

Labels of the Future

Green Global NCAP Labelling / Green Scoring Workshop
Global Fuel Economy Initiative

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LowCVP Research Study – Testing Alternative Fuel Economy Label Designs

Aims

- ❑ Improve presentation of financial information to demonstrate the benefits of fuel efficient cars
- ❑ Placing greater emphasis on MPG, less on CO₂
- ❑ Comparative information 'in the model range', integrate concepts of behavior science
- ❑ Inclusion of QR code
- ❑ Future proof - adapt for EV & PHEV

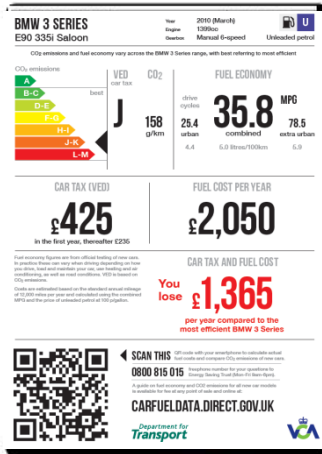


Methodology

- ❑ Designer created series of prototype label designs, two rounds of testing with consumers – focus groups and internet survey
- ❑ Consumer testing programme led by Ecolane Transport Consultancy 2012



Label Designs Tested With Consumers



Current label

x 1

Lose 'framing'

x1



'Slider'

x 1

Per mth slider

Per mth rank

Per mile

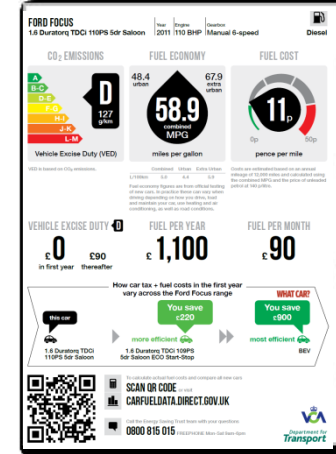


'Dashboard'

x 3

Petrol

Diesel



'Buyers Guide'
comparisons

x 5

Petrol

Diesel



'Dashboard'

x 4

EV

PHEV

LowC^{VP}
low carbon vehicle partnership

QR CODE READER TOOLS

Scan this QR code with your smartphone to calculate actual fuel costs for this model.

Freephone 0800 815 015 for help from the team at Energy Saving Trust (Mon-Fri 9am-5pm).

A guide on fuel economy and CO₂ emissions for all new car models is available for free at any point of sale and online at the address below.

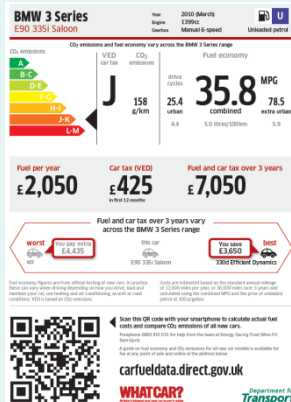
carfueldata.direct.gov.uk

Mock up website created featuring a cost calculator, car comparison tool & additional information.

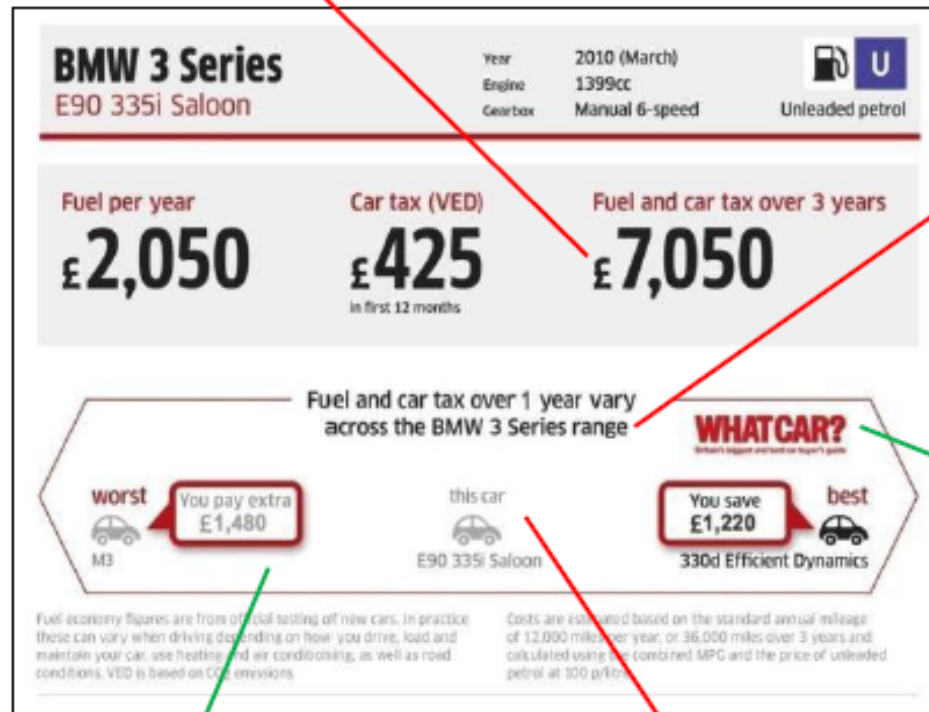
CO₂ and Fuel Economy Information

Fuel Economy		VED band and CO ₂
CO ₂ emission figure (g/km)		
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		
L		
M		
E 137		g/km
Make/Model:		Engine Capacity (cc):
Ford Focus		1753 cc
Fuel Type: Diesel		Transmission: Manual
Fuel Consumption:		
Drive cycle	Litres/100km	Mpg
Urban	6.7	42.2
Extra-urban	4.3	65.7
Combined	5.2	54.3

Introducing New Comparative Element



Most participants tended NOT to like 3 year comparisons – some distrustful that fuel and tax costs could be predicted over such a timescale



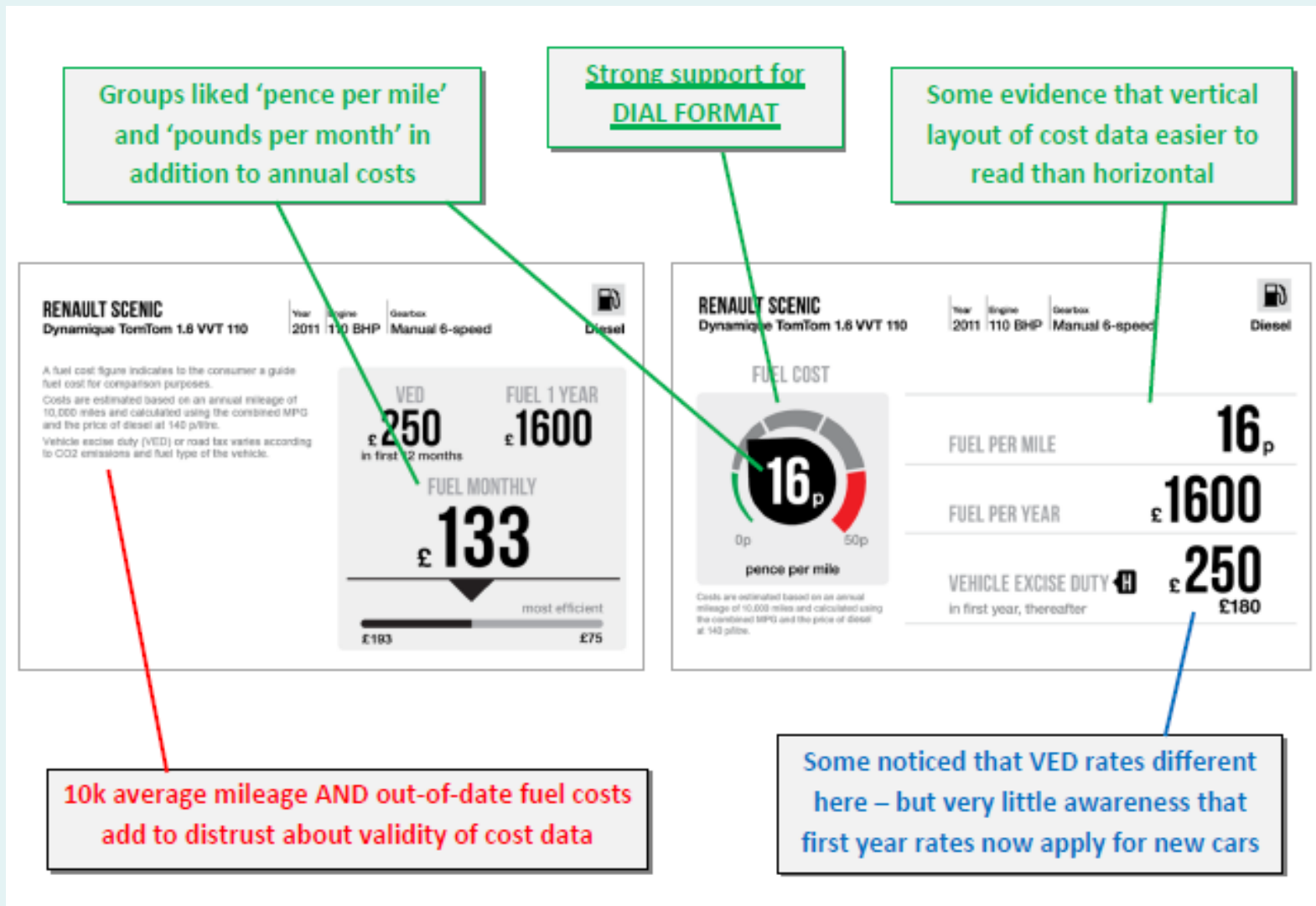
Participants NOT in agreement about what 'model range' means – some have general idea but often confused with vehicle class

Positive reaction to having info from independent source – add 'authority' – but DVLA, DfT can have same effect

Liked seeing real comparisons – understood 'worst' and 'best'

Format issue – not clear that the figures above link to 'this car'

Fuel and Taxation Cost

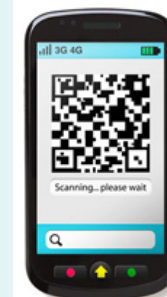


QR Code Reader

The diagram illustrates a workflow starting from a smartphone scanning a QR code. A large blue arrow points from the phone to two web-based tools. The first tool, 'FUEL COST CALCULATOR', features input fields for 'Your MPG', 'Your driving style', 'Your fuel price', and 'Your annual mileage', along with a 'Calculate your fuel cost now' button. The second tool, 'MODEL RANGE COMPARATOR', displays a list of car models with their respective fuel consumption and CO2 emissions, and a 'Compare with best in model range' button.

Almost unanimous support for QR Code reader tools – whether knew about technology or not. Of the two types of tools tested, vast majority prefer the CALCULATE tool rather than the 'flat' information glossary.

LOWC
low carbon vehicle partnership



Electric car label - more information

General information

Electricity consumption and range figures are from official testing of new cars. In practice these can vary depending on how you drive, load and maintain your car, use heating and air conditioning, as well as road conditions. VED is based on CO2 emissions. CO2 emissions and the price of electricity associated with charging the vehicle vary according to when vehicle is charged.

Environmental Information

The CO2 intensity of the electricity used to charge the battery will vary depending on how and when the car is charged. It will either be zero carbon (on a green tariff certified by www.greenenergyscheme.org/) or, if the car is charged from a standard tariff, the rolling average UK national grid mix would emit 483 gCO2/kWh. For example, a car with an energy economy of 0.15 kWh/km would be 0gCO2/km on a green tariff or 72 gCO2/km using the average grid mix.*

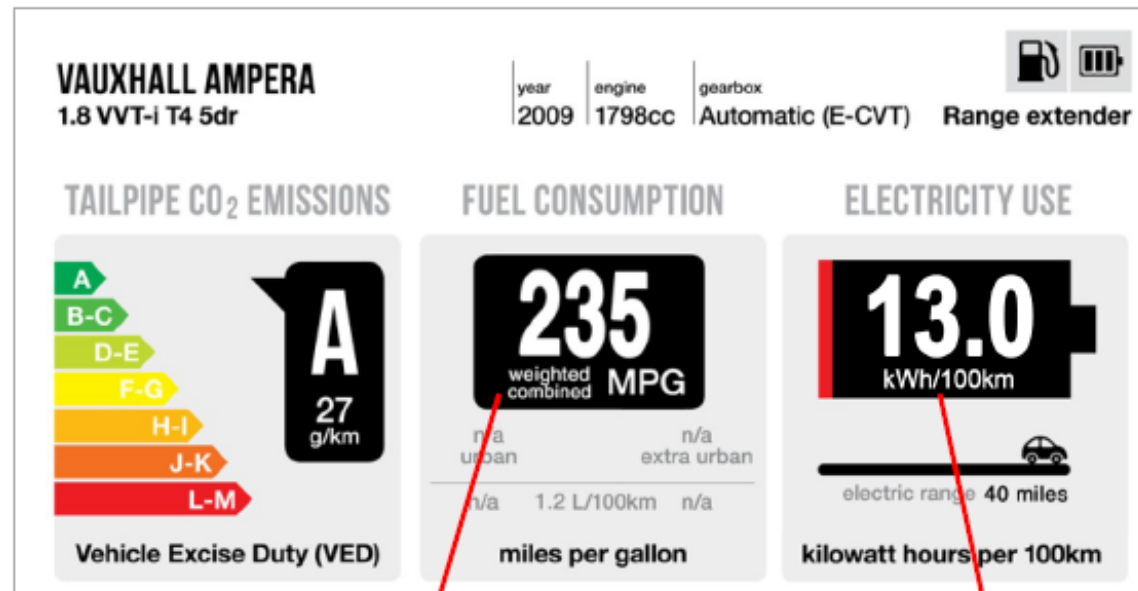
*Data derived from 2011 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting.

For more information,
go to VCA website

'I was really impressed – I've never really used one of these before, and when we did the calculator I thought that was brilliant'

Plug-in Hybrid Label

Initial REEV label trialled at first R2 focus group showing 'weighted combined' fuel economy data as appears on the Certificate of Conformity



Low understanding of electricity units leads to assumption that 235 MPG is the only fuel economy data for the Ampera – which then links to trust issue as few believe that car will travel 235 miles on a gallon of fuel

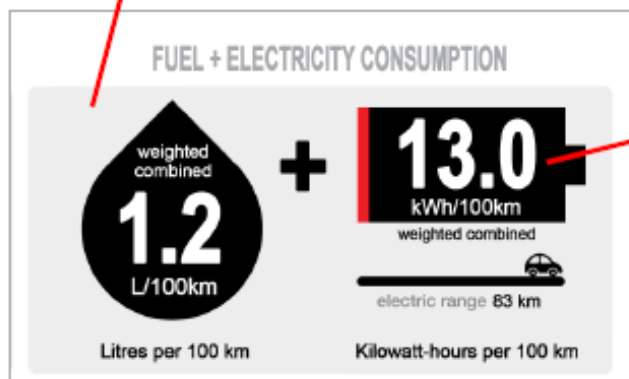
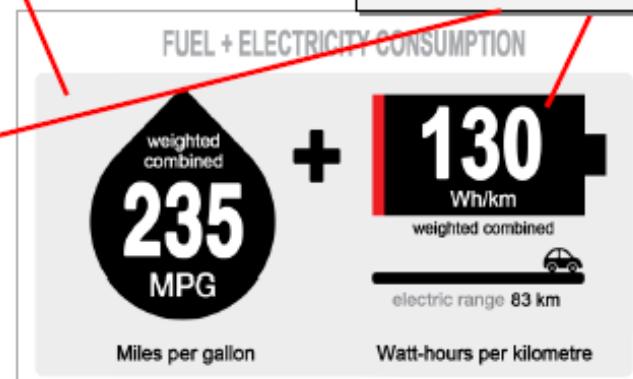
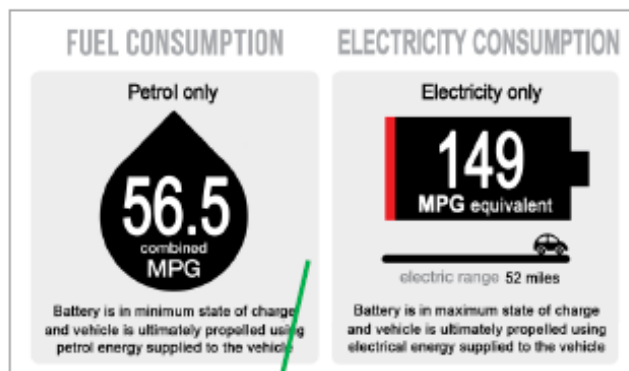
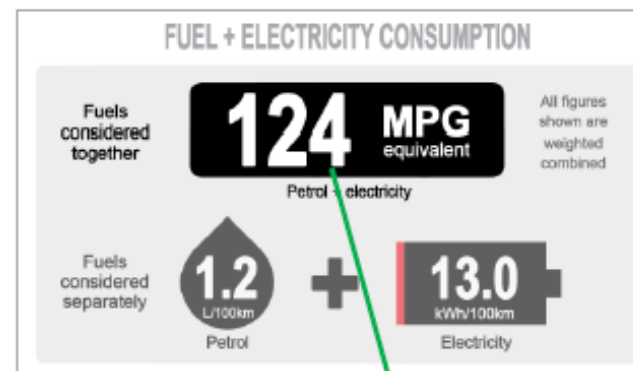
Very low level of understanding of 'Wh' and 'kWh' units

Exploring alternative ways to present 'weighted combined' MPG

PHEV/REEV labels trialled at remaining R2 focus group showing 'weighted combined' fuel economy data (Certificate of Conformity) AND/OR Condition A+B data as measured by EC R101 tests

Participants report information overload and incomprehension

Low level of understanding of 'Wh' and 'kWh'



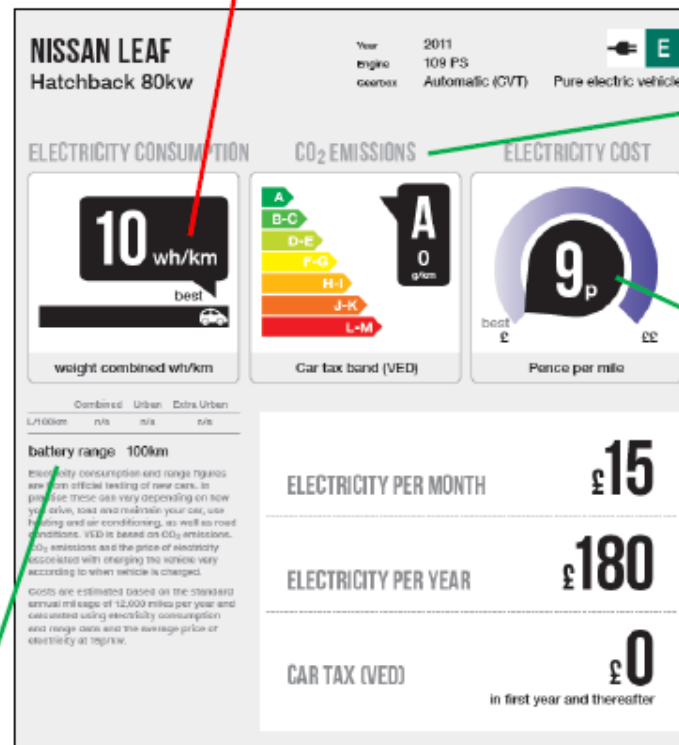
Some consumers mention 'information overload'

Some preference for Condition A+B data equivalents

Some preference for overall MPG equivalent data

Electric Vehicle Label

Majority confused about what 'Wh' means – more clearer about 'km' but most would prefer units in miles – Alternative to show MPG equivalent



Majority of participants found this format clear (although many noted power-station emissions)

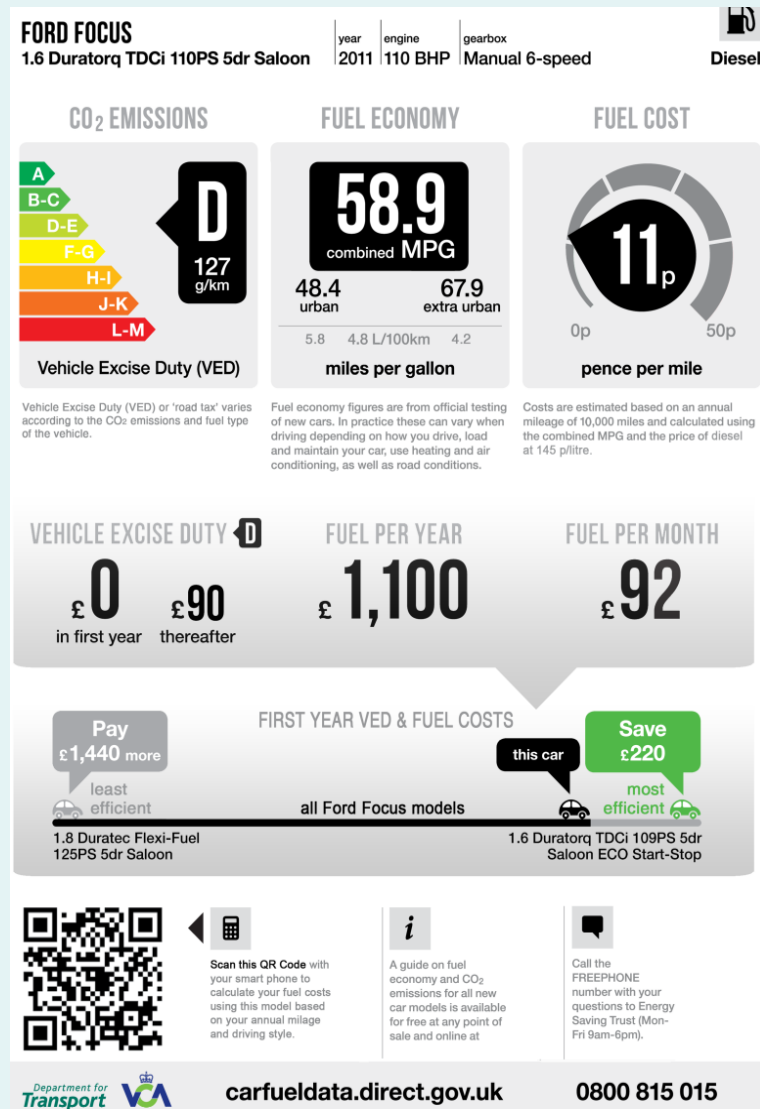
Groups that preferred p/mile comparison liked this for EVs as it enabled direct comparison with conventional vehicles – However, some commented that fuel costs only part of the total cost

Most wanted additional information about EVs as knowledge base was low – Info mentioned included driving range, recharge time and charging map

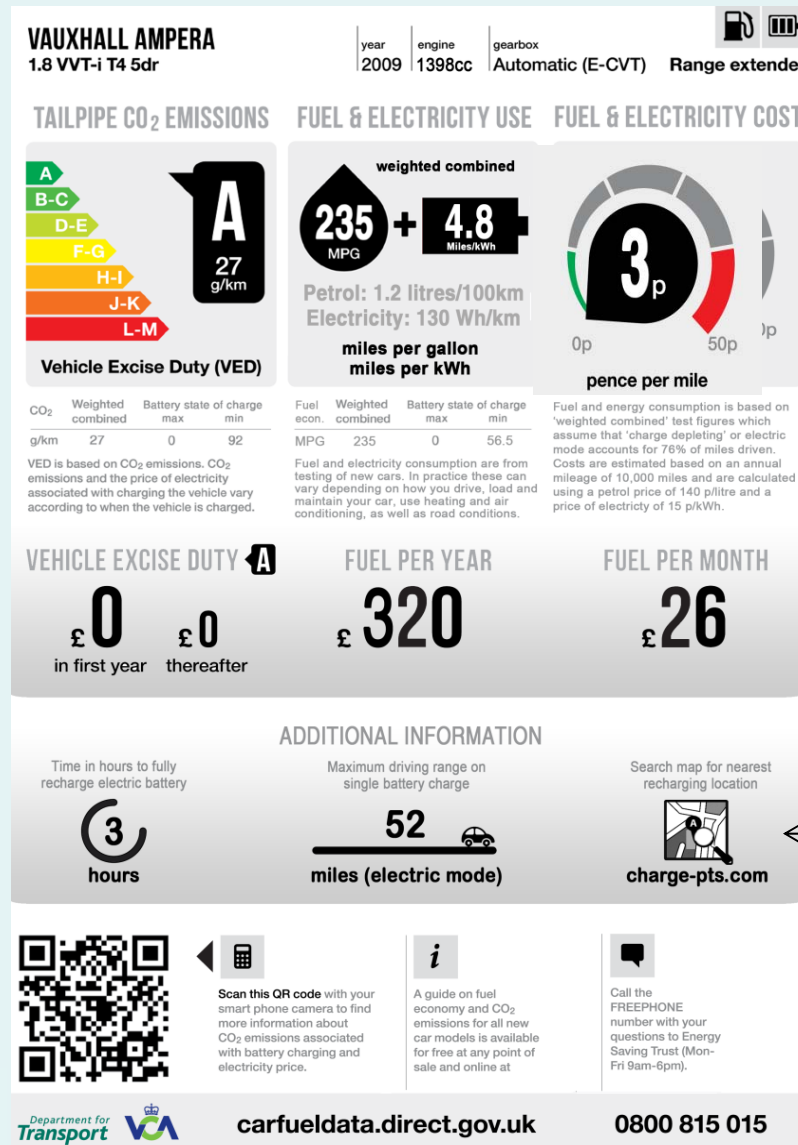
Summary of Findings

- ❑ Dashboard most popular label design (existing least)
simplicity, modular design, key numbers & text seen from a distance.
- ❑ MPG leading metric – but some distrust about validity
- ❑ CO₂ viewed primarily in terms of cost
- ❑ Pence per mile cost metric beneficial
- ❑ Demand for comparative data – colour coded bandings & dial formats
- ❑ Support for ‘worst/best’ cost comparison, require clearly marked numerical scales but some confusion model range terminology
- ❑ Independent branding add authority to label
- ❑ QR code very popular – calculator tool most useful
- ❑ EV/PHEV – little understanding of Wh/km and ‘weighted combined MPG’
- ❑ Demand additional info on EV charge time, range, location of charging points

What Could Future Labels Look Like?



What Could Future Labels Look Like?



Need to be mindful of information overload, avoid by exploiting QR code

New UK Plug-in Hybrid Fuel Economy Label

Fuel Economy		VED band and CO ₂	
<div>CO₂ emission figure (g/km)</div> <div><div><div><= 100</div><div>A</div></div><div><div>101-110</div><div>B</div></div><div><div>111-120</div><div>C</div></div><div><div>121-130</div><div>D</div></div><div><div>131-140</div><div>E</div></div><div><div>141-150</div><div>F</div></div><div><div>151-165</div><div>G</div></div><div><div>166-175</div><div>H</div></div><div><div>176-185</div><div>I</div></div><div><div>186-200</div><div>J</div></div><div><div>201-225</div><div>K</div></div><div><div>226-255</div><div>L</div></div><div><div>256+</div><div>M</div></div></div>		<div><div>A</div><div>49</div><div>(weighted)</div><div>g/km⁽³⁾</div></div>	
<div>Fuel and electricity cost (estimated) for 12,000 miles</div> <div>A guide price for comparison purposes is calculated using the combined drive cycle (town centre and motorway) and average fuel and electricity price.</div> <div>Fuel consumption for plug-in-hybrid vehicles is measured in two conditions, one with the battery freshly charged and another where it is significantly depleted. A weighted average of the two figures obtained is calculated based on an assumption that a vehicle is driven 16 miles (25km) beyond its maximum electric range, using the engine as required without recharging.</div> <div>Cost is recalculated annually. Unit cost as at March 2012: petrol £1.39/litre, electricity 13.7p/kWh.</div>		<div>Fuel</div> <div>£564</div>	<div>Electricity</div> <div>£138</div>
		<div>1st year rate</div> <div>£0⁽¹⁾</div>	<div>Standard rate</div> <div>£0⁽²⁾</div>
Energy consumption: 134.5 Mpg and 11.9 Miles/kWh ⁽³⁾		Electric range: 16 Miles ⁽³⁾	

- ❑ UK introduce new electric and plug-in hybrid labels Feb 2013
- ❑ Explains how 'weighted' combined MPG is derived
- ❑ Weight combined MPG = Fuel (MPG) + electricity(m/kwh)
- ❑ Annual electricity & fuel cost
- ❑ EV Range
- ❑ URL to charging point map

What Further Work is Required?

- ❑ How to overcome consumer mistrust of MPG figures?

Include text on label explaining difference test v real world, web-based solution eg link to real-world MPG figures, improve test method

- ❑ How to ensure consumers do not misinterpret 'weighted' combined MPG in plug-in hybrid label

Identify both fuel consumption and electricity consumption on label

- ❑ How to make comparison of vehicle efficiency of different fuels and technologies easier for consumers

Use MPG equivalent or cost based metric eg pence/mile

- ❑ How can labels integrate with an increasingly evolving digital media landscape?

Mobile apps, digital label, QR codes – what next?

- ❑ Further testing with consumers to explore level of understanding and use of 'future' labels during the car buying process