

# Distribution Future Energy Scenarios 2022

Local Authority:  
East Lindsey

## What are Distribution Future Energy Scenarios?

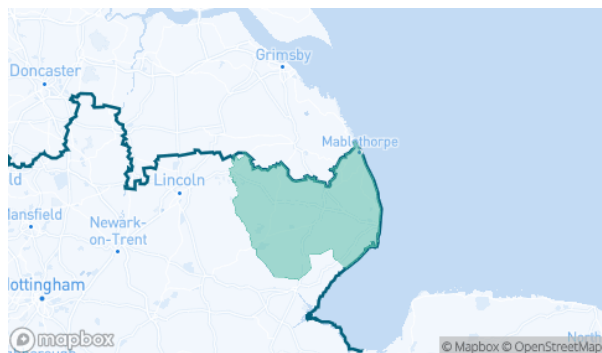
National Grid run Distribution Future Energy Scenarios (DFES) on an annual cycle for all licence areas, and represent a range of credible future scenarios of what could connect to the distribution network.

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 East Lindsey covered by the NGED licence areas.



## Scenario Summary

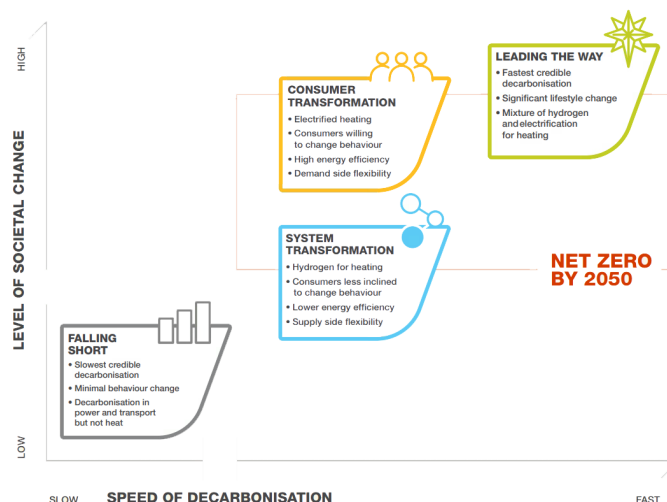
This DFES scenario framework includes three scenarios that are compliant with UK government targets of Net Zero greenhouse gas emissions by 2050. A summary of each scenario is below:

**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 East Lindsey 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	16338	6865	6865	0
Domestic	New dwellings	0	1356	1382	1382	1501	1675	1587	1587	1526
Electric vehicles	Electric vehicles	1431	8837	11903	21727	21810	67363	59279	57005	51464
EV Charge Point	EV charge points	707	3811	6140	11534	12638	37438	39855	41267	40620
Heat pumps	Heat pump installations	993	5933	6362	10661	15148	28046	31480	47635	43748
Hydrogen electrolysis	MW (installed capacity)	0.0	0.0	1.0	0.0	1.0	14.6	9.8	5.0	9.0
Non domestic	Floorspace (metres squared) of new I&C developments	0	36431	45702	45702	46250	51475	51475	51475	51475
Other Distributed Generation	MW (installed capacity)	9.7	9.7	13.0	16.6	17.5	9.1	16.0	19.2	21.7
Resistive electric heating	Resistive electric heating units	10790	8858	8637	9138	8744	5416	2284	5745	6033
Solar Generation	MW (installed capacity)	29.8	35.9	44.2	53.2	55.9	82.3	141.7	180.9	180.7
Storage	MW (installed capacity)	0.0	0.1	1.1	2.3	4.0	4.4	10.3	24.4	31.6
Wind	MW (installed capacity)	1.3	3.3	5.6	17.5	13.2	53.7	48.2	78.3	51.5

## 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.

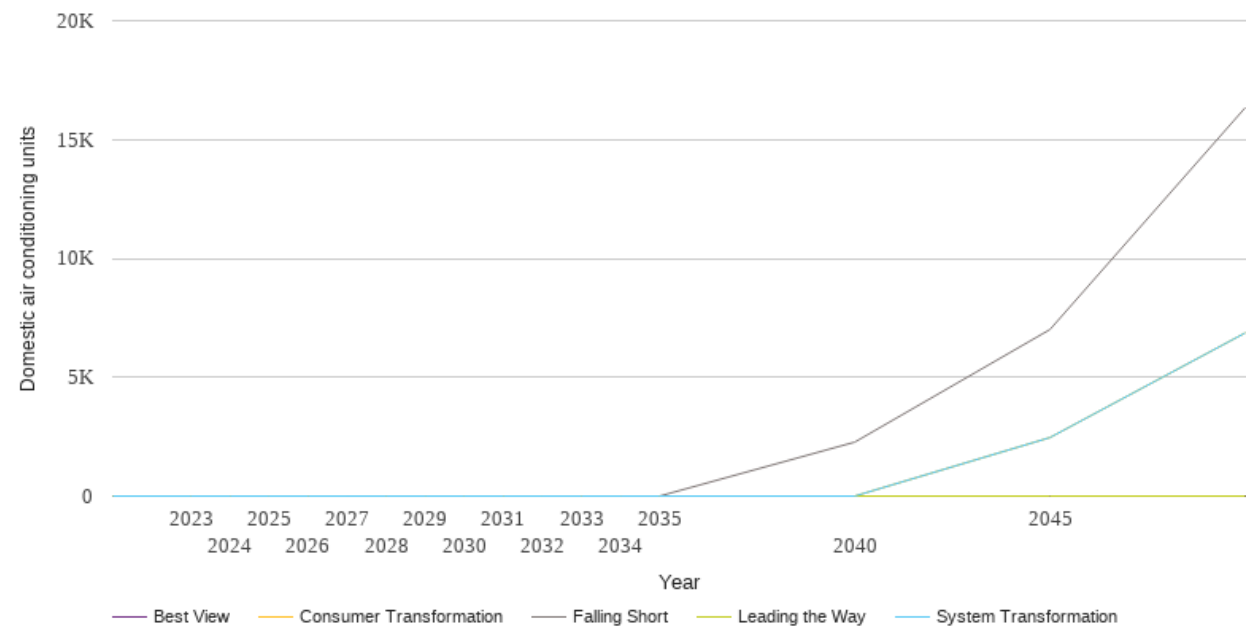
If you have any comments or queries regarding these reports, please contact

[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.

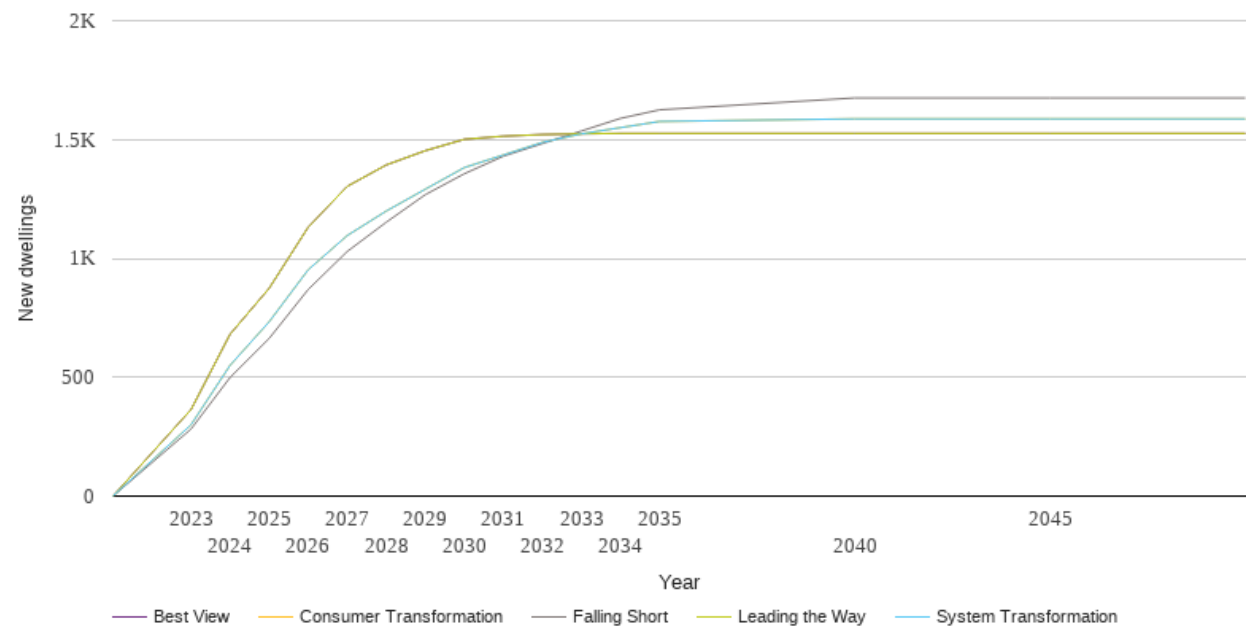
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0	0
2035	0	0	0	0	0
2040	2271	0	0	0	0
2045	7007	2463	2463	0	0
2050	16338	6865	6865	0	0



# Technology Summary: Domestic

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

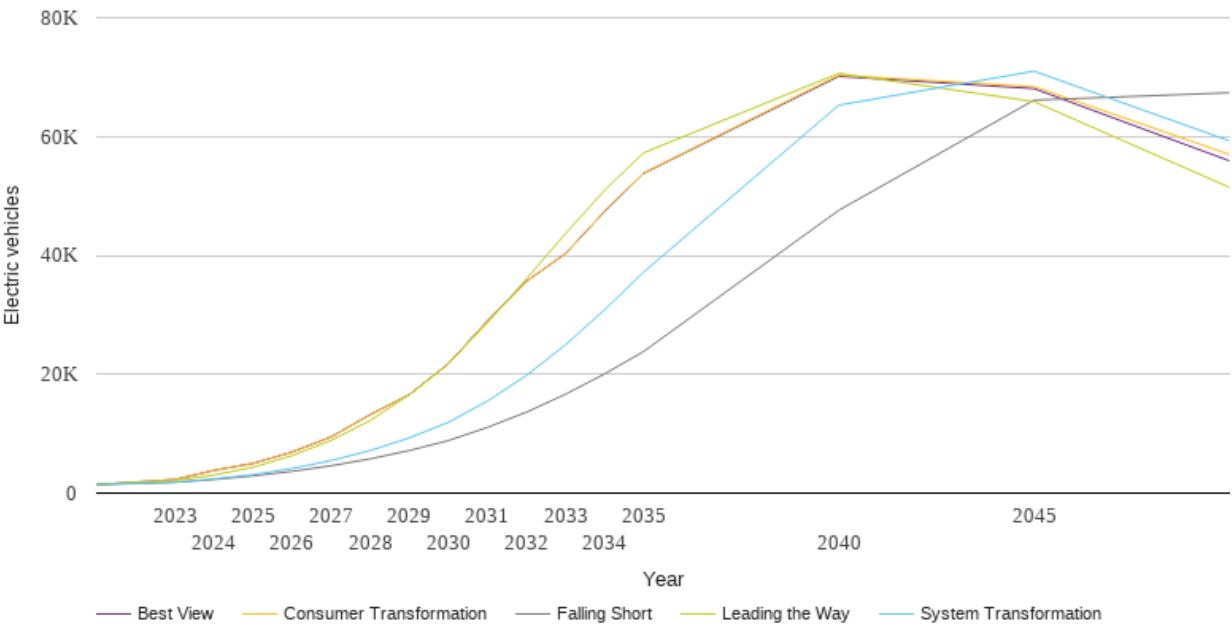
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	282	300	300	364	364
2024	499	550	550	681	681
2025	663	733	733	874	874
2026	869	952	952	1131	1131
2027	1029	1096	1096	1303	1303
2028	1152	1199	1199	1393	1393
2029	1268	1291	1291	1453	1453
2030	1356	1382	1382	1501	1501
2031	1430	1435	1435	1514	1514
2032	1483	1488	1488	1521	1521
2033	1536	1524	1524	1524	1524
2034	1589	1550	1550	1526	1526
2035	1625	1576	1576	1526	1526
2040	1675	1587	1587	1526	1526
2045	1675	1587	1587	1526	1526
2050	1675	1587	1587	1526	1526



# Technology Summary: Electric vehicles

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

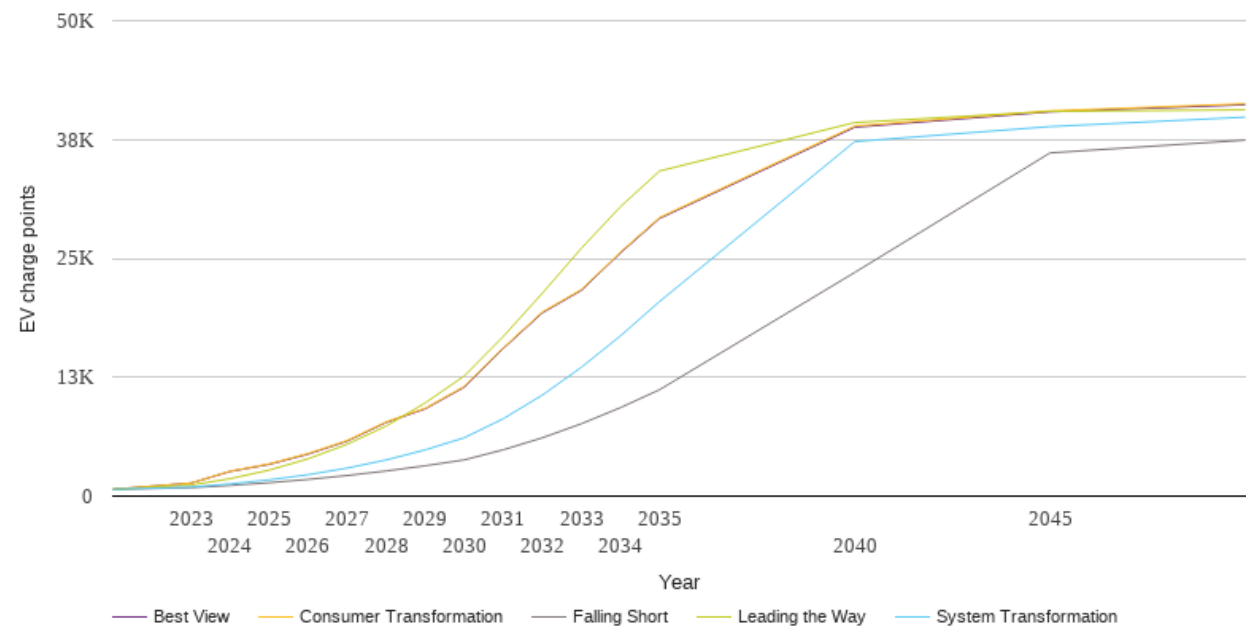
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	1431	1431	1431	1431	1431
2023	1807	1838	2282	2097	2282
2024	2289	2395	3837	3054	3837
2025	2892	3105	4992	4350	4997
2026	3655	4138	6901	6310	6915
2027	4606	5477	9452	8883	9467
2028	5759	7168	13196	12222	13212
2029	7161	9286	16558	16547	16571
2030	8837	11903	21727	21810	21744
2031	11052	15476	28962	28642	28980
2032	13613	19797	35634	36048	35629
2033	16634	24955	40308	43679	40291
2034	20044	30826	47408	50942	47378
2035	23819	37176	53843	57261	53796
2040	47591	65273	70323	70633	70126
2045	66121	70997	68401	65877	68063
2050	67363	59279	57005	51464	55922



# Technology Summary: EV Charge Point

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

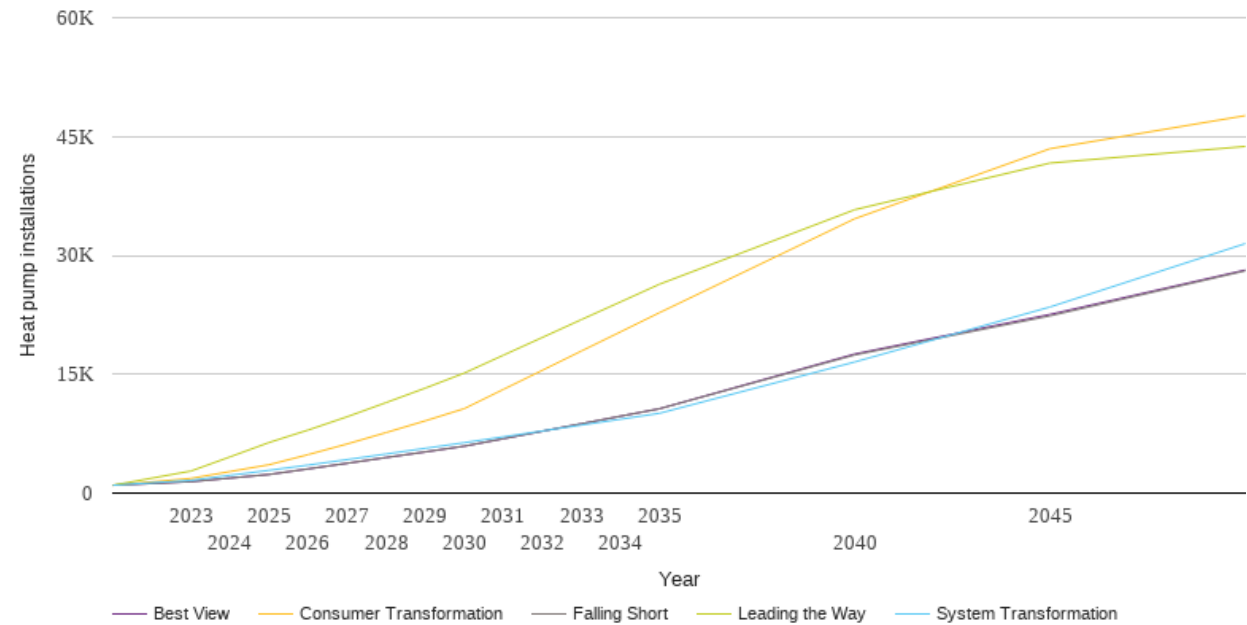
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	707	707	707	707	707
2023	888	949	1370	1160	1365
2024	1121	1280	2618	1828	2590
2025	1406	1705	3379	2732	3337
2026	1755	2251	4480	3923	4419
2027	2166	2944	5839	5452	5787
2028	2642	3805	7806	7372	7750
2029	3190	4863	9239	9804	9183
2030	3811	6140	11534	12638	11462
2031	4874	8142	15612	16795	15532
2032	6133	10629	19365	21338	19279
2033	7613	13550	21728	26076	21647
2034	9305	16855	25670	30446	25585
2035	11188	20457	29295	34187	29202
2040	23520	37284	38923	39288	38798
2045	36092	38860	40513	40461	40416
2050	37438	39855	41267	40620	41165



# Technology Summary: Heat pumps

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

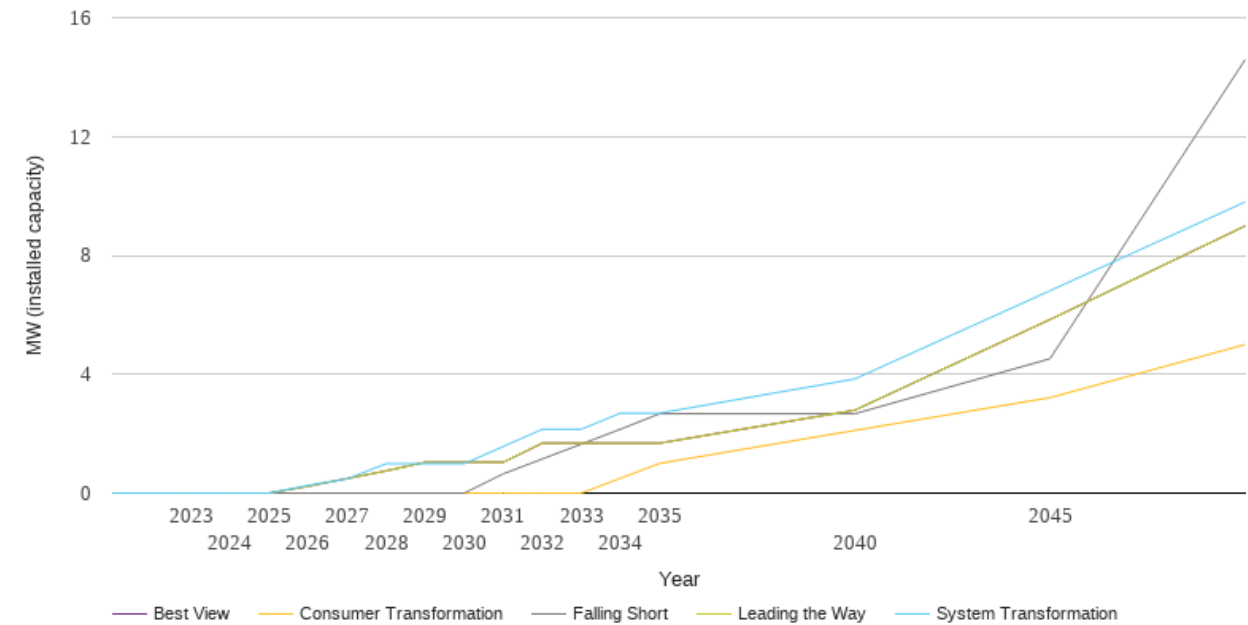
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	993	993	993	993	993
2023	1447	1613	1851	2786	1447
2024	1891	2243	2720	4573	1891
2025	2349	2875	3583	6385	2349
2026	3054	3536	4854	7960	3049
2027	3767	4228	6203	9637	3762
2028	4496	4938	7644	11428	4485
2029	5209	5652	9120	13250	5191
2030	5933	6362	10661	15148	5915
2031	6870	7103	13086	17402	6858
2032	7816	7841	15502	19644	7808
2033	8753	8586	17933	21898	8754
2034	9699	9324	20348	24125	9705
2035	10641	10072	22774	26364	10654
2040	17431	16548	34627	35765	17553
2045	22364	23487	43461	41649	22547
2050	28046	31480	47635	43748	28148



# Technology Summary: Hydrogen electrolysis

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

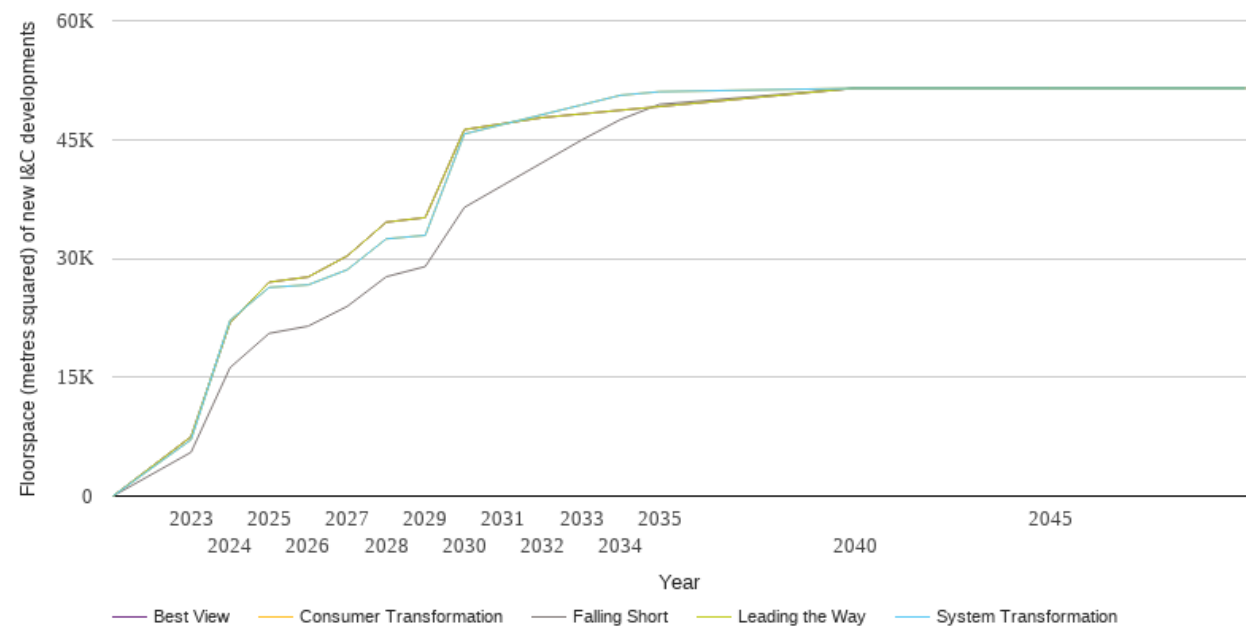
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.3	0.0	0.2	0.2
2027	0.0	0.5	0.0	0.5	0.5
2028	0.0	1.0	0.0	0.8	0.8
2029	0.0	1.0	0.0	1.0	1.0
2030	0.0	1.0	0.0	1.0	1.0
2031	0.6	1.6	0.0	1.0	1.0
2032	1.1	2.2	0.0	1.7	1.7
2033	1.6	2.2	0.0	1.7	1.7
2034	2.2	2.7	0.5	1.7	1.7
2035	2.7	2.7	1.0	1.7	1.7
2040	2.7	3.8	2.1	2.8	2.8
2045	4.5	6.8	3.2	5.8	5.8
2050	14.6	9.8	5.0	9.0	9.0



# Technology Summary: Non domestic

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

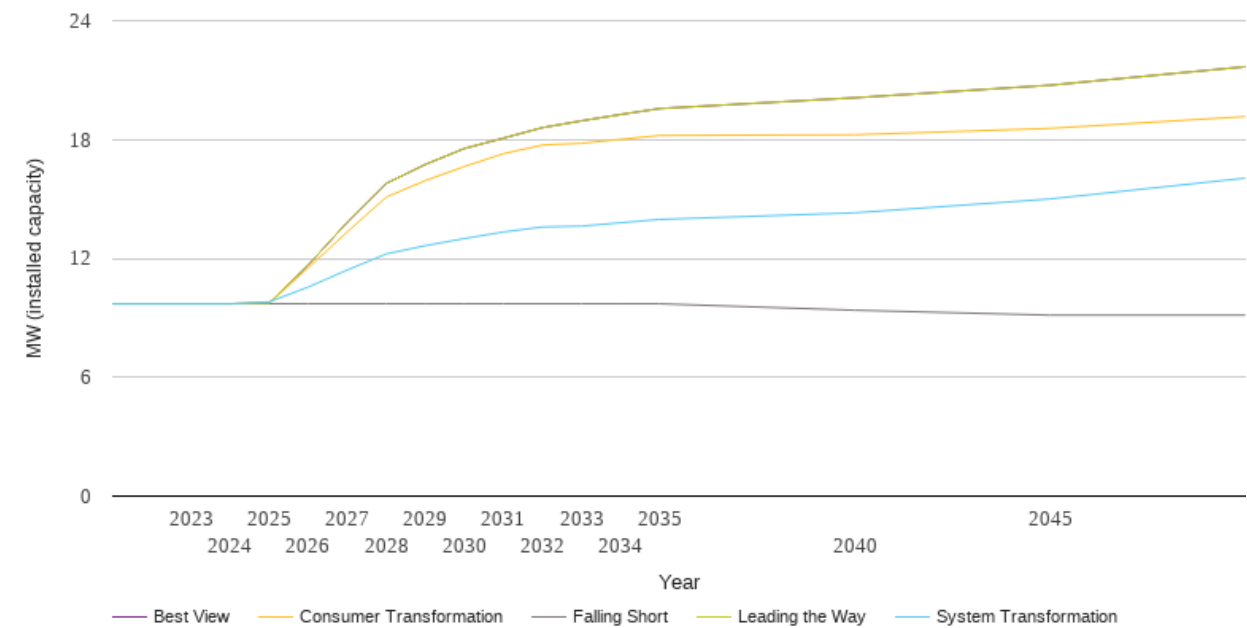
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	5526	7105	7105	7500	7500
2024	16215	22195	22195	21883	21883
2025	20537	26330	26330	26999	26999
2026	21449	26658	26658	27656	27656
2027	23940	28566	28566	30309	30309
2028	27681	32459	32459	34569	34569
2029	28970	32908	32908	35151	35151
2030	36431	45702	45702	46250	46250
2031	39263	46922	46922	47011	47011
2032	42095	48143	48143	47772	47772
2033	44926	49364	49364	48234	48234
2034	47522	50584	50584	48697	48697
2035	49441	51034	51034	49160	49160
2040	51475	51475	51475	51475	51475
2045	51475	51475	51475	51475	51475
2050	51475	51475	51475	51475	51475



# Technology Summary: Other Distributed Generation

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

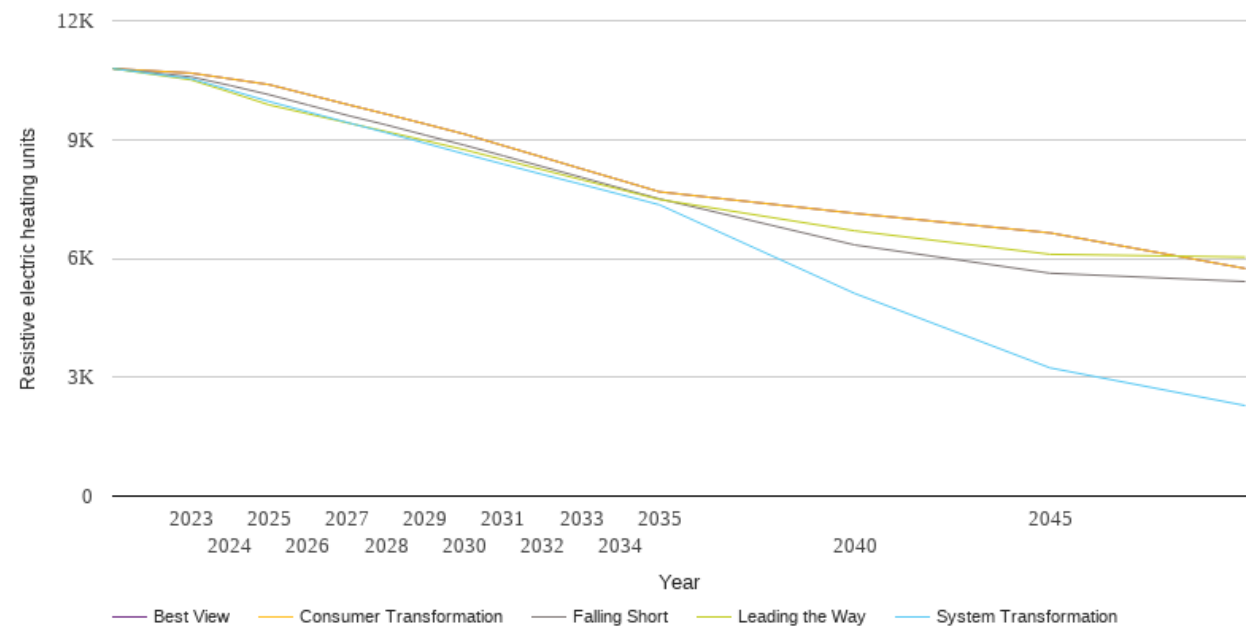
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	9.7	9.7	9.7	9.7	9.7
2023	9.7	9.7	9.7	9.7	9.7
2024	9.7	9.7	9.7	9.7	9.7
2025	9.7	9.8	9.7	9.8	9.8
2026	9.7	10.6	11.5	11.7	11.7
2027	9.7	11.4	13.3	13.8	13.8
2028	9.7	12.2	15.1	15.8	15.8
2029	9.7	12.6	15.9	16.7	16.7
2030	9.7	13.0	16.6	17.5	17.5
2031	9.7	13.3	17.3	18.1	18.1
2032	9.7	13.6	17.7	18.6	18.6
2033	9.7	13.6	17.8	18.9	18.9
2034	9.7	13.8	18.0	19.3	19.3
2035	9.7	14.0	18.2	19.6	19.6
2040	9.4	14.3	18.2	20.1	20.1
2045	9.1	15.0	18.6	20.7	20.7
2050	9.1	16.0	19.2	21.7	21.7



# Technology Summary: Resistive electric heating

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

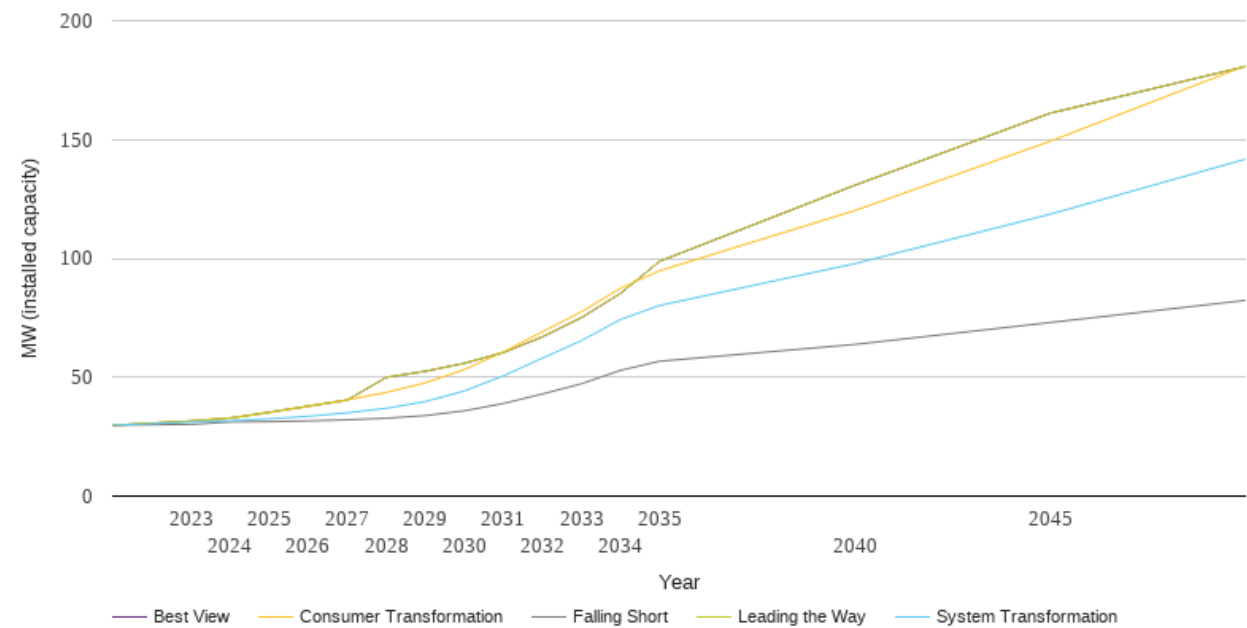
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	10790	10790	10790	10790	10790
2023	10584	10536	10677	10506	10677
2024	10364	10250	10533	10195	10533
2025	10132	9960	10386	9874	10386
2026	9871	9696	10137	9649	10137
2027	9611	9431	9886	9423	9886
2028	9369	9173	9642	9201	9642
2029	9111	8907	9393	8974	9393
2030	8858	8637	9138	8744	9138
2031	8589	8378	8845	8491	8845
2032	8316	8120	8555	8239	8555
2033	8046	7869	8261	7986	8261
2034	7772	7612	7972	7738	7972
2035	7502	7352	7680	7486	7680
2040	6339	5115	7137	6696	7137
2045	5626	3237	6644	6103	6644
2050	5416	2284	5745	6033	5745



# Technology Summary: Solar Generation

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

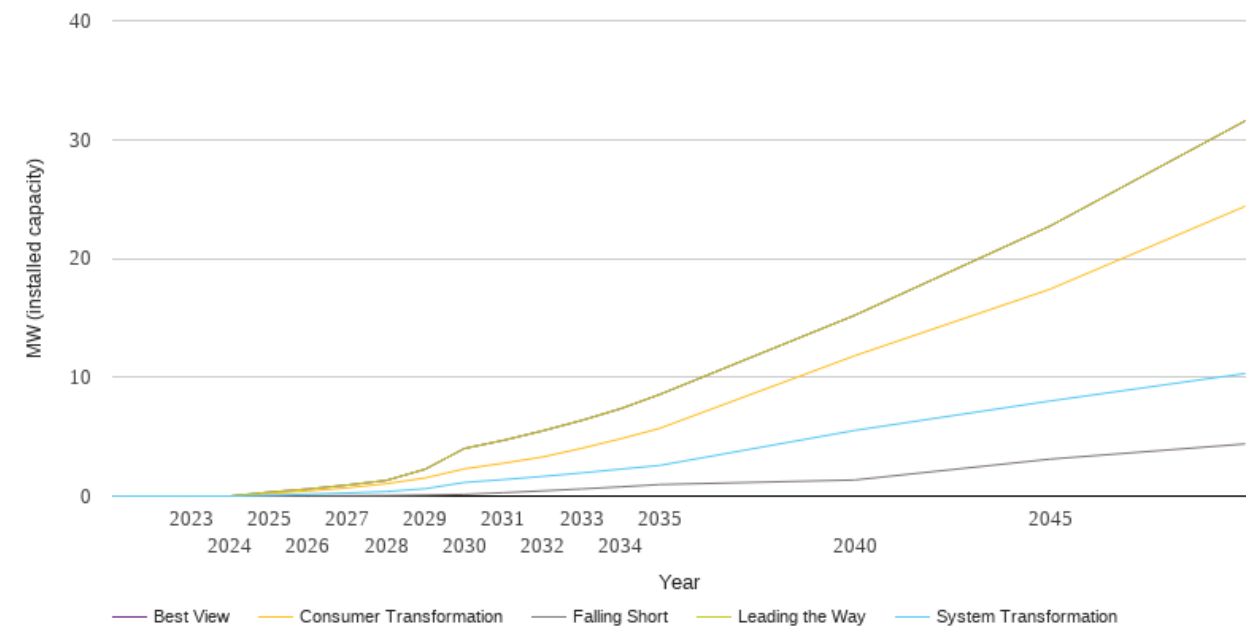
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	29.8	29.8	29.8	29.8	29.8
2023	30.2	31.2	31.5	31.6	31.6
2024	31.2	31.7	32.8	32.8	32.8
2025	31.3	32.5	35.2	35.3	35.3
2026	31.6	33.6	37.7	37.8	37.8
2027	32.1	35.0	40.5	40.4	40.4
2028	32.7	36.9	43.6	49.9	49.9
2029	33.9	39.8	47.6	52.5	52.5
2030	35.9	44.2	53.2	55.9	55.9
2031	38.9	50.6	60.6	60.4	60.4
2032	43.0	58.0	69.1	67.0	67.0
2033	47.3	65.4	77.5	75.1	75.1
2034	52.9	74.3	87.4	85.3	85.3
2035	56.7	80.2	94.8	98.8	98.8
2040	63.8	97.8	120.1	130.8	130.8
2045	73.0	118.5	149.2	161.0	161.0
2050	82.3	141.7	180.9	180.7	180.7



# Technology Summary: Storage

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

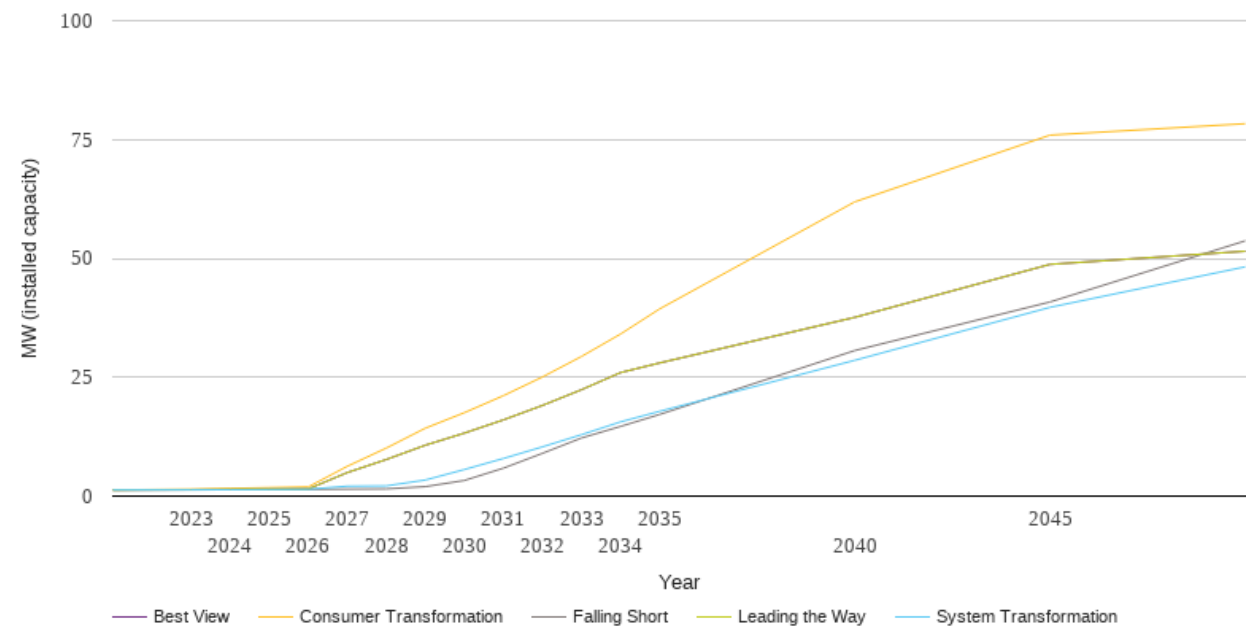
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.1	0.2	0.3	0.3
2026	0.0	0.2	0.4	0.6	0.6
2027	0.0	0.3	0.7	0.9	0.9
2028	0.1	0.4	1.0	1.3	1.3
2029	0.1	0.6	1.5	2.3	2.3
2030	0.1	1.1	2.3	4.0	4.0
2031	0.3	1.4	2.8	4.7	4.7
2032	0.4	1.7	3.3	5.5	5.5
2033	0.6	1.9	4.0	6.4	6.4
2034	0.8	2.3	4.8	7.3	7.3
2035	1.0	2.6	5.7	8.5	8.5
2040	1.4	5.5	11.8	15.2	15.2
2045	3.1	8.0	17.4	22.7	22.7
2050	4.4	10.3	24.4	31.6	31.6



# 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	1.3	1.3	1.3	1.3	1.3
2023	1.3	1.3	1.4	1.3	1.3
2024	1.3	1.3	1.6	1.4	1.4
2025	1.4	1.4	1.8	1.4	1.4
2026	1.4	1.4	1.9	1.5	1.5
2027	1.5	2.1	6.3	4.9	4.9
2028	1.5	2.1	10.1	7.7	7.7
2029	2.0	3.4	14.3	10.7	10.7
2030	3.3	5.6	17.5	13.2	13.2
2031	5.9	7.9	21.1	16.0	16.0
2032	9.0	10.4	25.0	19.1	19.1
2033	12.2	12.9	29.4	22.4	22.4
2034	14.7	15.6	34.1	26.0	26.0
2035	17.2	17.8	39.4	28.0	28.0
2040	30.6	28.6	61.9	37.6	37.6
2045	40.8	39.7	75.9	48.7	48.7
2050	53.7	48.2	78.3	51.5	51.5



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))  
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