

# Distribution Future Energy Scenarios 2022

Local Authority:  
High Peak

## What are Distribution Future Energy Scenarios?

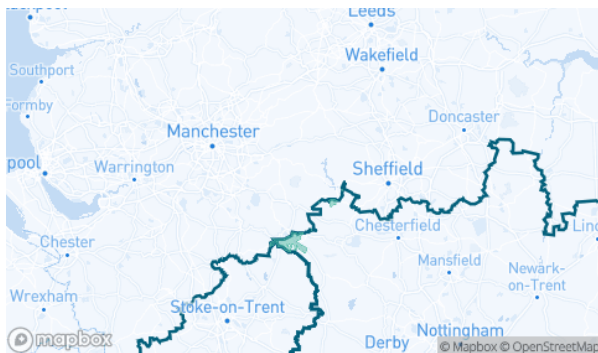
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 High Peak 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 High Peak 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	0	0	0	0	0	0	0	0
Domestic	New dwellings	0	50 2	52 7	52 7	57 6	635	612	612	594
Electric vehicles	Electric vehicles	36	21 5	28 6	53 6	53 5	202 0	165 3	182 8	171 5
EV Charge Point	EV charge points	14	81	13 0	24 1	26 7	799	803	828	831
Heat pumps	Heat pump installations	4	11 9	20 7	35 0	44 1	585	746	133 3	124 2
Hydrogen electrolysis	MW (installed capacity)	0.0	0. 9	4. 4	0. 9	0. 0	1.9	8.3	4.1	0.0
Non domestic	Floorspace (metres squared) of new I&C developments	0	15 9	0	0	15 9	159	0	0	159
Other Distributed Generation	MW (installed capacity)	1.0	1. 0	1. 0	1. 0	1. 0	1.0	0.0	0.0	0.0
Resistive electric heating	Resistive electric heating units	41	11 3	94	96	10 3	145	91	104	117
Solar Generation	MW (installed capacity)	0.1	0. 3	0. 5	0. 9	0. 9	0.7	1.4	2.6	2.6
Storage	MW (installed capacity)	0.0	0. 0	0. 0	0. 1	0. 2	0.1	0.3	0.8	0.9
Wind	MW (installed capacity)	0.0	0. 0	0. 0	0. 3	0. 2	0.1	0.5	2.2	1.8

## 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

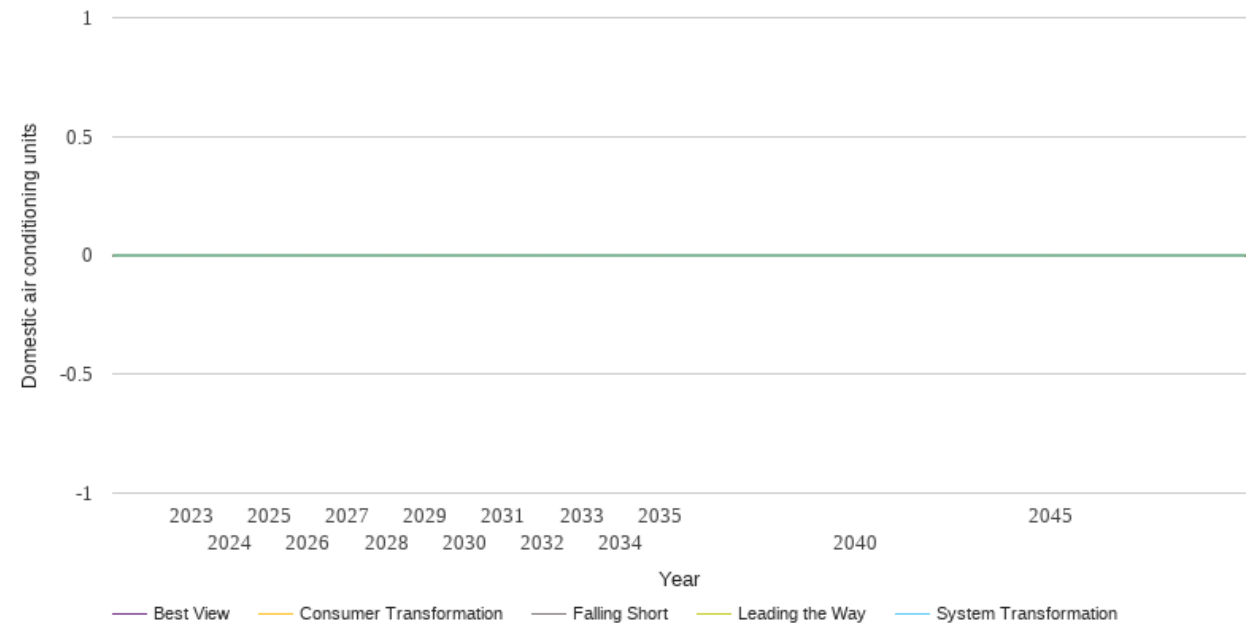
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

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

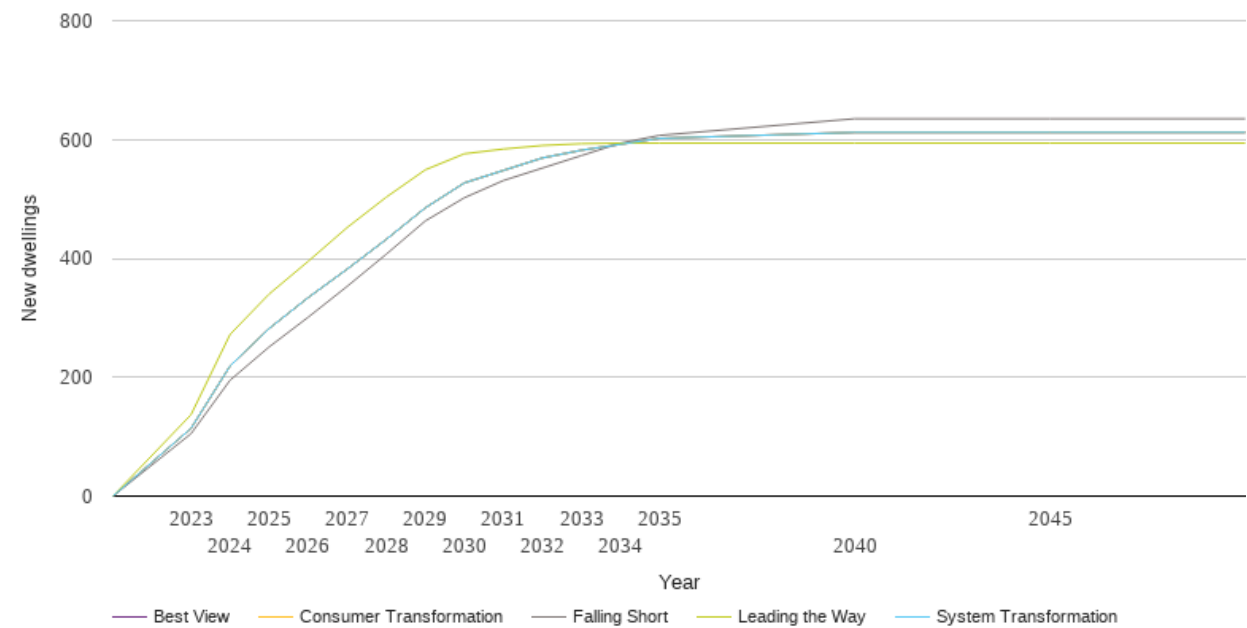
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0	0
2035	0	0	0	0	0
2040	0	0	0	0	0
2045	0	0	0	0	0
2050	0	0	0	0	0



# Technology Summary: Domestic

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

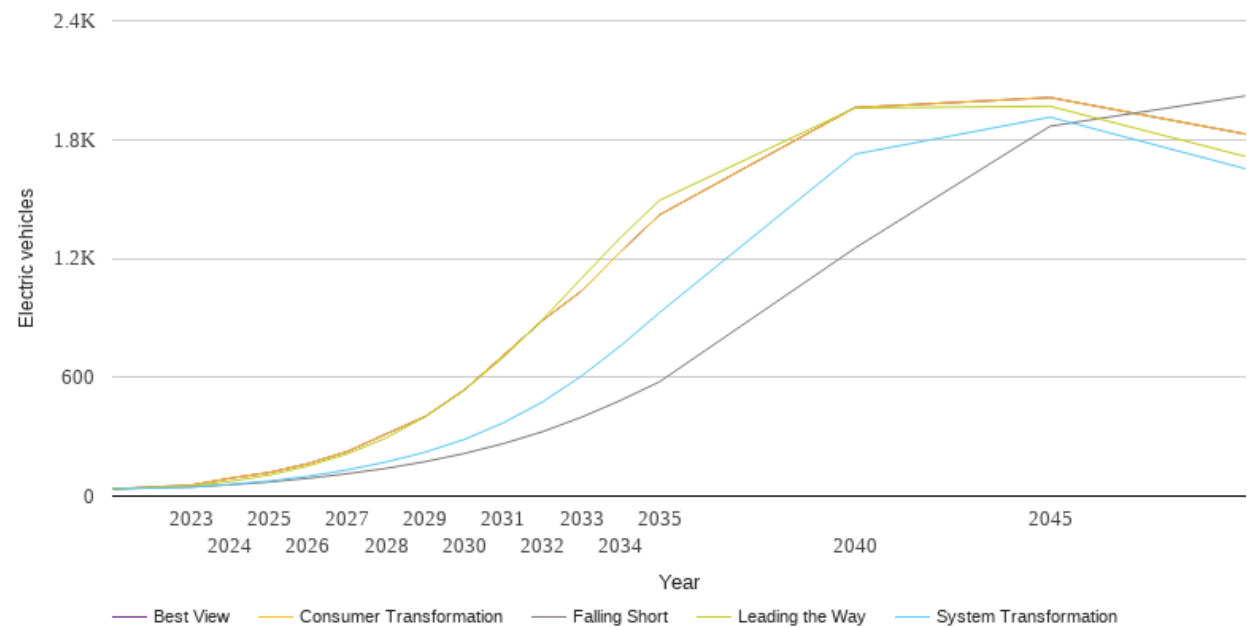
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	105	114	114	137	114
2024	195	219	219	272	219
2025	251	282	282	340	282
2026	301	334	334	395	334
2027	353	382	382	452	382
2028	407	432	432	503	432
2029	463	485	485	549	485
2030	502	527	527	576	527
2031	531	548	548	584	548
2032	552	569	569	590	569
2033	573	582	582	593	582
2034	594	592	592	594	592
2035	607	602	602	594	602
2040	635	612	612	594	612
2045	635	612	612	594	612
2050	635	612	612	594	612



# Technology Summary: Electric vehicles

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

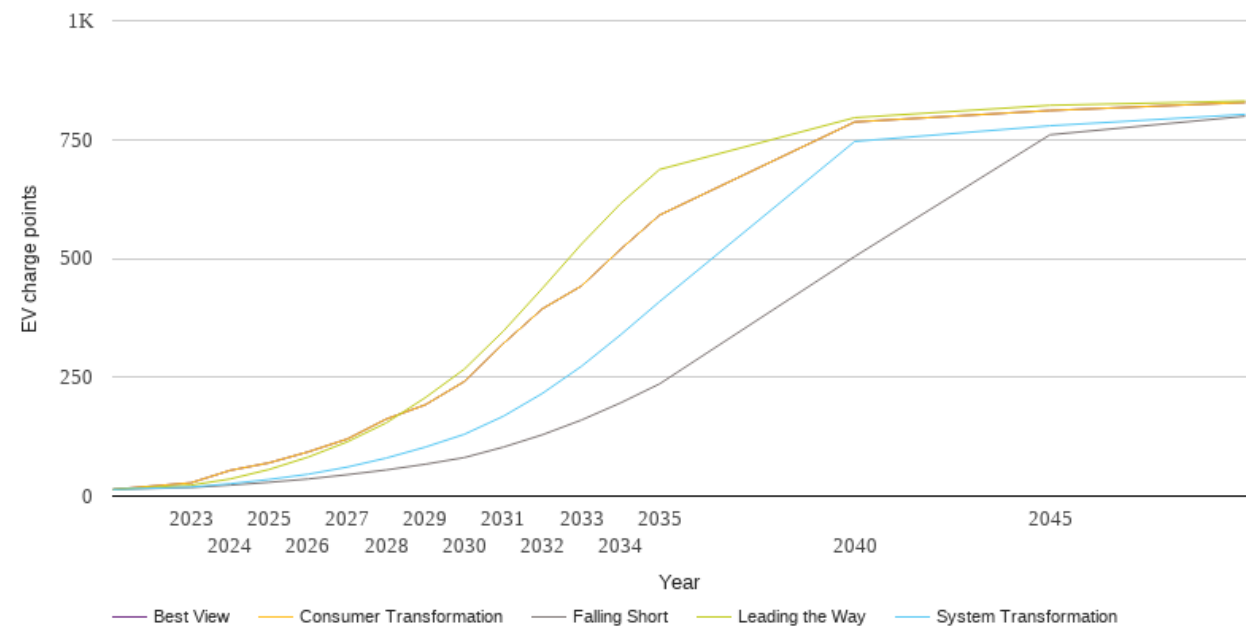
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	36	36	36	36	36
2023	46	45	55	51	55
2024	57	59	90	74	90
2025	71	76	119	106	119
2026	90	100	164	152	164
2027	113	132	225	213	225
2028	140	172	314	294	314
2029	174	222	402	401	402
2030	215	286	536	535	536
2031	265	370	710	700	710
2032	325	475	886	890	886
2033	398	606	1035	1099	1035
2034	483	758	1233	1305	1233
2035	577	926	1420	1493	1420
2040	1251	1726	1961	1959	1961
2045	1867	1913	2012	1968	2012
2050	2020	1653	1828	1715	1828



# 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	14	14	14	14	14
2023	18	19	28	23	28
2024	23	26	54	36	54
2025	29	35	70	56	70
2026	36	46	93	82	93
2027	45	61	120	114	120
2028	55	80	162	154	162
2029	67	103	192	207	192
2030	81	130	241	267	241
2031	103	168	321	347	321
2032	129	216	394	437	394
2033	160	273	442	530	442
2034	196	339	519	615	519
2035	236	409	591	687	591
2040	504	746	787	796	787
2045	760	779	811	822	811
2050	799	803	828	831	828

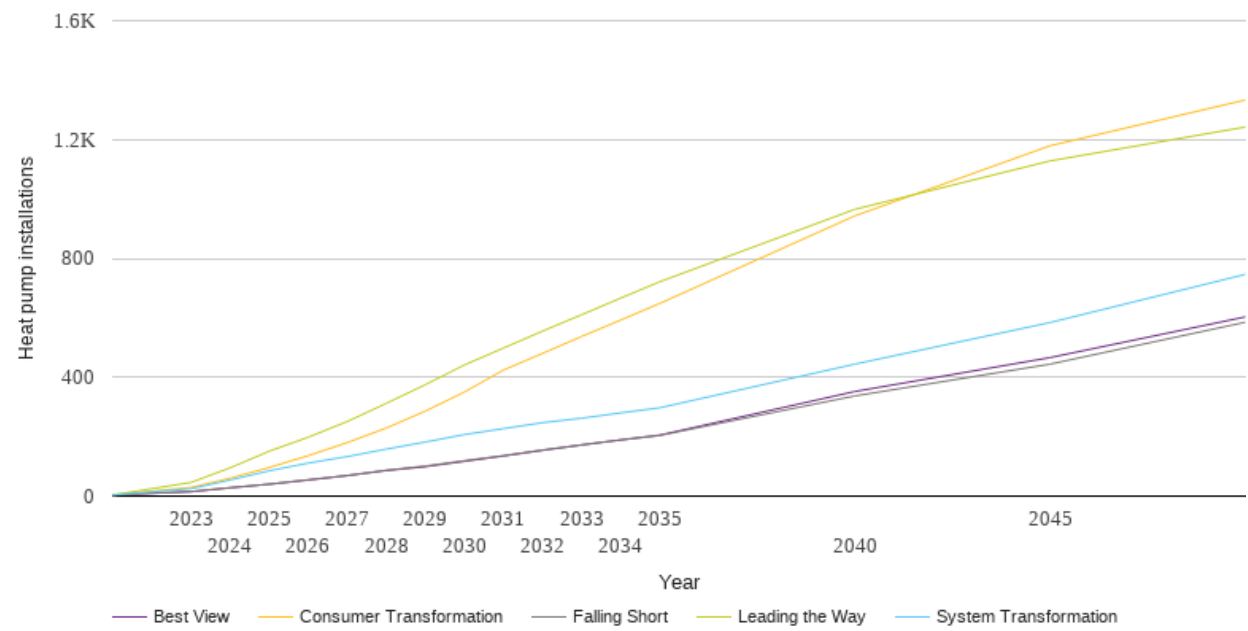




# Technology Summary: Heat pumps

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

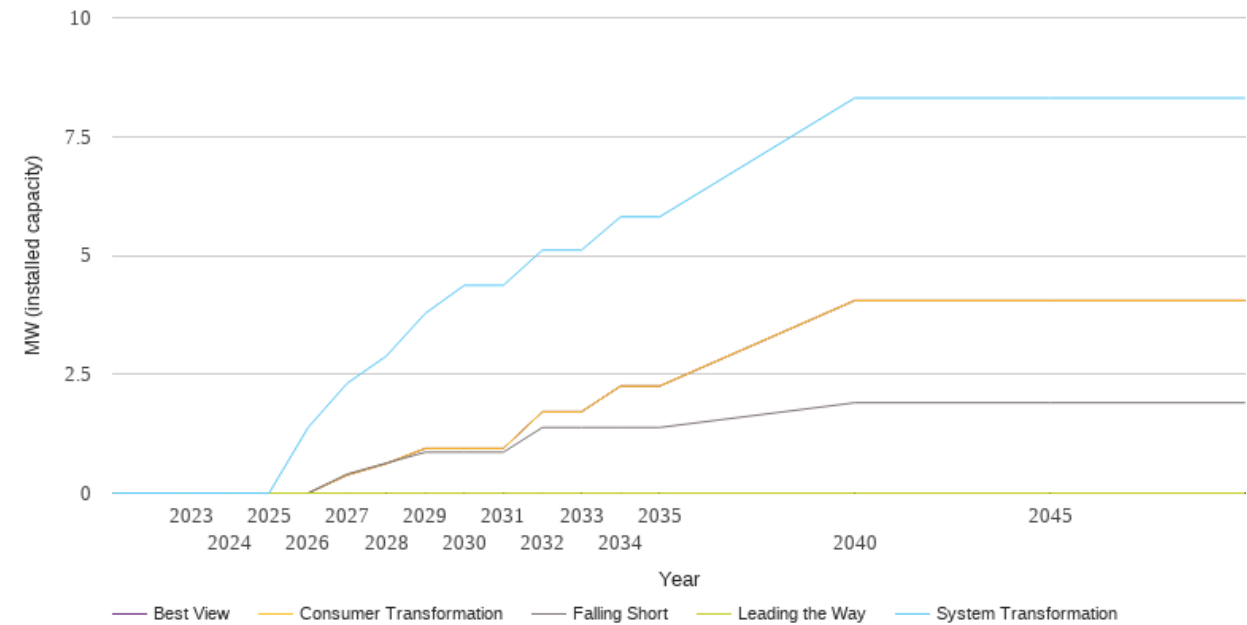
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	4	4	4	4	4
2023	15	25	29	46	15
2024	28	54	60	95	28
2025	40	85	96	151	40
2026	55	111	136	198	54
2027	69	133	180	251	69
2028	87	158	229	312	86
2029	101	182	286	375	99
2030	119	207	350	441	117
2031	136	227	424	498	135
2032	155	247	480	555	154
2033	172	262	537	610	172
2034	189	280	592	666	189
2035	204	297	648	721	205
2040	337	444	943	965	352
2045	444	584	1179	1128	466
2050	585	746	1333	1242	603



# Technology Summary: Hydrogen electrolysis

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

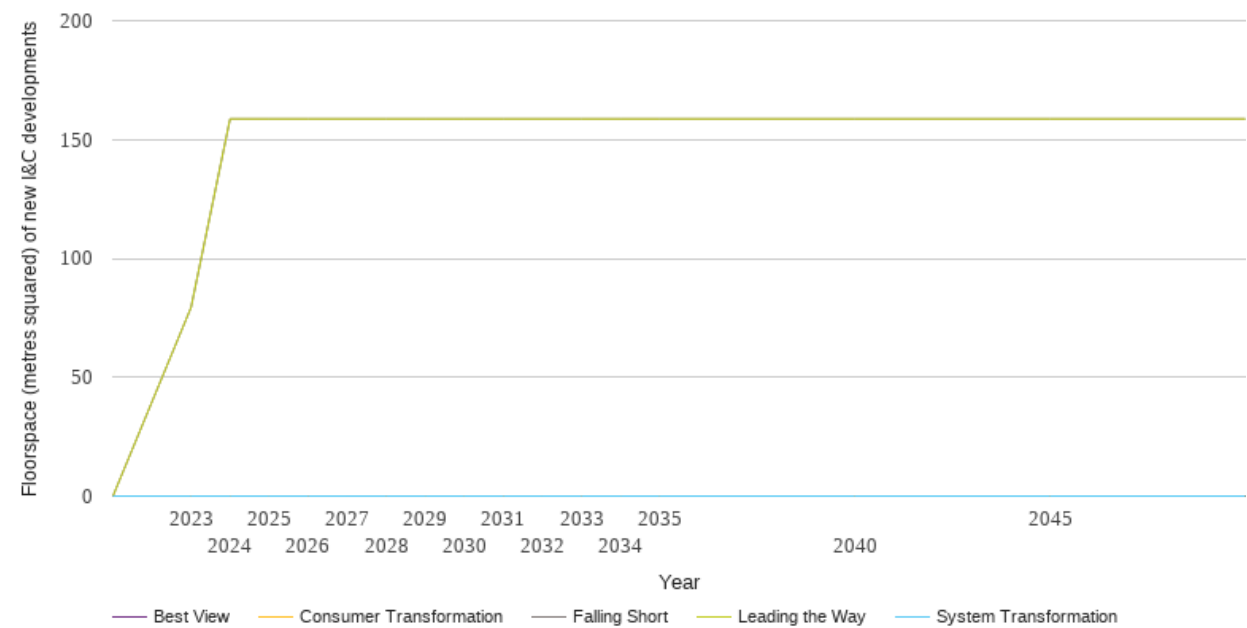
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	1.4	0.0	0.0	0.0
2027	0.4	2.3	0.4	0.0	0.4
2028	0.6	2.9	0.6	0.0	0.6
2029	0.9	3.8	0.9	0.0	0.9
2030	0.9	4.4	0.9	0.0	0.9
2031	0.9	4.4	0.9	0.0	0.9
2032	1.4	5.1	1.7	0.0	1.7
2033	1.4	5.1	1.7	0.0	1.7
2034	1.4	5.8	2.3	0.0	2.3
2035	1.4	5.8	2.3	0.0	2.3
2040	1.9	8.3	4.1	0.0	4.1
2045	1.9	8.3	4.1	0.0	4.1
2050	1.9	8.3	4.1	0.0	4.1



# Technology Summary: Non domestic

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

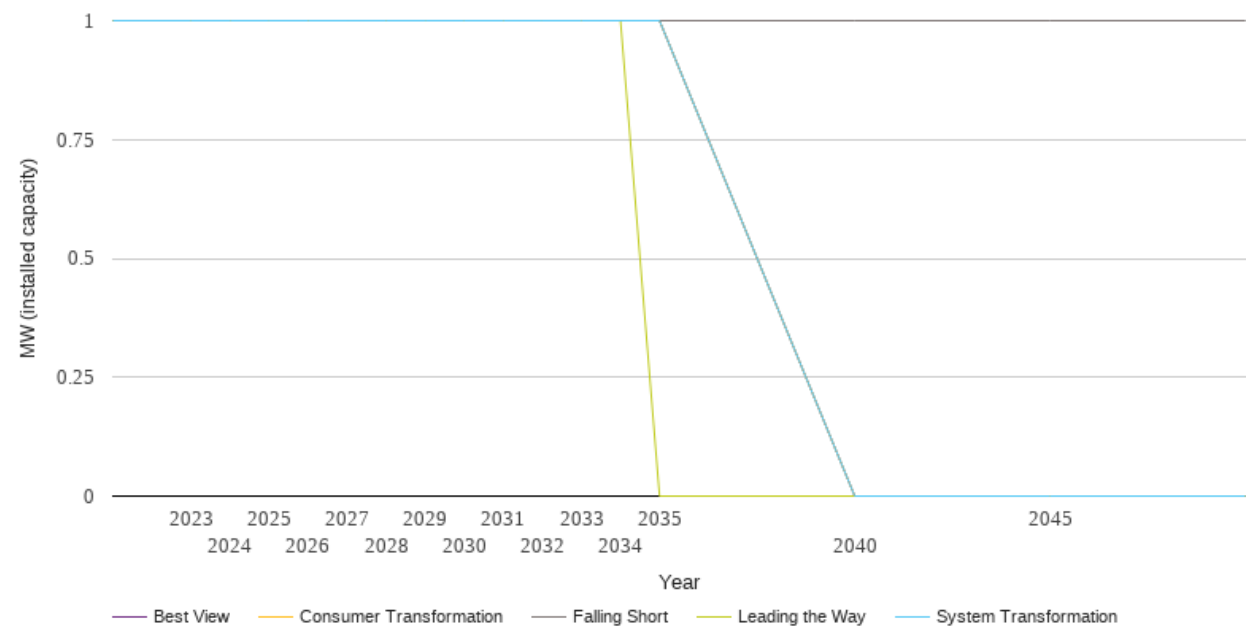
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	79	0	0	79	0
2024	159	0	0	159	0
2025	159	0	0	159	0
2026	159	0	0	159	0
2027	159	0	0	159	0
2028	159	0	0	159	0
2029	159	0	0	159	0
2030	159	0	0	159	0
2031	159	0	0	159	0
2032	159	0	0	159	0
2033	159	0	0	159	0
2034	159	0	0	159	0
2035	159	0	0	159	0
2040	159	0	0	159	0
2045	159	0	0	159	0
2050	159	0	0	159	0



# Technology Summary: Other Distributed Generation

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

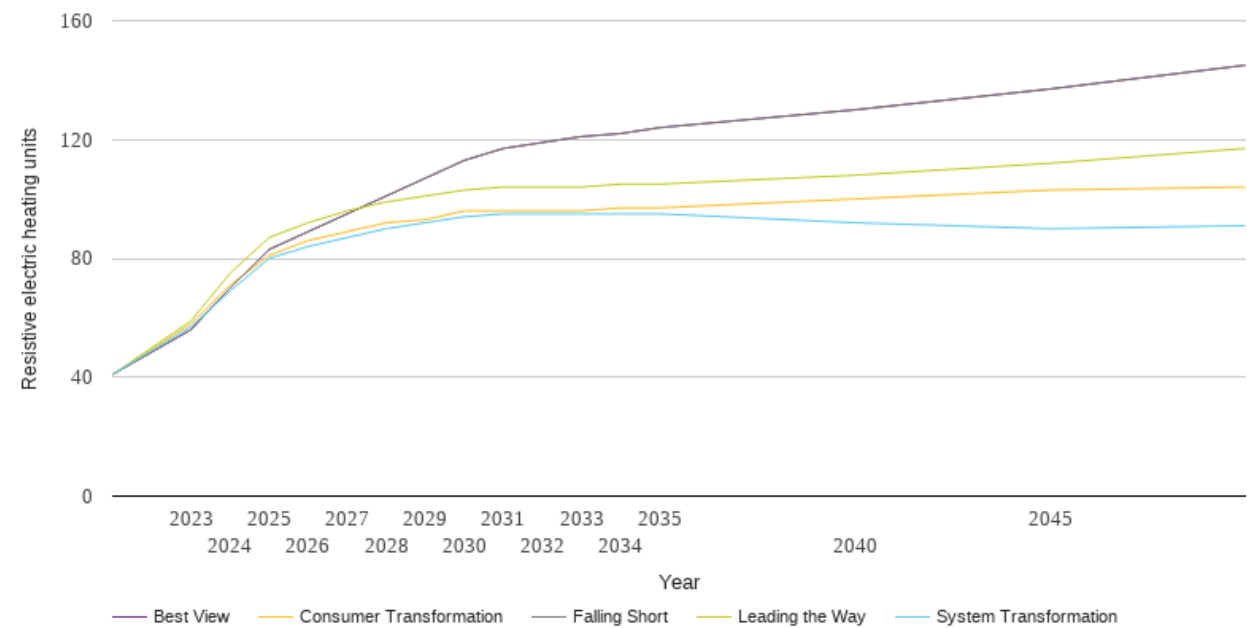
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1.0	1.0	1.0	1.0	1.0
2023	1.0	1.0	1.0	1.0	1.0
2024	1.0	1.0	1.0	1.0	1.0
2025	1.0	1.0	1.0	1.0	1.0
2026	1.0	1.0	1.0	1.0	1.0
2027	1.0	1.0	1.0	1.0	1.0
2028	1.0	1.0	1.0	1.0	1.0
2029	1.0	1.0	1.0	1.0	1.0
2030	1.0	1.0	1.0	1.0	1.0
2031	1.0	1.0	1.0	1.0	1.0
2032	1.0	1.0	1.0	1.0	1.0
2033	1.0	1.0	1.0	1.0	1.0
2034	1.0	1.0	1.0	1.0	1.0
2035	1.0	1.0	1.0	0.0	1.0
2040	1.0	0.0	0.0	0.0	0.0
2045	1.0	0.0	0.0	0.0	0.0
2050	1.0	0.0	0.0	0.0	0.0



# Technology Summary: Resistive electric heating

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

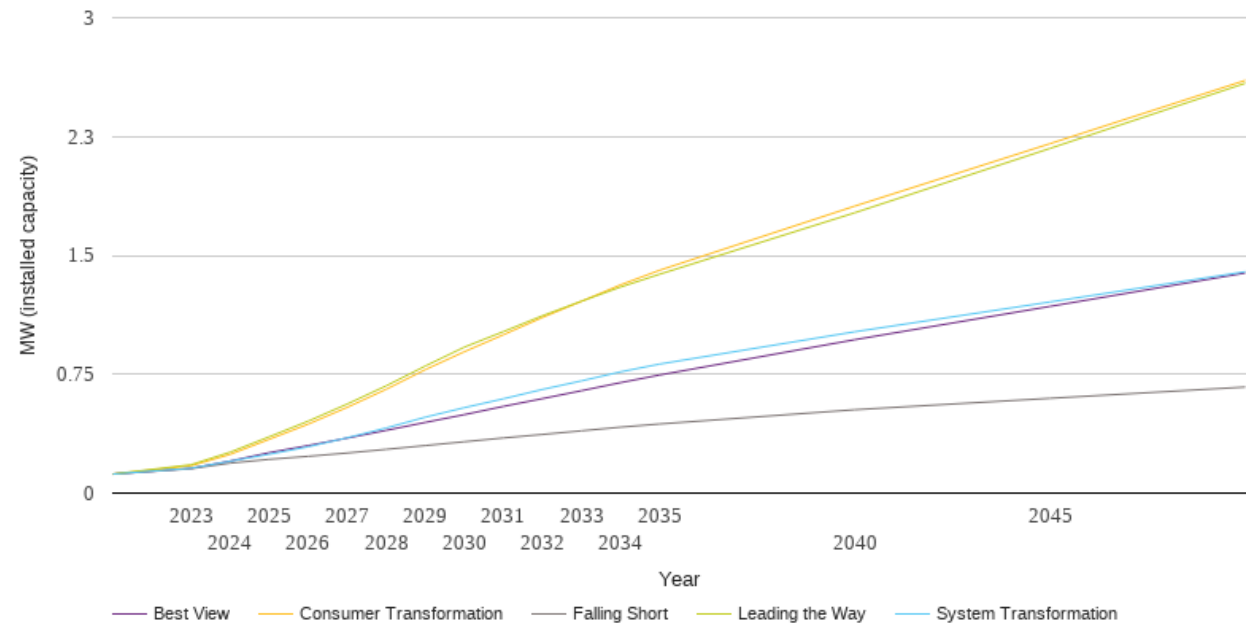
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	41	41	41	41	41
2023	56	57	58	59	56
2024	70	69	71	75	70
2025	83	80	81	87	83
2026	89	84	86	92	89
2027	95	87	89	96	95
2028	101	90	92	99	101
2029	107	92	93	101	107
2030	113	94	96	103	113
2031	117	95	96	104	117
2032	119	95	96	104	119
2033	121	95	96	104	121
2034	122	95	97	105	122
2035	124	95	97	105	124
2040	130	92	100	108	130
2045	137	90	103	112	137
2050	145	91	104	117	145



# Technology Summary: Solar Generation

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

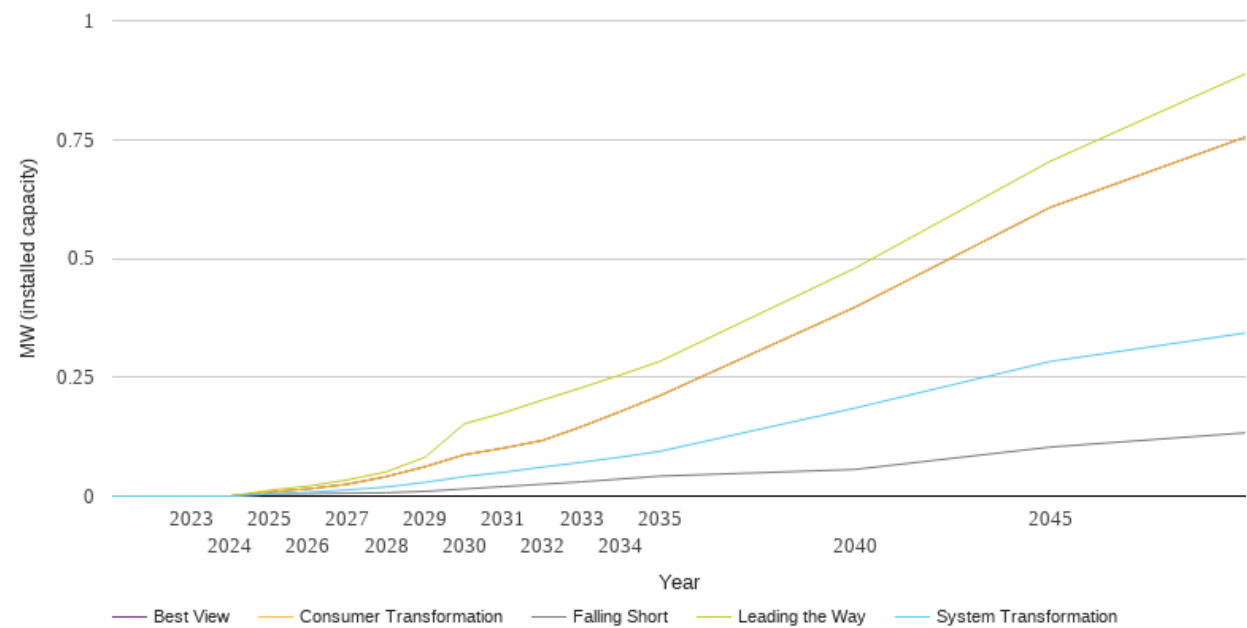
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.1	0.1	0.1	0.1	0.1
2023	0.2	0.2	0.2	0.2	0.2
2024	0.2	0.2	0.2	0.3	0.2
2025	0.2	0.2	0.3	0.4	0.3
2026	0.2	0.3	0.4	0.5	0.3
2027	0.3	0.3	0.5	0.6	0.3
2028	0.3	0.4	0.7	0.7	0.4
2029	0.3	0.5	0.8	0.8	0.4
2030	0.3	0.5	0.9	0.9	0.5
2031	0.3	0.6	1.0	1.0	0.5
2032	0.4	0.7	1.1	1.1	0.6
2033	0.4	0.7	1.2	1.2	0.6
2034	0.4	0.8	1.3	1.3	0.7
2035	0.4	0.8	1.4	1.4	0.7
2040	0.5	1.0	1.8	1.8	1.0
2045	0.6	1.2	2.2	2.2	1.2
2050	0.7	1.4	2.6	2.6	1.4



# Technology Summary: Storage

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

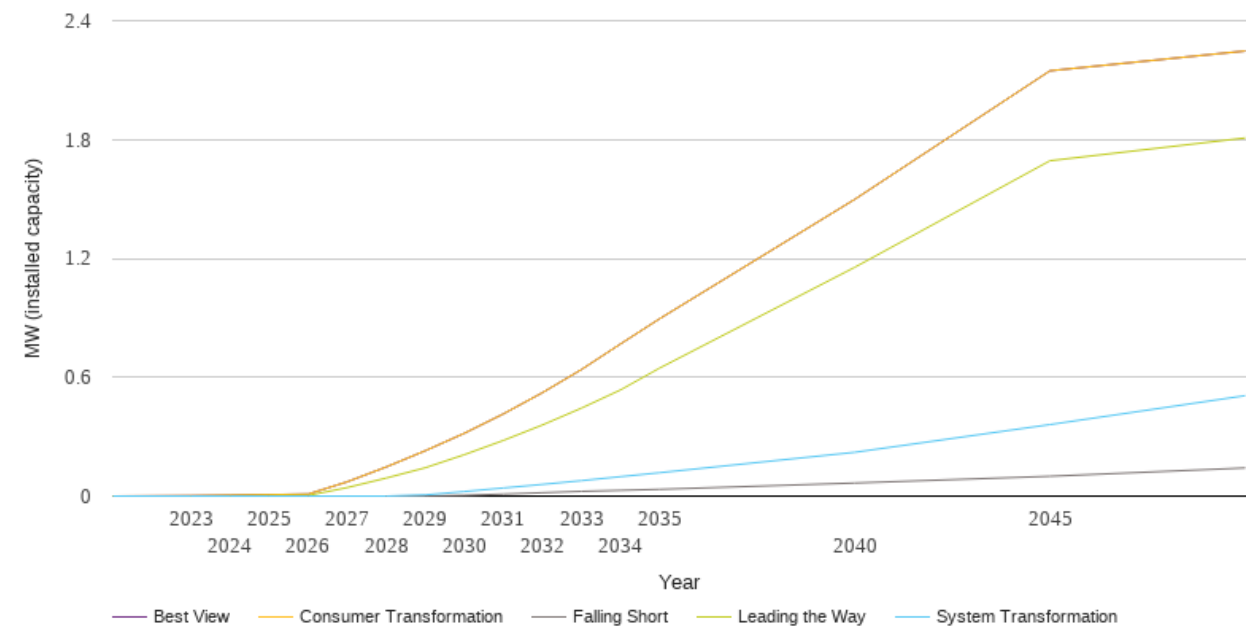
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.1	0.0
2029	0.0	0.0	0.1	0.1	0.1
2030	0.0	0.0	0.1	0.2	0.1
2031	0.0	0.0	0.1	0.2	0.1
2032	0.0	0.1	0.1	0.2	0.1
2033	0.0	0.1	0.1	0.2	0.1
2034	0.0	0.1	0.2	0.3	0.2
2035	0.0	0.1	0.2	0.3	0.2
2040	0.1	0.2	0.4	0.5	0.4
2045	0.1	0.3	0.6	0.7	0.6
2050	0.1	0.3	0.8	0.9	0.8



# 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	0.0	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	0.1	0.0	0.1
2028	0.0	0.0	0.1	0.1	0.1
2029	0.0	0.0	0.2	0.1	0.2
2030	0.0	0.0	0.3	0.2	0.3
2031	0.0	0.0	0.4	0.3	0.4
2032	0.0	0.1	0.5	0.4	0.5
2033	0.0	0.1	0.6	0.4	0.6
2034	0.0	0.1	0.8	0.5	0.8
2035	0.0	0.1	0.9	0.6	0.9
2040	0.1	0.2	1.5	1.2	1.5
2045	0.1	0.4	2.1	1.7	2.1
2050	0.1	0.5	2.2	1.8	2.2





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))  
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