SMMT RESPONSE TO THE CALL FOR EVIDENCE ON BUILDING A ZERO-CARBON ECONOMY

DECEMBER 2018

Introduction

1. The Society of Motor Manufacturers and Traders (SMMT) is one of the largest and most influential trade associations in the UK. It supports the interests of the UK automotive industry at home and abroad, promoting a united position to government, stakeholders and the media. The automotive industry is a vital part of the UK economy accounting for some £82 billion turnover and £20.2 billion value added. With some 186,000 people employed directly in manufacturing and 856,000 across the wider automotive industry, it accounts for 13% of total UK exports with over 160 countries importing UK produced vehicles. 30 manufacturers build in excess of 70 models of vehicle in the UK supported by more than 2,500 component providers and some of the world's most skilled engineers.

2. SMMT welcomes the opportunity to respond to the call for evidence on building a zero-carbon economy. The automotive industry is firmly committed to a zero emission future and is investing significantly into future technologies that will deliver smart and sustainable mobility on the pathway to 2040, and beyond. From a manufacturing and supply chain perspective, the industry is working hard to reduce its environmental impact by developing energy savings and using renewable energy sources, wherever possible.

3. We support the UK becoming a zero-carbon economy but we believe careful consideration must be given to ensuring the right policies and drivers are in place to support reaching this challenging goal. In particular, funding for research and development for new technologies and incentives to help support behavioural change will be very important. SMMT therefore welcomes the Committee on Climate Change undertaking this piece of work to assess when this goal may be attainable. It will be important the Committee considers what is economically and technically possible for industry to deliver.

4. Full responses to the questions where SMMT has evidence and expertise can be found below. All our responses relate solely to the automotive industry. We would be happy to provide any further information as needed.

Responses to consultation questions

Part 1: Climate Science

Question 2 (CO2 and GHGs): Carbon dioxide and other greenhouse gas gases have different effects and lifetimes in the atmosphere, which may become more important as emissions approach net-zero. In setting a net-zero target, how should the different gases be treated?

SMMT believes it will be important to have a consistent approach to different gases in all pieces of regulation to ensure there is a joined up approach across all areas of public policy. Thought will also need to be given to gases where the Global Warming Potential (GWP) is still unknown, or where an assessment cannot be readily made.

Part 2: International Action

Question 4 (International collaboration): Beyond setting and meeting its own targets, how can the UK best support efforts to cut emissions elsewhere in the world through international collaboration (e.g. emissions trading schemes and other initiatives with partner countries, technology transfer, capacity building, climate finance)? What efforts are effective currently?

SMMT supports emissions trading as it helps ensure emissions reductions can be achieved at least cost. The EU Emissions Trading Scheme has been effective at creating a level playing field between industries in the European Union, and following Brexit, we believe any UK Scheme should be linked to the EU scheme and have minimal differences to ensure it can continue. We also support similar comparable approaches being considered and adopted, if comparable objectives and outcomes can be achieved. Internationally agreed targets would ensure a level playing field, which would mean industry could deliver products for a global market.

Furthermore, the UK is one of the leading markets in the adoption of alternatively-fuelled vehicles. To continue and further enhance this leadership and collaboration, continued investment is needed. For example, targeted incentives through organisations such as Innovate UK will help drive the development of new electric vehicle concepts.

Part 3: Reducing emissions

Question 6 (Hard-to-reduce sectors): Previous CCC analysis has identified aviation, agriculture and industry as sectors where it will be particularly hard to reduce emissions to close to zero, potentially alongside some hard-to-treat buildings. Through both low-carbon technologies and behaviour change, how can emissions be reduced to close to zero in these sectors? What risks are there that broader technological developments or social trends act to increase emissions that are hard to eliminate?

SMMT agrees that industry will be particularly challenged to reduce emissions to close to zero. For automotive, manufacturers are working hard to reduce the resources they use and their production-related emissions, but significant challenges exist to keep reducing these further.

The industry has invested heavily in reducing energy consumption over the years. According to the SMMT 2018 Sustainability Report[1] the energy use per vehicle produced was halved since 2000. Vehicle manufacturers continue to reduce their resource consumption however, obtained improvements diminished after the low hanging fruits were picked. In recent years, energy efficiency improvement became less significant and can be wiped out in a given year by an extremely cold winter or hot summer due to additional heating or cooling requirements. The energy efficiency of vehicle production improved by 0.7% between 2016-2017.

Since 2000, the carbon intensity of vehicle production was also halved. This has been achieved by grid decarbonisation but also vehicle manufacturers installed renewable energy supplies for their sites to use – such as solar and wind-turbines. Our report also shows that 11 signatories reported using 60.5GWh of renewable energy produced locally. This represents a 4.9% increase on the previous year. Renewable energy accounted for 3.9% of electricity use and 1.7% of total energy usage, of those companies who reported it.

However, some signatories are limited by availability of the appropriate roof space or space around the site to deliver meaningful proportions of their energy needs from such sources. Other factors, such as planning restriction and located protected wildlife that prohibits development, are factors which have to be taken into consideration. Grid decarbonisation is therefore an important part of the UK meeting its carbon budgets. To reach zero emissions, a radical move is needed, for example, switching to use sustainable hydrogen as fuel

[1] https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT-Sustainability-Report-2018-1.pdf

or electrify heating when electricity becomes decarbonised. However, at present the technologies to do this, especially on a commercial and industrial scale, do not exist, are unproven or not currently cost effective.

As well as the manufacturing of vehicles and components, SMMT also believes there are significant challenges to reaching the decarbonisation of road transport. SMMT welcomed government setting out its ambition for the uptake of ultra-low and zero emission vehicles in the Road to Zero Strategy but achieving 50% market share for cars by 2030 would require a nearly 23-fold increase in uptake from the current position of just 2.2%. The strategy does not appear to align well with the technology roadmaps produced by the Automotive Council. These new technologies, and the lengthy investment required to deliver them, cannot be fast-tracked. We need realistic ambition levels and measures that support industry's efforts, allow manufacturers time to invest, innovate and sell competitively, and provide the right incentives and infrastructure to take the consumer with us.

The UK has some of the most challenging economy-wide CO_2 reduction targets in the world, including plans to decarbonise the vehicle fleet by 2050. Whilst vehicles using internal combustion engines will still have a strong role to play during this transition, the sector is delivering an array of new technologies, moving towards zero emission capable vehicles. Mass transition will require collective action by a number of stakeholders to ensure these vehicles are affordable, convenient to use and desirable to the consumer.

SMMT's New Car CO_2 Report 2018[2] showed new car CO_2 emissions in the UK rose by 0.8% from 120.1g/km in 2016 to 121.0g/km in 2017. This is still 33.1% below the 2000 level, but an unwelcome development in respect to impact on the environment and makes the challenge of delivering on CO_2 targets more acute. It was the first rise in CO_2 emissions on record and reflected the sharp decline in diesel sales and market share following government measures to increase taxes on diesel vehicles. Diesels are on average 15%-20% lower CO_2 emitting than a like-for-like petrol car. Market shift to higher emitting segments also had an impact on CO_2 emissions (SMMT estimate that 55% of the rise is market shift and 45% due to diesel decline).

Total CO_2 emissions from all cars in use fell by 7.4% between 2000 and 2016, as new vehicle efficiencies offset a 8.1% increase in vehicle use (for all road transport the figures were -1.3% and 11.7% respectively). However, emissions have risen in each of the past three years, reflective of the uplift in vehicle use (distance travelled). Industry estimates that some 80% of a vehicles lifetime emissions are associated with the use phase. The shift to electrified vehicles will see this change over time, with larger proportion of emissions focused in the production phase.

With the move to electric vehicles, grid decarbonisation is even more essential. A recent report by the European Environmental Agency[3] on electric vehicles from life cycle and circular economy perspectives, shows Battery Electric Vehicle (BEVs) charged using European electricity mix are currently 17-21% and 26-30% lower than a similar diesel and petrol vehicle respectively. By 2050, they could be up to 73% lower as grid is decarbonised further. However, this advantage over conventional vehicles depends strongly on the electricity mix. BEVs charged with electricity generated from coal have higher life-cycle emissions, whereas the life-cycle emissions of one using electricity from wind power will be almost 90% lower.

The EU New Car and Van CO_2 Regulation has been a key driver in reducing emissions. SMMT is concerned that Brexit could see regulatory divergence between the UK and the EU, adding to costs and potentially restricting supply for UK consumers. It would also reduce manufacturers' flexibility in meeting CO_2 targets – and leave them much more exposed to specific market distortions, as we have seen recently around diesel policy in the UK and more recently changes to the Plug-in Car Grant.

[2] https://www.smmt.co.uk/wp-content/uploads/sites/2/SMMT-New-Car-Co2-Report-2018-artwork.pdf
[3] https://www.eea.europa.eu/publications/electric-vehicles-from-life-cycle

The decarbonisation of commercial vehicles is also likely to be extremely challenging. The EU is currently developing regulations setting the first EU CO_2 performance standards for new HGVs. These new regulations are likely to have a similar effect in improving fuel consumption and lowering CO_2 emissions as we have seen with cars and vans. However, industry is concerned that the UK may adopt a different approach to the EU following Brexit and that not being part of the wider EU regime reduces flexibilities and gives manufacturers a much smaller marketplace in which to achieve emissions reductions.

Commercial vehicles are vital for the economy and for society as they have a sole purpose of moving goods, services and passengers in the most cost-efficient manner. Fuel represents around 30% of a logistic operator's overall costs so they are already designed to offer optimal fuel economy performance. Despite advancements in introducing low emission technologies suitable for deliveries, this technology remains in its infancy and the business case for using them remains challenging for most fleet operators. Given the low-cost margins and competitive nature of the freight sector, there is however already a strong economic incentive to produce and purchase the most fuel-efficient vehicles.

Logistics efficiency is also of vital importance to businesses. The delivery of goods to the place of sale for many businesses will continue to rely on larger trucks carrying out multiple drop-offs so to achieve optimal cost-effectiveness.

As with cars, different technologies will be able to deliver solutions for different users and vehicle types. Due to the weight and distance travelled by light and heavy commercial vehicles, diesel will remain the predominant fuel for the significant future. However, alternative fuels are currently available, including gas (particularly biogas) and renewable diesel fuels such as HVO, which if incentivised could help reduce the emissions of the transport industry. In order to help drive change in this part of the industry, SMMT believes it is vital the Plug-in Van Grant criteria incentivises the uptake of larger trucks. Experience from the bus sector shows the benefit of having a strong incentive scheme in place, particularly given many of these vehicles are owned and operated by individuals or SMEs.

The challenge of the transition to zero-emission vehicles cannot be underestimated and industry, government and other stakeholders need to work in partnership to deliver this change. A holistic, collaborative approach will remain key to progress and to ensuring the entire vehicle fleet consists of the cleanest, safest and most efficient vehicles, and the UK remains a highly competitive place in which to build them.

Question 7 (Greenhouse gas removals): Not all sources of emissions can be reduced to zero. How far can greenhouse gas removal from the atmosphere, in the UK or internationally, be used to offset any remaining emissions, both prior to 2050 and beyond?

SMMT believes offsetting can be useful as CO_2 savings can be delivered effectively abroad, especially in sectors where it is especially challenging or costly. However, there are challenges around verification and therefore, only approved certified schemes should be used. A proportion of CO_2 reduction could therefore come from approved offsetting, particularly given climate change is a global issue.

Question 8 (Technology and Innovation): How will global deployment of low-carbon technologies drive innovation and cost reduction? Could a tighter long-term emissions target for the UK, supported by targeted innovation policies, drive significantly increased innovation in technologies to reduce or remove emissions?

In automotive terms, global deployment of low-carbon technologies will help drive innovation and cost reduction but it will take time for this to happen. For example, electric batteries for ultra-low emission vehicles

have been declining in cost but further reductions will take time to occur due to the challenges that exist with the materials and cost of battery production. A recent publication by the University of Warwick[4] has identified battery cost to still be the single biggest challenge for mass-market uptake of electric vehicles. This will continue to be the case in the short to medium term, particularly if cobalt, the prices of which are subject to market volatility, remains a key component of Lithium-Ion batteries. In the longer-term, innovation in battery technology that leads to scale commercialisation will be needed to deliver a meaningful step-change that can both reduce cost and drive uptake of electrified vehicles. Promising new battery technologies with enhanced energy density or power density, or both, such as solid state, supercapacitors and Lithium Air remain in incubation mode. Industry is nowhere near commercialising any of these, let alone producing them at scale to bring costs down.

Furthermore, other current and future technologies that lower emissions are equally important, and government policy must take a technology neutral approach to ensure all technologies have equal opportunity to flourish. Different technologies will be able to deliver solutions for different users and vehicle types – they include battery electric vehicles, plug-in hybrid electric vehicles, fuel-cell electric vehicles, other hybrid electric vehicles, biofuels and e-fuels, as well as conventional petrol and diesel fuelled cars. In addition, regardless of the type of propulsion, the increasing adoption of innovative lightweight materials, such as carbon fibre for the chassis, aluminium for the body and composites for other parts of the vehicle, has been shown to contribute to lowering emissions.

Manufacturers are delivering lower CO_2 emitting models – and data shows that new models introduced in 2017 were on average 12.6% lower CO_2 emitting than the model they replaced. The industry is also investing billions to bring new technologies to the market, some 75 alternatively fuelled vehicles (AFVs) were already available to consumers in 2017, and most manufacturers have announced plans to bring significant numbers of new electrified products to market over the next few years. These AFVs have CO_2 emissions well below the market average and so the 34.8% growth in registrations in 2017 benefitted the overall performance. AFVs include battery electric vehicles (BEVs), fuel cell electric vehicles (FCEVs), plug-in electric hybrids (PHEVs) and hybrid electric vehicles (HEVs). Year to date registration figures[5] shows BEVs market share is currently 0.9%, compared with PHEVs that have a 3.7% market share. While there has been positive growth in the alternatively fuelled vehicle market, it still only accounts for 6.8% of all new cars registered.

Significant innovation is therefore already happening in automotive. SMMT believes the future of mobility is likely to be autonomous, connected, electrified and, in the urban context, shared. These shifts have the potential to generate environmental benefits, as well as reducing congestion. According to the International Transport Forum, replacing half of all private car trips with rides in shared vehicles (buses & ride sharing) would deliver a 20% reduction in CO_2 emissions and reduce congestion by 17%. If one in five private car trips was taken over by shared mobility services, CO_2 emissions would still be reduced by 15% and congestion reduced by 8%. However, as with all new technologies and business models it will be important to ensure they see a net rise in vehicle utilisation and do not detract from other lower emitting forms of transport (e.g. walking, cycling or public transport).

Finally, we also need to continue to invest in technologies that reduce risk and cost for manufacturers. Initiatives such as the Faraday Challenge are therefore important in this regard. Our members also expect commercial opportunity to drive innovation and cost reduction in battery technology, for example.

[4] https://warwick.ac.uk/fac/sci/wmg/business/ourapproach/automotive_batteries_101_wmg-apc.pdf

[5] https://www.smmt.co.uk/vehicle-data/evs-and-afvs-registrations/

Question 9 (Behaviour change): How far can people's behaviours and decisions change over time in a way that will reduce emissions, within a supportive policy environment and sustained global effort to tackle climate change?

SMMT strongly believes people's behaviours and decisions can change over time in a way that will reduce emissions but strong policy signals and incentives are needed to drive this behavioural change. Changing behaviour is the strongest way to change vehicle selection and utilisation, and therefore emissions. This will drive fleet renewal, which will help deliver emissions reductions and reduce air pollution.

SMMT strongly believes government should always maintain a technology neutral approach that acknowledges the vital role that all technologies can play in reducing emissions and facilitating consumer moves from conventionally fuelled vehicles to zero and ultra-low emission vehicles. Different technologies will be able to deliver solutions for different users and vehicle types and consumers have a right to choose the right type of vehicle and technology for their journey needs.

As well as the purchase of lower emitting vehicles, behaviour change can also increase the use of shared modes of transport, to further lower emissions. In recent years, a clear shift from traditional vehicle ownership to usership has emerged. Individual vehicle ownership is still generally the preferred option, however, an increasing number of people opt for long-term vehicle rental (a form of leasing) or avoid car ownership altogether by using pay-as-you-go schemes such as car clubs or on-demand mobility services, such as the bus. However, individual car access is still highly valued for its flexibility and convenience.

The shift has the potential to generate environmental and congestion benefits. According to the International Transport Forum[6], replacing half of all private car trips with rides in shared vehicles (buses & ride sharing) would deliver a 20% reduction in CO_2 emissions and reduce congestion by 17%. If one in five private car trips was taken over by shared mobility services, CO_2 emissions would still be reduced by 15% and congestion reduced by 8%.

The UK leads the world in the provision of public transport vehicles. UK companies have brought class leading efficiency in vehicles and services to countries around the world. SMMT believes there is also the opportunity to make the UK bus industry a key component of future strategies to reduce congestion and improve urban and inter-urban transport. Greater or more effective use of incentives such as the Low Carbon Emitting Bus BSOG scheme and a more comprehensive and effective bus service (and wider public transport system) will be key to reducing people's reliance on the private car.

An upsurge in home deliveries is also driving an increase of vans on UK roads and thus behaviour change is also needed in this space. As last mile deliveries evolve, a holistic approach to deliveries in urban locations is required. This should include looking at the time and frequency of deliveries.

Ultimately, consumer behaviour change is critical to the decarbonisation of road transport. Industry and government must act together to provide the right information, infrastructure and policy frameworks to support such a significant shift towards ultra-low and zero emission vehicles.

Question 10 (Policy): Including the role for government policy, how can the required changes be delivered to meet a net-zero target (or tightened 2050 targets) in the UK?

[6] https://www.itf-oecd.org/sites/default/files/docs/shared-mobility-simulations-auckland.pdf

In order to deliver changes to work towards a net-zero target, support for industry and consumers will be needed. Government policy will obviously form a key driver in this respect and from an automotive perspective, policies which support and incentivise the uptake of ultra-low and zero emission vehicles is critical.

The Plug-in Car Grant has been an essential lever in encouraging uptake of ultra-low and zero emission vehicles by overcoming the barrier of such vehicles typically having a higher initial purchase price. Policies like this are essential during the infancy stage of the market and SMMT remains concerned that the recent cut to the grant could mean sales fail to continue to grow at a sufficient rate, as has been witnessed on other countries when incentives for electric vehicles were reduced.

The development and provision of infrastructure is also vital to the uptake of alternatively fuelled vehicles. The automotive sector welcomes government's commitment to develop one of the best electric vehicle infrastructure networks in the world and recognises the funding government has made available to support this ambition. It is clear consumer confidence in alternatively fuelled vehicles is strongly linked to infrastructure provision (an AA Populous survey shows it to be the most important factor) and this must be a clear, long-term, priority if such ambitious government targets are to be met.

Infrastructure must also be future-proofed by enabling an interoperable and easily accessible network of the right type of chargers in the right places, including home charging, on-street residential and a network of high power chargers up to 350kW, to support the next generation of vehicles already under development. Infrastructure investment should also be technologically neutral with provision made for a full range of technologies so as to ensure that consumers are free to choose the technology that best suits their needs. Government should also support collaboration between local and national government, energy providers, DNOs, charge point providers and the automotive industry. The EV Energy Taskforce and London EV Infrastructure Task Force are welcome steps in this direction.

Finally, we also need consistent, close co-operation on multiple fronts across government and industry. Multiple urban access standards can only reduce the efficiency of the transport sector and therefore increase vehicle emissions.

Part 4: Costs, risks and opportunities

Question 11 (Costs, risks and opportunities): How would the costs, risks and economic opportunities associated with cutting emissions change should tighter UK targets be set, especially where these are set at the limits of known technological achievability?

SMMT believes there is a positive opportunity to exploit current technologies already on the market that can help lower emissions in the short to medium term. These include hybrids, plug-in hybrids, pure battery electric, fuel cell and the latest petrol and diesel technologies.

Fleet renewal is a key driver to reduce the environmental performance of the overall vehicle fleet. A new car is some 20% lower CO_2 emitting than the average car in use. Further increasing the rate of fleet renewal would also reduce other emissions significantly allowing air quality objective limits to be met, as well as introducing the latest safety technology. Any hold-off in fleet renewal – as appears evident with confusion over diesel and uncertainty about Brexit – is detrimental to the environment and reduces industry's ability to fund investment in new technologies.

Part 5: Devolved Administrations

Question 13 (Devolved Administrations): What differences in circumstances between England, Wales, Scotland and Northern Ireland should be reflected in the Committee's advice on long-term targets for the Devolved Administrations?

From an automotive perspective, we do not see any differences in circumstances and we strongly believe a common approach to regulations and ambition levels is essential to ensure consistency of approach for both industry and consumers. Industry works across the Devolved Administrations, with a significant number of supply chain members in these areas, illustrating the need for a common approach. Ultimately, a consistent approach is needed at a national, devolved, regional and European level.

Part 6: CCC Work Plan

Question 14 (Work plan): The areas of evidence the Committee intend to cover are included in the 'Background' section. Are there any other important aspects that should be covered in the Committee's work plan?

SMMT believes that the role of government and the types of policies that will need to be implemented to encourage changes in behaviour must be consumer-centric as this is essential to driving the change that is needed to work towards a zero-carbon economy. It is also important the Committee's work does not focus on the reduction of CO_2 emissions in isolation but rather that potential actions should be complementary to those that improve air quality and other emissions.

Finally, the Committee must consider the impact on the future of UK automotive and the people it employs, when considering the pace of change. While working to reduce emissions is vital, ensuring the industry is able to adapt and maintain its competitiveness is imperative to ensure the health and future of the automotive industry.

Contact:
Michelle Gardner
Environmental Manager