

Distribution Future Energy Scenarios 2022

Local Authority:
Fenland

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 Fenland 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 Fenland 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			
			F S	S T	C T	L W	F S	S T	C T	L W
Air conditioning	Domestic air conditioning units	0	0	0	0	0	0	0	0	0
Domestic	New dwellings	0	0	0	0	0	0	0	0	0
Electric vehicles	Electric vehicles	0	0	1	4	4	17	15	19	20
EV Charge Point	EV charge points	0	0	1	4	1	21	21	13	10
Heat pumps	Heat pump installations	4	13	17	16	22	41	42	40	39
Hydrogen electrolysis	MW (installed capacity)	0.0	0. 0	0. 0	0. 0	0. 0	0.0	0. 0	0. 0	0. 0
Non domestic	Floorspace (metres squared) of new I&C developments	0	0	0	0	0	0	0	0	0
Other Distributed Generation	MW (installed capacity)	0.0	0. 0	0. 0	0. 0	0. 0	0.0	0. 0	0. 0	0. 0
Resistive electric heating	Resistive electric heating units	10	8	8	8	8	3	2	5	6
Solar Generation	MW (installed capacity)	0.0	0. 0	0. 0	0. 0	0. 0	0.0	0. 0	0. 0	0. 0
Storage	MW (installed capacity)	0.0	0. 0	0. 0	0. 1	0. 3	0.2	0. 3	0. 4	0. 4
Wind	MW (installed capacity)	0.0	0. 4	0. 8	2. 3	1. 7	11. 6	8. 3	7. 6	3. 3

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

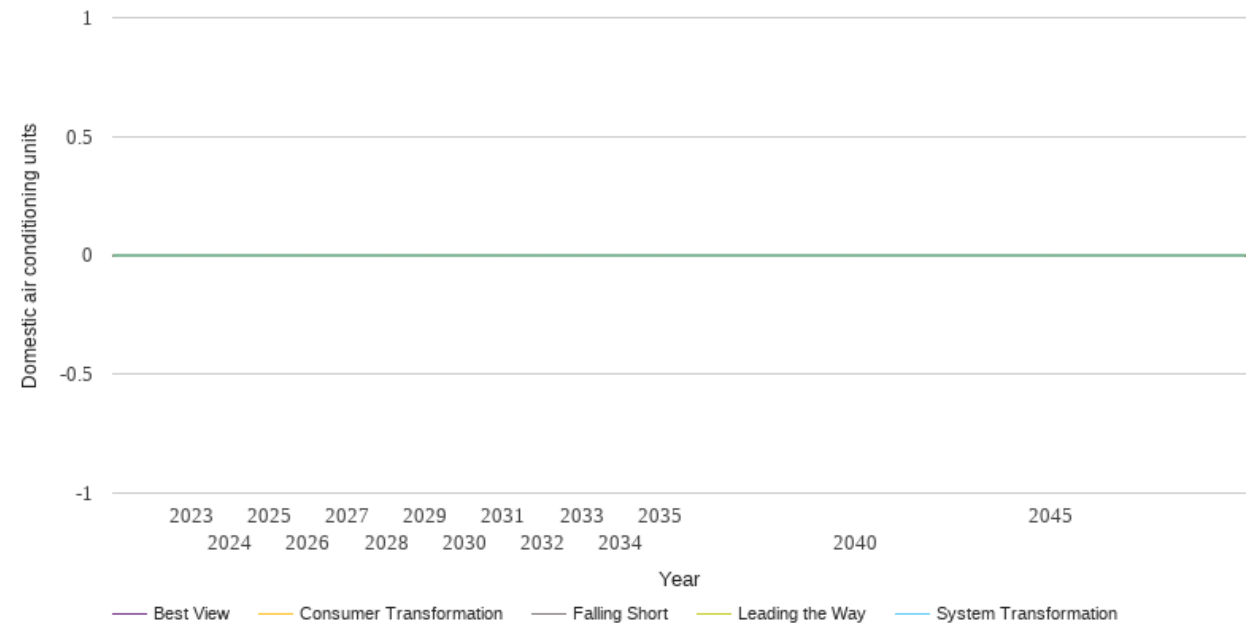
NGED is committed to continually improving the DFES process. To ensure the DFES projections fully capture local ambition, in 2022 we have appointed two DSO Strategic Engagement Officers to engage with local authorities. Any feedback will be incorporated into future Distribution Future Energy Scenarios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

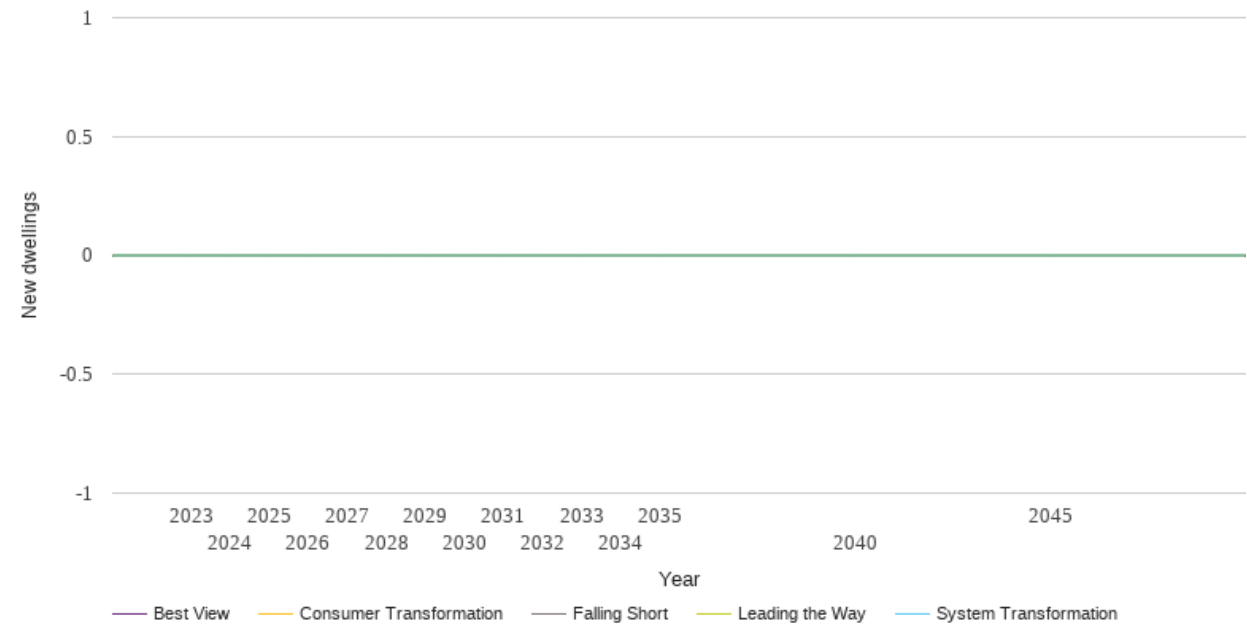
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0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

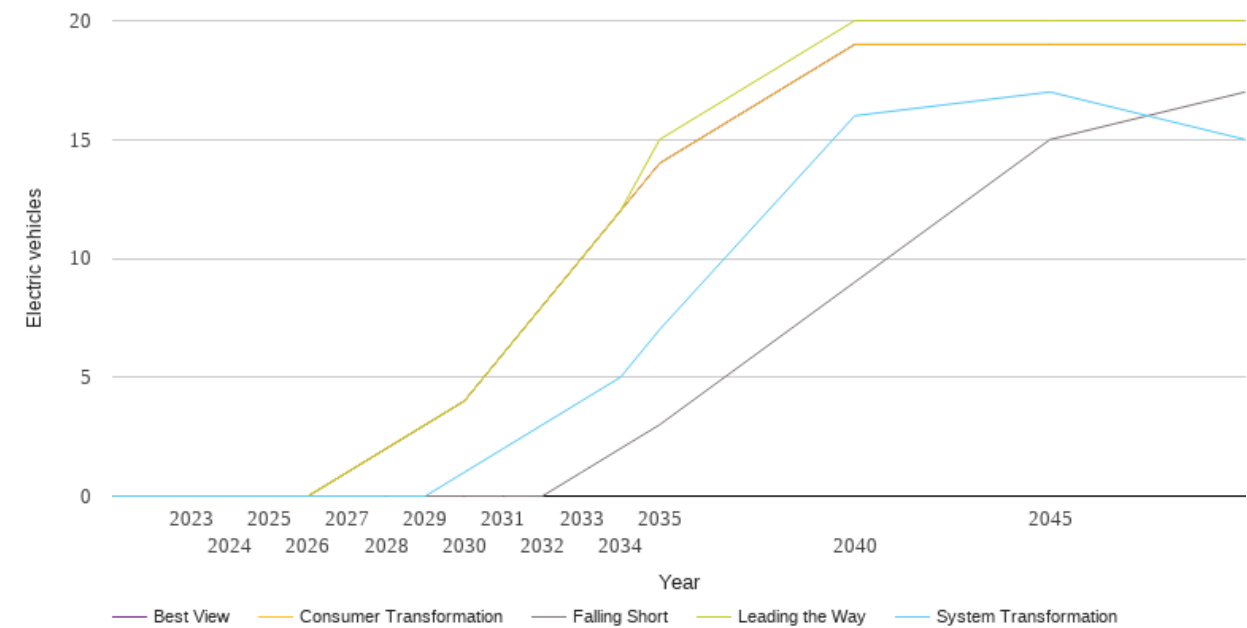
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0
2033	0	0	0	0	0
2034	0	0	0	0	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: Electric vehicles

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

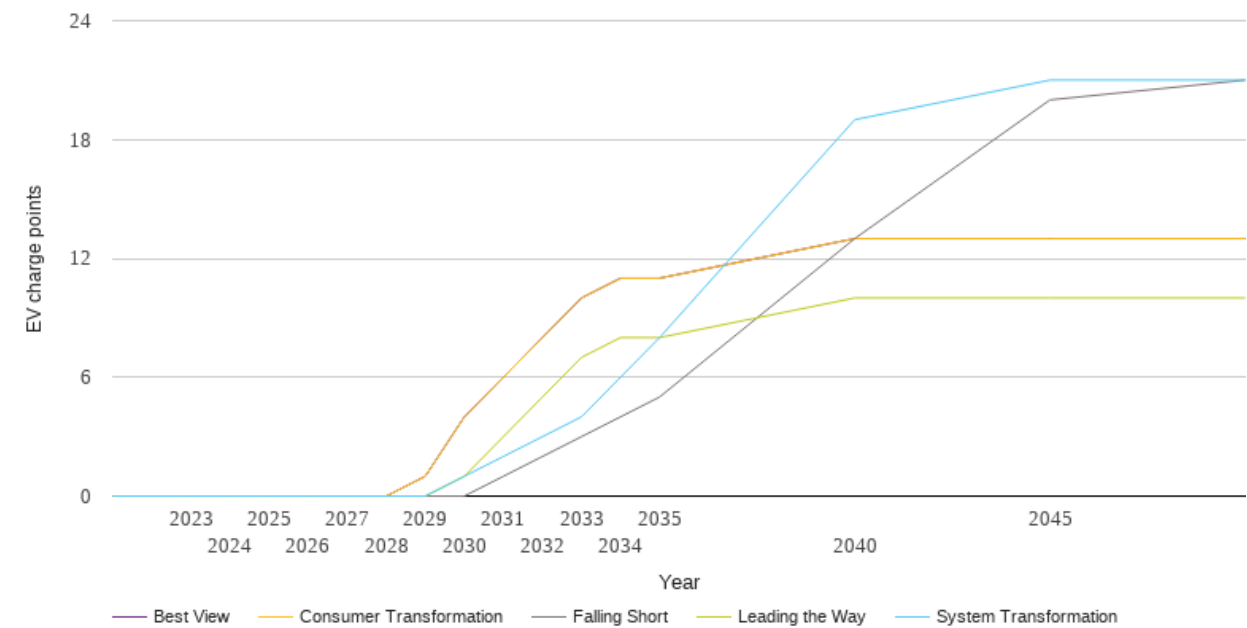
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	1	1	1
2028	0	0	2	2	2
2029	0	0	3	3	3
2030	0	1	4	4	4
2031	0	2	6	6	6
2032	0	3	8	8	8
2033	1	4	10	10	10
2034	2	5	12	12	12
2035	3	7	14	15	14
2040	9	16	19	20	19
2045	15	17	19	20	19
2050	17	15	19	20	19



Technology Summary: EV Charge Point

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

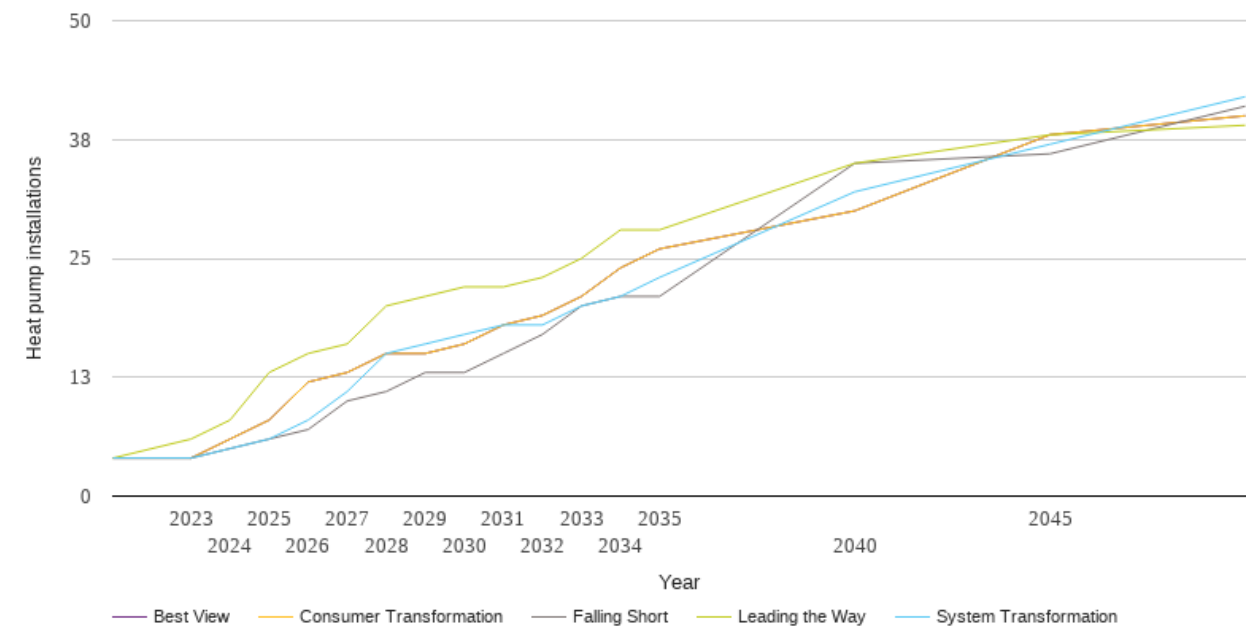
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	1	0	1
2030	0	1	4	1	4
2031	1	2	6	3	6
2032	2	3	8	5	8
2033	3	4	10	7	10
2034	4	6	11	8	11
2035	5	8	11	8	11
2040	13	19	13	10	13
2045	20	21	13	10	13
2050	21	21	13	10	13



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	4	4	4	6	4
2024	5	5	6	8	6
2025	6	6	8	13	8
2026	7	8	12	15	12
2027	10	11	13	16	13
2028	11	15	15	20	15
2029	13	16	15	21	15
2030	13	17	16	22	16
2031	15	18	18	22	18
2032	17	18	19	23	19
2033	20	20	21	25	21
2034	21	21	24	28	24
2035	21	23	26	28	26
2040	35	32	30	35	30
2045	36	37	38	38	38
2050	41	42	40	39	40



Technology Summary: Hydrogen electrolysis

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

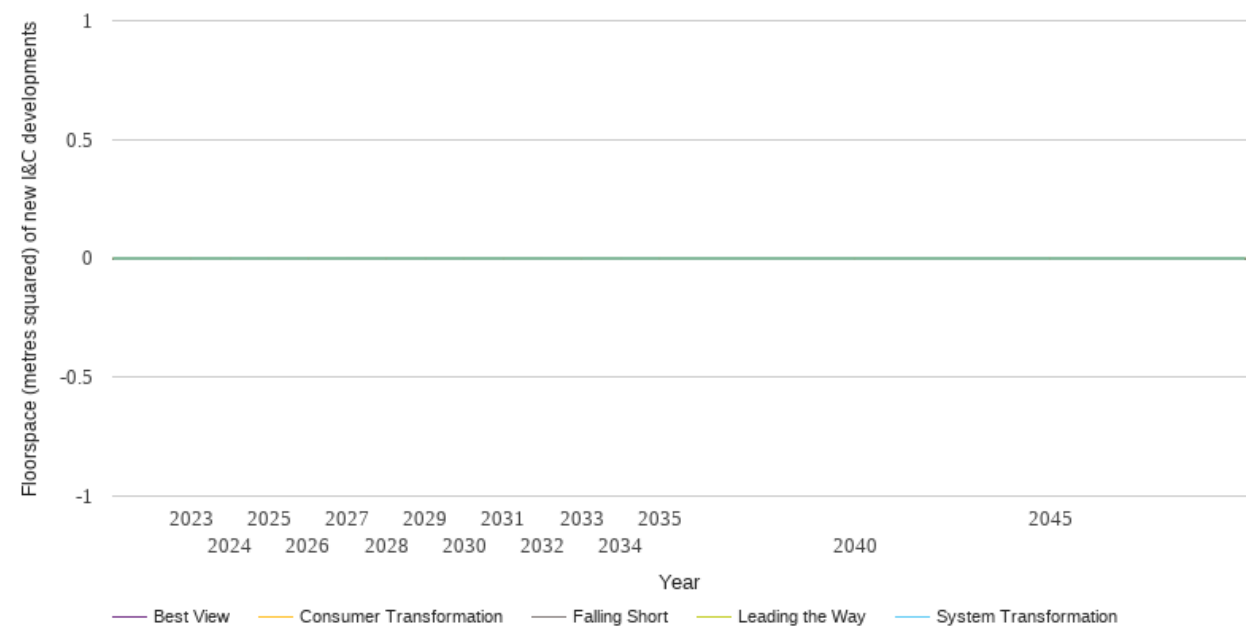
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0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



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	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: Other Distributed Generation

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

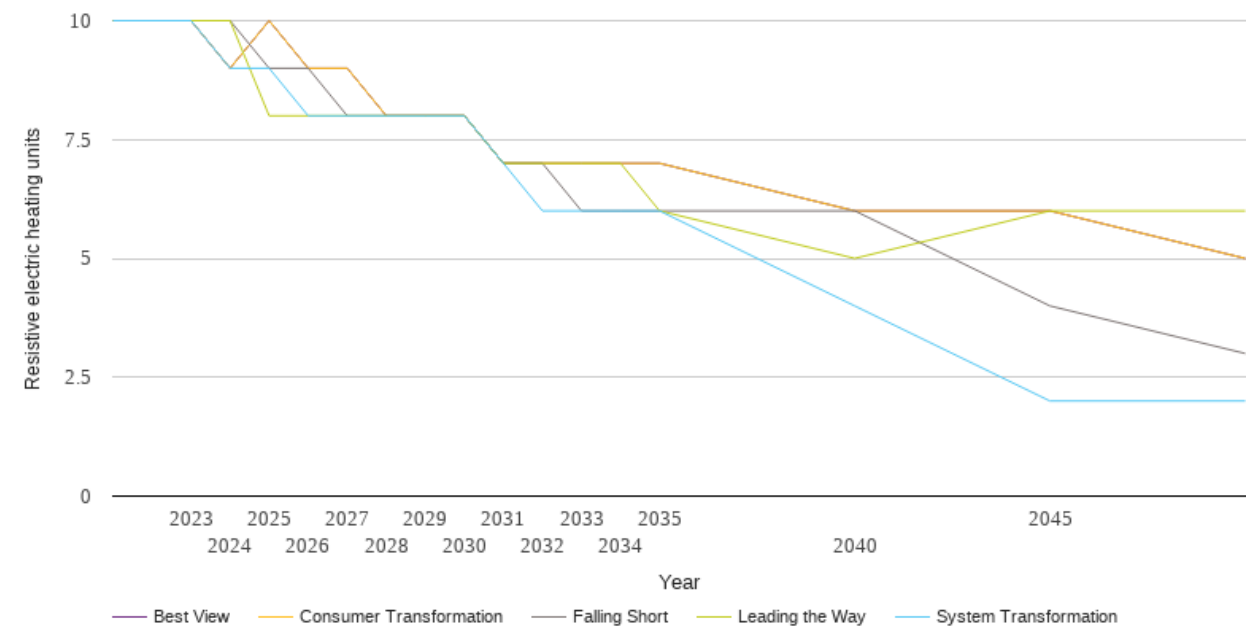
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0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

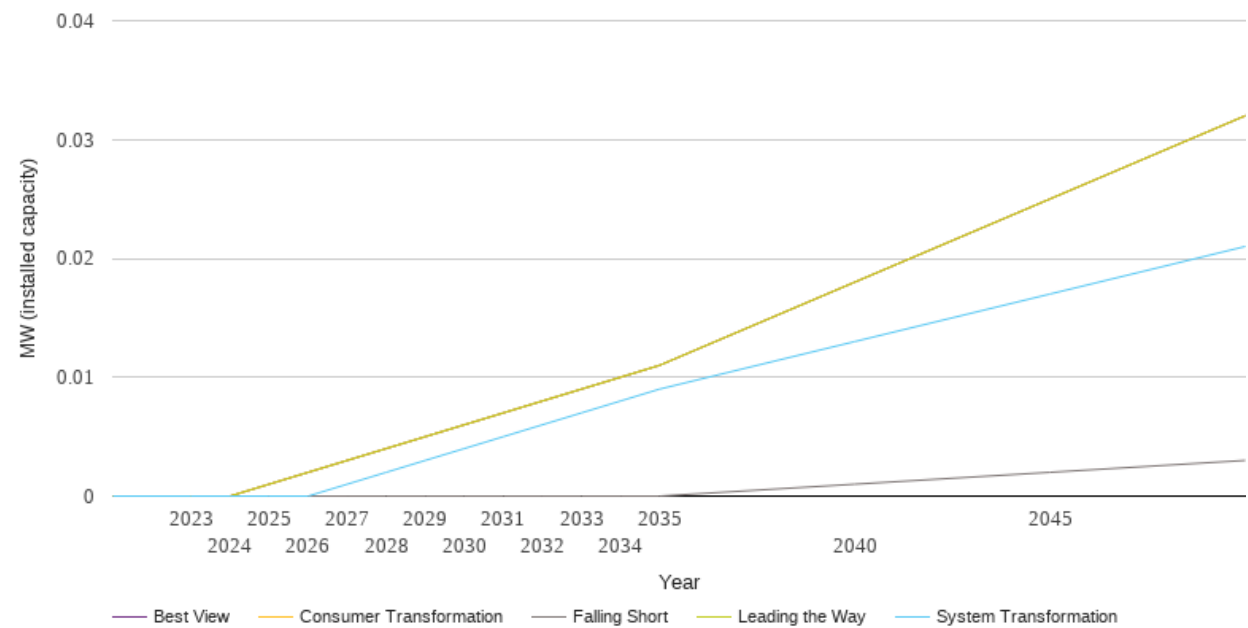
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	10	10	10	10	10
2023	10	10	10	10	10
2024	10	9	9	10	9
2025	9	9	10	8	10
2026	9	8	9	8	9
2027	8	8	9	8	9
2028	8	8	8	8	8
2029	8	8	8	8	8
2030	8	8	8	8	8
2031	7	7	7	7	7
2032	7	6	7	7	7
2033	6	6	7	7	7
2034	6	6	7	7	7
2035	6	6	7	6	7
2040	6	4	6	5	6
2045	4	2	6	6	6
2050	3	2	5	6	5



Technology Summary: Solar Generation

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

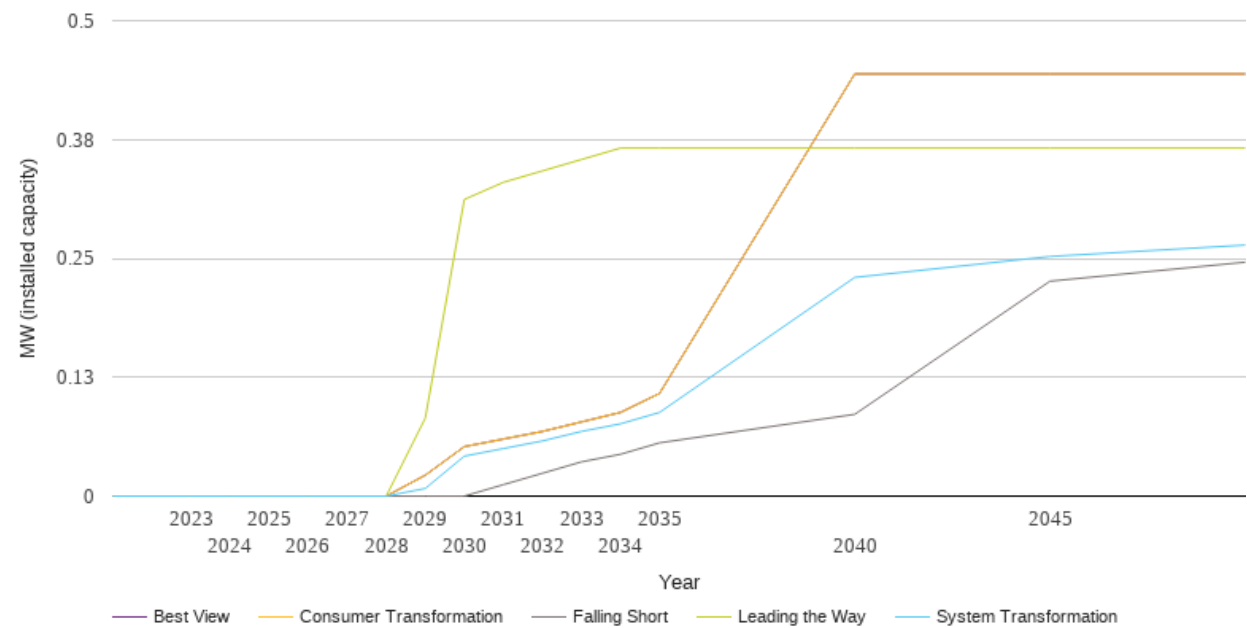
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0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



Technology Summary: Storage

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

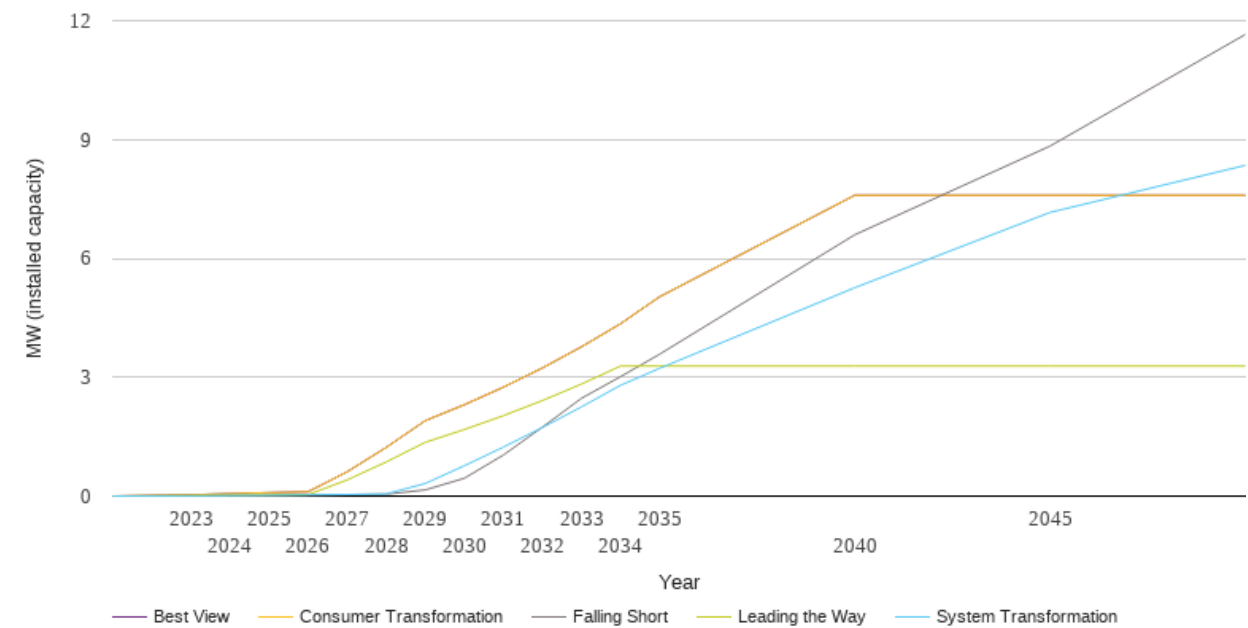
Year	Scenario				
	Falling Short	System Transformation	Consumer Transformation	Leading the Way	Best View
Baseline	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0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



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	0.1	0.0	0.1
2025	0.0	0.0	0.1	0.0	0.1
2026	0.0	0.0	0.1	0.0	0.1
2027	0.0	0.0	0.6	0.4	0.6
2028	0.0	0.1	1.2	0.9	1.2
2029	0.2	0.3	1.9	1.4	1.9
2030	0.4	0.8	2.3	1.7	2.3
2031	1.0	1.2	2.7	2.0	2.7
2032	1.7	1.7	3.2	2.4	3.2
2033	2.5	2.3	3.8	2.8	3.8
2034	3.0	2.8	4.4	3.3	4.4
2035	3.6	3.2	5.0	3.3	5.0
2040	6.6	5.3	7.6	3.3	7.6
2045	8.8	7.2	7.6	3.3	7.6
2050	11.6	8.3	7.6	3.3	7.6



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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