

Distribution Future Energy Scenarios 2022

Local Authority:
Blaby

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 Blaby 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 Blaby 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	136	81	81	0	23358	10219	10219	0
Domestic	New dwellings	0	2830	3089	3089	3622	4928	4860	4860	4820
Electric vehicles	Electric vehicles	1579	10069	12292	22588	22453	68894	61785	62116	49605
EV Charge Point	EV charge points	821	4873	7093	13360	14729	41032	39549	42240	42004
Heat pumps	Heat pump installations	698	2350	2415	7155	11613	21928	26266	47433	42913
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	0.0	0.0	0.2	0.1	0.5	0.1	1.3
Non domestic	Floorspace (metres squared) of new I&C developments	0	12020 7	14217 7	14217 7	15382 7	23182 5	23161 5	23161 5	23182 5
Other Distributed Generation	MW (installed capacity)	6.1	13.7	5.1	5.1	5.1	11.2	3.5	3.5	3.5
Resistive electric heating	Resistive electric heating units	2357	2168	2045	2197	2122	2159	982	1758	1918
Solar Generation	MW (installed capacity)	7.2	11.4	18.0	27.0	25.2	39.5	72.5	109.9	107.2
Storage	MW (installed capacity)	0.0	0.2	1.0	2.3	3.0	3.1	7.8	20.8	26.9
Wind	MW (installed capacity)	0.8	0.8	0.9	1.8	1.5	1.3	2.8	8.6	7.2

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

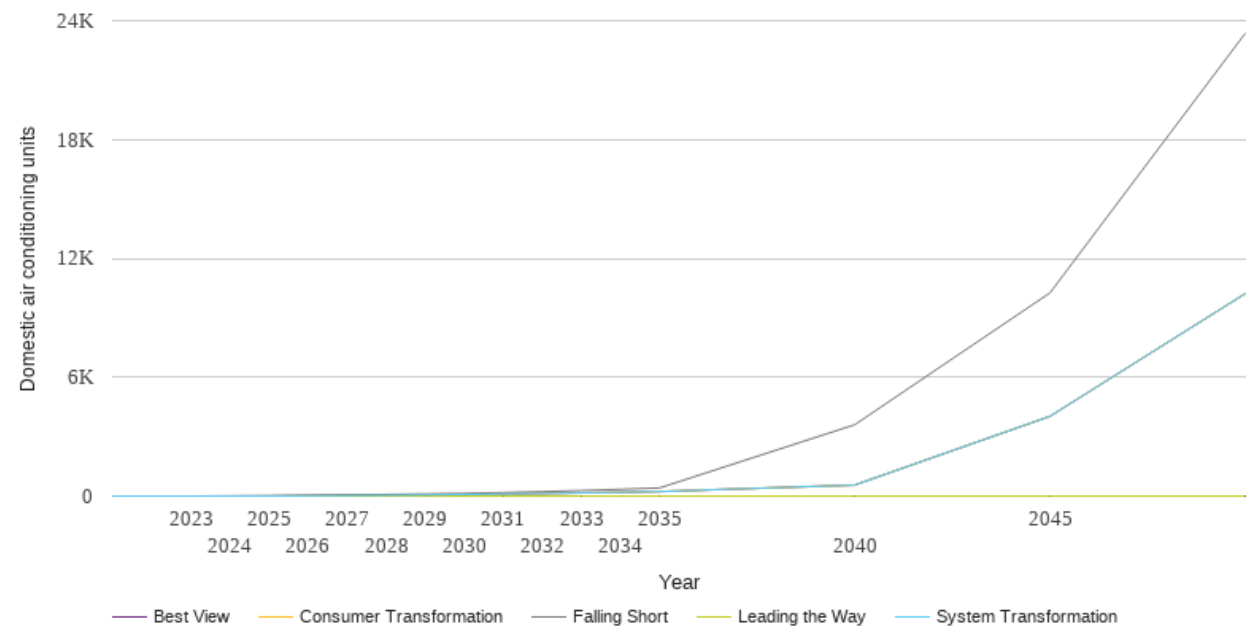
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

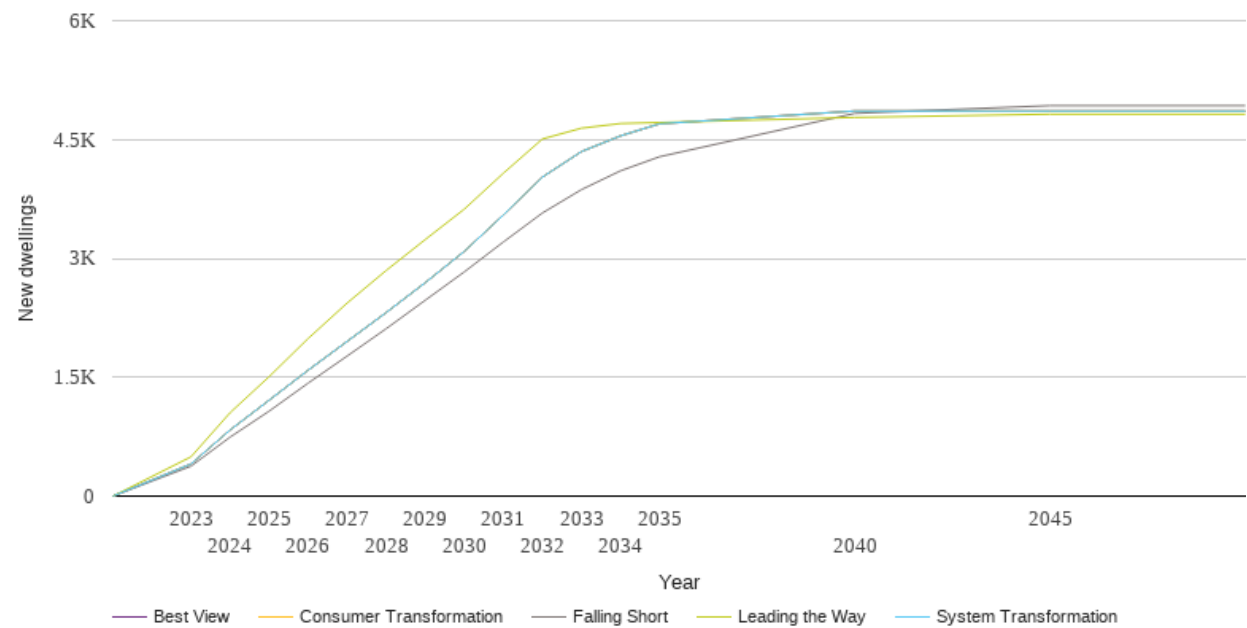
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	12	0	0	0	0
2025	26	0	0	0	0
2026	43	13	13	0	13
2027	62	27	27	0	27
2028	83	43	43	0	43
2029	108	61	61	0	61
2030	136	81	81	0	81
2031	177	104	104	0	104
2032	224	130	130	0	130
2033	278	159	159	0	159
2034	340	192	192	0	192
2035	411	229	229	0	229
2040	3604	559	559	0	559
2045	10259	4029	4029	0	4029
2050	23358	10219	10219	0	10219



Technology Summary: Domestic

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

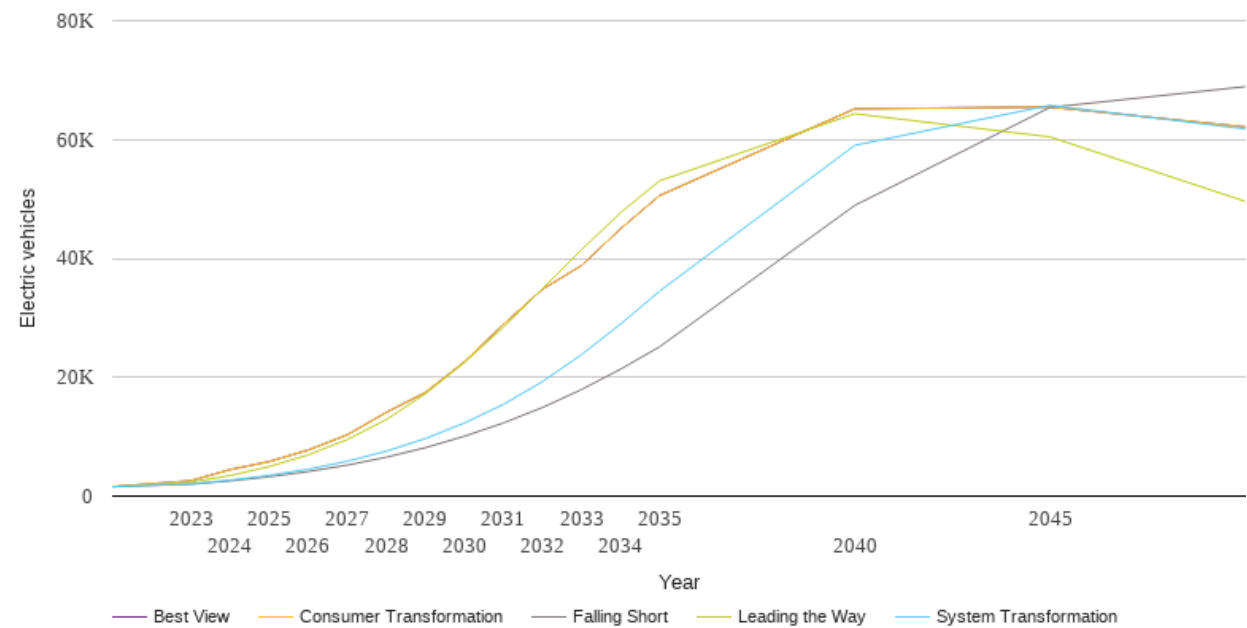
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	378	406	406	496	406
2024	744	834	834	1052	834
2025	1072	1210	1210	1507	1210
2026	1426	1589	1589	1989	1589
2027	1768	1953	1953	2437	1953
2028	2113	2317	2317	2848	2317
2029	2472	2694	2694	3238	2694
2030	2830	3089	3089	3622	3089
2031	3207	3548	3548	4075	3548
2032	3573	4026	4026	4507	4026
2033	3868	4348	4348	4643	4348
2034	4105	4546	4546	4702	4546
2035	4283	4699	4699	4715	4699
2040	4830	4860	4860	4779	4860
2045	4928	4860	4860	4820	4860
2050	4928	4860	4860	4820	4860



Technology Summary: Electric vehicles

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

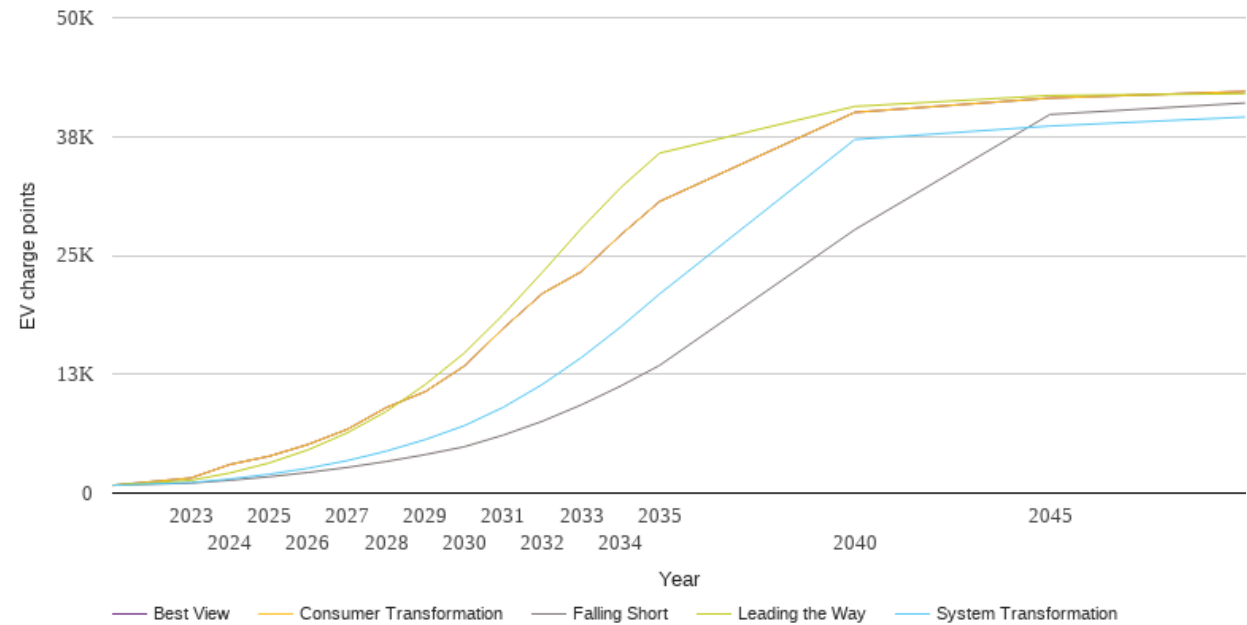
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1579	1579	1579	1579	1579
2023	2009	2041	2589	2342	2589
2024	2561	2676	4458	3455	4458
2025	3252	3486	5810	4956	5810
2026	4127	4522	7747	6930	7747
2027	5213	5858	10309	9517	10309
2028	6536	7554	14087	12867	14087
2029	8145	9674	17426	17200	17426
2030	10069	12292	22588	22453	22588
2031	12303	15424	28892	28407	28892
2032	14900	19260	34799	34875	34799
2033	17929	23792	38794	41449	38794
2034	21347	28940	44976	47672	44976
2035	25117	34475	50572	53059	50572
2040	48911	59022	65169	64340	65169
2045	65402	65758	65479	60446	65479
2050	68894	61785	62116	49605	62116



Technology Summary: EV Charge Point

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

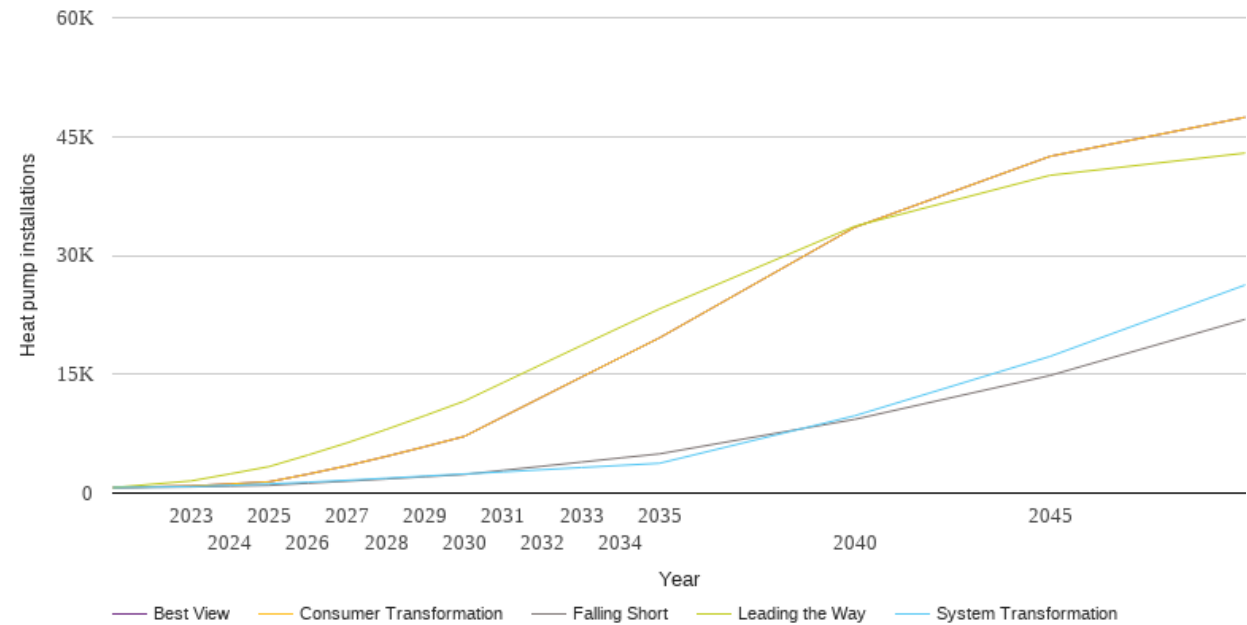
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	821	821	821	821	821
2023	1050	1100	1590	1345	1590
2024	1349	1484	3014	2117	3014
2025	1719	1983	3876	3168	3876
2026	2169	2617	5121	4550	5121
2027	2699	3415	6706	6334	6706
2028	3323	4412	8994	8579	8994
2029	4047	5627	10671	11416	10671
2030	4873	7093	13360	14729	13360
2031	6099	9025	17336	18782	17336
2032	7559	11429	20996	23219	20996
2033	9284	14258	23296	27845	23296
2034	11252	17454	27133	32113	27133
2035	13426	20938	30669	35751	30669
2040	27702	37185	40042	40666	40042
2045	39821	38605	41544	41816	41544
2050	41032	39549	42240	42004	42240



Technology Summary: Heat pumps

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

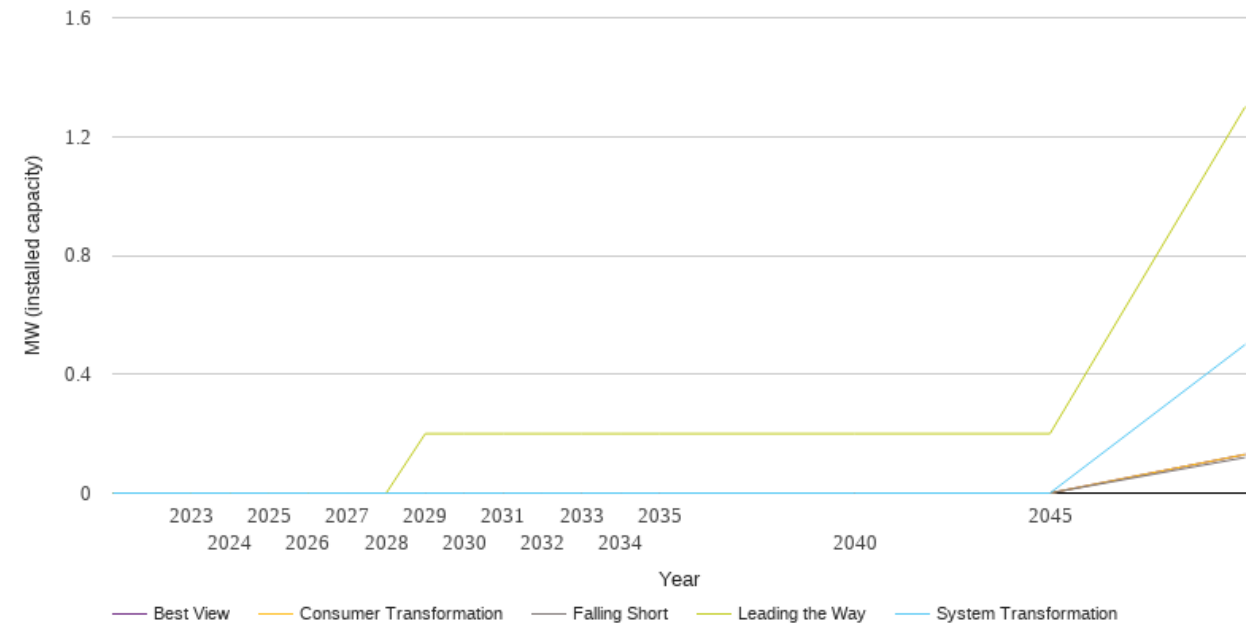
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	698	698	698	698	698
2023	779	817	904	1536	904
2024	876	974	1151	2422	1151
2025	975	1155	1425	3346	1425
2026	1243	1381	2396	4809	2396
2027	1503	1619	3455	6345	3455
2028	1784	1879	4628	8030	4628
2029	2066	2148	5869	9790	5869
2030	2350	2415	7155	11613	7155
2031	2874	2677	9651	13957	9651
2032	3392	2948	12144	16294	12144
2033	3910	3225	14637	18626	14637
2034	4437	3492	17119	20943	17119
2035	4952	3765	19599	23244	19599
2040	9309	9760	33542	33676	33542
2045	14838	17246	42497	40104	42497
2050	21928	26266	47433	42913	47433



Technology Summary: Hydrogen electrolysis

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

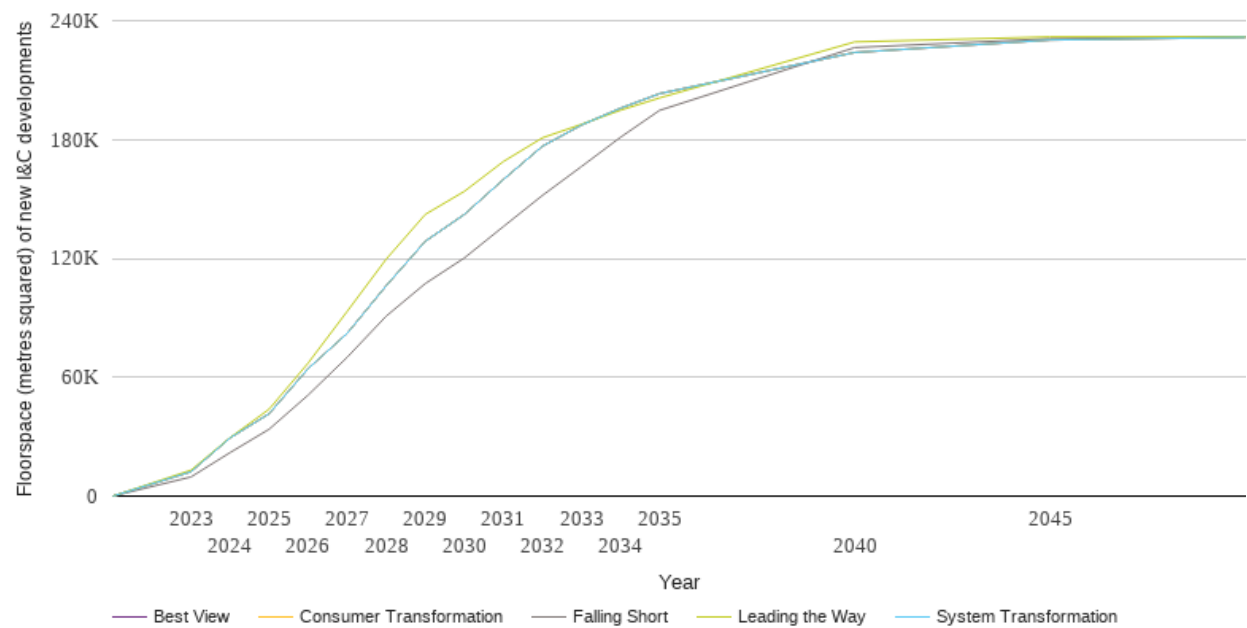
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.2	0.0
2030	0.0	0.0	0.0	0.2	0.0
2031	0.0	0.0	0.0	0.2	0.0
2032	0.0	0.0	0.0	0.2	0.0
2033	0.0	0.0	0.0	0.2	0.0
2034	0.0	0.0	0.0	0.2	0.0
2035	0.0	0.0	0.0	0.2	0.0
2040	0.0	0.0	0.0	0.2	0.0
2045	0.0	0.0	0.0	0.2	0.0
2050	0.1	0.5	0.1	1.3	0.1



Technology Summary: Non domestic

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

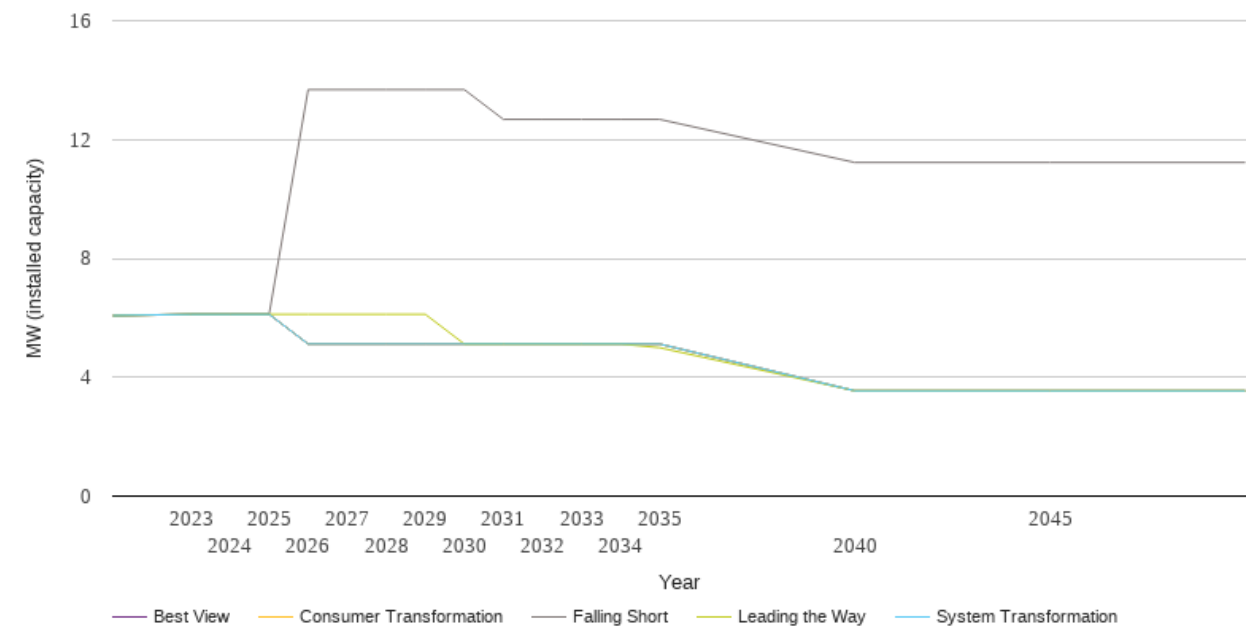
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	9671	12299	12299	13087	12299
2024	21949	29378	29378	29499	29378
2025	33757	41565	41565	43877	41565
2026	51008	64365	64365	67164	64365
2027	70091	82149	82149	93270	82149
2028	90874	106222	106222	119646	106222
2029	107288	128651	128651	142202	128651
2030	120207	142177	142177	153827	142177
2031	136066	159817	159817	168891	159817
2032	151779	176604	176604	180865	176604
2033	166362	187325	187325	187676	187325
2034	181135	195797	195797	194787	195797
2035	194724	203155	203155	200998	203155
2040	226425	223965	223965	229284	223965
2045	230925	230265	230265	231825	230265
2050	231825	231615	231615	231825	231615



Technology Summary: Other Distributed Generation

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

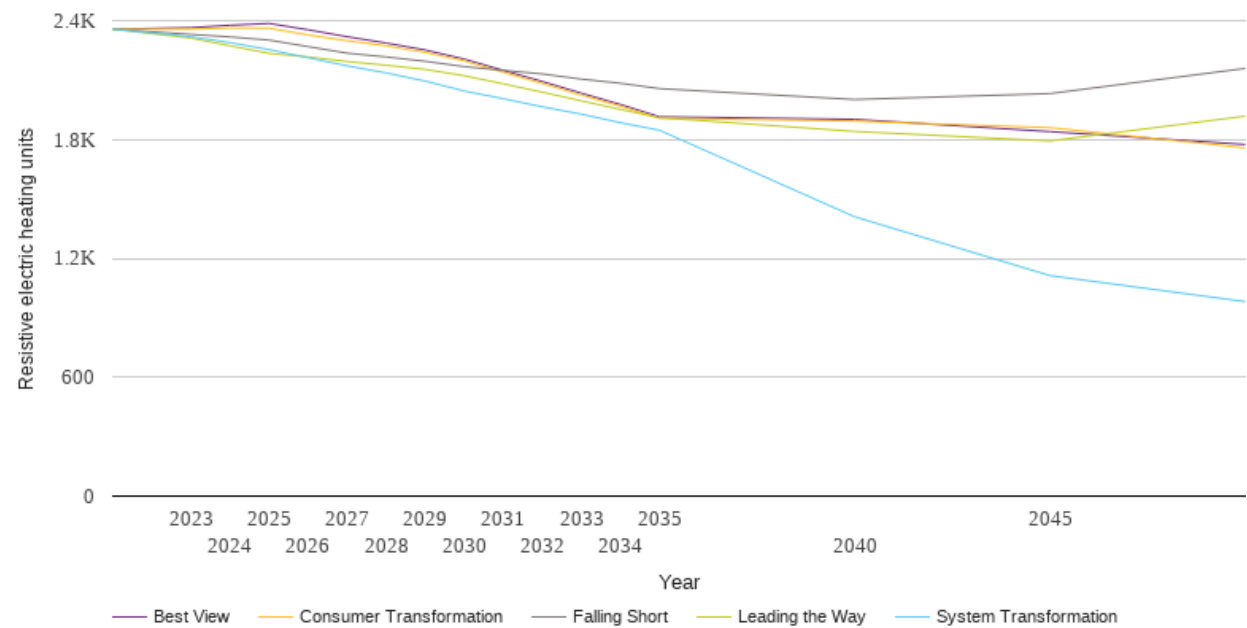
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	6.1	6.1	6.1	6.1	6.1
2023	6.1	6.1	6.1	6.1	6.1
2024	6.1	6.1	6.1	6.1	6.1
2025	6.1	6.1	6.1	6.1	6.1
2026	13.7	5.1	5.1	6.1	5.1
2027	13.7	5.1	5.1	6.1	5.1
2028	13.7	5.1	5.1	6.1	5.1
2029	13.7	5.1	5.1	6.1	5.1
2030	13.7	5.1	5.1	5.1	5.1
2031	12.7	5.1	5.1	5.1	5.1
2032	12.7	5.1	5.1	5.1	5.1
2033	12.7	5.1	5.1	5.1	5.1
2034	12.7	5.1	5.1	5.1	5.1
2035	12.7	5.1	5.1	5.0	5.1
2040	11.2	3.5	3.5	3.5	3.5
2045	11.2	3.5	3.5	3.5	3.5
2050	11.2	3.5	3.5	3.5	3.5



Technology Summary: Resistive electric heating

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

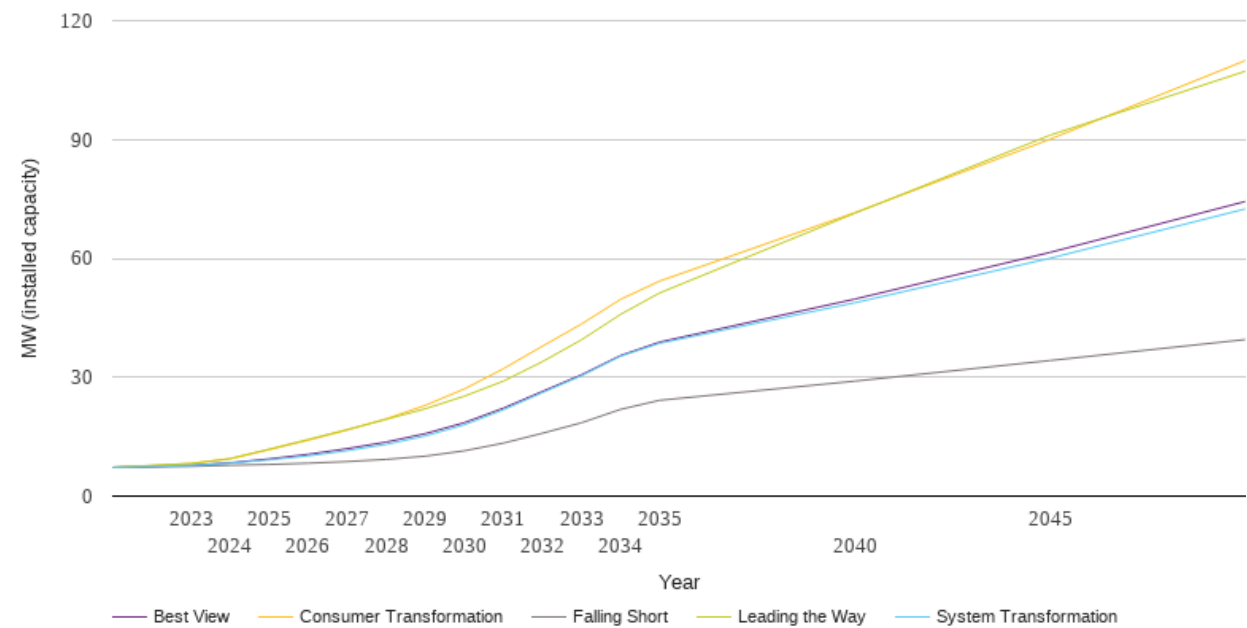
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	2357	2357	2357	2357	2357
2023	2331	2319	2357	2312	2365
2024	2318	2289	2363	2273	2377
2025	2302	2254	2362	2235	2386
2026	2269	2213	2328	2217	2354
2027	2236	2172	2299	2194	2319
2028	2217	2136	2273	2175	2287
2029	2195	2095	2240	2154	2252
2030	2168	2045	2197	2122	2206
2031	2149	2006	2139	2081	2149
2032	2131	1965	2083	2039	2093
2033	2105	1928	2024	1995	2034
2034	2084	1885	1968	1952	1977
2035	2057	1847	1907	1910	1915
2040	2002	1410	1893	1841	1902
2045	2032	1113	1860	1793	1840
2050	2159	982	1758	1918	1775



Technology Summary: Solar Generation

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

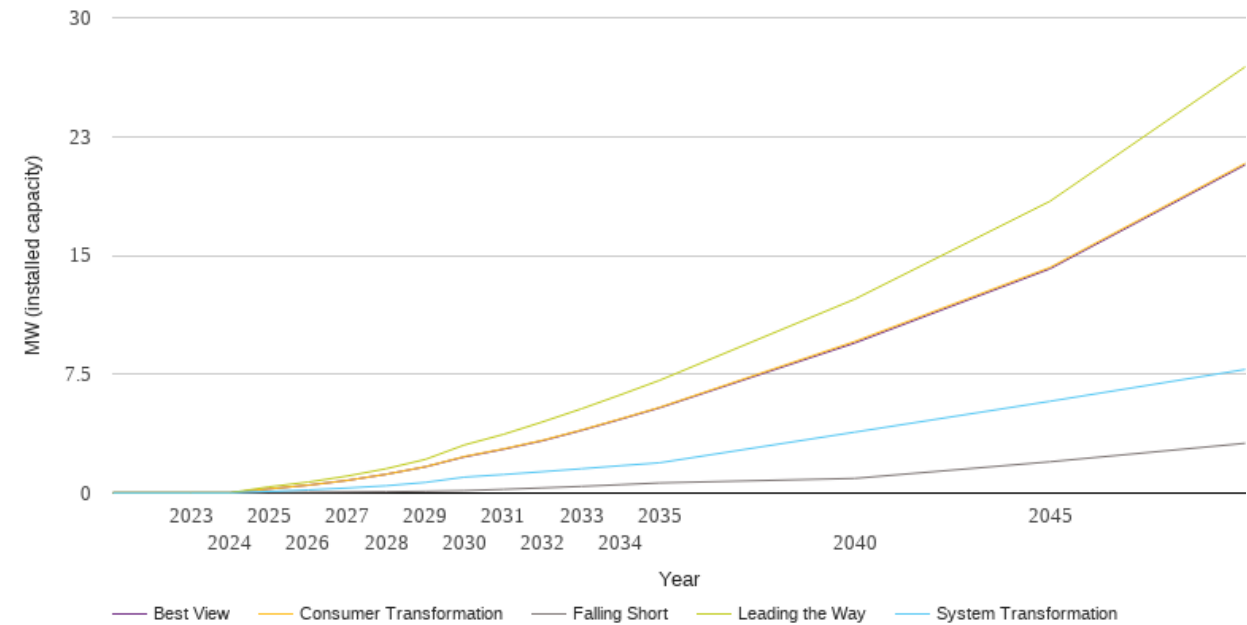
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	7.2	7.2	7.2	7.2	7.2
2023	7.5	7.8	8.2	8.2	7.8
2024	7.8	8.3	9.4	9.5	8.4
2025	8.0	9.1	11.7	11.8	9.4
2026	8.3	10.2	14.1	14.3	10.5
2027	8.7	11.5	16.7	16.8	12.0
2028	9.3	13.1	19.5	19.4	13.6
2029	10.1	15.2	22.9	22.0	15.8
2030	11.4	18.0	27.0	25.2	18.5
2031	13.4	21.8	32.1	29.0	22.2
2032	15.9	26.1	37.8	33.9	26.4
2033	18.5	30.4	43.4	39.4	30.6
2034	21.9	35.3	49.7	45.9	35.5
2035	24.2	38.6	54.3	51.3	38.9
2040	29.0	48.8	71.5	71.4	49.7
2045	34.2	60.0	90.1	91.1	61.5
2050	39.5	72.5	109.9	107.2	74.4



Technology Summary: Storage

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

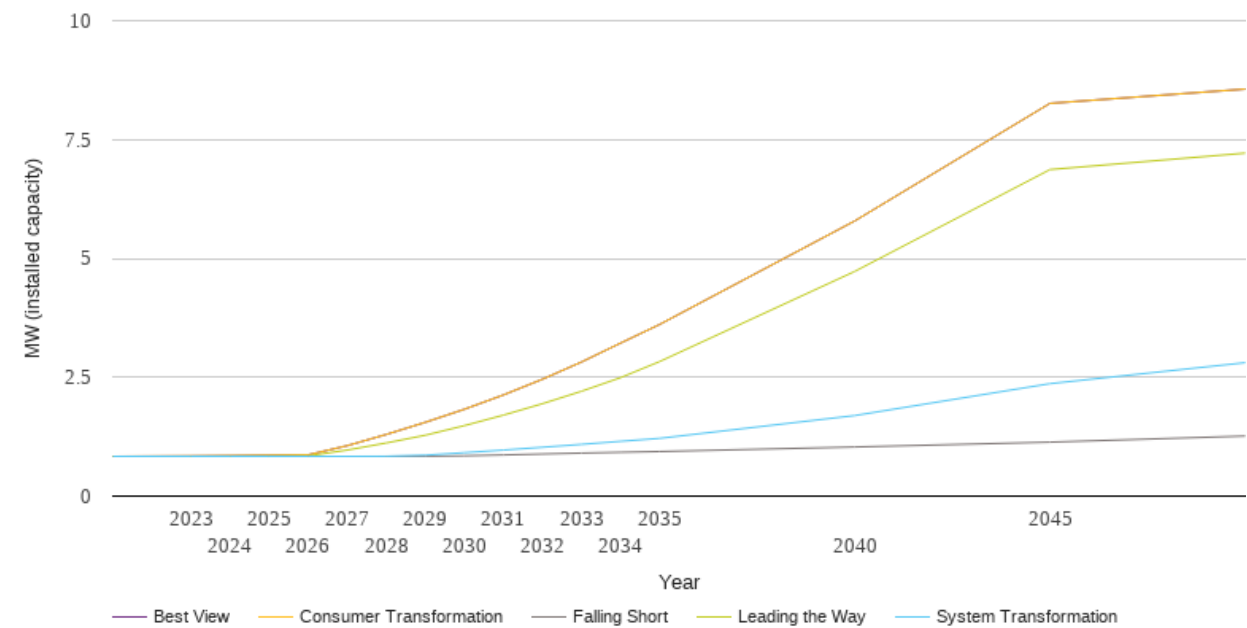
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.1	0.1	0.3	0.4	0.3
2026	0.1	0.2	0.5	0.7	0.5
2027	0.1	0.3	0.8	1.1	0.8
2028	0.1	0.5	1.2	1.5	1.2
2029	0.1	0.7	1.7	2.1	1.7
2030	0.2	1.0	2.3	3.0	2.3
2031	0.2	1.2	2.8	3.7	2.8
2032	0.3	1.4	3.3	4.5	3.3
2033	0.4	1.5	4.0	5.3	4.0
2034	0.5	1.7	4.7	6.2	4.7
2035	0.6	1.9	5.4	7.1	5.4
2040	0.9	3.8	9.6	12.2	9.5
2045	2.0	5.8	14.2	18.4	14.2
2050	3.1	7.8	20.8	26.9	20.7



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	0.8	0.8	0.8	0.8	0.8
2023	0.8	0.8	0.8	0.8	0.8
2024	0.8	0.8	0.8	0.8	0.8
2025	0.8	0.8	0.9	0.8	0.9
2026	0.8	0.8	0.9	0.8	0.9
2027	0.8	0.8	1.1	1.0	1.1
2028	0.8	0.8	1.3	1.1	1.3
2029	0.8	0.9	1.6	1.3	1.6
2030	0.8	0.9	1.8	1.5	1.8
2031	0.9	1.0	2.1	1.7	2.1
2032	0.9	1.0	2.5	1.9	2.5
2033	0.9	1.1	2.8	2.2	2.8
2034	0.9	1.2	3.2	2.5	3.2
2035	0.9	1.2	3.6	2.8	3.6
2040	1.0	1.7	5.8	4.7	5.8
2045	1.1	2.4	8.3	6.9	8.3
2050	1.3	2.8	8.6	7.2	8.6



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