

SMMT new car market and parc outlook to 2035 by powertrain type at 11 June 2021

This report shows SMMT's new car market outlook to 2035, split by fuel type and corresponding parc volumes.

The outlook is difficult to predict, especially given the timescales, the assumptions, the uncertainties around key enablers such as fiscal policy and infrastructure provision, as well as the sheer scale of the transition of a mature and well-established new car market, such as the UK's, from one technology (Internal Combustion Engines) to another (Electrification). The outlook is dependent on a huge array of factors, but the report sets out our scenarios for the transition to zero emission new car registrations by 2035, based on key assumptions. We have looked at how government policy – notably on fiscal support for the transition - can influence the pace of change and safeguard a vibrant overall market, which will make the UK a more attractive place to design, make and sell these technologies, bringing greater economic benefits. The importance of infrastructure provision is also highlighted, with a 'low' scenario, where incentives and infrastructure are not forthcoming, leading to significantly lower volumes of electric vehicles and a depressed overall market.

The aim of the report is to contribute to the discussion on how the fundamentals enablers, like incentives and infrastructure, can impact the market, facilitating the parc's transition to net zero, but also how some key barriers, like infrastructure provision and affordability, can inhibit that transition.

The report includes

1. Overview
2. Methodology
3. Charts and observations
4. Data sets
5. Comparison to Committee on Climate Change (CCC) outlooks

The fuel type split presented is

- Battery electric vehicles (BEVs). This includes a very low volume of fuel cell electric vehicles (FCEVs)
- Plug-in hybrid electric vehicle (PHEVs) – this also includes range extenders
- Hybrid electric vehicles (HEVs)
- Internal combustion engine (ICE) vehicles, such as conventional petrol and diesel fuelled cars (which includes mild hybrids (MHEVs) in this work).

'Parc' is the vehicles in use (total stock of cars on the roads).

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1. Overview

SMMT has developed its independent view of the UK new car market to 2035, by powertrain type, to help inform the debate on the transition to net zero. Key to the outlook are our assumptions, which are summarised below and detailed more fully in section 2 of this report.

Scenarios and their different assumptions

Topic	Central	High (maximalist)	High – private only	Low (Unsupported)
End of Sale	HEV post 2030	Less HEV post 2030	As high	More HEV post 2030
Infrastructure	Supportive*	As central	As central	Unsupportive
Supply	Unconstrained	Unconstrained	As high	Constrained
Fiscal incentives	PiCG to 2023, taxes remain favourable till cost parity	PiCG extended and tax (VAT) cuts for all qualifying (75% mkt). CCT is favourable	As high, but tax (VAT) cuts for private only (50% mkt)	PiCG runs out. Tax/charges unfavourable to ULEVs
TCO	Move to parity late '20s	Move to parity mid '20s, supported by fiscal approach	As high	Battery costs do not fall as anticipated, unfavourable fiscal setting
Total market size	2.3mn 2030 2.15mn 2035	2.5mn 2030 2.25mn 2035	2.4mn 2030 2.2mn 2035	Low <2mn

*'Supportive' means having the necessary infrastructure in place to enable on-demand charging. This infrastructure needs to be front loaded, ahead of need, so as not to act as barrier to uptake

The outlook shows our central projection, based on supportive government policy and infrastructure provision – noting the importance of having that on-demand infrastructure in place ahead of need¹.

In our central scenario:

- The battery electric vehicle (BEV) market will comprise around 25% of total new car sales in 2025 (up from 6.6% in 2020)
- The new BEV market will rise to 70% of new car sales in 2030 and 100% by 2035.
- Given current vehicle survival rates there likely to be:
 - Two million BEVs in the parc in 2025, 5.6% of the total
 - Seven million in 2030 or 20% of the total; and
 - Approximately 15 million BEVs in 2035 (just over 45% of the total).

Extending the Plug-in Car Grant (PiCG) through to 2026 (assumed at £2,000) and removing VAT on BEVs could further incentivise the BEV new car market share to 43% in 2025 and 84% in 2030, with a corresponding BEV parc of 3.3 million in 2025, almost 11 million in 2030 and over 20 million in 2035. The overall new car market could also be larger than in our base scenario. We also run a scenario where only private buyers receive the VAT cut (which reduces the BEV market and parc a little versus the 'high' scenario, but is still well above the central scenario).

However, if the incentives for BEVs are removed, new tax systems are introduced which remove the attractiveness of BEVs and undermine consumer confidence, the cost of ownership does not fall as anticipated, or the infrastructure provision is not in place, then we anticipate very significant declines in BEV volumes, compared with our central scenario, and a much slower parc transition, with negative consequences for environmental ambitions and an adverse impact on the overall market (given the end of sale dates timescale).

¹ See SMMT view on infrastructure in our [Blueprint for an Electric Vehicle Revolution](#) document

While the new car market will eventually be purely zero emission vehicles (ZEVs) from 2035, incentivising market uptake in the first half of this decade is crucial for the following reasons:

- To ensure the **affordability barrier** can be quickly overcome and TCO parity can be achieved sooner.
- To secure **vehicle allocation** in a competitive global marketplace, thus ensuring the overall market remains at healthy levels in the longer term.
- To encourage accelerated **fleet renewal** in the near to medium term to meet interim carbon budgets.
- To show **government leadership** in building back greener and to be a global exemplar market for EV uptake.

2. Methodology

SMMT publishes, on a quarterly basis, short term forecasts for the new car market by fuel type – see [SMMT forecasts](#). The latest outlook covers 2021 and 2022. The outlook post-2022 is derived from our own internal modelling of the market. This uses the broad assumptions set out below.

Total market volumes – SMMT forecasts the market to plateau at 2.3 million units – its recent average over 2010 to 2019, in line with the 2019 market, although down on the peak 2.7 million in 2016. Despite expected population growth, an increased move from vehicle ownership is expected to moderate the market. Volumes fall around the end of sale dates, as some consumers can no longer access their preferred technology and the market further moderates post-2030 due to ongoing ownership and modal shift trends.

End of sale dates – The government has already announced that conventional petrol and diesel cars will not be allowed to be sold from 2030, and by 2035 only zero emission vehicles will be permitted for sale. The government is expected to consult shortly on the intermediary phase, between 2030 and 2035. While SMMT has no insight into what will be proposed or decided upon, our outlook assumes that new plug-in and full hybrids can still be registered until 2035. We also expect a minimal number of ICE vehicles to be allowed, e.g. for very small manufacturers or specialist purposes, but this modelling assumes this will be immaterial to the overall market trends.

Total cost of ownership (TCO) – TCO is again dependent on an array of variables which could change significantly over this outlook horizon. In our central scenario, it is assumed that the total market achieves cost parity by the end of this decade. Achieving TCO parity would remove one of the key barriers to consumers switching and negate the need for incentivisation.

Within our TCO calculations, we assume a like-for-like vehicle is kept for three years and costs based on 10,000 miles per annum (which we understand is relatively generous). We further assume no change in fuel duty or electricity costs, hence electricity remains cost advantageous to liquid fuels, and that the cost of producing an electric vehicle will fall as raw material costs come down, and the cost of ICE increases to meet ever-stricter environmental standards.

Fiscal measures – Incentives – In our central scenario, we assume that there is stability in fiscal regimes until the TCO parity is reached. The PiCG is expected to remain through to 2023 and help encourage the early adoption of electric vehicles. Company car tax, already set to 2025, is also expected to remain supportive, as is vehicle excise duty (VED). However, any major changes to any of these measures would impact vehicle uptake and the transition process.

Infrastructure – In our central scenario, we assume that infrastructure is not a barrier to uptake. This is a key assumption, given reported consumer concerns about charging anxiety and being able to find and access a working, reliable and cost-effective charging network (we note currently public charging is typically considerably more expensive than home charging). As the uptake of electric vehicles

expands and consumers without their own recharging facilities are required to shift, the infrastructure issue must be overcome.

Allocations – In the central scenario, we assume that allocation to the UK will be forthcoming and meet demand levels. The industry has spent billions to develop and bring to market electrified vehicles and manufacturers are increasingly expanding production facilities. However, whilst supply is physically constrained and margins low, or non-existent, the support of incentives, exchange rates, trade costs and the underlying strength of demand can be very important to determining product allocation between markets.

Parc outlooks – The parc outlook is based on current vehicle survival rates being maintained. Therefore, the only factor in parc size and transformation is the new market inputs. The vehicle parc has generally been getting older, with survival rates improving, testimony to the durability of modern production techniques.

Alternative scenarios

Natural Progression follows SMMT modelling of the central uptake scenario. It assumes the status quo of incentives, i.e., current PiCG worth £2,500 for cars below £35,000 ends March 2023, with no PiCG thereafter, and current VED/CCT/BiK incentives are retained until 2025.

The impact of incentives is modelled for calendar years 2022 through to 2026 only. It is assumed BEV-ICE TCO parity across segments could be achieved in the second half of the decade and price parity potentially later in the decade. Thus the likelihood of incentives still being required post-2026 is minimal.

If the PiCG incentive is extended beyond March 2023 through to 2026, it is assumed that the grant will be worth £2,000 for BEVs under £35,000 only. It is also assumed that half of all BEV registrations under Natural Progression qualify for PiCG. Future decreases in BEV list prices have been accounted for. Uplift in registrations follows the conventional 1:3 price-elasticity of demand ratio.

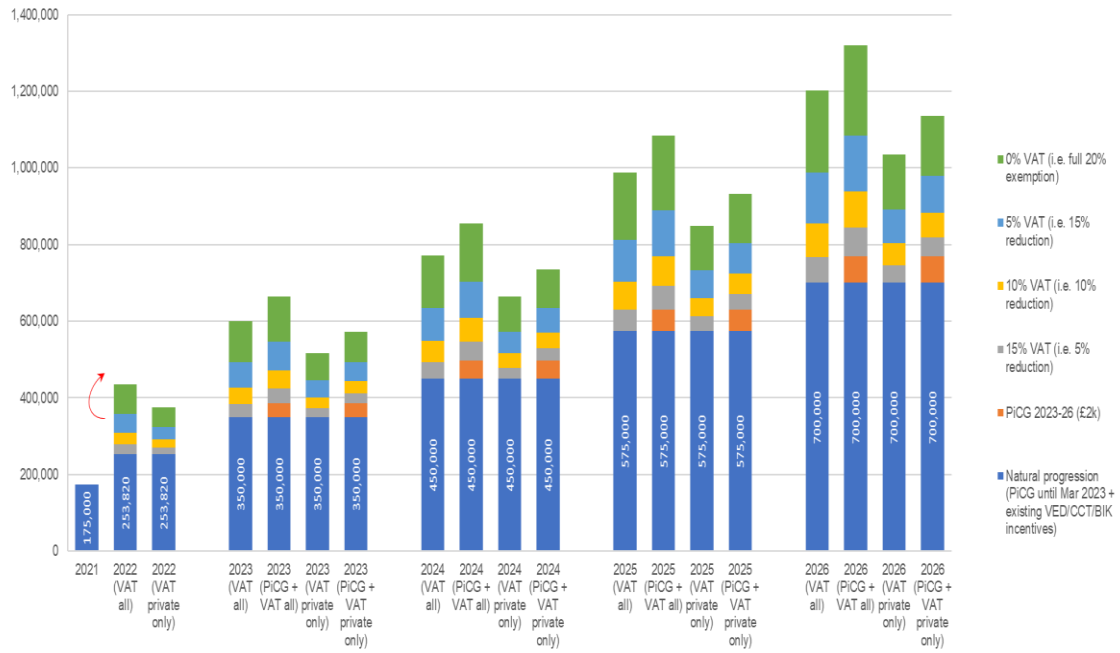
Where VAT incentives are available for all VAT-payable BEVs, it is estimated that 75% of all BEV registrations (private + fleet/business) qualify. Uplift in registrations follows the conventional 1:3 price-elasticity of demand ratio and a 'propensity to purchase' coefficient that accounts for a positive but non-linear relationship between consumers' propensity to purchase and the size of VAT reduction.

This approach gives the 'high' scenario. All other assumptions still hold, regarding end of sale dates, infrastructure, allocation etc. as being supportive.

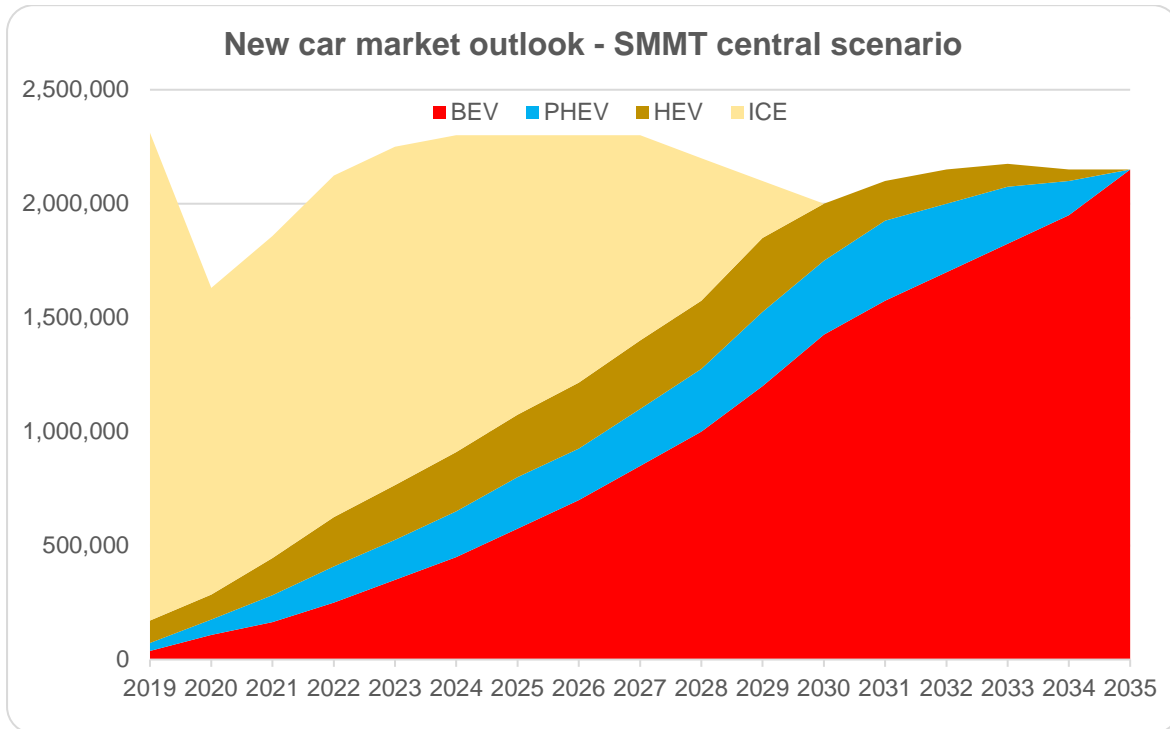
For the 'high private' scenario we assume the VAT incentives are available for private BEV purchases only, and it is assumed that 50% of BEV registrations are private. The uplift in registrations follows the conventional 1:3 price-elasticity of demand ratio and a 'propensity to purchase' coefficient that accounts for a positive but non-linear relationship between consumers' propensity to purchase and the size of VAT reduction.

In the 'low' scenario, we assume that measures are unsupportive of the transition – eg fiscal measures are not supportive, infrastructure is insufficient, costs don't fall as anticipated and supply is more constrained than expected. On the fiscal measures in particular, the assumptions include the PiCG runs out early or becomes increasingly limited, or if other fiscal policies move to undermine consumer sentiment around shifting technologies – e.g., to road pricing that no longer favours low emission vehicles or raises the overall costs of motoring excessively.

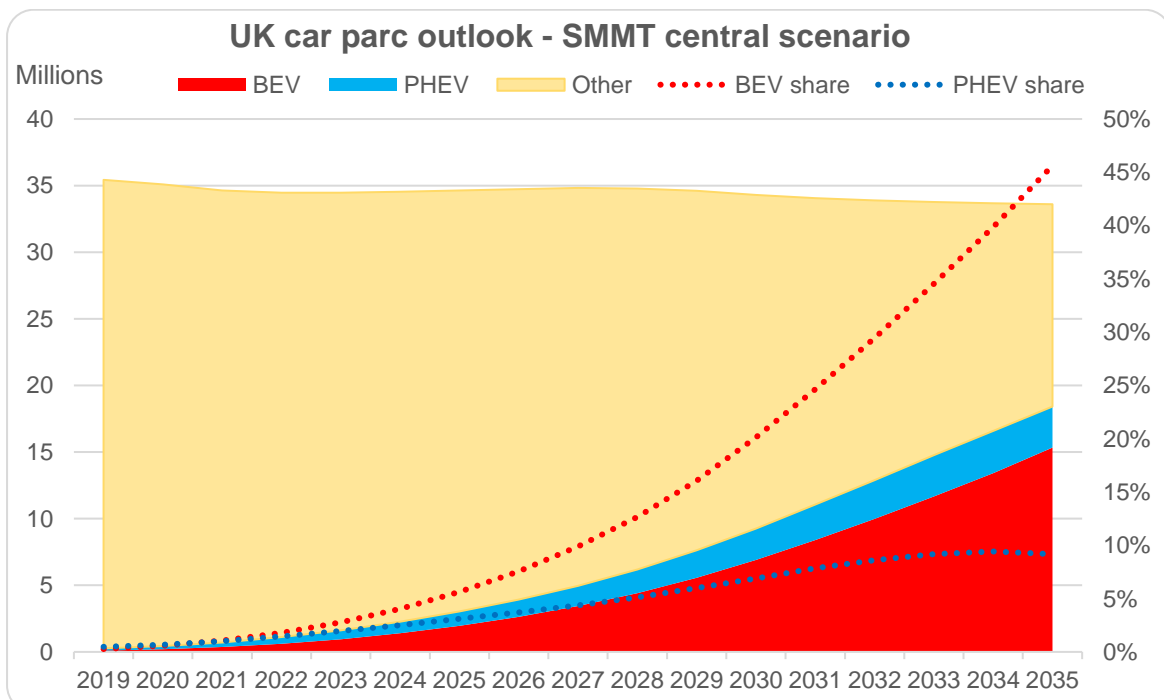
Impact of incentives on BEV market – SMMT calculations



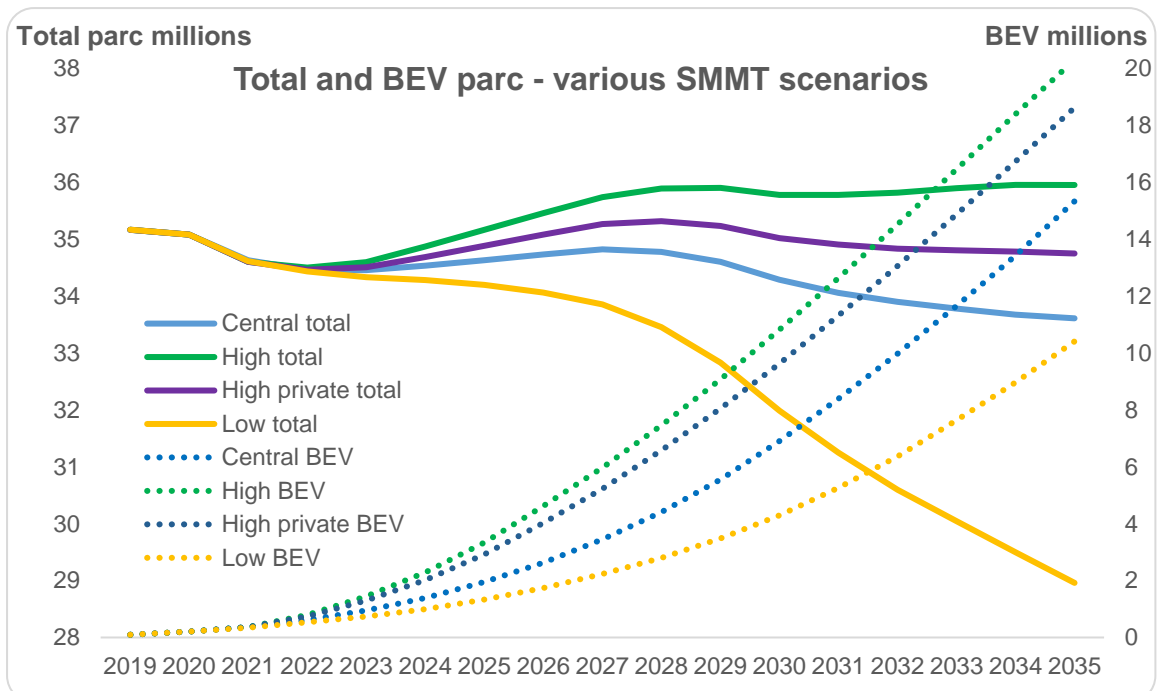
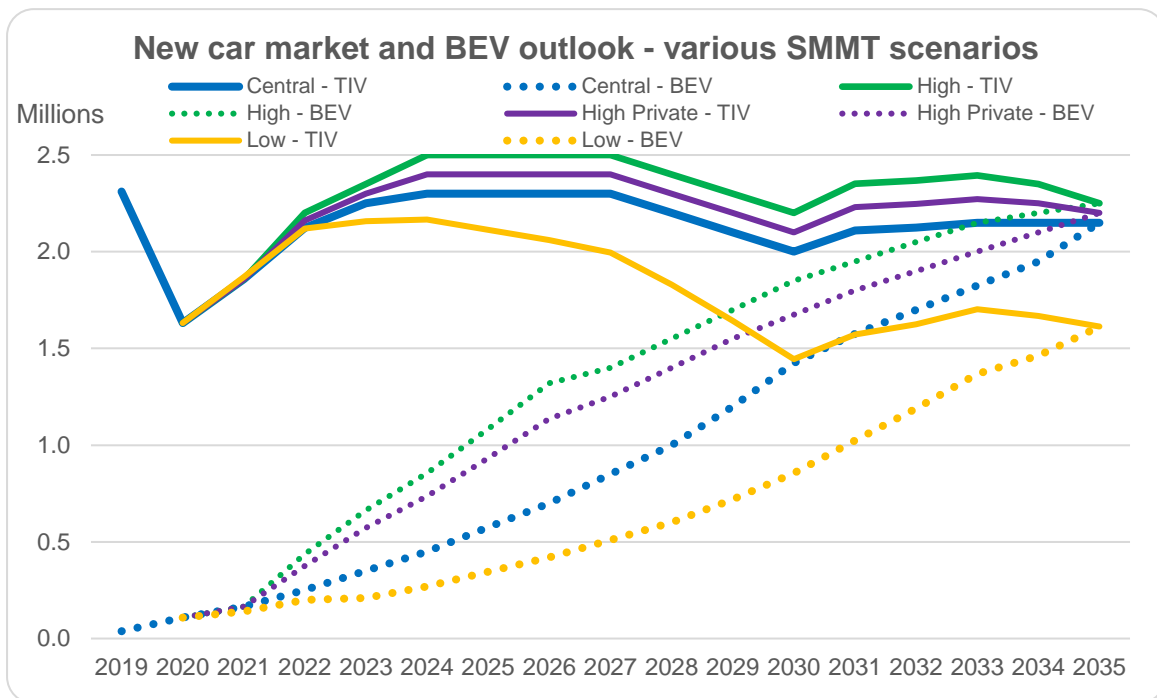
3. Charts and observations



- In the central scenario, the market recovers and plateaus at 2.3 million units in 2024-27
- Volumes fall at end of sale dates, as some consumers unwilling to switch technology
- The market for BEVs rises to 575,000 in 2025, or some 25% of the market and to 1.4 million or 70% of market in 2030, before 100% by 2035
- PHEVs volumes rise, but due to less ability to reduce costs (given it uses both ICE and electric technology), it is capped at around an 16% share of the market in 2030.
- Parc declines marginally by 2030 and further by 2035 to 33.6 million units
- BEV share of the parc rises from 5.6% in 2020 to 20% in 2030 and 46% in 2035.



- In the 'high' scenario, the additional incentives ensure the BEV market is considerably above the central scenario to 2026 – by some ½ million units or 18% higher market share (43% to 25%) in 2025 and above through, as consumers have made the transition earlier, so overall volumes are also higher – by 100,000 to 200,000 pa
- This enables the BEV parc share to reach 30% in 2030 (vs 20% in central) and 57% in 2035 (vs 47%).
- Under the 'high, private only' scenario, the BEV share and volume is between the high and central, but closer to the high, with BEV share of 39% in 2025 and 80% in 2030, with parc share of 27.5% in 2030 and 54% in 2035.
- In the low scenario, the overall market is considerably reduced – sub two million post 2027 and just 1.4 million in 2030, and the BEV share is also much lower.



4. Data sets – all numbers in thousands ('000s)

a) New car market – central scenario ('000s)

Year	BEV	PHEV	HEV	ICE	Total market
2019	38	35	98	2,140	2,311
2020	108	67	110	1,346	1,631
2021	165	118	162	1,414	1,859
2022	250	158	217	1,498	2,124
2023	350	175	240	1,485	2,250
2024	450	200	260	1,390	2,300
2025	575	225	275	1,225	2,300
2026	700	225	290	1,085	2,300
2027	850	250	300	900	2,300
2028	1,000	275	300	625	2,200
2029	1,200	325	325	250	2,100
2030	1,425	325	250	0	2,000
2031	1,575	350	175	0	2,100
2032	1,700	300	150	0	2,150
2033	1,825	250	100	0	2,175
2034	1,950	150	50	0	2,150
2035	2,150	0	0	0	2,150

b) Car parc – central scenario ('000s)

Year	BEV	PHEV	Other	Total parc
2019	93	177	34,378	35,153
2020	199	240	34,629	35,068
2021	366	349	33,917	34,631
2022	611	503	33,347	34,462
2023	953	673	32,830	34,456
2024	1,392	865	32,279	34,536
2025	1,951	1,079	31,603	34,633
2026	2,628	1,291	30,815	34,734
2027	3,447	1,524	29,851	34,822
2028	4,406	1,778	28,595	34,779
2029	5,553	2,075	26,974	34,602
2030	6,909	2,364	25,017	34,291
2031	8,395	2,671	22,992	34,057
2032	9,980	2,917	21,003	33,899
2033	11,659	3,101	19,020	33,780
2034	13,422	3,173	17,078	33,673
2035	15,335	3,080	15,196	33,610

c) New car market – high scenario ('000s)

Year	BEV	PHEV	HEV	ICE	Total market
2020	108	67	110	1,346	1,631
2021	165	118	162	1,414	1,859
2022	436	119	174	1,472	2,200
2023	664	131	180	1,375	2,350
2024	855	150	195	1,300	2,500
2025	1,083	169	206	1,042	2,500
2026	1,321	169	218	793	2,500
2027	1,400	188	225	688	2,500
2028	1,550	206	225	419	2,400
2029	1,700	244	244	113	2,300
2030	1,850	244	188	0	2,200
2031	1,950	263	139	0	2,351
2032	2,050	225	94	0	2,369
2033	2,150	188	56	0	2,394
2034	2,200	113	38	0	2,350
2035	2,250	0	0	0	2,250

d) Car parc - high scenario ('000s)

Year	BEV	PHEV	Other	Total parc
2020	199	240	34,629	35,068
2021	366	349	33,888	34,603
2022	795	464	33,243	34,502
2023	1,449	590	32,557	34,596
2024	2,286	733	31,854	34,873
2025	3,342	893	30,932	35,167
2026	4,624	1,051	29,787	35,461
2027	5,973	1,224	28,545	35,742
2028	7,456	1,412	27,022	35,890
2029	9,072	1,631	25,198	35,901
2030	10,817	1,844	23,116	35,777
2031	12,635	2,069	21,074	35,779
2032	14,520	2,248	19,052	35,820
2033	16,464	2,378	17,053	35,895
2034	18,397	2,424	15,135	35,956
2035	20,306	2,347	13,302	35,954

e) New car market – high private only scenario ('000s)

Year	BEV	PHEV	HEV	ICE	Total market
2020	108	67	110	1,346	1,631
2021	165	118	162	1,414	1,859
2022	375	143	195	1,449	2,162
2023	572	149	216	1,364	2,300
2024	736	170	234	1,260	2,400
2025	933	180	248	1,040	2,400
2026	1,137	180	261	822	2,400
2027	1,250	200	270	680	2,400
2028	1,400	220	270	410	2,300
2029	1,550	260	293	98	2,200
2030	1,675	260	225	0	2,100
2031	1,800	280	167	0	2,231
2032	1,900	240	113	0	2,247
2033	2,000	200	68	0	2,272
2034	2,100	120	45	0	2,250
2035	2,200	0	0	0	2,200

f) Car parc – high private only scenario ('000s)

Year	BEV	PHEV	Other	Total parc
2020	199	240	34,629	35,068
2021	366	349	33,888	34,603
2022	735	488	33,241	34,464
2023	1,297	631	32,580	34,508
2024	2,017	793	31,877	34,687
2025	2,926	964	30,993	34,883
2026	4,028	1,132	29,920	35,081
2027	5,233	1,317	28,715	35,265
2028	6,574	1,518	27,226	35,318
2029	8,049	1,753	25,433	35,235
2030	9,630	1,980	23,408	35,018
2031	11,311	2,221	21,375	34,907
2032	13,062	2,412	19,363	34,837
2033	14,875	2,553	17,376	34,803
2034	16,734	2,602	15,445	34,782
2035	18,625	2,520	13,606	34,752

g) New car market – low scenario ('000s)

Year	BEV	PHEV	HEV	ICE	Total market
2020	108	67	110	1,346	1,631
2021	140	121	166	1,442	1,869
2022	200	162	222	1,535	2,120
2023	210	179	246	1,522	2,158
2024	270	205	267	1,425	2,166
2025	345	231	282	1,256	2,113
2026	420	231	297	1,112	2,060
2027	510	256	308	923	1,996
2028	600	282	308	641	1,830
2029	720	333	333	256	1,643
2030	855	333	256	0	1,444
2031	1,024	359	190	0	1,572
2032	1,190	308	128	0	1,626
2033	1,369	256	77	0	1,702
2034	1,463	154	51	0	1,668
2035	1,613	0	0	0	1,613

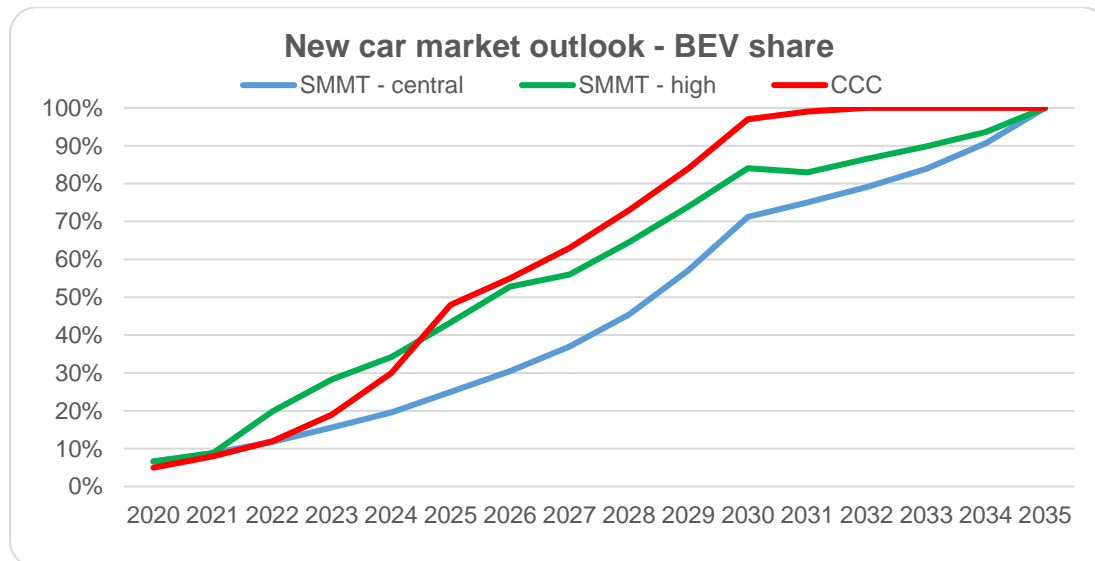
h) Car parc – low scenario ('000s)

Year	BEV	PHEV	Other	Total parc
2020	199	224	34,629	35,068
2021	341	352	33,920	34,613
2022	537	510	33,386	34,433
2023	740	684	32,912	34,336
2024	1,002	881	32,401	34,283
2025	1,335	1,101	31,761	34,197
2026	1,739	1,318	31,006	34,063
2027	2,229	1,557	30,070	33,855
2028	2,801	1,817	28,835	33,453
2029	3,484	2,122	27,226	32,832
2030	4,293	2,419	25,273	31,985
2031	5,256	2,733	23,259	31,249
2032	6,367	2,986	21,244	30,598
2033	7,634	3,176	19,234	30,044
2034	8,964	3,250	17,286	29,500
2035	10,410	3,155	15,395	28,960

5. Comparison to Committee on Climate Change outlooks

In its [6th Carbon Budget](#), the Committee on Climate Change (CCC) sets out its outlook for the BEV share of the UK market, designed around what market share is required to achieve its Carbon Budget. This is shown below in chart form, against SMMT 'central' and 'high' scenarios, and the corresponding BEV shares of the car parc.

In both cases, the CCC has a much higher expected BEV share, in both the market and parc. Their share is also above our 'high' scenario. It is also notable that it anticipates the BEV share as 100% from 2032, three years ahead of the Government's target date.



- The CCC anticipates the BEV share of the new car market to reach 48% in 2025, compared with SMMT's central scenario's 25% share or 43% in our 'high' scenario when the PiCG is extended and no VAT paid on BEVs to 2026. CCC has the BEV share moving to 97% in 2030, compared with our 71% in the 'central' scenario and 84% in the 'high' scenario.
- CCC also anticipates the overall market as being much larger than SMMT does – at 2.75 million units in 2030 and three million in 2035.
- CCC anticipates the BEV share of the parc as 28% in 2030 – compared with 16% in our 'central' scenario, and 64% in 2035, compared with our 46%.

