5	25.8	25.8	25.8
2030	25.5	25.5	25.8	25.8	25.8
2031	23.0	23.0	23.3	23.3	23.3
2032	23.0	23.0	23.3	23.3	23.3
2033	23.0	23.0	23.3	0.6	23.3
2034	23.0	23.0	23.3	0.6	23.3
2035	23.0	23.0	23.3	0.6	23.3
2040	23.0	0.3	0.6	0.6	0.6
2045	23.0	23.0	0.6	34.7	0.6
2050	22.7	22.7	0.3	34.3	0.3



Technology Summary: Resistive electric heating

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

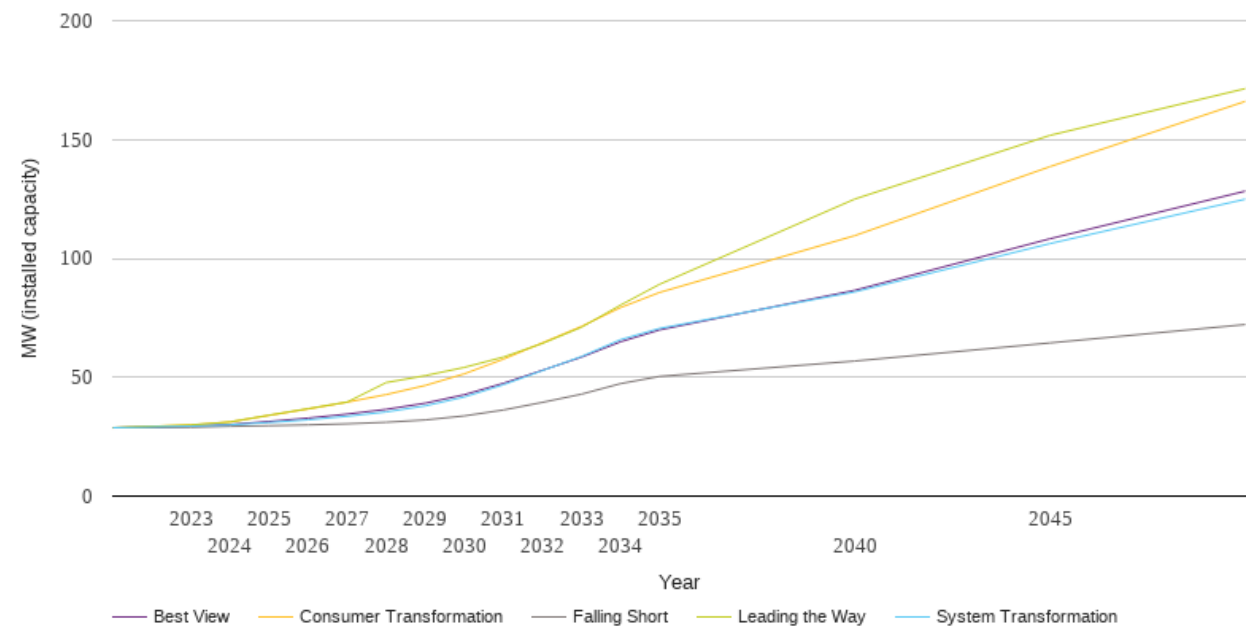
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	4322	4322	4322	4322	4322
2023	4224	4203	4263	4184	4263
2024	4148	4099	4219	4066	4219
2025	4076	3997	4177	3950	4177
2026	3984	3903	4096	3886	4096
2027	3903	3816	4016	3823	4016
2028	3840	3732	3945	3765	3945
2029	3771	3642	3865	3697	3865
2030	3697	3545	3778	3626	3778
2031	3620	3457	3668	3536	3668
2032	3547	3369	3558	3448	3558
2033	3474	3284	3450	3360	3450
2034	3396	3196	3336	3267	3336
2035	3316	3103	3224	3176	3224
2040	3023	2248	3090	2942	3090
2045	2897	1600	2952	2763	2952
2050	2964	1265	2670	2857	2670



Technology Summary: Solar Generation

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

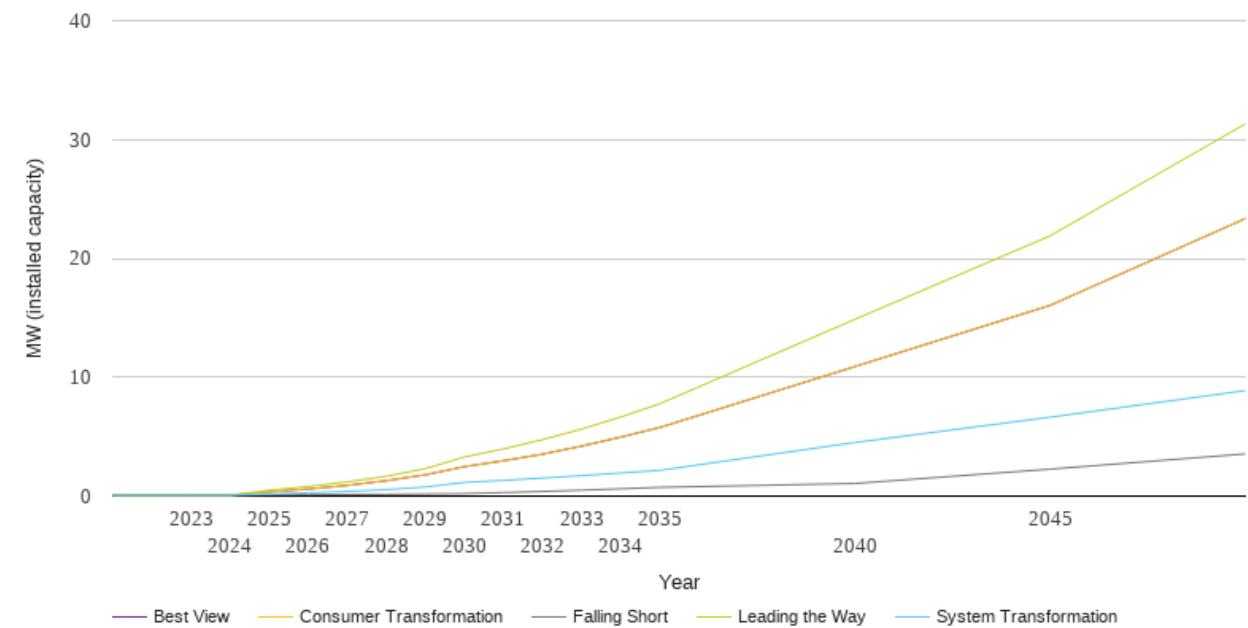
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	28.7	28.7	28.7	28.7	28.7
2023	28.9	29.4	29.9	29.9	29.4
2024	29.4	30.0	31.2	31.2	30.1
2025	29.6	31.0	33.9	34.0	31.4
2026	29.9	32.1	36.7	36.8	32.8
2027	30.4	33.6	39.5	39.6	34.5
2028	31.1	35.4	42.7	47.8	36.5
2029	32.0	38.0	46.6	50.7	39.1
2030	33.7	41.7	51.4	54.1	42.7
2031	36.2	46.8	57.6	58.5	47.4
2032	39.4	52.8	64.5	64.2	52.9
2033	42.9	58.7	71.4	71.0	58.4
2034	47.3	65.8	79.3	80.3	64.9
2035	50.4	70.5	85.7	89.1	69.9
2040	56.8	85.9	109.6	124.9	86.6
2045	64.4	106.2	138.6	151.7	108.3
2050	72.2	124.9	166.0	171.4	128.3



Technology Summary: Storage

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

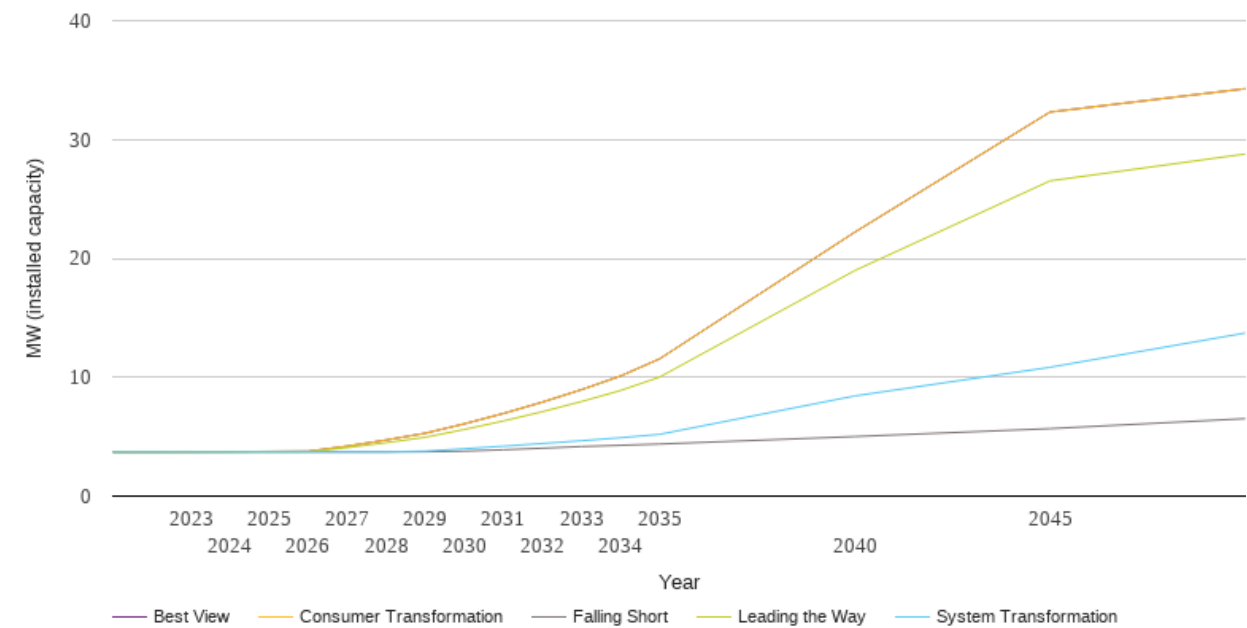
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.1	0.1	0.1	0.1	0.1
2023	0.1	0.1	0.1	0.1	0.1
2024	0.1	0.1	0.1	0.1	0.1
2025	0.1	0.2	0.3	0.5	0.3
2026	0.1	0.3	0.6	0.8	0.6
2027	0.1	0.4	0.9	1.2	0.9
2028	0.1	0.5	1.3	1.7	1.3
2029	0.2	0.8	1.8	2.3	1.8
2030	0.2	1.1	2.5	3.3	2.5
2031	0.3	1.3	3.0	4.0	3.0
2032	0.4	1.5	3.5	4.8	3.5
2033	0.5	1.7	4.2	5.6	4.2
2034	0.6	1.9	5.0	6.6	5.0
2035	0.7	2.2	5.8	7.8	5.8
2040	1.1	4.5	10.9	14.9	10.9
2045	2.3	6.6	16.0	21.9	16.0
2050	3.6	8.9	23.3	31.3	23.3



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	3.7	3.7	3.7	3.7	3.7
2023	3.7	3.7	3.7	3.7	3.7
2024	3.7	3.7	3.7	3.7	3.7
2025	3.7	3.7	3.8	3.7	3.8
2026	3.7	3.7	3.8	3.7	3.8
2027	3.7	3.7	4.2	4.1	4.2
2028	3.7	3.7	4.7	4.5	4.7
2029	3.7	3.8	5.3	4.9	5.3
2030	3.8	4.0	6.1	5.6	6.1
2031	3.9	4.2	7.0	6.3	7.0
2032	4.0	4.4	7.9	7.1	7.9
2033	4.2	4.7	9.0	8.0	9.0
2034	4.3	4.9	10.1	8.9	10.1
2035	4.4	5.2	11.5	10.0	11.5
2040	5.0	8.4	22.2	19.0	22.2
2045	5.7	10.8	32.3	26.5	32.3
2050	6.5	13.7	34.3	28.8	34.3



National Grid Electricity Distribution PLC 09223384)
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