

Evaluating the Implementation of the UK Passenger Car (Fuel Economy and CO₂ Emissions Information) Regulations

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Executive Summary

This report was commissioned by the Department for Transport, from LowCVP and TEPR, in order to support the Department in its evaluation of The Passenger Car (Fuel Consumption and CO₂ emissions Information) Regulations 2001. These Regulations transpose an EU Directive and require that manufacturers and dealers ensure that information on a new car's CO₂ emissions and fuel economy is provided to consumers on a label and a poster (or electronic display) in car showrooms and in printed promotional literature. It also requires that a fuel economy guide is produced and that dealers provide this to potential car buyers on request. The Regulations set out mandatory elements for each of the requirements, which are largely based on the requirements of the EU Directive, although the label contains a number of voluntary elements, including a colour-coded diagram and a reference to vehicle excise duty (VED) payable.

The analysis undertaken in this report drew on previous research, as well as on surveys and interviews undertaken specifically for this report. The latter included a survey of over 1,000 new car buyers and a survey of nearly 100 car dealers, as well interviews with six manufacturers, five dealers and the Vehicle Certification Agency (VCA). The latter was important as the VCA facilitates the transfer of information between manufacturers and dealers, as well being responsible for the production of the guide; it also maintains an online database that enables consumers to access the information relating to all new cars sold in the UK.

The aim of the evaluation was to assess whether the objectives of the Regulations have been achieved, whether the objectives remain appropriate and whether they might have been achieved with less regulation. The Regulations do not explicitly include a set of objectives, but some potential objectives have been defined in this report. These are that the Regulations should contribute to:

- Increasing the awareness of potential buyers of the CO₂ emissions and fuel economy of new cars;
- Influencing the purchasing behaviour of potential new car buyers towards the purchase of more efficient cars that emit fewer CO₂ emissions;
- Increasing the sales of fuel efficient cars;
- Enabling more informed purchase decisions;
- Contributing to the development of a comprehensive policy framework;
- Enhancing the effectiveness of fiscal measures at national level; and
- Encouraging manufacturers to take steps to reduce the fuel consumption of new cars.

It can be concluded that, at least to the extent that was possible, these potential **objectives of the Regulations have been achieved**. While identifying conclusive evidence was not possible, the combination of the label on or near the car in the showroom coupled with the inclusion of the information in promotional literature was generally considered to have been positive in delivering some of the above objectives. Of the information on the label, the colour-coded bar (and its similarity to other energy labels), fuel economy and the link to VED were considered to be most important, at least for private car buyers. For fleet buyers, the CO₂ emissions figure was considered to be important, as a result to the potential significant differences in the benefit in kind scale charge that these buyers would have to pay as a result of differences in cars' CO₂ emissions figures. It was suggested that the link to VED, and therefore to CO₂ emissions for private car buyers, might weaken in the future as a result of the changes to VED that have been in place since April 2017. As a result of these changes, only the first year VED is differentiated by a car's CO₂ emissions, which is less visible to consumers as it is usually incorporated into the price of the new car that is presented to consumers. It can also be concluded, given the continuing need to improve the fuel economy and to reduce the CO₂ emissions of new cars and the increasing range of technology used in new cars, that **the proposed objectives of the Regulations remain appropriate**.

While the label was generally considered to be an important element of the Regulations, and that it was considered to contain the right information, there are some issues with the language that is used, which could be made to be more relevant to potential car buyers. The fact that by no means all of the required information on the label is relevant for all types of car, particularly electric cars, was also considered to be an issue. While there are separate labels for electric and plug-in hybrid cars, which contain voluntary information that is of more relevance to these cars, these still contain the mandatory information that is more relevant to petrol and diesel cars. There is also the challenge of how best to enable consumers to compare petrol and diesel cars with electric and plug-in hybrid cars, as well as with the hydrogen fuel cell cars that are coming onto the market. A further issue with the current information on fuel economy is that it does not reflect drivers' real world experience. The change to a new test cycle – the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) – will make the fuel economy figures presented for new cars more representative of real world driving, but the expectation is that these will still not be fully reflective of a driver's experience on the road. Consequently, the following recommendations are made:

- It would be beneficial to review the language used in the label to ensure that it engages better with consumers.
- More attention should be given to what potential buyers of each of type of car (electric, plug-in hybrid, etc.) need, and how best to present this.
- Consideration might be given to using (after appropriate testing) a similar metric, either MPG equivalent or a cost metric, to enable consumers to compare petrol and diesel cars to other types of car.
- Consideration should be given to applying a suitable factor to fuel economy, as measured on the WLTP, to make the information on fuel economy that is presented to consumers more representative of real-world experience.

While it is **not possible to conclude whether the proposed objectives could have been achieved with less regulation**, the objectives may have been achieved to a similar extent without the need to include the information on a poster in car showroom. The poster is considered to be the least useful element of the Regulations. While it was conceived at a time when the use of the internet was less prevalent, the poster is considered not to be user-friendly in its current form, so it is questionable whether it was ever that well used by potential car buyers. However, it was noted that consumers still do not fully understand the differences between, and the benefits of, different technologies, which perhaps lends itself to being presented on a poster. The guide, on the other hand, would have been, in the absence of the internet, the only way of providing potential car buyers with information on more than one brand of car and of enabling them to compare between different brands. Hence, the guide was probably more relevant and useful in 2001, whereas now it is considered to be less relevant, particularly given the availability of the information on the internet. As a result, the following recommendations are proposed:

- Consideration should be given to removing the requirements for the poster and fuel economy guide.
- Consideration might be given to having a common, industry-wide poster that explains the differences between, and benefits of, different technologies.
- Consideration might be given to ensuring that there is still the capability to easily produce a physical version of the guide, rather than actually producing them each year.

The VCA's online database, which is not required by the Regulations, is one way of potential car buyers accessing and comparing information about different brands of car online. While the database was considered to be beneficial by many of those who were aware of it, awareness of the database did not appear to be that high, although this contrasts with the information from the VCA on the use of the database. More generally, information on CO₂ emissions and fuel economy included on manufacturers' websites was considered to be important, although it was noted that the provision of information in this way was not required by the Regulations and it was suggested

that this information was not always presented in a consistent manner. The development of technology has also increased the potential scope for the presentation of information to consumers using electronic means, particularly in car showrooms. More generally, there was still considered to be a lack of clarity with respect to the Regulations' requirements in relation to promotional literature. As a result:

- Consideration might be given to including a short user survey on the VCA's online database with the aim of identifying an appropriate means of increasing the awareness of the database.
- Consideration should be given to improving the way in which information is presented on websites, including those of manufacturers.
- Consideration should be given to encouraging manufacturers and dealers to use more electronic means of communicating the information to consumers, particularly in the showroom.
- Guidelines for the presentation of such information on electronic devices could be developed.
- Consideration might be given to actively identifying the needs of both manufacturers and dealers with respect to the implementation of the Regulations, and then develop guidance accordingly.

Finally, in order to ensure that manufacturers that put cars on the UK market for the first time fully engage with the existing processes, consideration could be given to putting a legal requirement on manufacturers to provide the necessary information to the relevant authorities.

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Glossary

ASA	Advertising Standards Authority
BEV	Battery electric vehicle
BIK	Benefit in kind
CO ₂	Carbon dioxide
ICEV	Internal combustion-engine vehicle
LowCVP	Low Carbon Vehicle Partnership
MPG	Miles per gallon
NFDA	National Franchised Dealers Association
NO _x	Oxides of nitrogen
PHEV	Plug-in hybrid electric vehicle
VCA	Vehicle Certification Agency
VED	Vehicle Excise Duty
WLTP	Worldwide Harmonised Light Vehicle Test Procedure

1. Background

The Passenger Car (Fuel Consumption and CO₂ emissions Information) Regulations 2001, referred to as simply the 'Regulations' in the remainder of this report, implement EU Directive 1999/94/EC in the UK. They require that car manufacturers and car dealers provide information to potential buyers on the fuel consumption and carbon dioxide (CO₂) emissions of new cars.

Specifically, the Regulations place the following duties on dealers and manufacturers:

- Manufacturers must promptly supply dealers with information on the official fuel consumption and CO₂ emissions figures for any model of car that they manufacture;
- Dealers must:
 - Ensure that a **fuel economy label** is displayed on, or near, each new car displayed, or offered for sale or lease, at the point of sale, e.g. in a dealer's showroom.
 - Provide a copy of the latest edition of the **fuel economy guide** free of charge to any prospective driver upon request.
 - Ensure that an up-to-date **poster** or **electronic display**¹ is exhibited in a prominent position in relation to each make displayed or offered for sale or lease.
- Manufacturers and dealers must ensure that all of the **promotional literature** that they publish or make available complies with the necessary requirements.

Initially, the Regulations applied only to cars that emitted CO₂, but this condition was removed by The Passenger Car (Amendment) Regulations 2013, since when the Regulations have applied to electric cars (and to any other cars with zero tailpipe CO₂ emissions). The minimum requirements for the label are the same for all types of car, as set out in Schedule 2 of the 2001 Regulations, which closely follow the requirements of the Directive. The label should contain:

- The car's make/model, its engine capacity (in cc), fuel type and transmission;
- The car's fuel consumption (in litres/100km and miles per gallon) on three different drive cycles (urban, extra-urban and combined);
- The car's CO₂ emissions (in g/km); and
- Specified text on the availability of the fuel economy guide, that CO₂ is responsible for global warming and that a car's CO₂ emissions in use are dependent on other factors.

The requirements also stipulate the minimum size of the label, the minimum size and format of the above text and the number of decimal points to be used in various numbers. The above requirements are now presented in the bottom half of the label. Even though the minimum requirements are the same, there are different labels for, respectively, cars with an internal combustion engine, electric cars and plug-in hybrid cars (see Annex 3 for the labels in place at the time of this evaluation). This is because the labels for electric and plug-in hybrid cars contain more specific, voluntary information of more relevance to these types of vehicle. It is also worth noting that the information in the top half of the label, including the colour-coded diagram that is similar to the energy efficiency label found on white goods, the estimated running costs for 12,000 miles and tax information, is also not required by the Regulations. The LowCVP played a leading role in the specification of the voluntary information on the labels.

¹ The 2001 Regulations did not make a reference to an electronic display. This option was added by The Passenger Car (Amendment) Regulations 2004, which implemented Commission Directive 2003/73/EC.

The 2013 Regulations also place a legal duty on the Department for Transport to evaluate the Regulations. The aim of the evaluation is to assess whether:

- The objectives of the Regulations have been achieved;
- The objectives remain appropriate; and
- They might have been achieved with less regulation.

The Low Carbon Vehicle Partnership (LowCVP)², supported by TEPR³, was asked to assist the Department with the evaluation of the Regulations. As with the evaluation of any specific policy, it is difficult to identify a cause and effect between its implementation and the outcomes. This is further complicated by the fact that, at the same time, there have been various complementary policies that aim to contribute to the delivery of similar objectives. The research undertaken for this report draws on a range of different sources, as noted in the following section. The aim of such an approach was, as far as possible, to identify as good a picture as possible of the effectiveness of the Regulations, based on previous research and the perspectives of car buyers, manufacturers and car dealers.

² www.lowcvp.org.uk

³ www.tepr.co.uk

2. Methodology

The evaluation drew on previous work of relevance, e.g. that undertaken by the LowCVP on the label and on studies of the EU Directive that the Regulations transpose, which is presented in Section 3. In addition, new evidence was brought together from several sources for the purpose of the evaluation, including from:

- Engagement with the Vehicle Certification Agency (VCA);
- A survey of more than 1,000 new car buyers;
- Engagement with six manufacturers;
- Interviews with five car dealers; and
- A survey of car dealers.

The engagement with the VCA aimed to confirm the way in which the existing information flow works, to identify the level of use of the existing tools and to identify any enforcement activity that the VCA has had to undertake. This was complemented by a review of recent rulings of the Advertising Standards Authority (ASA) to see what complaints have been made, and what the associated rulings were, in relation to the use of the information on new car CO₂ emissions and fuel economy in advertising. These results are presented in Section 4.

The survey of new car buyers was sub-contracted to Shape the Future⁴, an independent market research company, and was complemented by putting a link to the survey on the websites of other organisations, including Next Green Car, Energy Savings Trust and the Institute of Advanced Motorists. The survey questions can be found in Part 1 of Annex 1, while the results of the survey are presented in Section 5.

The interviews with manufacturers and dealers were based on a similar set of questions, with the minor differences reflecting the different roles and responsibilities of manufacturers and dealers in communicating the information to consumers. Four interviews were undertaken with manufacturers, while two manufacturers provided a written response to the questions: one in order to obtain input from a range of different people; the other as a result of time constraints. The National Franchised Dealers Association (NFDA) helped to identify dealers who were willing to be interviewed. This resulted in three dealers being interviewed, which was complemented by two interviews with dealers who had responded to the survey. The latter two were asked to explain their responses to the survey in more detail and were chosen as their responses suggested that they might have interesting additional contributions to make. The questions used for both the manufacturers' and the dealers' interviews can be found in Part 2 of Annex 1 and a list of companies interviewed can be found in Annex 2. The results of the interviews are presented in Section 6.

The survey of dealers was based on a similar set of questions to the interviews with dealers. This was set up online using Survey Monkey and the link was distributed by the NFDA as well as by most of the manufacturers that were interviewed. The survey questions are presented in Part 3 of Annex 1 and the results of the survey are presented in Section 7.

The report concludes with a discussion of the results, and some recommendations, in Section 8.

⁴ www.shape-the-future.com

3. Review of previous work on the effectiveness of the requirements

3.1 Review of previous LowCVP Car Buyer Surveys

This study is the latest in a series of projects conducted by LowCVP to assess and evaluate the effectiveness and compliance of different aspects of the Regulations.

The most recent Car Buyer Survey commissioned by the LowCVP was published in 2012 (Ecolane *et al*, 2012). The study undertook car buyer research and also tested alternative label designs with consumers. It found that miles per gallon (MPG) was of more importance to car buyers than either CO₂ emissions or information on Vehicle Excise Duty (VED), and so recommended that it given be more importance on the label and that CO₂ emissions be given less importance. The report also recommended the inclusion of other information, such as ‘pence per mile’ and fuel costs ‘per month’, as well as a comparison of total first year fuel and VED costs with all models in the same model range. It also proposed that a link, e.g. a QR code, be included on the label to enable consumers to access more information on the model itself, as well as comparative information relating to similar cars.

At the time of the report, the Regulations only applied to cars that emitted CO₂ (see Section 1). To address this, the report called for an extension of the Regulations to cover electric, plug-in and range extended cars and proposed information that should be included on each label. This included the presentation of electricity consumption in terms of an ‘MPG equivalent’, as well as official data on energy consumption (for electric cars) and a ‘weighted combined’ energy/fuel consumption for plug-in and range extended cars. The report also proposed that information of specific relevance to cars that can be charged with electricity be included on these labels, including their electric range and recharging time, as well as the location of publicly accessible charging points. Finally, the report recommended the consideration, and further testing, of an alternative label design, which contained more information than the label that was in place at the time of this evaluation.

An earlier Car Buyer Attitude Survey, which was published in 2010, assessed the importance of environmental issues at the point of purchase, identify what information relating to the environmental performance of cars is most easily understood by car buyers, and to ascertain consumer preferences for how such information should be presented (Ecolane & Sustain, 2010).

The survey found that, although factors related to environmental issues had little influence on decision-making, fuel economy / running cost was the most important factor considered when choosing a car, followed by size and practicality and then price. Fuel economy was viewed by respondents in the context of running costs, rather than as an environmental proxy. As with the 2012 report, car buyers also understood the concept of MPG better than CO₂ emissions, and as such the report recommended providing the metrics alongside one another. The preferred metric when considering running costs was also found to be MPG rather than monetary estimates, which was felt to be due to fluctuating fuel prices making cost estimations unreliable.

Car-buyers were found to underestimate the range of fuel economy options within a given car size, and also to assume that better fuel economy would mean a higher-priced car.

In terms of the information provided on the label, the report suggested considering adding a “best in class” comparison metric. However, concern was also noted that a label should not contain too much information, leading to “information overload”. The report recommends that a future label consider replacing the terms “urban” and “extra urban” with the more easily understood terms of “city” and “motorway” or similar.

The previous attitude survey, published in 2009, had similar aims but also sought to understand awareness of car labels amongst used car customers prior to the launch of the used car label in autumn 2009 (GfK Automotive, 2009). The main findings were that there had been a steady increase in awareness of the label by new car owners and prospective buyers since 2006, and 29% used car owners recalled seeing the label when purchasing their car. 54% of respondents recalled seeing the label when they were prompted with an example.

Nearly three quarters of respondents considered the label to be important in helping to choose the make and model of their new car, although size and price were the most important factors. Fuel consumption was considered the most important running cost. As such, information on fuel costs were considered the most important information on the label, followed by the fuel consumption combined and urban figures. This contrasts with the 2010 research in which fuel consumption was considered a more useful metric than costs.

In terms of the information, 58% of respondents were interested in seeing comparative information on similar-sized or types of car, with the majority wanting this to be displayed at the car dealership.

The salesperson and dealership remained the key source of information in the car buying process, although this importance had reduced over recent years. Consumer guides, manufacturers' websites and sales brochures were also seen as key sources of information. Only 3% of respondents stated that they used the VCA guide book.

A previous car buyer survey from 2008 examined the findings of previous studies that, although car buyers reported that fuel economy was a key decision factor in their choice of car, in reality, less weight was given to fuel consumption information than other factors (Aberdeen University *et al*, 2008). The study found that, although car choice was changing in response to rising fuel costs, it was the cost of filling a tank rather than the running cost metric that was truly changing behaviour. Carbon emissions and environmental awareness were generally found to have no influence on car choice. Motorists were aware of CO₂ emissions only in the context of road tax, or VED bands.

The study concluded that fuel economy in terms of miles per gallon was not the most effective metric, and more emphasis should be placed on up-to-date fuel costs for each car compared to a "best in class". As with the 2009 study, this seems to be directly contradicted by the 2010 survey.

3.2 Review of previous LowCVP Dealer Surveys

In addition to the car buyer surveys, LowCVP have commissioned dealer surveys (ESA Market Research, 2009; 2014), which both combined covert assessments to evaluate the compliance of dealerships with the regulations and interviews to assess staff awareness and understanding, and to understand their opinions on the label. The 2014 study focused on plug-in vehicles.

Both studies found high levels of compliance with displaying the label. The 2014 study also asked about the VCA guide. Just over half of dealerships had a copy available, but 59% stated that they were never asked for this by customers.

In 2009, 39% of dealerships were found to use the label extensively although staff were more likely to discuss financial implications of fuel economy than mention climate change. In 2014, 45% of respondents referred to the label most or all of the time, with only 10% stating that they did not refer to it at all. 79% found it useful for helping customers compare the performance of an electric vehicle with other plug-in vehicles or conventional petrol and diesel cars.

As with the Car Buyer Attitude Surveys, the section most used on the label was thought to be running costs. The majority of respondents found the level of information to be about right, although more realistic fuel consumption figures and better diagrams would improve the label.

In contrast to the findings of the 2009 Car Buyer survey, respondents in 2014 believed customers now looked online to find information before visiting the showroom, which was then used in conjunction with brochures, the label and sales videos to sell plug in vehicles.

3.3 Review of relevant EU evaluations

As noted in Section 1, the Regulations implement EU Directive 1999/94, which have been evaluated for the European Commission. The evaluation was completed in 2016 and covered all 28 Member States (Ricardo Energy & Environment and TEPR, 2016). It found that half of the Member States used a colour-coded **label** and that of these, ten, including the UK, based their car label on the EU energy label for household products. The current UK label in place at the time of this evaluation, and an example of an alternative colour-coded label from Austria, can be found in Annex 3. The label in the remaining countries generally provided the information in line with the minimum requirements set out by the Directive.

A smaller number of Member States (including the UK) also included information on running costs (for six Member States) and relevant national taxes (for five) on their labels. Ricardo Energy & Environment and TEPR (2016) concluded that the use of a colour-coded, hierarchical label, such as the EU energy label for household products, in all Member States would improve the effectiveness of the Directive, while the inclusion of running costs and relevant national taxes should also be considered.

While some Member States still produced hard copies of the **fuel economy guide**, a third had moved exclusively to electronic copies. Ten Member States, including the UK, have also developed searchable, online databases that consumers can use to identify and compare the information for different types of car. There was a general consensus that the **poster / electronic display** brought little in the way of added value. In relation to **promotional literature**, there have been some challenges with interpreting the minimum requirements in some countries, as there has been in the UK (see Section 4.2). The Netherlands has an advertising code that includes specifications on the minimum sizing of the information, while in Denmark, a colour-coded arrow indicating a car's CO₂ emissions is included in printed and online advertisements (see Annex 3, for example).

One of the main issues that the evaluation identified in relation to the effectiveness of the Directive was the discrepancy between the information presented to consumers and their real world experience of the fuel economy. This is now being addressed, at least in part, by the introduction of the new Worldwide Harmonised Light Vehicle Test Procedure (WLTP). Another issue was that the Directive did not distinguish between the information that should be presented for cars using petrol and diesel as a fuel and that which should be presented for cars using other sources of energy. At the moment, this is a particular issue for electric and plug-in hybrid cars, and will also be an issue for hydrogen fuel cell vehicles in the future. The final main issue identified with the Directive was the lack of an explicit reference to the need to include the information on promotional literature on the internet. Similar issues were raised by an earlier report for the Commission (AEA *et al*, 2011) and another for the European Parliament (Grünig *et al*, 2010).

4. Use of the existing tools and enforcement activity

4.1 The role of the VCA

While the Regulations put duties on manufacturers and dealers to provide information on the CO₂ emissions and fuel economy of new cars to consumers through various means, the VCA facilitates this process. Each manufacturer uploads information relating to their new models into a secure online area. At the moment the information has to be inputted separately for each model, but there are plans to improve the system to make it easier for manufacturers to upload data for multiple models at the same time. The VCA verifies the data and publishes it once it is happy with the data. Ideally, the information should be received before new models go onto the market, and to give the VCA sufficient time to verify the data. The data is received from manufacturers on an *ad hoc* basis, with some manufacturers uploading information more frequently than others, although the provision of information to the VCA is more or less continuous.

The VCA uses these data to create the annual ***fuel economy guide***, which is published in the form of a booklet and a CD ROM, and to update its ***online database***⁵. The latter can be accessed directly by consumers. The data can also be downloaded from the VCA's website in 'CSV' format by interested parties and can be provided in an Access database format on request. The VCA also uses the data for its 'point of sale' system that enables dealers to print the labels that they need. Manufacturers have to subscribe to this service in order to provide access to it for their dealers. Currently, around 20 manufacturers subscribe, although several of the main manufacturers do not.

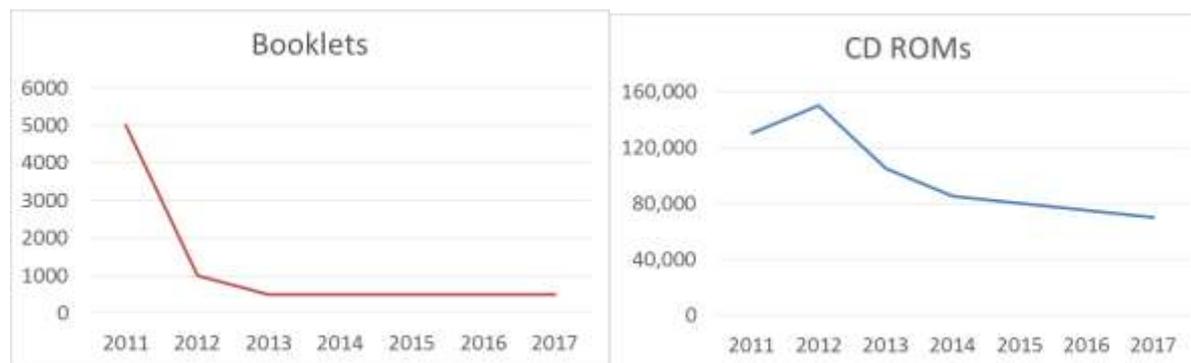
4.2 Production of guides and labels and use of VCA's website

The VCA has provided information on the production of the fuel economy guide, both in its booklet and CD ROM format (see Figure 1). They have also provided information on the number of views of the pages that contain their online database (see Figure 2), but they do not monitor which organisations access and use these data.

The number of booklets produced is now a lot less than had been produced in the early years of the Regulations, e.g. in 2004, 320,000 copies of the booklet were produced. In the last few years, only a few hundred have been produced (see Figure 1), largely to ensure that people who do not have access to the online database can still access the information if they need it. The number of CD ROMs produced is much higher, but has also been declining in recent years, e.g. between 2012 and 2017, the number of CD ROMs produced halved.

⁵ <http://carfueldata.direct.gov.uk/>

Figure 1: Number of copies of the fuel economy guide produced annually in different formats

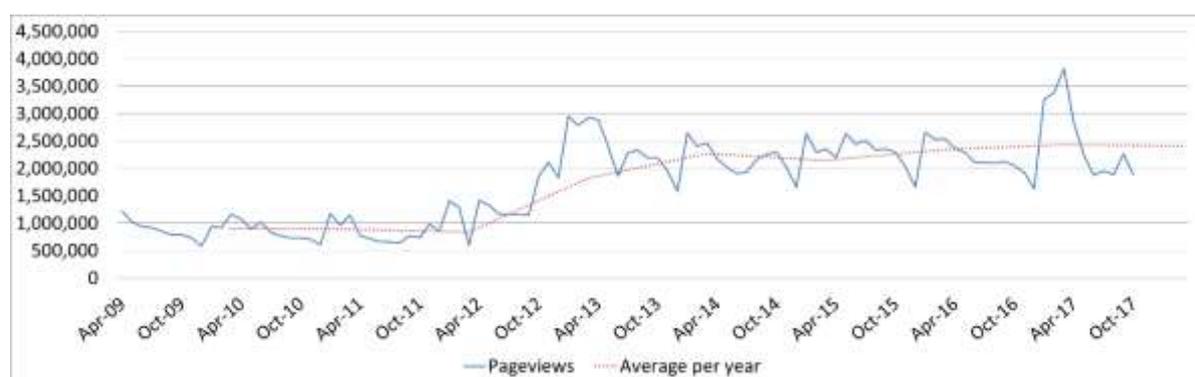


Source: Data provided by the VCA

As noted above, the VCA provides a service to enable dealers to print labels, as long as their associated manufacturers have subscribed to the service. The VCA’s system allows manufacturers to identify how their dealers are using the service, but it does not aggregate information on the number of labels printed as standard practice. If the data were aggregated, it would only provide a partial picture of the number of labels that are printed, as not all of the manufacturers subscribe to the VCA’s system (as noted above), and dealers might also use labels in different ways and also more than once.

The number of page views of the VCA’s online database was significantly higher in 2017 than it was in 2012, although in the last few years views of the pages of the database have been fairly constant, with annual increases being small. There is also a significant monthly fluctuation in the viewings of the pages of the database with peaks occurring early in the calendar year with views remaining high over the summer, which coincides with the introduction of the new registration plates in March and September. This suggests that some consumers do use the database to check on the CO₂ emissions and fuel economy of potential purchases.

Figure 2: Number of page views of the new car fuel consumption and CO₂ database



Source: Data provided by the VCA, 2018

4.3 Enforcement activity

The VCA has an enforcement role with respect to the use of the information on CO₂ emissions and fuel economy in advertising. They advise manufacturers and dealers on the use of this information before advertisements are published. The ASA, on the other hand, has a more general role that involves ruling on complaints from members of the public, other organisations and companies on the claims made in adverts, which includes *inter alia* the information presented on the CO₂

emissions and fuel economy of new cars. Responsibility for enforcing other elements of the Regulations, e.g. the presence and content of labels and posters, and the availability of the fuel economy guide, lies with local authorities' trading standards departments in England, Scotland and Wales, and with the relevant central department in Northern Ireland (VCA, 2014).

The VCA has not had to take any legal action in recent years. Its role has been to educate and, where necessary, carry out low-level enforcement activity by correspondence, rather than taking legal action. Currently, the focus is on offering guidance to manufacturers and advertisers when this is requested. This was considered to have worked well, with manufacturers, dealers and third party advertisers quick to rectify any issues that have been identified. The VCA produces Guidance Notes on the Regulations, the seventh version of which was published in 2014, in order to provide clarity where there is some ambiguity about the wording of the requirements (VCA, 2014).

In the last five years, a total of nine complaints to the ASA were identified referring to claims made in adverts relating in some way to the CO₂ emissions and fuel economy of new cars (see Annex 4). Six of those identified were upheld, so the ASA required the manufacturer, dealer and/or advertising agency concerned to address at least some of the concerns raised by the complainant.

Only two of the complaints relating to cars that only had internal combustion engines (ICEVs); both of these concerned the fuel economy figures quoted. In both cases the complaint was that the figure quoted was unlikely to be achieved in practice, and in both cases the ASA required those concerned to better qualify the figures presented. The four complaints that were upheld that did not relate to ICEVs all concerned either a plug-in hybrid (PHEV) or a range extended vehicle. The action required by the ASA relating to the PHEV was similar to that required for the ICEVs, as the ASA required that the source and lack of representativeness of the information be made clear. In the other three cases, manufacturers were asked to be clearer about, respectively, the source of the electricity used by a range extended car, how a range extended car worked and to make it clear that claims of a vehicle being 'zero emissions' applied only to battery electric vehicles (BEVs) and not to range extended cars.

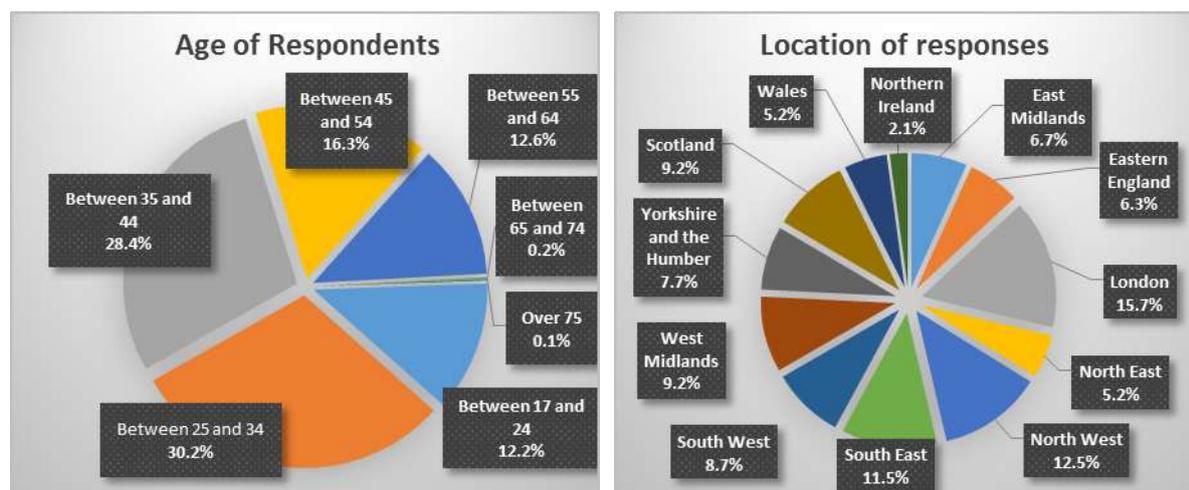
The complaints that were not upheld all related to BEVs. Two adverts had made claims, one for the performance of the car and one for the potential fuel savings, based on specified approaches. The ASA ruled that both of the approaches had been referenced and were reasonable. The other complaint related to the lack of reference in an advert to the CO₂ emissions emitted in the course of the production of the electricity used by a BEV. The ASA did not uphold this complaint as it noted that the law did not require such information to be presented.

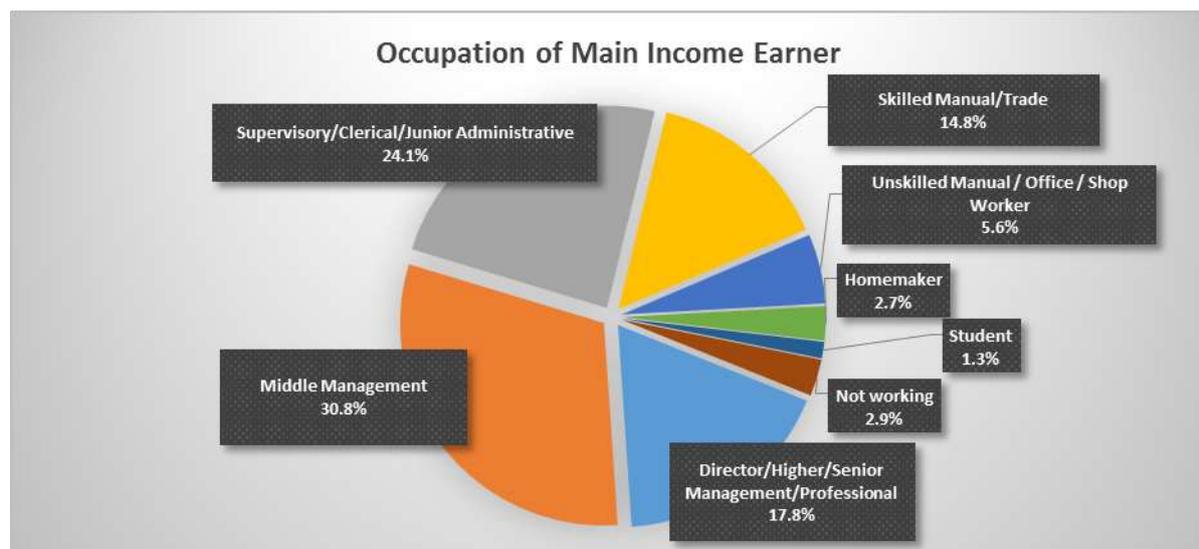
5. Summary of the results from the survey of car buyers

The car buyers' survey was undertaken online in late January 2018. There were 1,031 responses from individuals who had bought or leased a car in the past two years. The survey was structured so that questions were not mandatory, hence the total number of responses for individual questions may be lower than the overall total. The majority of respondents (76%) had bought a vehicle compared to 24% who had leased the vehicle. Responses were received from a good cross-section of the UK population (see Figure 3):

- 47% of respondents were male, 53% were female.
- 58.5% of respondents were aged between 25 and 44, although there was a good response from all age brackets between 17 and 64.
- Similarly, responses were received from all areas of the UK, with the highest numbers from London (15.7%), the North West (12.5%) and the South East (11.5%). The lowest response was from residents of Northern Ireland, forming only 2.1% of respondents.
- The majority (54.9%) of respondents were from households whose primary income was from middle management or supervisory roles. Unskilled workers, homemakers, students and those not working were less represented. However, this is perhaps unsurprising given the survey targeted purchasers of new cars that are likely to require a higher income.

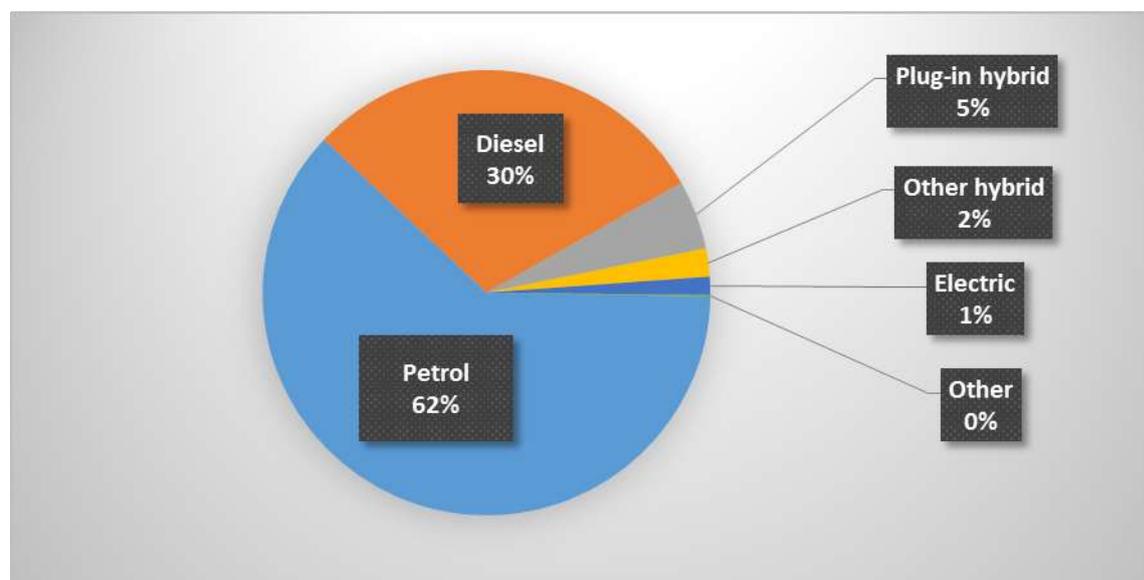
Figure 3: Demographics of respondents





As can be seen in Figure 4, the majority of respondents (62%) had purchased a petrol car, with a lot fewer having bought a diesel model (30%). Electric and hybrid vehicles made up a much smaller percentage, with only 8% of respondents having purchased a vehicle with some form of electric power. This compares to UK car sales as a whole, of which 53% were petrol in 2017, and 42% were diesel, while only 5% were hybrids, plug-ins or electric cars (SMMT, 2018).

Figure 4: What fuel does your newest car use?



When considering what information they were aware of when they purchased their vehicle, awareness of the label was highest, at 43%, followed by the guide, at 37% (see Figure 5). Only 20% of respondents were aware of the Government's online database or the poster / electronic screen and 19% of respondents were not aware of any of the sources of information.

Figure 5: Were you aware that information on CO₂ emissions and fuel economy (or electricity consumption) were available from the following sources?

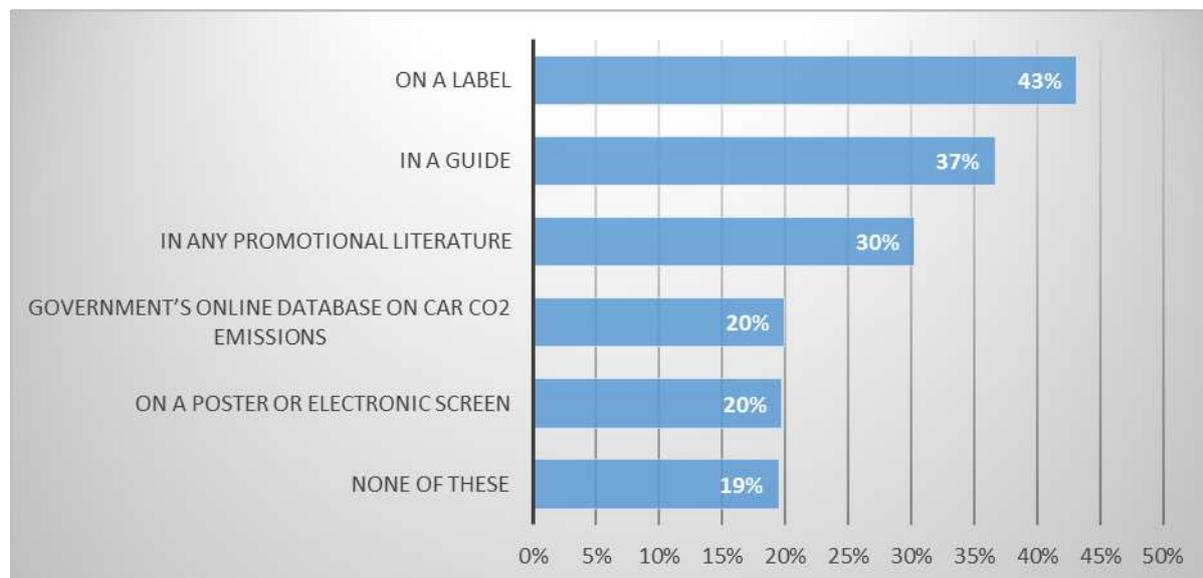
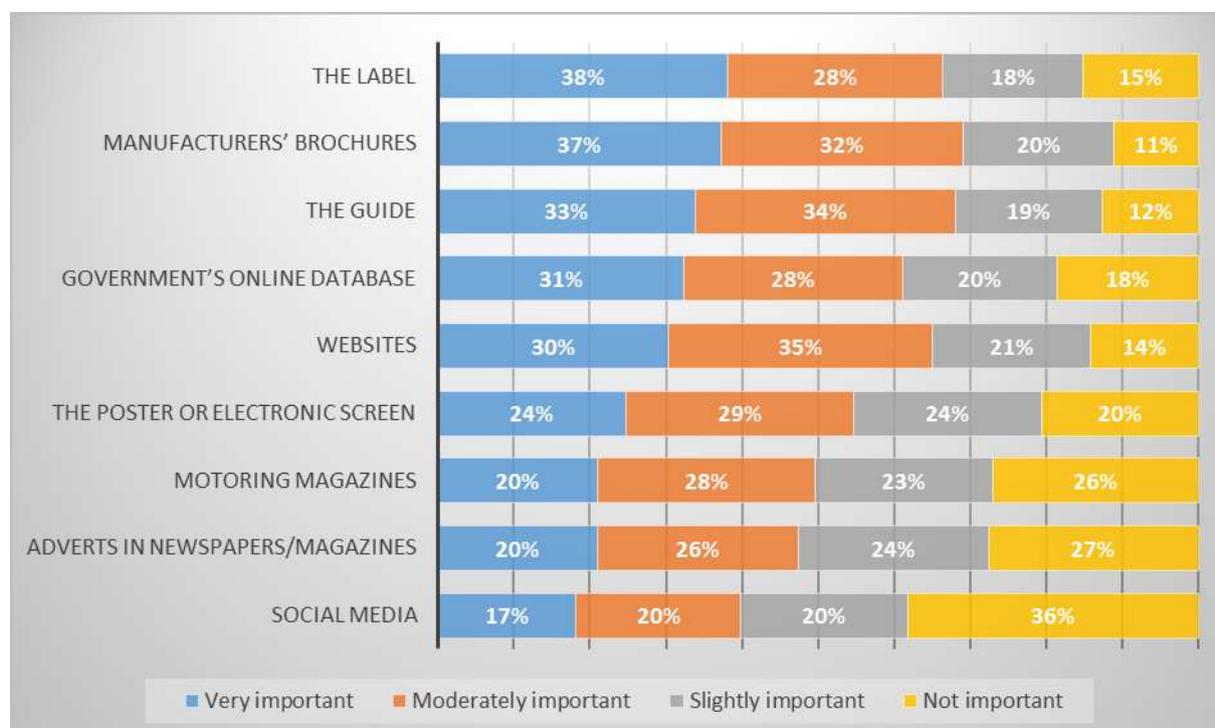


Figure 6 shows the results for which sources the respondents found most important for providing information. The label and manufacturers' brochures were most commonly noted as "Very Important" (38% and 37% respectively), although the results for the guide, the online database and the websites were not significantly different.

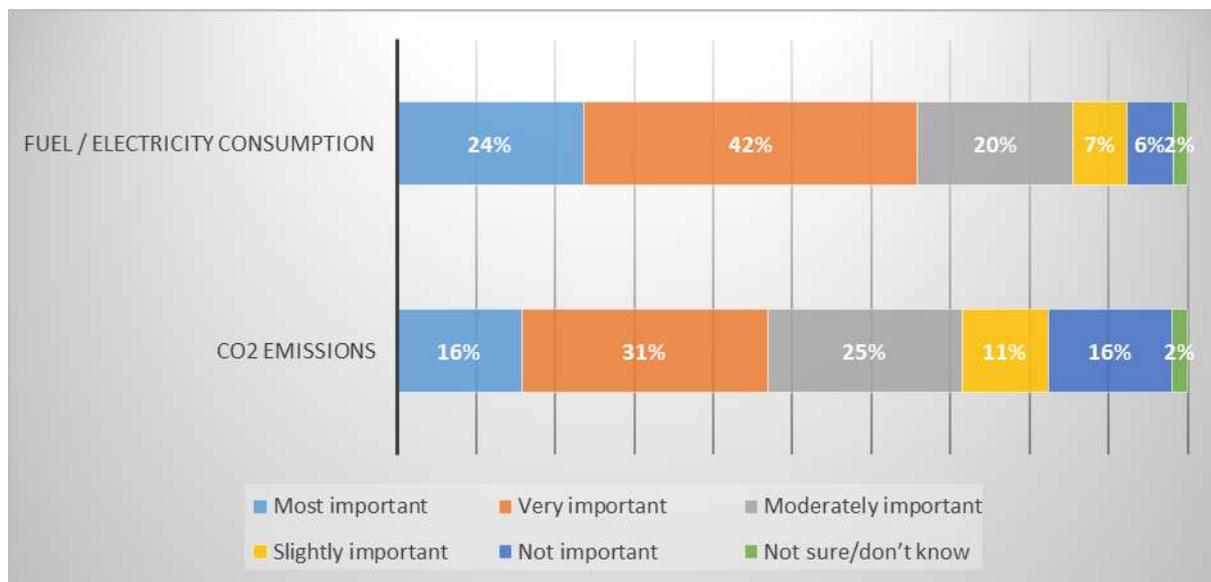
Figure 6: How important were the following in providing information about CO₂ emissions and fuel economy?



The majority of respondents found the label (66%), manufacturers’ brochures (69%), the guide (69%), Government database (59%) and websites (65%) either “very important” or “moderately important”. This is despite a significantly lower number of respondents to the previous question stating that they were aware of the guide and government database as sources of information. This might indicate a response bias to this question whereby respondents felt a need to provide a positive response. Social media was considered the least important source of information, with 36% stating it was not important at all.

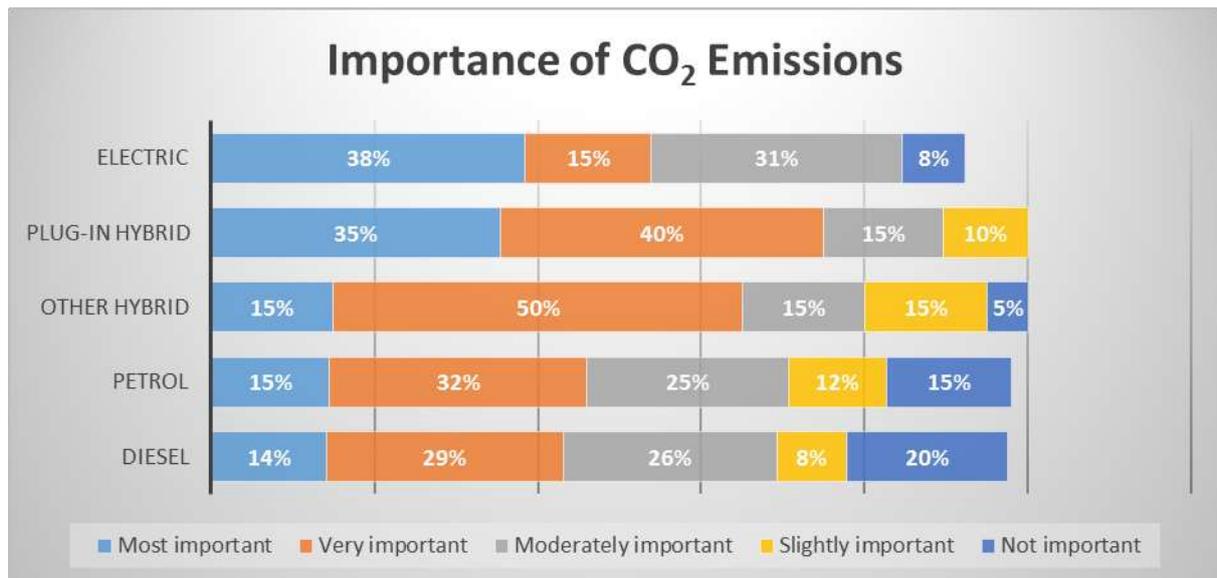
Respondents were asked how important the information on CO₂ emissions and fuel and electricity consumption were in their decision-making. Figure 7 shows that fuel and electricity consumption was generally considered more important than CO₂ emissions, with 66% of respondents finding this information at least “very important”, compared to 47% for CO₂ emissions.

Figure 7: How important was information on the CO₂ emissions and fuel / electricity consumption in influencing your final choice of car?



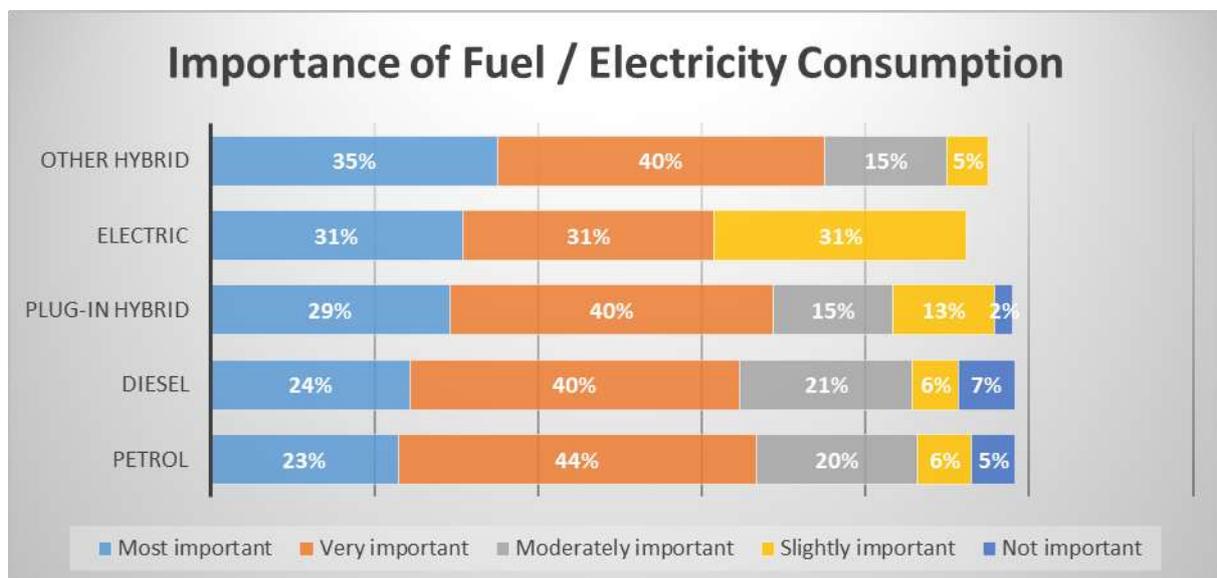
Breaking the responses down by the fuel type of the car chosen by the respondent shows a divergence in the responses for CO₂ emissions (see Figure 8). These are of higher importance to electric and plug-in hybrid customers, with 38% and 35% of respondents considering this factor to be “most important” respectively. 20% of diesel and 15% of petrol customers do not consider the information important.

Figure 8: Importance of CO₂ emissions information split by fuel type

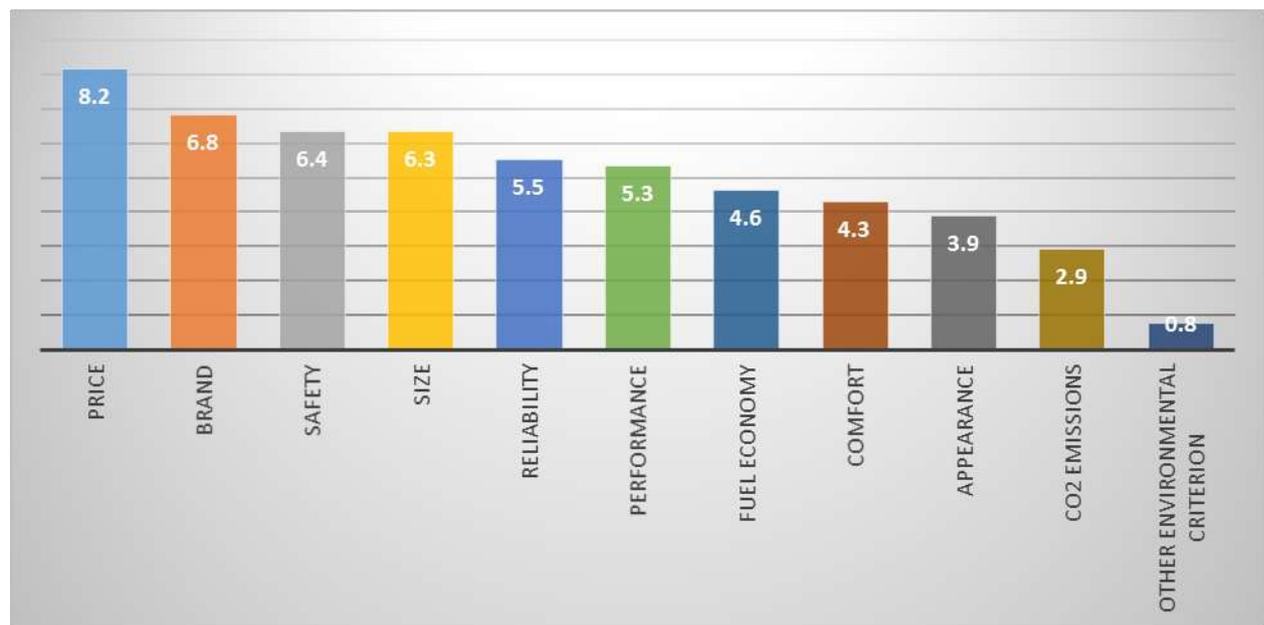


The responses for fuel and electricity consumption differ less between fuel types (see Figure 9). This perhaps reflects previous research that indicates that customers consider this information to be a proxy for running costs. The majority of respondents for all fuel types found this information to be at least “very important”.

Figure 9 Importance of fuel / electricity consumption split by fuel type



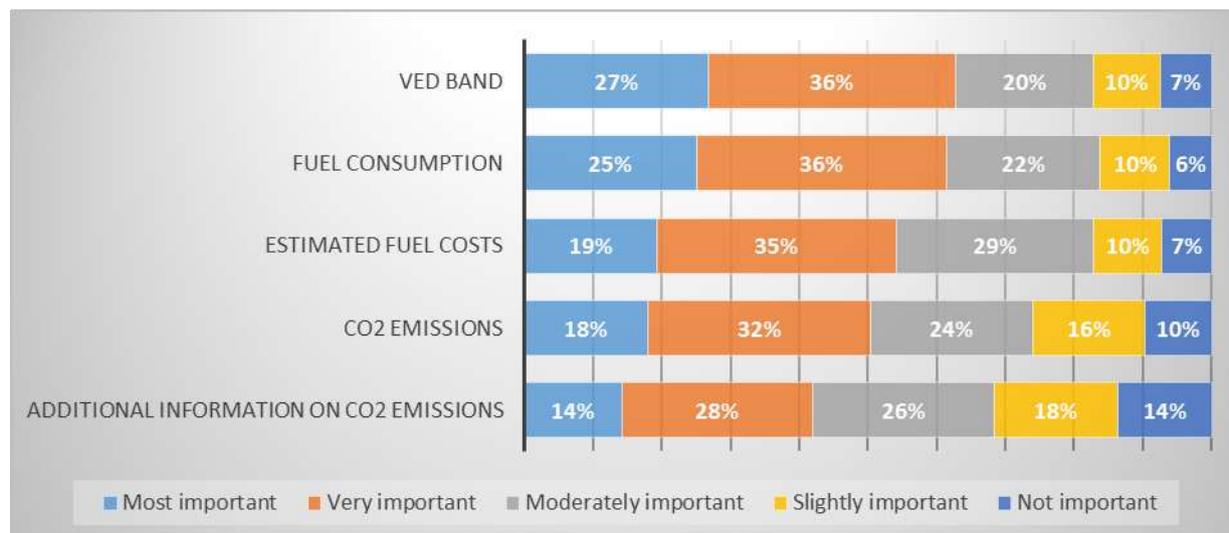
Respondents were then asked to rank a variety of factors in terms of how important each was in the decision-making process. Responses to this question were scored on a scale of 0 to 10 based on the priority awarded each factor and the results are shown in Figure 10.

Figure 10: Prioritisation of factors in order of importance when choosing a car

Despite the responses to the previous questions indicating a high level of importance of CO₂ emissions and fuel economy, when asked to compare different factors that might affect choice of car, these fell to a much lower priority. Price, brand, safety and size were given higher priorities than fuel economy, which ranked 7th. CO₂ emissions were the second lowest priority, rated slightly higher than “other environmental criterion”. This contrasts significantly with 2010 report for the LowCVP, which identified fuel economy / running costs as the most important factor, with price only fourth (see Section 3.1).

Respondents were asked to consider the importance of the various pieces of information on the label for their decision-making. Responses have been split between the fuel-type of car eventually purchased. The following considers responses to each piece of information in turn. Figure 11 shows the results for the petrol, diesel and non-plug-in hybrid customers. VED band and fuel consumption were given the highest priority of the information provided. This supports previous research which has found that customers tend to be most interested in factors that will affect cost of ownership. Additional information on CO₂ emissions was the least important, with 14% of respondents considering it not important at all.

Figure 11: Responses by petrol, diesel and non-plug-in hybrid owners



For the smaller sample of PHEV customers, VED band information is also most often considered “most important”, with 54% of respondents giving this factor the top rating (see figure 12). However, when considering factors rated at least “very important”, VED band information (79%) is joined by CO₂ emissions (81%), electric range (78%) and electric energy consumption (74%) in having high importance. It is interesting that fuel consumption is now the second least important factor and 8% of respondents find this information to not be important.

The responses change again for BEV customers, as shown in Figure 13, although this is from a very small sample. CO₂ emissions information is considered the most important factor, with 54% of respondents indicating that this is the most important piece of information on the label. When taking account of all responses of both “most important” and “very important” information, CO₂ emissions are followed by fuel consumption and VED band (both 67%). Fuel consumption was, however, also considered unimportant for 17% of respondents. Also perhaps interesting is that 31% of BEV customers found information on electric energy consumption to be only slightly or not important.

Figure 12: Response by plug-in hybrid owners

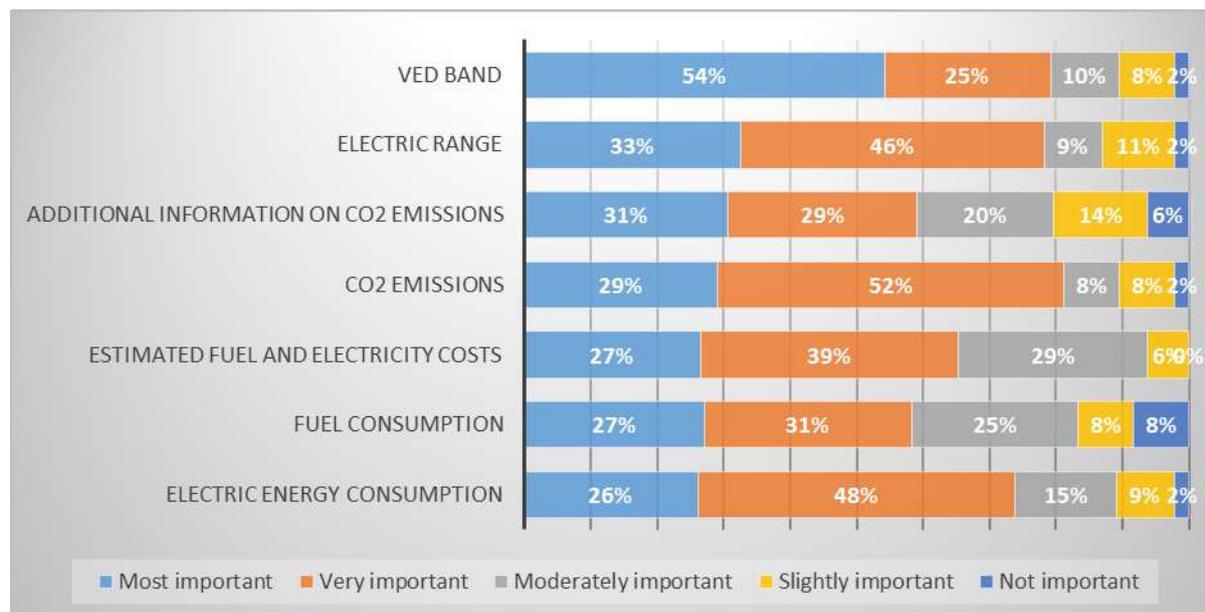
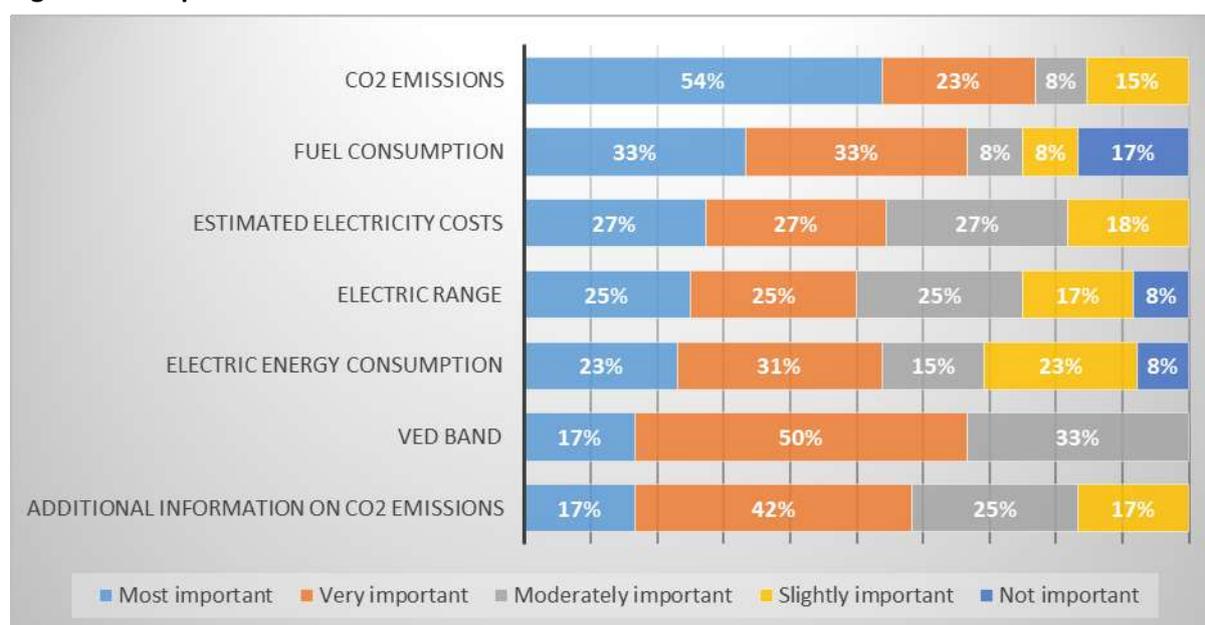
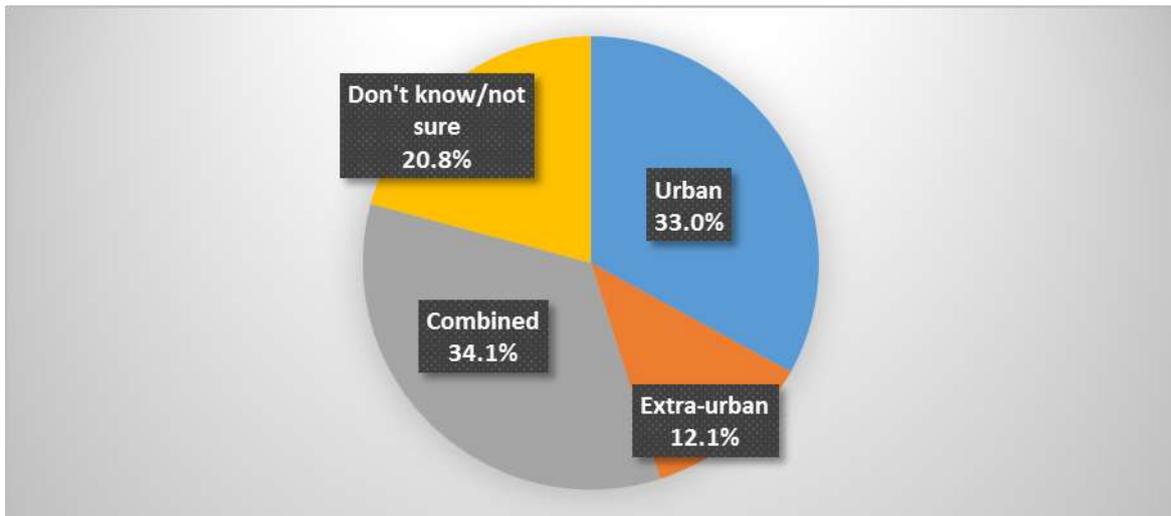


Figure 13: Responses from electric vehicle owners



Finally, respondents were asked which format for fuel consumption was most useful (see Figure 14). The combined and urban figures were the most often chosen, with 34.1% and 33.0%, respectively. 20.8% of respondents did not know or were not sure. It is not clear from the survey whether this means they were unfamiliar with the meaning of these terms, however previous research has suggested that there is a need to change the terminology to make the information easier to understand.

Figure 14: What fuel consumption figure is most useful?



6. Summary of the results of the interviews with manufacturers and dealers

As noted in Section 2, the interviews with manufacturers and dealers were based on a similar set of questions. The responses to the interviews are discussed in this section. However, where questions were similar to questions asked in the dealers' survey, responses from dealers are covered in the discussion on the dealers' survey (see Section 7).

6.1 The importance of providing information

Most of the **manufacturers** believed that it was equally important to inform potential car buyers of the CO₂ emissions and fuel economy of new diesel and petrol cars, although one highlighted CO₂ emissions and the other fuel economy as being most important. A common reasoning was that CO₂ emissions affected the tax band of the vehicle, while fuel economy directly affected the costs of running the vehicle. It was also noted that awareness of CO₂ emissions was increasing, particularly as a result of recent media stories. The general view was that it will continue to remain important to inform potential buyers of the CO₂ emissions and fuel economy, particularly as the transition to the new WLTP test cycle would bring the figures closer to a driver's real world experience. One interviewee noted that the future importance of CO₂ emissions would depend on how the regulatory framework developed, while another noted that in the longer term the information would become less relevant, as the transition to electric cars continues.

For **electric cars**, the common view was that it was important to inform potential buyers of the range of these cars, as this was the major issue for these vehicles compared to petrol or diesel cars, although one manufacturer noted that for those who did buy such cars other considerations were probably more important, e.g. the impact on the environment. Informing potential buyers of the electricity consumption of electric cars was considered to be of less importance, even though it did impact on the costs incurred by drivers. One interviewee noted that the roll-out of smart meters could potentially make this cost more transparent. In the short-term, it was considered that providing information on an electric car's range would continue to be important, perhaps even more so as the cars were more widely bought, although its importance could decline in the longer-term, as the technology develops (and so range becomes less of an issue) and the charging infrastructure expands and improves.

From the perspective of **dealers**, it was considered more important to inform consumers of the fuel economy of cars than their CO₂ emissions. Two noted that the latter had been important until recently, but that the changes to VED in the recent years, which made the VED the same for most cars after the first year, meant that CO₂ emissions were now less important for private buyers. It was noted that the first year VED differential was less visible to buyers, as this was usually included in the vehicle price in showrooms.

As a result of the benefit in kind (BIK) tax framework for **company cars**, CO₂ emissions were still considered to be of crucial importance to corporate buyers. Indeed, one dealer suggested that favourable BIK rates encouraged buyers to purchase PHEVs even when a more efficient diesel would have better suited their needs, as the BIK benefits outweighed any potential fuel economy savings. One dealer also suggested that the fuel economy figures were not taken seriously as they had been inaccurate for such a long time. On a similar vein, another dealer noted that there would need to be education around the introduction of the WLTP in order to change buyers' expectations of the fuel economy figures.

Dealers had less experience with **electric cars**. One noted that it was important to inform potential buyers about range, while another noted that many of those interested in buying an electric car often knew more than the dealer did, so were already informed on all aspects of the car. This dealer also noted that finding information on the performance of electric cars was often difficult, as the DVLA's log book was not yet set up to record this information.

Information on VED (the band or the costs) and the fuel economy figures, in MPG, were raised most frequently by manufacturers (by four of the six) when they were asked which were the three **most important pieces of information on the label** for consumers relating to petrol and diesel cars. The coloured bars, fuel costs over 12 months and CO₂ emissions were each mentioned twice. The responses from dealers were similar with VED and MPG being considered to be most important by the majority, with CO₂ emissions also mentioned as being important. Three dealers also noted the usefulness of the colour-coded bands, with one noting the benefit of the similarity with the white goods label. One manufacturer suggested that, given its importance to consumers, MPG could even be the basis of coloured bands, while another felt that information on the emissions of the oxides of nitrogen (NO_x emissions) would be beneficial. It was also suggested that the label overall – apart from the colour bands – was text heavy.

Three of the manufacturers argued that the label – as it stands – was not that useful for **electric or plug-in hybrid cars**. It was noted that there are a lot of 'n/a' entries on the labels for BEVs in particular, which was of little value to consumers and indeed risked confusing them. The merits of having the colour-coded bars for BEVs was mentioned by a couple of manufacturers. It was suggested that while these were still in a minority, the label served to underline their better CO₂ emissions performance compared to ICEVs. The electric range of BEVs and PHEVs was considered to be important information for consumers, with real world running costs and electricity consumption mentioned for BEVs and CO₂ emissions, MPG and the VED band mentioned for PHEVs. Suggestions for information for a BEV label included the impact of different charging options and charging times, as well as some means of comparing different drivetrains in a meaningful way. For PHEVs, a couple of dealers suggested that it needed to be underlined that a PHEV only has the potential to deliver good fuel economy figures when it was charged, while another suggested that their combined energy (from both fuel sources) and NO_x emissions could be included.

As noted above, individual dealers had less experience with BEVs and PHEVs. Electric range was mentioned as being most important by one, while another suggested that information that was missing included the whole life impact and the cost of a typical charge. The latter dealer also suggested that it would be important to start thinking about which information to present for hydrogen vehicles, while underlining that this should again be based on lifecycle impacts.

6.2 Views on the different elements required by the Regulations

Manufacturers generally felt that the **label** was important in increasing the awareness of potential car buyers about the CO₂ emissions and fuel economy of new cars, as a result of its location at the point of purchase. Two noted that the fact that consumers would be familiar with the label's design, having seen it elsewhere, e.g. on white goods and buildings, was beneficial. It was noted, however, that the label was only relevant to the model on display. On the other hand, respondents were generally not convinced of the importance of either the **fuel economy guide** or the **poster** in their current format. (Electronic displays did not seem to be used.) The presence of the relevant information online and the fact that potential car buyers visited car showrooms less than they used to, have both contributed to these being less important.

Having the information in **promotional literature** was considered to be important, although different respondents highlighted different elements in this respect. One interviewee proposed that the information should only be required on material used in the later part of the purchase cycle, but not on more brand-orientated material. Others noted that having the information in manufacturers' brochures and on manufacturers' websites was important, but they were less convinced of the value of having the information on other material, such as press adverts, magazines or on outdoor posters. It was noted that providing a range of figures in such material was already challenging, and would become more so, once the WLTP had been fully introduced. The **VCA's online database** was also considered to be important by some manufacturers, as this was a way of comparing information between different manufacturers. However, there were doubts as to how widely consumers used this compared to other independent sites linked to various publications, and even the extent to which consumers were aware of the database's existence.

The perspective of **dealers** was similar to that of manufacturers, as they considered that having the information on the label and promotional literature was important, while the fuel economy guide, the poster and the VCA's database were less important. The label's position next to the car, and its similarity to the label used on white goods, were considered to be positives. One dealer, whose dealership sold a 'premium' brand, was less convinced of the value of the label as he was not convinced that people looked at it. Awareness of the existence of the fuel economy guide and the VCA's database was not high, even amongst the dealers interviewed – none could remember the fuel economy guide ever being asked for. The poster was considered to contain too much information to be of any value to potential buyers browsing in a showroom.

Although views amongst dealers and manufacturers differed as to which was most important, the label and the promotional literature were generally highlighted as the two **most useful elements**, with the VCA's database also being mentioned as being important by some manufacturers. The main comments with respect to how to **improve the label** were that the requirements could be updated to allow the label to be viewed electronically in the showrooms, which could allow for comparison and the presentation of more detailed information including on model variations, or use QR technology to allow further information to be accessed online. The importance of including information that related better to customers' real world experience was also noted, while a manufacturer suggested including industry average figures to better enable comparisons (or to enable access to such comparisons).

There were suggestions as to how the **poster might be improved**. A dealer considered that it could be used to explain the high level differences, and benefits, of cars with different powertrains, as many customers still did not understand these. One manufacturer considered that it might be better if the information on the poster could be accessed electronically. Another suggested that electronic displays could be used to illustrate the impact on CO₂ emissions under the WLTP of adding different options, while a third proposed grouping the information on the poster by model. Dealers suggested that the **promotional literature could be improved** by making the information on CO₂ emissions and fuel economy more prominent in manufacturers' brochures, or even by requiring the label to be displayed in the brochure. A manufacturer suggested that there should be guidance on the minimum size of the digital information and that it should be only one click away, including on manufacturers' websites.

6.3 The benefits, costs and impacts of the Regulations

Interviewees – both manufacturers and dealers – identified similar benefits that the Regulations had brought to **potential cars buyers**. In addition to the actual provision of the information itself, the main benefit identified was increased transparency, i.e. enabling consumers to make an informed choice by providing an easy way to find comparable, relevant information in a uniform format across manufacturers. Another benefit that was identified was the promotion of environmentally-beneficial behaviour, as the information makes clear the environmental impacts of drivers' actions.

The benefits of the Regulations for **manufacturers**, and to some extent **dealers**, were considered to be similar to those for potential car buyers, in that they provided a structured and consistent way of providing information to consumers, particularly on the total costs of ownership, and that they increased the focus on the environment. The fact that the information was seen as coming from an independent source, and that the colour-coded aspect of the label has been consistent over time and is similar to the white goods label, were also considered to be important. It was also noted that the Regulations had contributed, along with other regulatory requirements, to the development of more fuel efficient engines and of better technology. For dealers, it was noted that the Regulations made sure that the information was available and communicated in a consistent manner in a sector that has a high staff turnover. It was also suggested that the provision of information on alternative powertrains helps dealers communicate technology trends to consumers and that it helped them to respond better to customers' needs. Lower CO₂ emissions and increased environmental awareness were identified as the main benefits to **society** more generally, although it was noted that it was the link to financial considerations that was important in delivering less environmentally-damaging behaviour.

No interviewee was able to put a single figure on the **costs** of complying with the Regulations, although it was noted that there were always costs associated with changes to the regulatory system. In relation to the label, some manufacturers pay the VCA for their dealers to be able to use the VCA's system to print out labels, while others have chosen to set up their own systems, e.g. intranet sites, for printing the labels. In one case, a manufacturer's choice to set up their own system was directly as a result of the cost of using the VCA's system. It was noted that there was a marginal cost associated with printing the labels, but this was not considered to be an issue for dealers, although it was noted that it might become more of an issue under the WLTP. It was also noted that it requires resources to make sure that the labels on display are up-to-date.

Given its perceived unimportance, the costs associated with the poster were considered to be more of an issue. One manufacturer suggested that it costs £3,000 to £4,000 per quarter to make sure that the poster was kept up-to-date with their model range. Another estimated that it took a day a month to ensure that their internal sites, which were used by their dealers to access both labels and posters, were kept up-to-date. A dealer estimated that the costs of complying with the Regulations – specifically in relation to the labels and the posters – associated with the 430 cars that they sold annually were between £80 and £90 a month. Estimates of the time needed by manufacturers to update the VCA's database ranged from 0.5 days a month to a few days for each update. Having the information on websites and in printed material was not considered to be an issue by one manufacturer.

Interviewees were asked whether they were aware of any **qualitative or quantitative evidence** of increased awareness of CO₂ emissions and fuel economy amongst consumers, or increased sales of more efficient cars, as a result of the Regulations. Some noted that they believed that there was an increased awareness, and that sales were moving in the direction of more efficient cars, although it

was noted that other factors also contributed to these trends. It was suggested, in particular for fleet sales, that the link between a car's CO₂ emissions and the tax to be paid had increased awareness of CO₂ emissions and MPG amongst fleet buyers.

6.4 Potential improvements to the Regulations

There were some suggestions as to how the effectiveness of the Regulations could be improved. There were some concerns about the **lack of clarity** of some aspects of the existing Regulations. One manufacturer noted that they often have to seek advice from their legal team about what is required. Hence, they considered that the Regulations, or perhaps associated guidelines, could be clearer as to what information had to be mentioned where in all cases. Another manufacturer noted that a guide for manufacturers presented in layman's terms to make it clear what information needed to be included as standard, and what the various processes were, would be useful. From the perspective of dealers, one noted that fuel economy figures that better reflected real life experience were important, although it was also noted that the WLTP will pose a challenge to dealers as the expectations of consumers will change. Another dealer wanted consumers to be able to compare different cars on the basis of their lifecycle emissions, while a third proposed that not having the poster would make the Regulations easier for them.

One manufacturer noted that the Regulations should also apply to **websites** and that only type approved, official data should be allowed to be published, while another noted that the Regulations needed to change to reflect that consumers now do more research online. One dealer suggested that the mandatory inclusion of at least the coloured bars on relevant websites, whenever consumers were presented with the price of a car, would help to engage consumers, while another noted that the information was not presented on the internet as well as it was in the colour-coded bars on the label.

More consideration of how to present the **information online** was also needed according to a couple of manufacturers. One argued that there was a need for a user-friendly, desktop and mobile platform, to provide a credible central resource for the communication of information and of future developments. Another called for a central source of information that went beyond CO₂ emissions to include changing trends, such as electrification and the different ways of using cars. A third called for an easy-to-use website, where the information was accessible in one click, that enables comparisons between the models of different manufacturers. In their view there was a need for a website that was seen as independent of the government (unlike the VCA's). Another called for more communication to raise awareness of the VCA's website, and also that imagery should be preferred to words to make information easier to understand.

A dealer also noted that awareness of the VCA's website was not as good as it might be, while a couple of dealers called for better information to be provided about the differences between the different types of powertrains. It was also suggested that there was a need for more innovative ways to help people understand the information. An example of such an approach was proposed by one manufacturer, which was undertaking trials in which 'black boxes' were fitted to demonstration vehicles that had an electric mode. These monitored the driving performance of those taking test drives and then emailed this information to customers afterwards with the aim of making it clear the extent of the use of the electric-drive mode and thus make the benefits of hybrid vehicles clear.

The inclusion of information on air pollutant emissions was mentioned as a potential means of improving the label by three manufacturers, as well as by a dealer. The importance of standardised processes to which manufacturers did not have to subscribe was considered important by one of the

manufacturers that had chosen not to use the VCA's system for printing labels. A dealer noted that it was important to ensure that the DVLA's logbooks were able to handle all of the relevant information for electric cars, and also for hydrogen cars.

There were a number of comments on the way in which ***regulatory changes had been introduced***. One manufacturer called for changes to be made in a more consistent and coordinated manner, noting that the recent changes to the taxation of diesel were brought in over very short timescales. Another noted that it was important to implement the WLTP changes progressively to help consumers keep up with the changes, e.g. by first changing this for MPG and then CO₂ emissions once the taxation framework was available as long as this was well explained. More generally, another manufacturer noted that it was important that any legislative change gave them sufficient lead time, was transparent, considered the impact on consumers and the market, and that there was a dialogue with manufacturers; another also explicitly noted the last point to ensure that future requirements were completely clear. It was also noted that there was a need to work with other industry bodies, including the ASA, about how information should be presented.

Two dealers suggested that the negative messages coming out about diesels, and in the longer-term the end of the sale of ICEVs, were not helpful. They noted that it was important for there to be clearer communication around the benefits of new diesel cars, as did one manufacturer. A dealer noted that the proposed end of sale of ICEVs had caused confusion as some consumers thought that this had meant that no ICEVs would be allowed on the road from 2040.

7. Summary of the results of the dealers' survey

The dealers' survey was undertaken online and was online for the month of February 2018; 91 responses were received from UK dealers. They represent a range of business size and geographical scope, as shown in Figure 15. The majority considered their business to be a medium or large network of dealers (87%), with 46% have dealerships regionally and 36% nationally.

A range of car manufacturers and brands are covered by respondents. Figure 16 displays the brands covered split by the manufacturing group. As such, VW Group includes Audi, VW, Seat, Skoda and other brands under this umbrella, PSA includes Peugeot, Citroen and DS, etc.

Two dealerships listed multiple luxury brands that are either independent or associated with different manufacturer groups. As such these have been grouped under the heading "luxury brands".

Figure 15: Size and geographical scope of dealerships

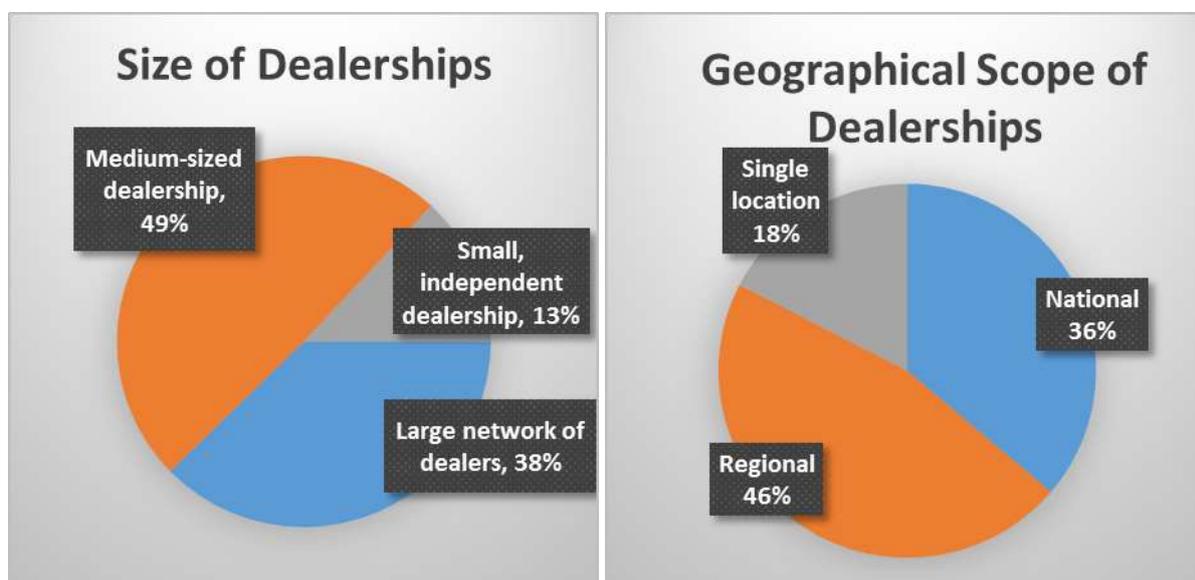
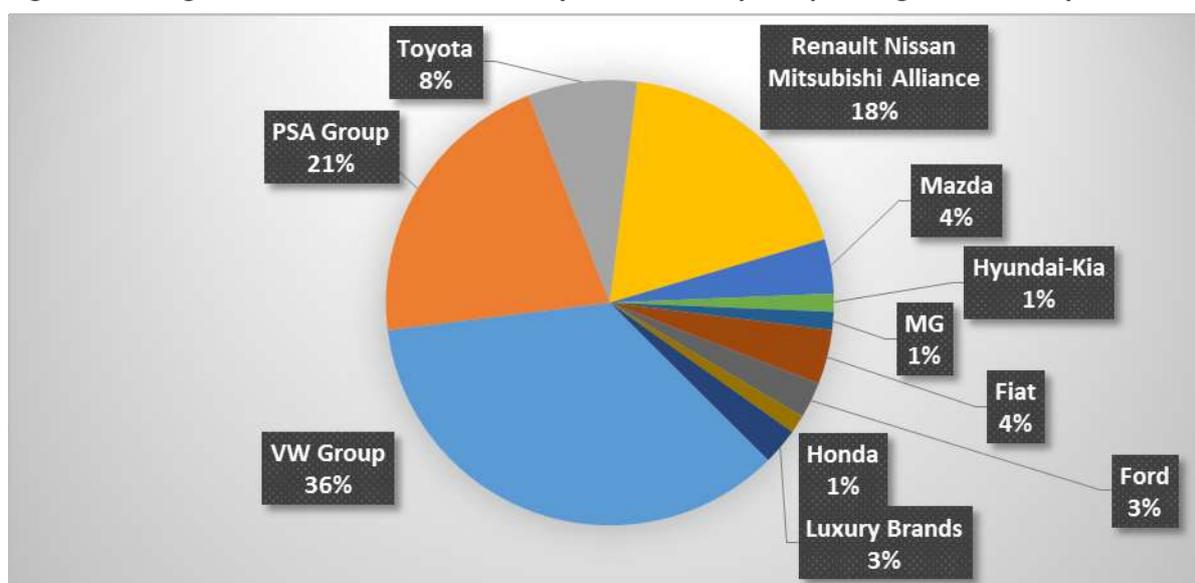


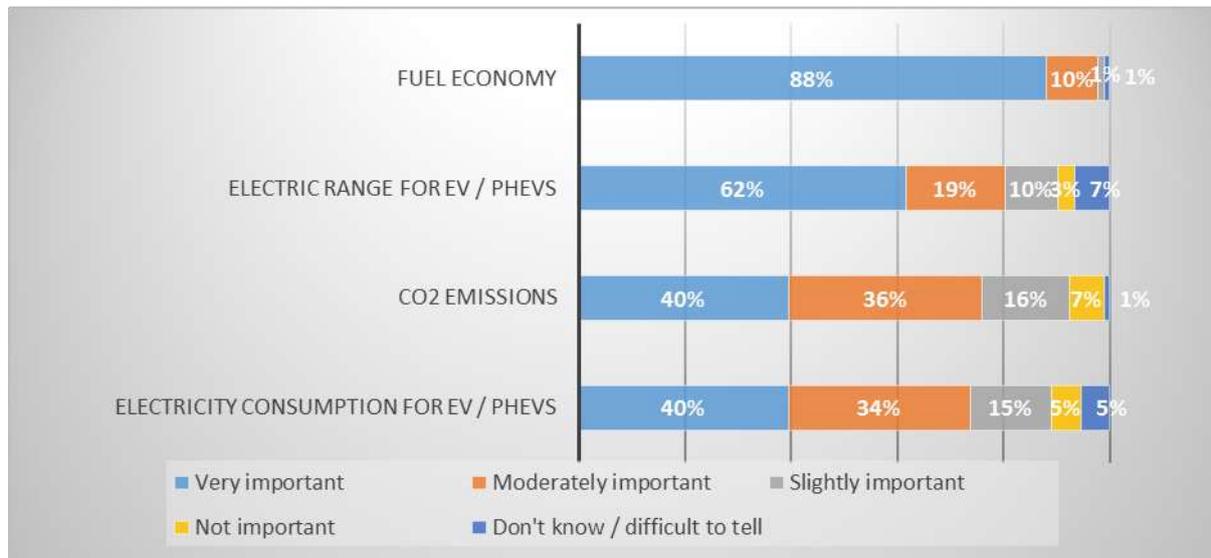
Figure 16: Range of manufacturers covered by the dealerships responding to the survey



As noted above, some questions that were asked to dealers in the interviews were similar to those asked in the survey. Hence, the results of the survey are presented below, complemented by a discussion of the responses to interview questions where these are similar.

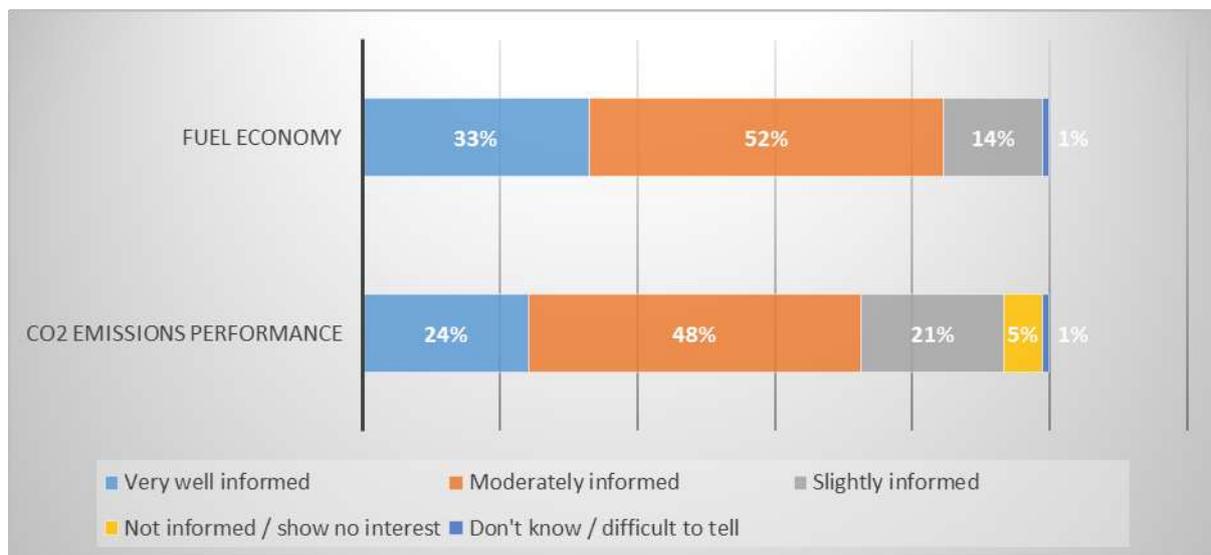
Dealers were first asked to consider how important certain factors were for customers (see Figure 17) and how well informed they are about fuel economy and CO₂ emissions before they arrive at the dealership (see Figure 18). The overwhelming majority of respondents rated fuel economy as very important to customers. CO₂ emissions were generally considered the least important, with 23% rating this information as only slightly or not important at all.

Figure 17: How important to potential car buyers is the following?



Most respondents felt customers were at least moderately informed about both fuel economy (85%) and CO₂ emissions (72%) before visiting the dealership. This suggests a growing trend that customers are researching prior to visiting a showroom. Customers are considered better informed about fuel economy, with 33% very well informed. 5% felt customers were not informed or showed no interest in CO₂ emissions.

Figure 18: How well informed are customers before they visit the dealership about the following?



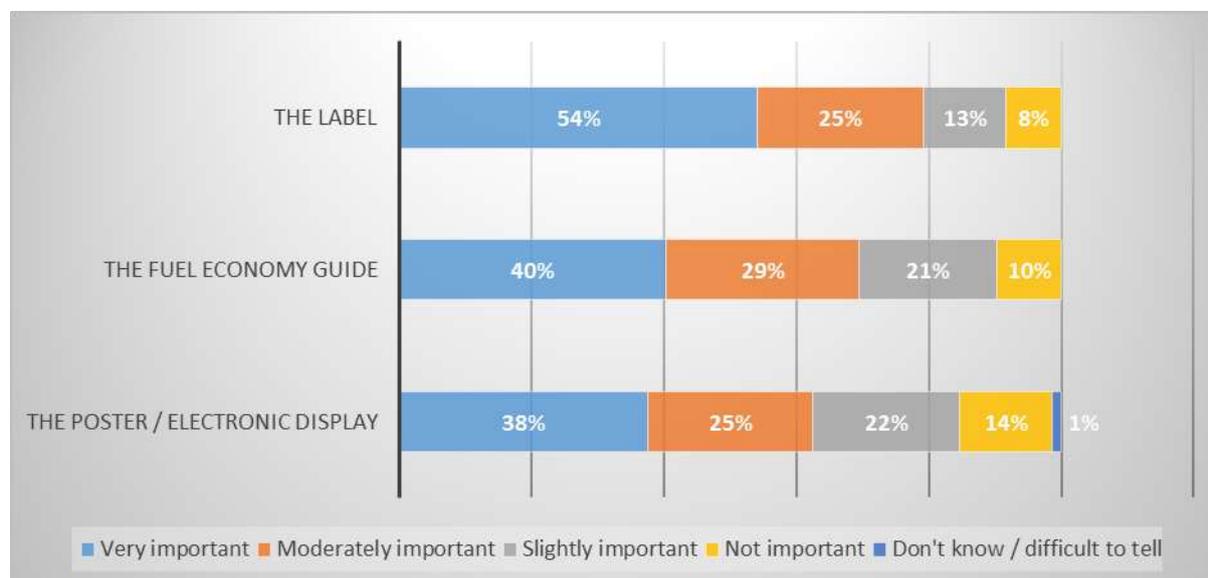
When asked whether there was information on the label, either for petrol/diesel, electric or plug-in hybrid cars, that consumers did not understand, 51% of respondents stated they did not think there were any. By contrast, some felt most of it was misunderstood, with comments such as the need for “presenting information in plain English or in layman's terms” and “fuel consumption needs to be reworded to Town Driving, High Speed (Motorway) Driving”. Two respondents felt customers were confused about the new tax bands.

Some respondents felt customers were confused by information related to hybrid vehicles, including a comment that the wording of “depleted” was misleading as the batteries regenerate, and the importance of reflecting variations based on conditions. 10% of respondents to this question simply felt that customers are not interested in the information.

In the experience of the dealers interviewed, there was no information on the label that consumers did not understand. The main issue raised was in relation to the reliability of the fuel economy figures, with one noting that using this figure, which was not reflective of real world figures, along with an assumed fuel price, to estimate the costs per 12,000 miles was not that useful, as neither of these would be the actual figures experienced by drivers. Another dealer noted that consumers still often did not understand the differences between hybrids and PHEVs, while the information on the latter should include the need to keep the batteries charged.

When considering which information was important in helping to inform potential car buyers about CO₂ emissions performance and fuel economy, the label was seen as the most important information, with 54% finding this “very important” (see Figure 19). The poster or electronic display was considered the least important, with 14% stating it was not important at all.

Figure 19: How important is the following in helping to inform potential car buyers of the CO₂ emissions performance and fuel economy of new cars?

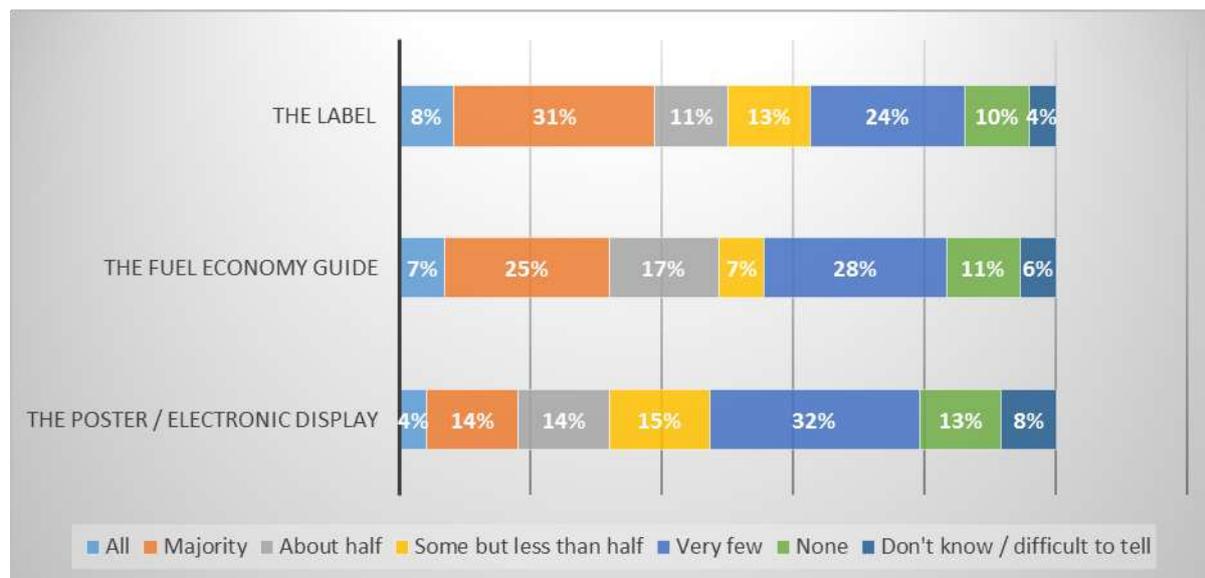


The dealers who were interviewed generally felt that potential car buyers, particularly company car buyers, were reasonably well informed of both CO₂ emissions and fuel economy before they came into the showroom. Two noted that there had been more interest from potential car buyers in buying petrol cars than diesel cars in the last year, although many consumers did not appreciate that petrol cars generally had a worse performance from the perspective of fuel economy. One suggested that the choice of fuel was having more of an impact than information on fuel economy

and CO₂ emissions at the moment. Another noted that not presenting ‘cradle to grave’ emissions presented electric cars in a better light than they should be.

Similarly to the previous question, when asked about the proportion of car buyers thought to show an interest, customers were perceived to show the most interest in the label, with 39% of respondents believing the majority or all showed an interest in this (see Figure 20). This contrasts with 47% of respondents who felt less than half, very few or none of their customers showed an interest in this.

Figure 20: On a typical day, what proportion of potential car buyers show an interest in the following:



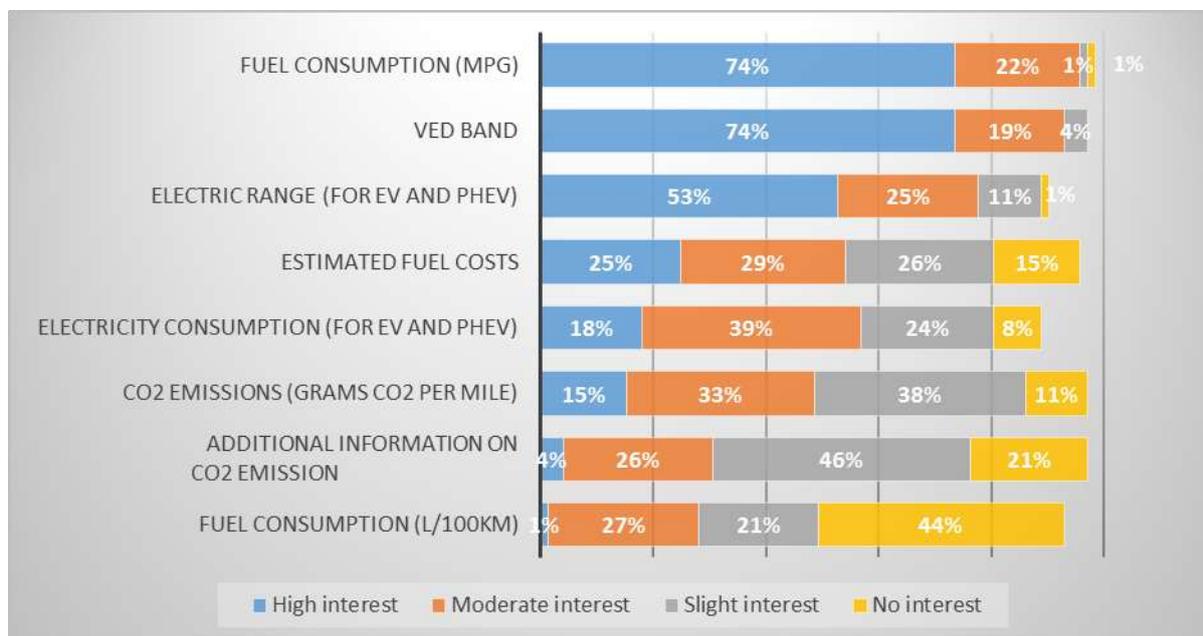
For the guide and poster/electronic display, interest was considered to be even lower: 60% of respondents felt less than half, very few or none of their customers displayed interest in the poster (46% for the guide).

All of the dealers that were interviewed directly (i.e. not after having submitted a survey), also identified the label as the most popular element of the requirements, suggesting that between 25% and 90% of potential car buyers looked at the label. One did suggest that, if the label was not present, most people would probably not notice that it was missing, while it was suggested that the label was part of the information provided on the lectern next to the car, so people did look at it. Each of these dealers suggested that no potential car buyers showed an interest in either the poster or the fuel economy guide. A couple of the dealers that were interviewed noted that it was difficult to know the extent to which potential buyers looked at either the information in brochures or that on the VCA’s online database, although their impression was consumers showed more interest in the promotional literature, as few mentioned the VCA’s database.

In terms of the information on the label, fuel economy and VED band were considered to be the most important pieces of information, as can be seen on Figure 21. This again reflects previous research indicating that customers are most concerned with information that affects cost of ownership. However, estimates of fuel costs were considered to be of less interest. This also supports previous research findings that customers prefer to use fuel economy as a proxy for costs, perhaps as a reflection of fluctuating fuel prices. Fuel consumption in litres per 100km was felt to be of no interest to customers by 44% of respondents.

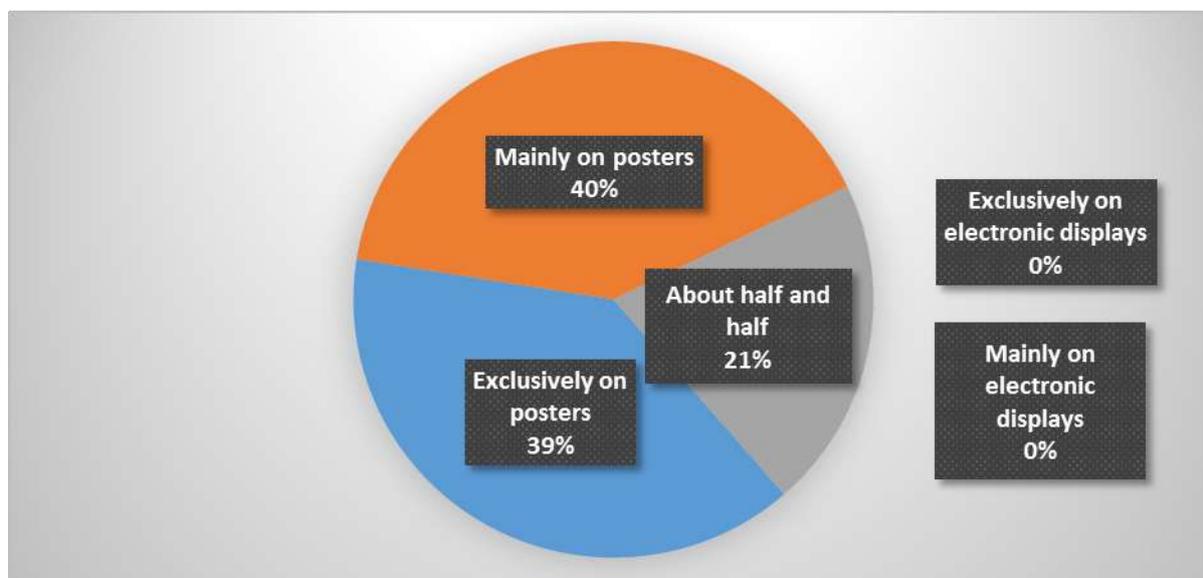
For BEV and PHEV customers, electric range was considered to be of more interest than electricity consumption, with 53% considering this of high interest compared to 18%.

Figure 21: In your experience, which information on the label is of most interest to potential car buyers?



When asked whether dealerships presented information on fuel economy and CO₂ emissions on posters or on electronic displays, the overwhelming response was that posters are still used in preference to electronic displays (Figure 22). No respondents displayed information mainly or exclusively on electronic displays.

Figure 22: To what extent does your dealership choose to present information on fuel economy and CO₂ emissions on posters or on electronic displays?



All dealers who were interviewed without having first responded to the survey used a poster rather than an electronic display. One of the dealers interviewed after having completed the survey noted that they had previously used an electronic display but had found that there was little interest from potential car buyers in watching a digital display while browsing around a showroom.

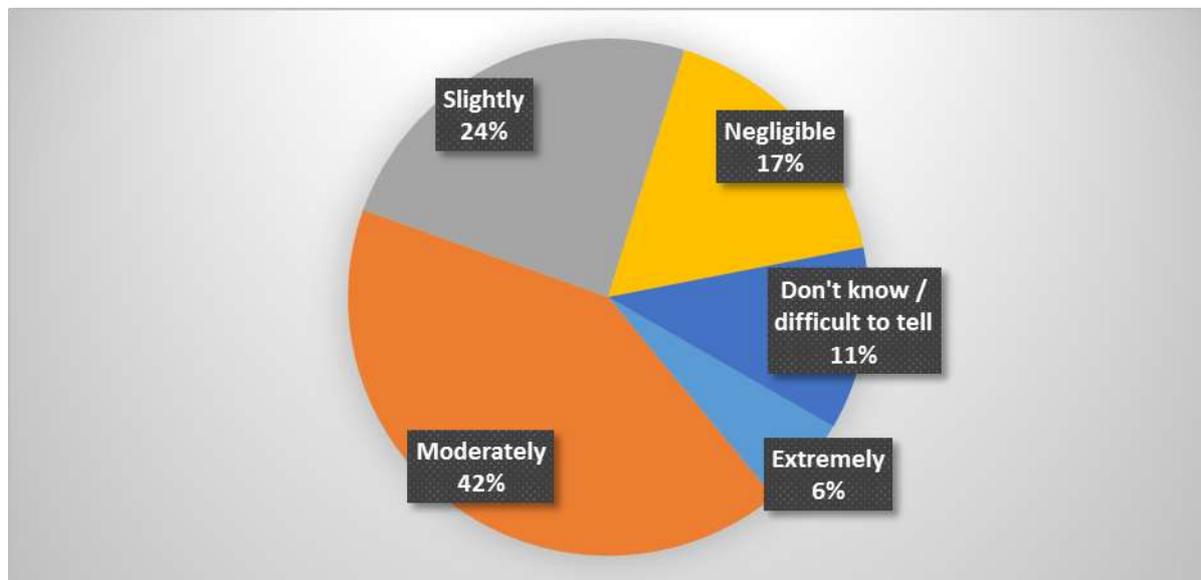
In terms of requests for the printed version of the guide, the majority (59%) said they received no requests. A further 23% stated that requests were rare or with less than 10 in a year. Only 3 respondents indicated slightly more requests, with one response of “several”, one of “about 20” and another of 50. 13% were unsure.

Of those dealers that were interviewed without having first responded to the survey, none could remember any requests from potential car buyers for the printed version of the fuel economy guide.

Clearly the guide is not a well-used source of information. However, this does seem to contradict many answers to questions 4 and 5, where 40% felt the guide was very important for informing customers and 32% showed an interest in the guide in a typical day.

Respondents were then asked about any perceived burden resulting from the requirements. Figure 23 shows how dealers considered the scale of this. 66% of respondents felt the requirements presented a moderate or slight burden. 17% felt the burden was negligible. Only 6% have found them extremely burdensome.

Figure 23: How burdensome have these requirements been in relation to other regulatory requirements?



As in the interviews, in the survey dealers were also asked for ways in which the **effectiveness of the Regulations might be improved**, and **how their implementation might be made easier for dealers**. There were twelve suggestions as to how to improve the effectiveness of the Regulations and 10 as to how the implementation might be made easier for dealers. The most common suggestion for improving the effectiveness of the Regulations (made by four of the 12 who commented) was to simplify the information or make it clearer, while the most common suggestion for making implementation easier for manufacturers (from six of the ten respondents) was to keep it simple. Other suggestions for improving the effectiveness of the Regulations were to keep the started information up-to-date, for the information to be more realistic and for the information to be available online. One dealer suggested that the Regulations were not necessary as the information in the brochures were sufficient, while another commented that there was generally confusion about the Regulations. A suggestion made in different ways by three dealers as to how the implementation of the Regulations might be made easier for them was to shift more of the onus onto manufacturers, e.g. that cars arrive in showrooms with a label. One proposed that the requirement to display a poster containing information on every new car model should be removed.

Finally, there were thirteen suggestions from dealers in the survey as to what **additional information could be provided to consumers to help them purchase a more fuel-efficient car**. Again, the need for realistic or simple and clear information was mentioned by five respondents. Suggestions for additional information to be presented included: a clearer message for hybrid cars; a comparison of air pollutants emissions with other models; and a cost comparison for electric cars compared to ICEVs. One suggested that more emphasis could be put on the colour chart to help customers become more familiar with this, while another dealer suggested that the requirement to present fuel economy information in litres/km be removed. Finally, two dealers underlined the importance of ensuring that customers are provided with sufficient information to help them choose the car that best suits their needs. One of these referred to the need for clarity on the provision of information relating to new diesel cars, while the other's comment related to the perceived 'pushing' of particular models by manufacturers.

8. Discussion, conclusions and recommendations

8.1 Discussion

The **label** seems to be a positive element of the Regulations – particularly the coloured bars based on the EU energy label for household products. These coloured bars were considered to be good in that they were a strong visual element of the label, while the similarity between the car label and the labels that consumers see on white goods and also in buildings was also considered to be positive. As one interviewee noted, even if consumers only buy a new car every couple of years, they will be familiar with the label having seen it elsewhere, which helps them to engage with it when they see it in the showroom. Generally, the position of the label – on or near the car in the showroom – was considered to be another positive, as it engaged consumers when they were next to the car that they were considering buying.

Of the information on the label, that which related directly to the money in the buyer's pocket was considered to be most important. In this respect, the presentation of information on VED and fuel economy was considered to be important in the interviews and by the responses to the car buyers' and dealers' survey (see, for example, Figure 10 and Figure 20). The fact that, at least until the end of March 2017, the VED that was to be paid throughout a car's lifetime was based on its CO₂ emissions, was considered to have helped to increase the awareness of the CO₂ emissions of cars. However, some dealers suggested that this effect may be reduced due to the changes to VED that have been in place since April 2017. Now, for most cars, only the first year of VED is dependent on a car's CO₂ emissions, which is incorporated into the total purchase price of the car that is presented to customers and is a relatively small proportion of the overall price. As an ongoing cost of ownership, VED, and therefore a car's CO₂ emissions, are now less relevant to new, private car buyers. For fleet buyers, the way in which the BIK scale charges were based on a car's CO₂ emissions was considered to have a strong influence on the decision as to which car to buy.

Even though the label contains fuel economy figures and estimated fuel costs for 12,000 miles, it was the former that seems to be of more interest to potential buyers. This was the finding of the 2010 and 2012 car buyer surveys, although not previous reports, and is suggested by the car buyer survey undertaken for this report. However, for potential buyers of new petrol or diesel cars, there was not much difference in how important 'fuel consumption' and 'estimated fuel costs' were considered to be, with 61% considering the former to be at least 'very important' and 54% the latter (see Figure 10). On the other hand, 96% of dealers considered that car buyers had at least a 'moderate interest' in fuel consumption (measured in MPG), while only 54% considered that new car buyers had this level of interest in 'estimated fuel costs' (see Figure 20). It was also underlined that the fuel economy figures presented to consumers needed to better represent real world performance.

The most relevant pieces of information on the label for BEV and PHEV car buyers, although admittedly these were from a lot smaller samples, were CO₂ emissions for the former and VED band for the latter (see Figure 11 and Figure 12, respectively). This provides some evidence to support the perception of some dealers of BEV buyers being motivated more by environmental considerations. The higher importance of VED for PHEVs, particularly combined with the comparatively low importance of fuel consumption, supports the suggestion of one dealer that for PHEV buyers VED is more important than fuel economy, although this may no longer be the case as a result of the recent changes in VED, as noted above.

Generally, the information on the label was considered to be the right information, although some suggested that having information on air pollutant emissions could be helpful. There were calls, particularly from dealers, for information to be simple and presented in layman's terms; the

suggestion from one dealer to use terms such as ‘town driving’ and ‘high speed driving’ instead of ‘urban’ and ‘extra urban’ to describe different levels of fuel consumption echoed the findings of previous reports for the LowCVP (see Section 3.1). There were some suggestions for additional information that should be included with respect to BEVs and PHEVs (some of which was also in line with previous LowCVP reports; see Section 3.1), while some manufacturers suggested that the label in its current format was not particularly useful for potential buyers of these vehicles.

The importance of CO₂ emissions, and even fuel economy, to consumers more generally, is put into perspective by the prioritisation of more general factors that consumers consider when buying a car. According to the car buyer survey undertaken for this report, fuel economy was only the seventh most important factor, while CO₂ emissions were 10th, with only ‘other environmental criterion’ being considered to be of less importance. However, to one extent, this prioritisation supports the findings in relation to the importance of the different pieces of information on the label: as with the information on the label, it was a financial consideration, i.e. the price of a car, that was identified as being the most important factor when choosing a car.

With regards to the **poster**, at least in its current format, the views of those who were interviewed were largely negative, which supported the findings of the EU evaluation. It was considered to contain too much information in a way that is not readily usable for potential car buyers, and was noted as incurring costs for manufacturers. Having said that, 24% of car buyers and 38% of dealers believed that the poster or electronic display was very important in informing car buyers of the CO₂ emissions and fuel economy of new cars, although it was still the least useful of the four elements required by the Regulations (see Figure 6 and Figure 18, respectively). As noted above, while 24% of car buyers believed that the poster was very important, only 20% were aware of its existence in response to a previous question (see Figure 5), which either suggests response bias or that the perceived importance was more theoretical than actual.

No dealer used only **electronic displays** instead of posters, although around a fifth said that posters and electronic displays were used in equal amounts. Of those interviewed, no dealer or manufacturer suggested that they used an electronic display, with one dealer noting that they used to have an electronic display, but that car buyers showed no interest in this. Perhaps the most interesting suggestion for improving the poster, as opposed to the electronic display (see below for a discussion on this), was to have a poster explaining the differences between, and benefits of, different types of powertrain.

As with the poster, there was not considered to be much in the way of added value from the **fuel economy guide**, either in its printed or CD ROM version. Similarly to the poster to some extent, the guide was considered to have probably been more important in the early years of the Regulations, when information on car’s CO₂ emissions and fuel economy were less widely available (largely as a result of the internet being less omnipotent). The VCA’s production of the guide has fallen significantly, while 82% of dealers said that there were either no requests for the guides each year, or that requests were rare. As with the poster, this message appears to be slightly contradicted by the findings of the surveys in which 33% of car buyers and 40% of dealers believed that the guide was a very important means of providing the information to consumers (see Figure 6 and Figure 18, respectively).

In relation to **promotional literature**, there were strongly positive views of the inclusion of information on new cars’ CO₂ emissions and fuel economy in manufacturers’ brochures and on their websites. If, in Figure 6, the different means of communicating the information to new car buyers were ranked by the total number of car buyers that believed each means was either ‘very important’ or ‘moderately important’, manufacturers’ brochures would be ranked first. Where views

were expressed, there was less support for having the information included in the small print of other printed material, which is the definition of ‘promotional literature’ in the Regulations. It was suggested by some dealers that the information could be more prominent in manufacturers’ brochures.

There were generally positive views about the **VCA’s online database**, although awareness of it appeared to be reasonably low. Only 20% of consumers were aware that it contained information on new cars’ CO₂ emissions and fuel economy, even though 31% thought that it was a very important means of communicating this information (see Figure 5 and Figure 6, respectively). As with the poster and guide, this might either suggest response bias or a theoretical view that such a database would be important. For those who were aware of the database, it provided a means of comparing between different manufacturers, which was something that neither the label nor manufacturers’ brochures did. Having said that, the VCA’s database receives 2.5 million page views per month, on average, which suggests that there are around 12 page views for each of the 2.5 million new cars registered in the UK each year⁶.

The importance of information on new cars’ CO₂ emissions and fuel economy being **online** was underlined by many interviewees. The proportion of car buyers who believed in the importance of having the information on websites was comparable, even if marginally less in some cases, to the highest ranked elements, such as the label, brochures, the guide and the online database. In light of the findings with respect to the poster, guide and online database, such support might be more theoretical than buyers actually having accessed the information. However, the importance of information on the internet was underlined by the fact that dealers considered that at least 72% of potential car buyers were at least moderately informed of the CO₂ emissions of new cars, and that customers now visit showrooms on fewer occasions before buying a car.

The potential for the increased use of **electronic means** for communicating information to consumers was mentioned on a number of occasions, particularly in the showroom. The extent to which it was possible to use a tablet in the showroom to communicate information on CO₂ emissions and fuel economy to consumers was mentioned, as it was considered that this could be potentially more beneficial than the static label. There was also a suggestion that links, e.g. QR codes, could be used on the label to allow potential car buyers to access more detailed information (in line with previous LowCVP research), including allowing comparisons between different manufacturers. It was also suggested that an electronic display might be the best means of communicating the additional complexity of the WLTP to consumers. There were also calls for a more central information point that could be used to communicate the ongoing developments in mobility, beyond simply CO₂ emissions, to consumers.

Overall, the Regulations were considered to have similar **benefits** for consumers, manufacturers and dealers, namely increased transparency as a result of the provision of the information in a comparable, uniform format across manufacturers. The explicit link between the car that a buyer was considering and its environmental impact was also considered to be beneficial in terms of potentially changing behaviour.

While it was noted that the Regulations have led to manufacturers incurring **costs**, as any changes to the regulatory system would, these were not generally considered to be significant. Ongoing costs with respect to the label and the inclusion of the information in promotional literature, were considered to be marginal. The exception to this was the poster, which was considered to be a burden by those interviewed, particularly given its perceived lack of effectiveness. In the survey,

⁶ The total number of new cars sold in 201 comes from SMMT (2018)

41% of dealers felt that the burden of the Regulations were negligible or only slight, 42% considered them to be moderately burdensome and 6% extremely burdensome. From the interviews, the main burden for dealers was considered to be the need to ensure that the poster and labels were up-to-date, and to print labels when new cars are delivered.

8.2 Conclusions

As was noted in Section 1, the purpose of the evaluation of the Regulations was to assess whether:

- The objectives of the Regulations have been achieved;
- The objectives remain appropriate; and
- They might have been achieved with less regulation.

The Regulations do not explicitly state what the objectives of the Regulations are; indeed, they note that the report on the evaluation of the Regulations should set these out. The Directive that the Regulations transpose does not explicitly state the objectives to the Directive either, simply stating that its purpose “is to ensure that information relating to the fuel economy and CO₂ emissions of new passenger cars offered for sale or lease in the Community is made available to consumers in order to enable consumers to make an informed choice”⁷. The evaluation of the Directive proposed some objectives, against which it undertook its evaluation, including that the Directive should:

- “Contribute to the development of a comprehensive framework complementing relevant supply-side measures at EU level;
- Enhance the effectiveness of fiscal measures at national level;
- Encourage manufacturers to take steps to reduce the fuel consumption of new cars; and
- Enable more informed purchase decisions and influence consumer choice in favour of more fuel efficient/less CO₂ emitting cars.” (Ricardo Energy & Environment and TEPR, 2016)

Other potential objectives, which were implicit in some of the questions asked in the various surveys and interviews undertaken for this report, could be that the Regulations should contribute to:

- Increasing the awareness of potential buyers of the CO₂ emissions and fuel economy of new cars;
- Influencing the purchasing behaviour of potential new car buyers towards the purchase of more efficient cars that emit fewer CO₂ emissions; and
- Increasing the sales of fuel efficient cars.

As noted above, when evaluating any specific policy, identifying the cause and effect between its implementation and the outcomes is always difficult. Additionally, the provision of information to consumers on the fuel economy and CO₂ emissions of new passenger cars was conceived as part of a package of measures that included supply-side measures to improve vehicle efficiency and taxation to support the purchase of lower emitting vehicles (Ricardo Energy & Environment and TEPR, 2016).

With these caveats, it can be concluded that the **objectives of the Regulations have been achieved** (at least those proposed above), at least to the extent that was possible. The generally positive view of having information on new cars’ CO₂ emissions and fuel economy on the label and in promotional literature, and the overall perceived benefits of the Regulations, suggests that these have been important in *increasing the awareness of potential buyers* of this information. Given that consumers generally still give more weight to factors that affect the costs that they face, as opposed

⁷ Article 1 of Directive 1999/94

to the environmental performance of the vehicle, the link to VED and BIK was considered to be important. To the extent that the Regulations have increased awareness of fuel economy, which is been linked (through CO₂ emissions) with the taxation of the vehicle, it can also be concluded that the Regulations have at least helped to ***influence consumers to purchase more efficient cars***. In turn, it is likely that the Regulations have, together with other policies on the supply-side, led to the ***increased sales of fuel efficient cars***. Having said that, the role of the Regulations as distinct from, say the EU's Passenger Car CO₂ Regulation, is likely to be small, although they will have helped facilitate these increased sales.

With reference to the objectives proposed in the evaluation of Directive, for the reasons stated in the previous paragraph it can be concluded that the Regulations have ***enabled consumers to make more informed purchase decisions***. Similarly, as a result of the importance of the wider regulatory framework, including links to vehicle taxation, that were noted in the previous paragraph, it can be concluded that the Regulations have ***contributed to the development of a comprehensive framework of measures*** and that the ***effectiveness of the UK's vehicle taxation measures have been enhanced*** by the Regulations. Finally, the manufacturers' perspective should not be overlooked. As noted above, manufacturers have benefited from the Regulations, as these have provided a uniform, industry-wide format for the presentation of this information, which has helped those manufacturers with more fuel efficient cars to better communicate this information to potential car buyers. Consequently, it can be concluded that the Regulations have ***at least supported manufacturers in their efforts to improve the fuel efficiency of new cars***.

Given the ongoing need to improve the fuel economy and to reduce the CO₂ emissions of new cars and the increasing range of technology used in new cars, from electric cars to plug-in hybrids, it can be concluded that ***the objectives of the Regulations (as proposed above) remain appropriate***. In the short-term, the switch to measuring the information on the WLTP, and the implications of the WLTP for the CO₂ emissions of new cars, including those fitted with optional extras, is an additional reason for the continued provision of the information. It was noted, however, that the way in which the wider regulatory framework develops will also be important. For example, it was suggested that the changes introduced in April 2017 to VED, in which only first year VED is differentiated by a car's CO₂ emissions, has reduced the visibility, and therefore potential importance, of the link between a car's CO₂ emissions with the tax that is paid. This is due to the fact that fact year taxes are usually included in the price of the car presented to the potential buyer.

To some extent, given that the Regulations largely transpose an EU Directive, it was not possible to have implemented them with less regulation without incurring infringement proceedings from the European Commission. However, as noted in Section 1, the label contains voluntary information, not least the colour-coded diagram and the link to VED, which are considered to be amongst the most useful elements of the label and which are not required by the Directive or indeed the Regulations. These were implemented through a collaborative, and non-regulatory, approach in which the LowCVP played a significant role. To this extent, it might be argued that some of the best elements of the approach in the UK to the provision of information on fuel economy and CO₂ emissions to new car buyers have been achieved without regulation.

Taking a wider approach to the question of whether the objectives of the Regulations could have been achieved through less regulation, i.e. looking at the requirements of the Regulations, questions might be asked as to whether the poster was needed. It could be argued that, as the internet was a lot less omnipresent in 2001 than it is in 2018, the poster was initially a useful means of communicating information on the CO₂ emissions and fuel economy of a wider range of new cars to potential car buyers. However, as the poster is not considered to be user-friendly in its current format in 2018, it is likely that it was also not user-friendly, and so that effective, in 2001. On the

other hand, the fuel economy guide was probably more relevant in 2001 than it is now. Consequently, it might be concluded that the objectives could have been achieved in much the same way, and with less burden on manufacturers and dealers, if the poster had not been required.

Given that the Regulations were implemented 17 years ago, few (if any) of the individuals who contributed to the surveys and interviews for this report would have been in similar positions then, and so were not able to provide any insights as to whether an alternative, less regulatory approach, could have been taken in 2001. Consequently, if the EU Directive had not required the UK to implement the basic requirements in relation to the provision of information on the CO₂ emissions and fuel economy of new cars to consumers, it is difficult to know whether these would have been introduced. However, it is worth noting that the regulatory framework for reducing the CO₂ emissions of new cars was not as well developed in 2001 as it is now and, as a result, that the fuel efficiency of cars was not improving at the pace that it has since the introduction of the EU's Passenger Car CO₂ Regulation in 2009 (Ricardo-AEA and TEPR, 2015). Consequently, it might have been less likely for the various elements of the Regulations to have been implemented at that time without the Regulations requiring them. Whether, they would subsequently have been implemented in the absence of the Regulations is not possible to tell. Consequently, while it may **not be possible to conclude whether the proposed objectives could have been achieved with less regulation**, it can be concluded that the subsequent implementation in the UK, which has often been delivered without specific regulatory requirements, has been effective.

8.3 Recommendations

With respect to the label, its use of a strong visual element, and its location next to the car in the showrooms, are seen as positive elements. However, it would be beneficial to **review the language used in the label to ensure that it engages better with consumers**. The review of the label in light of the WLTP provides a good opportunity to do this. Linked to this, the label should be reviewed for its relevance for communicating the right sort of information to potential buyers of BEVs, PHEVs and hydrogen fuel cell cars. Having separate labels for cars that use different powertrains, as is currently the case for BEVs and PHEVs, appears to be the best way forward, but **more attention should be given to what potential buyers of each of these types of car need, and how best to present this**. This could include consideration of information on charging options, times and costs, for example, and potentially information on the different performance of BEVs in the winter and summer months. Consideration should be given to the potential removal of boxes for which entries are 'n/a'. Again, the review of the labels in light of the WLTP would be a good opportunity to consider this. There were also some calls for a means of enabling consumers to compare between ICEVs and other vehicle types. In the US, this is achieved by using an MPG equivalent figure for non-ICEVs (US EPA, 2016). **Consideration might be given to using (after appropriate testing) a similar metric, either MPG equivalent or a cost metric**, in the UK to enable consumers to compare between ICEVs and different non-ICEVs. In the longer-term, consideration might be given to presenting lifecycle CO₂ emissions, if this can be achieved in a way that does not confuse consumers.

Finally with respect to the label, as noted by dealers in particular, it is important that the fuel economy information that is communicated to potential car buyers is as representative of their real world experience as it can be. While the WLTP is expected to close the current gap between the information presented and drivers' real world experience, it is still not expected to be fully representative of a driver's experience in the real world. Consequently, if it is shown that the WLTP does not sufficiently reflect drivers' real world experience, **consideration should be given to applying a suitable factor to fuel economy, as measured on the WLTP, to make the information on fuel economy that is presented to consumers more representative of real-world experience**. Again, such an approach is taken in the US (US EPA, 2016).

There are strong arguments for no longer requiring either the poster or the guide in their current formats, **so consideration should be given to removing these requirements**, which would also reduce the associated costs (and general burden) for manufacturers and dealers. There was a view, particularly amongst some dealers, that consumers were still struggling to understand the differences between hybrids and ICEVs, let alone BEVs, PHEVs and hydrogen fuel cell vehicles. **Consideration might be given to having a common, industry-wide poster** that explains the differences between, and benefits of, different technologies. This would be displayed in showrooms and so enable dealers to refer to a poster that has a common, user-friendly explanation, in order to support their communications with new car buyers. This might be considered – and branded – as part of the ‘Go Ultra Low’ campaign⁸, which would also help to increase the awareness of the campaign itself.

The argument for retaining the guide is that not every new car buyer would have access to the internet, and so to the VCA’s online database. With every passing year, this argument has become, and will continue to become, less relevant. Without further research, it is not possible to know how many new car buyers are not able to access the relevant information online. In order to address the possibility that a potential new car buyer might want a physical copy of the guide, **consideration might be given to ensuring that there is still the capability to easily produce a physical version of the guide, rather than actually producing them each year**. A fuel economy guide could then be produced on request, and posted to the interested consumer.

While the VCA’s website appears to be well used, there also appears to be a lack of awareness of its existence. This appears to be a contradiction given the database’s level of use, which it is difficult to understand better given that the VCA does not monitor who accesses the database. **Consideration might be given to including a short user survey on the VCA’s online database** with the aim of exploring the extent to which those using the database are researching potential car purchases, and how they came across the website. This could run for a month or so and engage with every 10th user, and ask them two multiple choice questions. On the basis of this survey, appropriate means of increasing the awareness of the database could be identified and taken forward.

There seems to be more potential to communicate information to consumers using electronic means, either in the showroom, online or a mixture of both. The increased complexity that the WLTP will bring suggests that a more interactive way of engaging with consumers might be beneficial, to which electronic means are clearly better suited than a static label or poster. **Consideration should be given to encouraging manufacturers and dealers to use more electronic means of communicating** the information to consumers, particularly in the showroom. Such electronic means, e.g. a tablet or perhaps an electronic display, should not replace the label, as the latter is a good visual way of engaging with the consumer (see above), but be complementary to it. **Guidelines for the presentation of such information on electronic devices could be developed**. ‘Encouragement’ and ‘guidelines’ are preferred to a ‘requirement’ as this better fits with the way in which the label has been developed in the UK, as part of a collaborative exercise that involves all relevant stakeholders. While the VCA does produce Guidance Notes for the implementation of the Regulations, including in relation to promotional literature more generally, some manufacturers and dealers still felt that there was a need for more clarity, including in relation to where the information should go on each type of literature, but also about the requirements of the Regulations more generally. **Consideration might be given to actively identifying the needs of both manufacturers and dealers with respect to the implementation of the Regulations, and then develop guidance accordingly**.

⁸ <https://www.goultralow.com/>

Finally, consideration should be given as to how information is presented on the internet, including on manufacturers' own websites, which was seen as an important source of information. Various interviewees suggested that information might be better presented on websites, and indeed one manufacturer proposed that the coverage of websites by the Regulations should be mandatory. As such, **consideration should be given to improving the way in which information is presented on websites, including those of manufacturers.** While this might be challenging, lessons might be drawn from other areas, as, for example, both the legislation on the energy labelling of household products and of tyres both apply to the internet (Ricardo Energy & Environment and TEPR, 2016). Options might be to require the inclusion of the respective coloured bar (see Annex 3 for an example of how this has been required in Denmark) or to require that the label is presented when the price of a particular model is presented. Alternatively guidelines might be developed.

A more general point is that, while the VCA plays an important role in facilitating the implementation of the Regulations, manufacturers are not actually required to provide it with information on the CO₂ emissions and fuel economy of new cars. Rather, manufacturers are required to provide dealers with this information (see Section 1). As the existing system is operational and manufacturers engage with it, this might be considered to be an academic point. However, it would be easier for the VCA to ensure that new entrants to the UK car market provide it with the information needed, if this was a regulatory requirement. Consequently, **consideration could be given to putting a legal requirement on manufacturers that put cars on the UK market to provide the necessary information to the relevant authorities.**

It is recognised that some of the above recommendations would effectively make the UK in breach of the EU Directive, which requires the presentation of information on fuel consumption on the various different elements, and also requires that the information be communicated on a poster and in a fuel economy guide. However, as noted by the 2016 evaluation of the Directive, the latter requirements are out dated, as a result of the increased use of the internet, while the Directive is silent on what information should be communicated about BEVs and PHEVs, which is not surprising given that there were few, if any, mass produced BEVs or PHEVs on the market in 1999. The Directive needs updating in light of the internet and the increased number of BEVs and PHEVs on the market, so while some of the above recommendations would be against the letter of the Directive, they are in line with its spirit.

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Annexes

Annex 1: Questions used in the surveys and the interviews

Part 1: List of the questions used in the new car buyer survey

- a) Have you bought or leased a brand new car in the past two years?
 - b) What fuel does your newest car use? (Options: Petrol, diesel, plug-in hybrid, , other hybrid, electric, other)
1. Thinking back to when you purchased your vehicle, were you **aware** that information about the CO₂ emissions and fuel economy (or electricity consumption) of new cars is available from the following sources (all Y/N answers):
 - a. On a **label** displayed on or near the car in a car showroom?
 - b. In a **guide** available for free in a car showroom?
 - c. On a **poster or electronic screen** displayed near the car in a car showroom?
 - d. In any **promotional literature** (e.g. manufacturer's brochures/adverts in newspapers/magazines)?
 - e. Government's online database on car CO₂ emissions
 - f. None of these
 2. When you purchased your vehicle, how **important** were the following in providing you with information about the CO₂ emissions and fuel economy of new cars? (Answers: Very important; moderately important; slightly important; not important; don't know)
 - a. The label?
 - b. The guide?
 - c. The poster or electronic screen?
 - d. Manufacturers' brochures?
 - e. Adverts in newspapers/magazines?
 - f. Motoring magazines?
 - g. Government's online database on car CO₂ emissions?
 - h. Websites, including those of manufacturers and independent car buying sites?
 - i. Social media?
 - j. Other?
 3. How important was information on the CO₂ emissions of cars in **influencing your final choice of car**? (Answers: Most important; very important; moderately important; slightly important; not important; don't know)
 4. How important was information on the fuel/energy consumption of cars in **influencing your final choice of car**? (Answers: Most important; very important; moderately important; slightly important; not important; don't know)
 5. Please rank the following in importance in terms of how they helped you choose which car to buy. (Options: Price, brand, size, safety, performance, reliability, comfort, appearance, fuel economy, CO₂ emissions, other environmental criterion)
 6. (for those who bought a **diesel, petrol or hybrid** car) If you used the information on the label to help inform your purchasing decision, how important to you was each of these in helping you compare one car with another? (Answers: Most important; very important; moderately important; slightly important; not important; don't know)
 - a. Information on a car's CO₂ emissions (in grams CO₂ emitted per mile)?

- b. Information on a car's road tax (vehicle excise duty) band?
 - c. Information on a car's estimated fuel costs for 12,000 miles?
 - d. Additional information on CO₂ emissions?
 - e. Information on a car's fuel consumption (either in litres/100km or mpg)?
7. (for those who bought an **electric** car) If you used the information on the label to help inform your purchasing decision, which of the following was most important to you to help you compare one car with another? (Answers: Most important; very important; moderately important; slightly important; not important; don't know)
- a. Information on a car's CO₂ emissions (in grams CO₂ emitted per mile)?
 - b. Information on a car's road tax (vehicle excise duty) band?
 - c. Information on a car's estimated electricity costs for 12,000 miles?
 - d. Additional information on CO₂ emissions?
 - e. Information on a car's electric energy consumption (in miles/KWh)?
 - f. Information on a car's fuel consumption (in litres/100km or mpg)?
 - g. Information on a car's electric range (in miles)?
8. (for those who bought a **plug-in hybrid** car) If you used the information on the label to help inform your purchasing decision, which of the following was most important to you to help you compare one car with another? (Answers: Most important; very important; moderately important; slightly important; not important; don't know)
- a. Information on a car's CO₂ emissions (in grams CO₂ emitted per mile)?
 - b. Information on a car's road tax (vehicle excise duty) band?
 - c. Information on a car's estimated fuel and electricity costs for 12,000 miles?
 - d. Additional information on CO₂ emissions?
 - e. Information on a car's energy consumption (in mpg or miles/KWh)?
 - f. Information on a car's fuel consumption (in litres/100km or mpg)?
 - g. Information on a car's electric range (in miles)?
9. The information about fuel consumption on the label, in the guide, etc, is presented in different formats. Which of these was most useful? (Answers: urban; extra-urban; combined; don't know)

Finally, a few questions about you.

10. Are you: (Answers: male; female; other; prefer not to say)
11. Are you: (Answers: under 17, 17-24; 25-34; 35-44; 45-54; 55-64; 65-74; 75+; prefer not to say)
12. Where do you live? (Answers: Scotland, North East, North West, Yorkshire & Humber, Northern Ireland, Wales, West Midlands, East Midlands, East of England, South West, London, South East)

13. What is the occupation of the main income earner in your householder (if retired, give former occupation)? (Answers: Director/Higher/Senior Management/ Professional; £ Middle management; Supervisory/Clerical/Junior Administrative; Skilled Manual/trade; Unskilled manual/Office/Shop worker; Homemaker; Student; Not working)

Part 2: Questions used in the interviews with manufacturers and dealers

Manufacturers' interview	Dealers' interview
<i>Importance of CO₂ emissions and fuel economy</i>	
In your view, how important is it to inform potential car buyers of the CO ₂ emissions performance and/or fuel economy of new cars?	
In your view, will this continue to be the case in the future?	
In your view, how important is the electric range and/or electricity consumption of new cars to potential buyers of electric and plug-in hybrid cars?	
In your view, will this continue to be the case in the future?	
	In your view, how well informed are potential car buyers about the CO ₂ emissions performance and fuel economy of new cars before they arrive at the dealership?
	Do you think there is any information on the label , either for petrol/diesel, electric or plug-in hybrid cars, that consumers do not understand?
<i>Communicating information on CO₂ emissions and fuel economy</i>	
In terms of increasing the awareness of potential car buyers about the CO ₂ emissions performance and fuel economy of new cars, how important from your perspective is each of the following elements (as required by the Regulations)? Please explain.	
<ul style="list-style-type: none"> a. The label? b. The fuel economy guide? c. The poster or electronic display? d. Promotional literature (e.g. manufacturers' brochures/adverts in newspapers/magazines)? e. The Vehicle Certification Agency's online database? 	
Which of the above is most useful to potential car buyers? How might each be improved?	

	<p>On a typical day, what proportion of potential car buyers show interest in the contents of:</p> <ol style="list-style-type: none"> The label? The Vehicle Certification Agency’s fuel economy guide? The poster or electronic display? Promotional literature (e.g. manufacturers’ brochures)? The Vehicle Certification Agency’s online database?
<p>Which three pieces of information on the label, do consumers find most useful? Please could you comment on whether this differs for those interested in:</p> <ol style="list-style-type: none"> Petrol and diesel cars? Electric cars? Plug-in hybrid cars? 	
	<p>How many requests do you receive annually for a printed version of the fuel economy guide?</p>
	<p>To what extent do dealers choose to present information on fuel economy and CO₂ emissions on posters or electronic displays?</p>
<p>Benefits and costs</p>	
<p>In your view, what (other) benefits, if any, have the Regulations brought for:</p> <ol style="list-style-type: none"> Potential car buyers? Manufacturers? Dealers? <p>Society, more generally</p>	
<p>Do you have – or know of – any evidence (quantitative, if possible) that the requirements of the Regulations have helped to increase awareness of the CO₂ emissions performance and fuel economy of new cars amongst potential car buyers?</p>	
<p>Do you have – or know of – any evidence (quantitative, if possible) that the requirements of the Regulations have helped to increased sales of more efficient cars?</p>	
<p>What costs have you incurred (either one-off costs, or ongoing costs) as a result the need to comply with the Regulations? If you are not able to quantify the costs, how burdensome have the requirements been in relation to other regulatory requirements?</p>	
<p>Concluding remarks</p>	
<p>Do you have any comments on what could have been done to improve the effectiveness of the Regulations?</p>	
<p>Do you have any comments on what could have been done to make the implementation of the Regulations easier for manufacturers?</p>	<p>Do you have any comments on what could have been done to make the implementation of the Regulations easier for manufacturers?</p>
<p>Is there any other information the label should include to help consumer purchase a more fuel efficient car?</p>	

How might information on the CO₂ emissions and fuel consumption of new cars be better communicated to potential car buyers?

Part 3: Questions used in the dealers' survey

General Questions

1. In your view, how important to potential car buyers is:

- a. the CO₂ emissions performance of new cars?
- b. the fuel economy of new cars?
- c. the electric range of new electric / plug-in hybrid cars?
- d. the electricity consumption of new electric / plug-in hybrid cars?

2. In your view, how well informed are potential car buyers of new cars before they arrive at the dealership:

- a. about the CO₂ emissions performance?
- b. about fuel economy?

3. Do you think there is any information on the **label**, either for petrol/diesel, electric or plug-in hybrid cars, that consumers do not understand?

Considering the existing label, poster / electronic display and fuel economy guide

4. From your perspective, how important is the following in helping to inform potential buyers of the CO₂ emissions performance and fuel economy of new cars:

- a. The label?
- b. The poster or electronic display?
- c. The fuel economy guide?

5. On a typical day, what proportion of potential car buyers show an interest in the following:

- a. The label?
- b. The Vehicle Certification Agency's fuel economy guide?
- c. The poster or electronic display?

6. In your experience, which information on the label is of most interest to potential car buyers

- a. Information on a car's CO₂ emissions (in grams CO₂ emitted per mile)?
- b. Information on a car's road tax/VED band?
- c. Information on a car's estimated fuel costs for 12,000 miles?
- d. Additional information on CO₂ emissions?
- e. Information on a car's fuel consumption (in litres/100km)?
- f. Information on a car's fuel consumption (in mpg)?
- g. (for electric and plug-in hybrid cars) Information on a car's electric range?
- h. (for electric and plug-in hybrid cars) Information on a car's electricity consumption?

7. To what extent does your dealership choose to present information on fuel economy and CO₂ emissions on **posters** or **electronic displays**?

8. How many requests does your dealership receive annually for a printed version of the **guide**?

Your opinions

9. How burdensome have these requirements been in relation to other regulatory requirements?
10. Do you have any comments on: a. How the effectiveness of the Regulations could be improved? b. How the implementation of the Regulations could be made easier for manufacturers? c. Whether there is any additional information that would help consumers purchase a more fuel efficient car?
<i>About your dealership</i>
11. How would you describe the size of your business? (Answer: large network of dealers; medium-sized dealership; small, independent dealership)
12. Does your business have showrooms: nationally / regionally / single location
13. With which car manufacturer(s) is (are) your dealership affiliated
14. Would you be happy for us to contact you with regards this study?

Annex 2: List of interviewees

Manufacturers:

- BMW UK
- Jaguar Land Rover UK
- Nissan UK
- PSA Group
- Toyota (GB) PLC
- Volkswagen Group UK

Dealers:

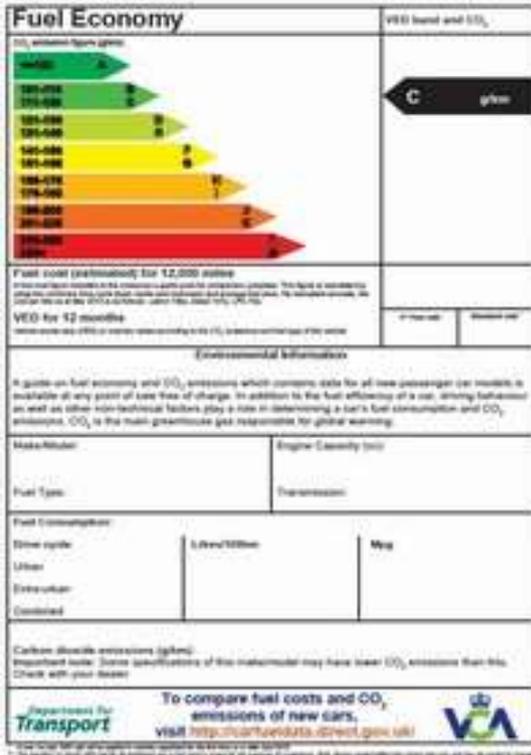
- Pebley Beach Group (Hyundai and Suzuki)
- Platts Motor Company (Hyundai and Ford)
- Robins & Day (Peugeot)
- RRG Group (Toyota and Lexus)
- Vindis (Audi)

Others:

- Vehicle Certification Agency

Annex 3: Examples of the presentation of the information

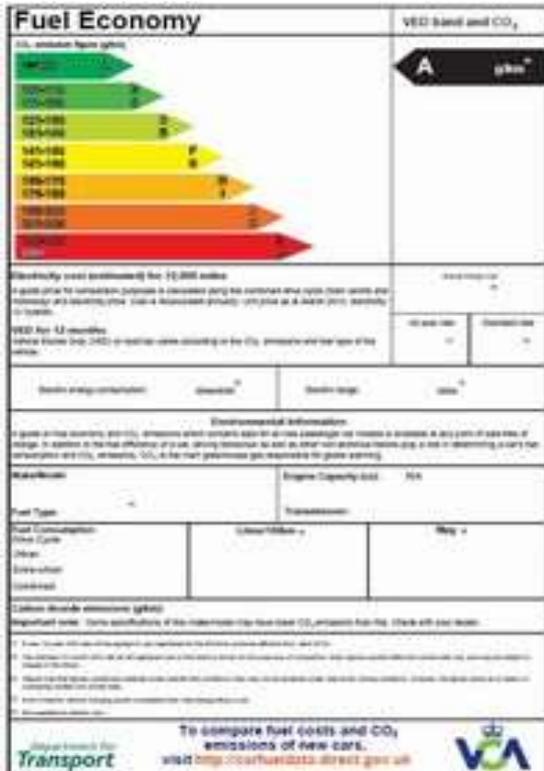
3a: Car label in the UK (standard)



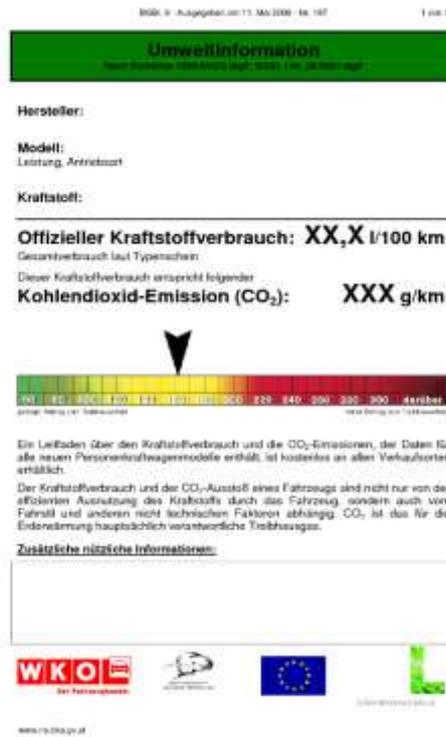
3b: Car label in the UK (electric)



3c: Car label in the UK (plug-in hybrid)



3d: An alternative colour-coded label from Austria

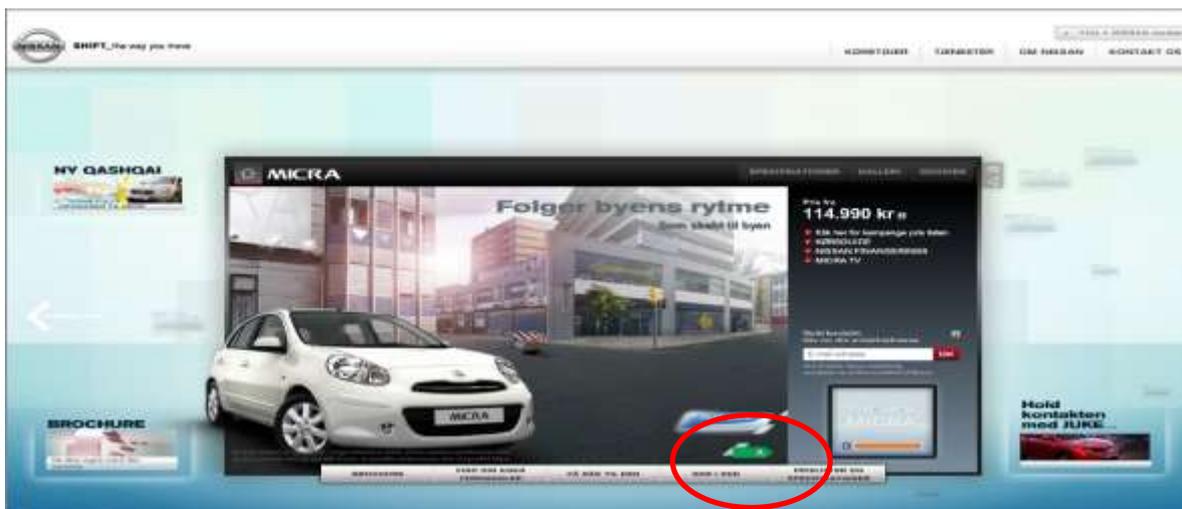


Sources: <http://www.dft.gov.uk/vca/fcb/fuel-consumption-labelling.asp> (accessed 27th March 2018); Ricardo Energy & Environment and TEPR (2016)

3e: Including a colour-coded arrow in promotional literature in Denmark



3f: Including a colour-coded arrow in promotional literature on the internet in Denmark



Source: AEA, TEPR and KTI (2011)

Annex 4: Advertising Standards Authority rulings since 2013 relating to the communication of information on car's CO₂ emissions and MPG

Date / reference	Manufacturer involved	Complainant's issue	ASA ruling	Action required
27.03.2013 / A12-210019	Volkswagen Group (Audi)	Fuel economy claim for Audi A3 16 TDI of "68.9mpg" on VWG's website was misleading and questioned whether it could be substantiated, because they had not been able to achieve that fuel consumption.	Agreed that the combined test drive cycle figure was correct for the model advertised but did not believe that an average consumer would be clear about the limitations of such figures in real-life driving.	VW to ensure that they qualified the official fuel consumption figures to make it clear that they were official EU test figures to be used as a guide for comparative purposes and may not reflect real driving results.
24.04.2013 / A12-213670	Nissan	Claim that, in a TV ad, the Leaf could do an equivalent of 339 MPG (estimated using an independent methodology) was misleading.	Agreed that Nissan's comparison, based on the specified methodology, was reasonable in the absence of other methodologies.	None required.
31.07.2013 / A12-208124	General Motors (Vauxhall)	Claim that information for the range extended Ampera on Vauxhall's website was misleading, as it provided fuel consumption and emission figures without stating that these did not take into account the electricity used to drive the car and charge its battery.	Agreed that the status of Ampera as a plug-in was not clear to consumers and pointed out that the fuel consumption figure omitted the need to use electricity for charging up the vehicle.	Vauxhall had to make it clearer that the battery's charge was derived from mains electricity.
21.05.2014 / A13-253815	General Motors (Vauxhall)	Challenged the claim, in a regional press ad, that the range extended Ampera had a range of up to 360 miles compared to "other electric" cars, as being misleading as it implied that the car was purely electrically powered.	Did not believe that the average consumer would be well informed enough about different terminology used by manufacturers, and that the small print in the ad was not sufficiently prominent to allow consumers to understand that this was not BEV.	GM was also told to make sure that they made it clear in ads how the car worked.
09.07.2014 / A14-260239	Chevrolet dealer	Claim, in a regional press ad, that the Chevrolet Spark had a fuel economy of "up to 68.9mpg" was misleading,	Concluded that the intention was to highlight the extra-urban mileage figure over the full set of test results, and that an explanatory	Advertisers told to ensure that future ads containing MPG figures were

		because the fuel consumption rate advertised was unlikely to be experienced by consumers.	footnote did not sufficiently counter-balance the main message.	appropriately qualified.
16.07.2014 / A14-261623	Renault	Challenged whether the inclusion, in a national press ad for the Zoe, of official emissions data, without the clarification that the production of electricity would produce CO ₂ emissions, was misleading.	Accepted that the law only required that the declaration of a vehicle's CO ₂ emissions whilst in motion and did not require an explicit statement about this.	None required.
13.08.2014 / A14-269743	Colt Motor Company Ltd (Mitsubishi Motors)	Claim that a TV ad for the Mitsubishi Outlander PHEV, and an ad on Mitsubishi's website, were misleading as they quoted fuel consumption figures that were unlikely to be replicated in normal driving conditions and were based on the car being fully recharged with electricity at regular intervals.	Concluded that the text on the TV ad was sufficiently clear in its reference to the actual driving conditions and the limitations of the fuel consumption figure. It did not believe that the website was sufficiently clear about the limitations of the fuel consumption figures.	Mitsubishi had to make sure that ads on its website were sufficiently clear about the way in which the fuel consumption figures were calculated to underline that the figures were not necessarily representative of what would be achieved when driving the car.
20.07.2016 / A15-316424	Tesla	Questioned whether claims made in a range of links and small print could be substantiated, particularly about the 'World's fastest charging station' and that owners could save £6,000 on an average length of car ownership.	Agreed that the first claim was fully substantiated and that the calculations underlying the second were from robust sources and used relevant factors.	None required.
06.12.2017 / A17-389311	BMW	Challenged a claim made in a Facebook post, paid for by BMW, advertising the i3 as being 'zero emissions'.	Pointed out that one of the i3 models had a range extender and that the ad had failed to differentiate between models. Cars with engines requiring emission figures could not legally be described as 'zero emissions'.	BMW was told make sure that such environmental claims related to all-electric vehicles only.

Source: <https://www.asa.org.uk/rulings/> (accessed February 2018)



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