

# **Communicating the carbon footprint; practical approaches**

Tim Anderson

# Buying beans...

**Cost**

**Taste**

**Quality of ingredients**

**Safe and clean manufacturing**

**Well being of farmers and processing staff**

**Carbon footprint**



Buying cars...

**Cost...** (£21k to buy + running costs)

**Taste**

**Quality of ingredients**

**Safe and clean manufacturing**

**Well being of farmers and processing staff**

**Carbon footprint**



# Numbers, numbers, numbers...

VED Rate

Benefit in Kind tax

Range on electric

VED First year rate

Range on petrol/diesel

CO<sub>2</sub>

Litres per 100km

Pence per mile

Miles per kWh

Kilo Watt Hours

Miles per Gallon



# Words, words, words...

Life Cycle

Mode one, two, three & four

NEDC

Cradle to grave

Whole life costs

Plug In Hybrid

Single phase charging

Three phase charging

Extended Range EV

Well to wheel

Pure EV





# Meet the consumers...

Brian and Rita



We need  
information...

...but not too  
much  
information.

Pete and Emma



# Meet the consumers...

Market segment: Educated Suburban Families\*

Company car – cost implications:

- Benefit in kind tax bill
- Fuel costs

Carbon footprint and emissions is only a consideration when attached to cost.

Pete and Emma



# Meet the consumers...

Market segment: Affluent Empty Nesters\*

Own car – cost implications:

- Fuel costs
- VED
- Depreciation
- Insurance
- Maintenance

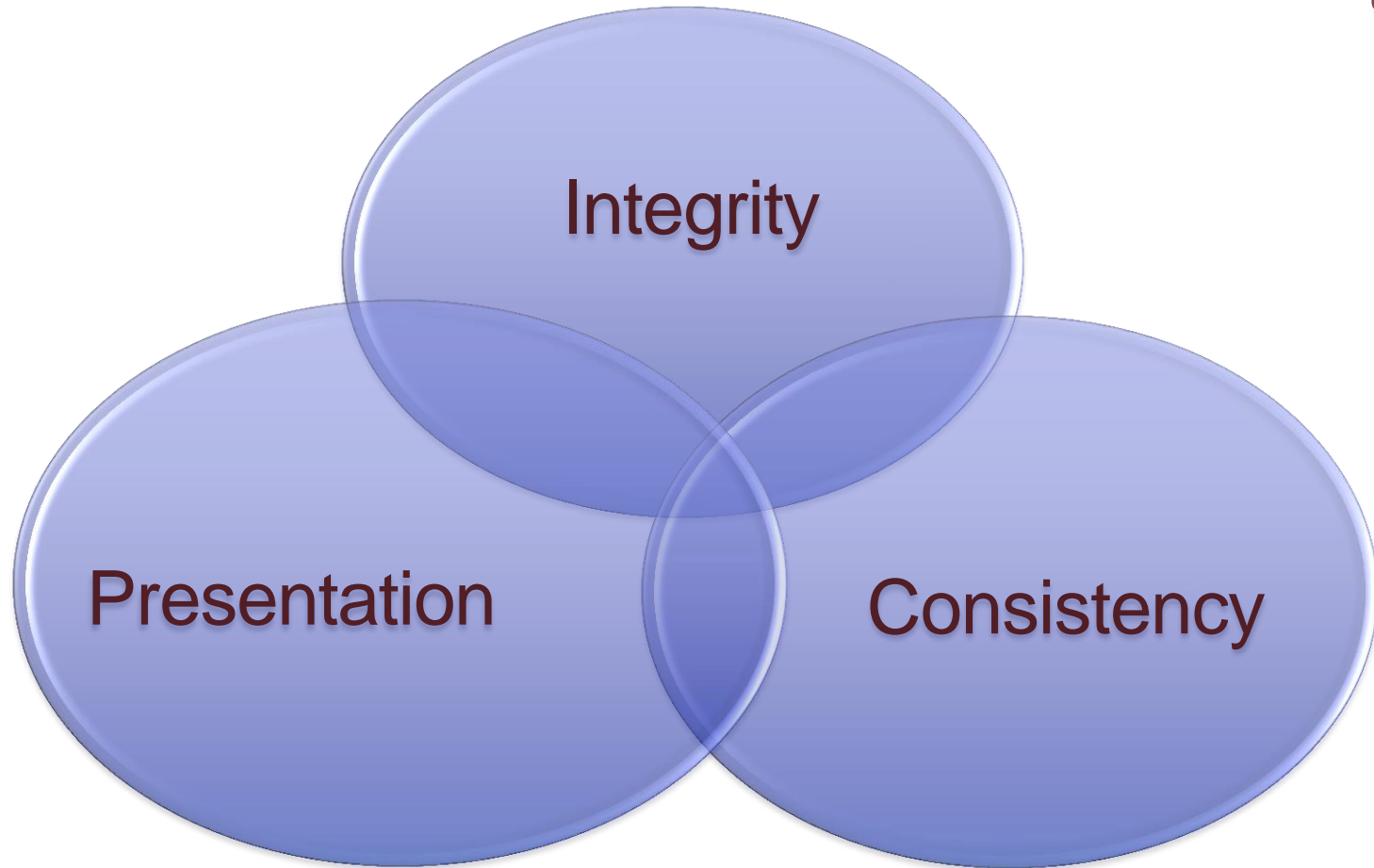
Carbon footprint and emissions may be of interest but less likely to influence the buying decision.

Brian and Rita





# Information Trinity



# Information integrity

- Information should be trusted
- Claims should independently verified
- Marketing spin should not distract consumers
- Life cycle metrics should be well established
- NEDC to be reviewed urgently to align official and real world fuel consumption



# Information integrity



## VW Golf 1.9 Tdi Match (2007) 6yrs old

Official combined 56.5 mpg (132g/km)

Actual 50+ mpg

**- 10%**

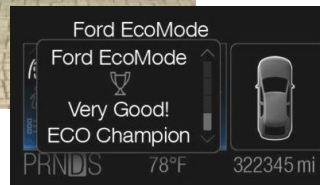


## Ford Focus 1.6 TDCi Econetic (2012) 1yr old

Official combined 67.3mpg (109g/km)

Actual 46.6 mpg

**- 30%**



**Lower emission cars, do not mean lower real world emissions, even when eco-driving!**

# Information presentation

- The presentation of information should be relevant to car buyers i.e. emissions only resonate when attached to cost
- The methodology adopted in the label should become more widespread
- Simple, non technical, presentation
- Clarity of real world costs

| Fuel Economy   |  | VED band and CO2  |                      |               |                   |                   |      |                            |  |
|--|--|---|----------------------|---------------|-------------------|-------------------|------|----------------------------|--|
| <p>CO2 emission figure (g/km)</p>  |  | <p><b>A</b> 49 g/km (weighted)</p>  |                      |               |                   |                   |      |                            |  |
| <p><b>Fuel and electricity cost (estimated) for 12,000 miles</b></p> <p>A guide price for comparison purposes is calculated using the combined drive cycle (town centre and motorway) and average fuel and electricity price. Recalculated annually, the cost as at March 2012: petrol £1.36/litre, electricity 13.6p/kWh.</p> <p>Fuel consumption for plug-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. The weighted average results give an idea of the potential range of fuel consumption.</p>   |  | <table border="1"> <tr> <th>Fuel</th> <th>Electricity</th> <th>Total</th> </tr> <tr> <td>£552</td> <td>£137</td> <td><b>£688</b> <sup>(1)</sup></td> </tr> </table> | Fuel                 | Electricity   | Total             | £552              | £137 | <b>£688</b> <sup>(1)</sup> |  |
| Fuel   | Electricity  | Total   |                      |               |                   |                   |      |                            |  |
| £552   | £137   | <b>£688</b> <sup>(1)</sup>  |                      |               |                   |                   |      |                            |  |
| <p><b>VED for 12 months</b></p> <p>Vehicle Excise Duty (VED) or road tax varies according to the CO2 emissions and fuel type of the vehicle.</p>   |  | <table border="1"> <tr> <th>1st year rate</th> <th>Standard rate</th> </tr> <tr> <td>£0 <sup>(2)</sup></td> <td>£0 <sup>(2)</sup></td> </tr> </table>               | 1st year rate        | Standard rate | £0 <sup>(2)</sup> | £0 <sup>(2)</sup> |      |                            |  |
| 1st year rate  | Standard rate  |   |                      |               |                   |                   |      |                            |  |
| £0 <sup>(2)</sup>  | £0 <sup>(2)</sup>  |   |                      |               |                   |                   |      |                            |  |
| <p>Electric energy consumption: <b>11.9</b> Miles/kWh</p>  | <p>Maximum electric range (on battery power only): <b>25</b> Km / <b>16</b> Miles <sup>(3)</sup></p> |   |                      |               |                   |                   |      |                            |  |
| <p><b>Environmental Information</b></p> <p>A guide on fuel economy and CO2 emissions which contains data for all new passenger car models is available at any point of sale free of charge. In addition to the fuel efficiency of a car, driving behaviour as well as other non-technical factors play a role in determining a car's fuel consumption and CO2 emissions. CO2 is the main greenhouse gas responsible for global warming.</p>  |  |   |                      |               |                   |                   |      |                            |  |
| <p>Make/Model: TOYOTA Prius plug-in hybrid</p>   |  | <p>Engine Capacity (cc): 1798</p>   |                      |               |                   |                   |      |                            |  |
| <p>Fuel Type: Electricity/Petrol <sup>(4)</sup></p>  |  | <p>Transmission: N/A</p>  |                      |               |                   |                   |      |                            |  |
| <p><b>Fuel Consumption Drive Cycle</b></p>   |  | <p>Litres/100km</p>   | <p>Mpg</p>           |               |                   |                   |      |                            |  |
| <p>Urban</p>   |  | N/A   | N/A                  |               |                   |                   |      |                            |  |
| <p>Extra-urban</p>   |  | N/A   | N/A                  |               |                   |                   |      |                            |  |
| <p>Combined (weighted)</p>   |  | 2.1 <sup>(5)</sup>  | 134.5 <sup>(5)</sup> |               |                   |                   |      |                            |  |
| <p><b>Carbon dioxide emissions (g/km) (weighted): 49</b></p> <p><b>Important note:</b> Some specifications of this make/model may have lower CO2 emissions than this. Check with your dealer.</p> <p><sup>(1)</sup> A 100 year RPD rate will be applied to cars registered for the first time between 1st June 2018 and 31st March 2020.</p> <p><sup>(2)</sup> The standard 12 month VED rate for all registered cars in this band is shown for the purposes of comparison. Note, figures quoted reflect the current rate only, and may be subject to change in the future.</p> <p><sup>(3)</sup> Figures calculated by multiplying the 2012 petrol cost / litre by the combined MPG figure. Electric figure is the energy consumption shown, multiplied by the 2012 price for 1kWh.</p> <p><sup>(4)</sup> A list of electric vehicle charging points is available here: <a href="http://www.ev-network.org.uk/">http://www.ev-network.org.uk/</a></p> <p><sup>(5)</sup> Please note that figures quoted are obtained under specific test conditions, they may not be achieved under 'real world' driving conditions. However, the figures serve as a means of comparing models of a similar type.</p> |  |   |                      |               |                   |                   |      |                            |  |
| <p>Department for Transport</p>  |  | <p>To compare fuel costs and CO<sub>2</sub> emissions of new cars, visit <a href="http://carfueldata.direct.gov.uk/">http://carfueldata.direct.gov.uk/</a></p>      |                      |               |                   |                   |      |                            |  |

# Information presentation

**EPA DOT**
**Fuel Economy and Environment**
**Electric Vehicle**

**73** MPGe Subcompact cars range from 10 to 112 MPGe. The best vehicle rates 112 MPGe.

**You save \$8,350** in fuel costs over 5 years compared to the average new vehicle.

77  
combined city/hwy

68  
city

46  
highway

88  
kW-hrs per 100 miles

**Driving Range**  
When fully charged, vehicle can travel about...

**Charge Time: 6 hours** (240V)

**Annual fuel cost \$850**

**Fuel Economy & Greenhouse Gas Rating** (tailpipe only)

**1** **10**  
Best

**Smog Rating** (tailpipe only)

**1** **10**  
Best

This vehicle emits 0 grams CO<sub>2</sub> per mile. The best emits 0 grams per mile (tailpipe only). Does not include emissions from generating electricity; learn more at [fuel-economy.gov](http://fuel-economy.gov).

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 22 MPG and costs \$12,600 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$0.12 per kW-hr. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

**fuel-economy.gov**  
Calculate personalized estimates and compare vehicles

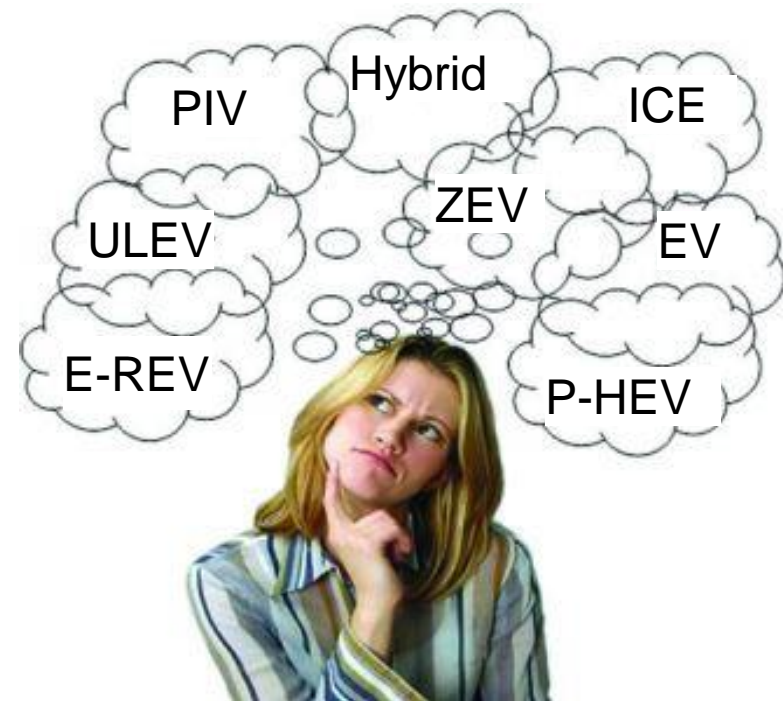
Smartphone QR Code™

| Fuel Economy   |               | VED band and CO <sub>2</sub>   |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
|--|---------------|--|----------------------|---------------|-------|---------|------|---------|---|---------|---|---------|---|---------|---|---------|---|---------|---|---------|---|---------|---|---------|---|---------|---|------|---|--|--|
| <p><b>CO<sub>2</sub> emission figure (g/km)</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #008000; color: white; text-align: center;">&lt; 100</td><td style="text-align: right;">A</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">101-110</td><td style="text-align: right;">B</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">111-120</td><td style="text-align: right;">C</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">121-130</td><td style="text-align: right;">D</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">131-140</td><td style="text-align: right;">E</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">141-150</td><td style="text-align: right;">F</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">151-160</td><td style="text-align: right;">G</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">161-170</td><td style="text-align: right;">H</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">171-180</td><td style="text-align: right;">I</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">181-190</td><td style="text-align: right;">J</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">191-200</td><td style="text-align: right;">K</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">201-225</td><td style="text-align: right;">L</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">226-255</td><td style="text-align: right;">M</td></tr> <tr><td style="background-color: #008000; color: white; text-align: center;">256+</td><td style="text-align: right;">N</td></tr> </table> |               | < 100  | A                    | 101-110       | B     | 111-120 | C    | 121-130 | D | 131-140 | E | 141-150 | F | 151-160 | G | 161-170 | H | 171-180 | I | 181-190 | J | 191-200 | K | 201-225 | L | 226-255 | M | 256+ | N | <div style="border: 2px solid black; padding: 5px; display: inline-block;"> <b>A</b> <b>49</b> g/km<br/><small>(weighted)</small> </div> |  |
| < 100  | A             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| 101-110  | B             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| 111-120  | C             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| 121-130  | D             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
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| 191-200  | K             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| 201-225  | L             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| 226-255  | M             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| 256+   | N             |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p><b>Fuel and electricity cost (estimated) for 12,000 miles</b></p> <p style="font-size: x-small;">A guide price for comparison purposes is calculated using the combined drive cycle (town centre and motorway) and average fuel and electricity price. Recalculated annually, the cost as at March 2012: petrol £1.36/litre, electricity 13.6p/kWh.</p> <p style="font-size: x-small;">Fuel consumption for plug-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. The weighted average results give an idea of the potential range of fuel consumption.</p>   |               | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="font-size: x-small;">Fuel</th> <th style="font-size: x-small;">Electricity</th> <th style="font-size: x-small;">Total</th> </tr> <tr> <td style="text-align: center;">£552</td> <td style="text-align: center;">£137</td> <td style="text-align: center; font-weight: bold;">£688</td> </tr> </table> | Fuel                 | Electricity   | Total | £552    | £137 | £688    |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| Fuel   | Electricity   | Total  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| £552   | £137          | £688   |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p><b>VED for 12 months</b><br/>Vehicle Excise Duty (VED) or road tax varies according to the CO<sub>2</sub> emissions and fuel type of the vehicle.</p>   |               | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="font-size: x-small;">1st year rate</th> <th style="font-size: x-small;">Standard rate</th> </tr> <tr> <td style="text-align: center;">£0</td> <td style="text-align: center;">£0</td> </tr> </table>  | 1st year rate        | Standard rate | £0    | £0      |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| 1st year rate  | Standard rate |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| £0   | £0            |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p>Electric energy consumption: <b>11.9</b> Miles/kWh</p>  |               | <p>Maximum electric range (on battery power only): <b>25</b> Km / <b>16</b> Miles</p>  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
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| <p><b>Make/Model</b> TOYOTA Prius plug-in hybrid</p>   |               | <p><b>Engine Capacity (cc):</b> 1798</p>   |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p><b>Fuel Type:</b> Electricity/Petrol<sup>(1)</sup></p>  |               | <p><b>Transmission:</b> N/A</p>  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p><b>Fuel Consumption Drive Cycle</b></p>   |               | <p>Litres/100km</p>  | <p>Mpg</p>           |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| Urban  |               | N/A  | N/A                  |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| Extra-urban  |               | N/A  | N/A                  |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| Combined (weighted)  |               | 2.1 <sup>(2)</sup>   | 134.5 <sup>(3)</sup> |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p><b>Carbon dioxide emissions (g/km) (weighted): 49</b></p> <p><b>Important note:</b> Some specifications of this make/model may have lower CO<sub>2</sub> emissions than this. Check with your dealer.</p>   |               |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p>(1) A 1st year VED rate will be applied to cars registered for the first time (scheme effective from April 2010).</p> <p>(2) The standard 12 month VED rate for all registered cars in this band is shown for the purposes of comparison. Note, figures quoted reflect the current rate only, and may be subject to change in the future.</p> <p>(3) Figures calculated by multiplying the 2012 petrol cost / litre by the combined MPG figure. Electric figure is the energy consumption shown, multiplied by the 2012 price for 1kWh.</p> <p>(4) A list of electric vehicle charging points is available here: <a href="http://www.ev-network.org.uk/">http://www.ev-network.org.uk/</a>.</p> <p>(5) Please note that figures quoted are obtained under specific test conditions, they may not be achieved under 'real world' driving conditions. However, the figures serve as a means of comparing models of a similar type.</p>  |               |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
| <p><b>Department for Transport</b></p>   |               | <p>To compare fuel costs and CO<sub>2</sub> emissions of new cars, visit <a href="http://carfueldata.direct.gov.uk/">http://carfueldata.direct.gov.uk/</a></p>   |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |
|  |               |  |                      |               |       |         |      |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |         |   |      |   |  |  |



# Information consistency

- Standard metrics
- Cost should feature as the core message
- Information should be aligned to fiscal policy and real fuel spend
- Terminology should be standardised
- Running cost = carbon footprint



# Communicating the carbon footprint?

- 1. Only if the consumer needs to know.**
- 2. Ensure information has integrity, is presented simply and is consistent across the industry.**



**Thank you for listening**