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Transport Manager
Glasgow City Council

Tomorrow's Council

Developing A "Green" Fleet

7 Seat Electric Vehicle x 10

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Performance

- Approximately 100 miles / full charge
- Costs around £2 to fully charge.
- Can achieve almost 70 mph on motorways

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Issues

Still Awaiting Delivery of 40 Cars and Vans

Can’t Climb Steep Slopes

Slow Acceleration

Can Stall

Battery Issues If Not Kept Charged

Insurance

Developing A "Green" Fleet

Scottish Government Initiative

Reduce Carbon By 42% - 2020
80% - 2050

Grant Support £3.6M To Community Planning Partnerships

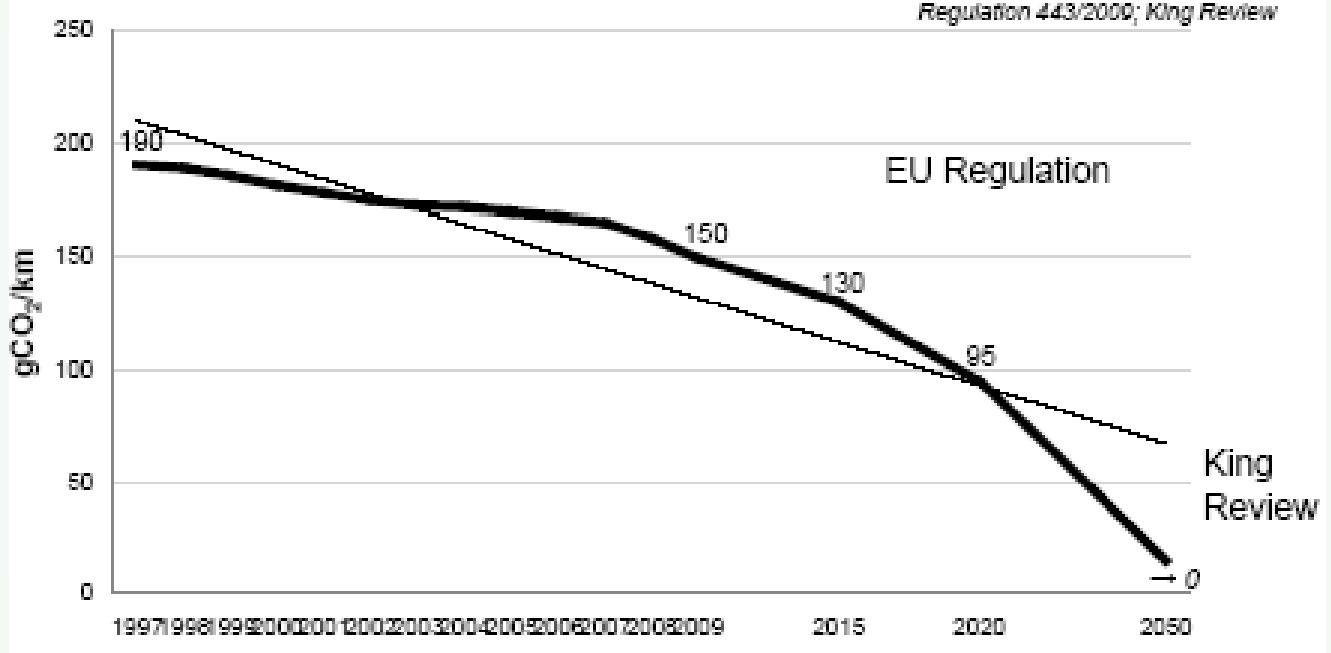
Between £65k & £215K

The scheme will be open to almost all types of vehicles from scooters through to street sweepers, vans and minibuses (maximum capacity 16 passengers and 1 driver). Vehicles must be either powered by electricity, biomethane, biodiesel, bioethanol, hydrogen or be a plug-in hybrid_electric vehicle (PHEV). The scheme does NOT include the procurement of petrol or diesel vehicles or hybrid engined passenger cars. However, hybrid engined vans and minibuses can be procured through the scheme.

UK Average New Car CO_2 Emissions

Edinburgh Napier UNIVERSITY

Source: historic data from SMMT; EU Regulation 443/2009; King Review



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Fuel type / engine technology	Vehicle type	Eligible for the scheme (yes/no)
Petrol only	All vehicle types	No
Diesel only	All vehicle types	No
Non-electric hybrid engine	Passenger cars	No
	Light goods vehicles	Yes
	Minibuses	Yes
Plug-in electric hybrid engine	Passenger cars	Yes
	Scooters / 2 wheeled vehicles	Yes
	Street sweepers / cleaners	Yes
	Light goods vehicles	Yes
Electricity only	Passenger cars	Yes
	Scooters / 2 wheeled vehicles	Yes
	Street sweepers / cleaners	Yes
	Light goods vehicles	Yes
Hydrogen only	All vehicle types	Yes
Biomethane	Light goods vehicles	Yes
	Heavy goods vehicles	Yes
Biodiesel	Light goods vehicles	Yes
	Heavy goods vehicles	Yes
Bioethanol	Light goods vehicles	Yes
	Heavy goods vehicles	Yes
All fuel types	Midibuses	No
All fuel types	Buses	No

Please note that the vehicles listed in this table are not final, and give an indication only of the most common vehicle types by technology. Any additional technologies which are not addressed here will be considered on an individual basis by Transport Scotland officials.

Vehicle Type	Vehicle Class / Size	Recommended maximum tailpipe emissions of CO2 (g/km)
Passenger Cars	N/A	75
Light Goods Vehicles	Small EU Class I* vans (max 600kg payload)	110
	Large EU Class I* vans (min 600kg payload)	135
	Small EU Class II* Vans (max 1000kg payload)	142
	Large EU Class II* Vans (min 1000kg payload)	196
	EU Class III** Vans	207

To ensure that the scheme achieves value for money against its objectives, those vehicles which are significantly more expensive than their conventionally powered counterparts must be capable of achieving a significant improvement in vehicle C02 emissions levels.
Therefore the procurement of vehicles which do not meet the thresholds set out in Table 2 should not be included in the scheme if the subsidy required exceeds £7,500 for a passenger car, or £15,000 for a light goods vehicle.
* EU Emissions Standards Class

Toyota Prius 3rd generation – from 89 g/CO2/km

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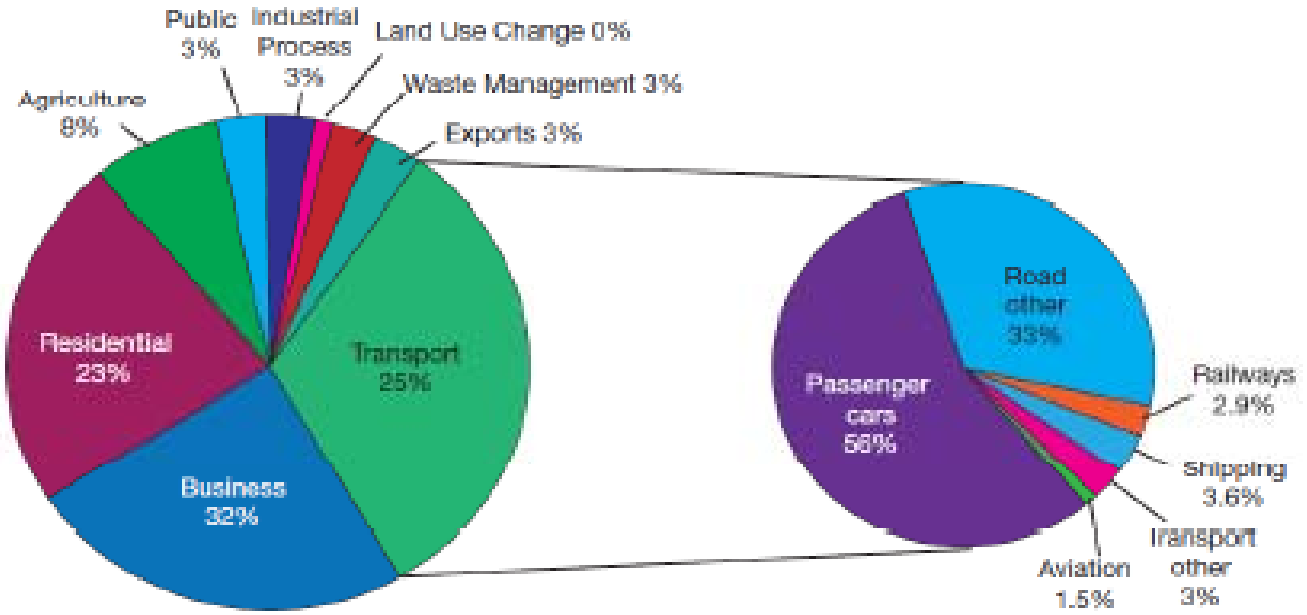
UK CO_2 EMISSIONS



By final user 2008 (ONS, 2010)

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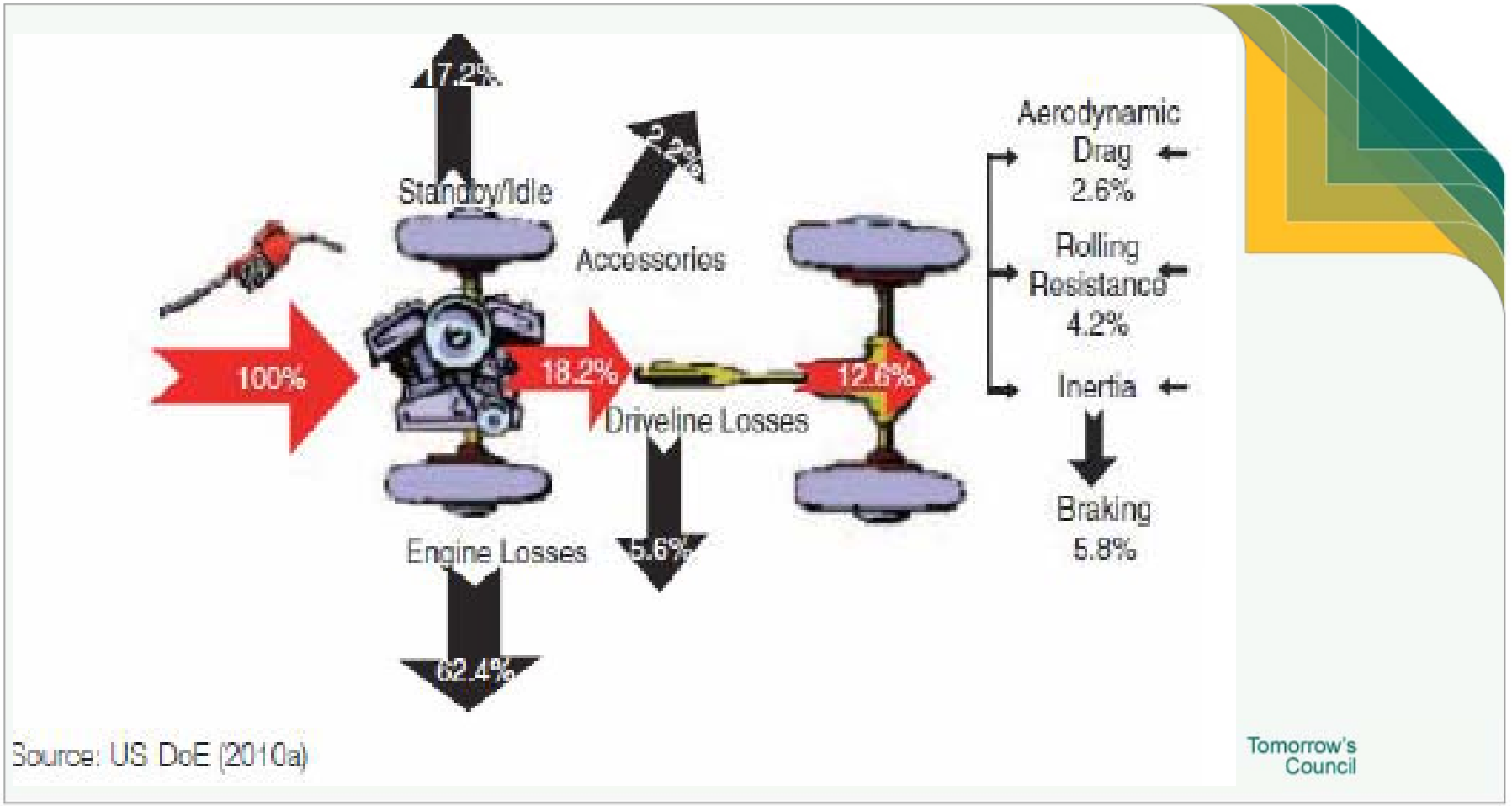
7.2%
Standby/Idle
2.2%
Accessories
Aerodynamic
Drag
2.6%
Rolling
Resistance
4.2%
Inertia
Braking
5.8%
100%
18.2%
12.6%
Driveline Losses
Engine Losses
5.6%
62.4%
Source: US DoE (2010a)
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- 'Ladder of electrification'
  - Micro hybrid
  - Mild hybrid
  - Full hybrid
  - Plug-in hybrid
  - Battery electric vehicle
- Battery technology

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Electrification ladder

Vehicle type	Efficiency gains/CO_2 saving (%)	Cost per vehicle (£)
Micro	3-9 (higher figure with regenerative braking)	100-450
Mild	10-35	1,000-1,500
HEV	25-50	2,000-4,000
PHEV	>50 (depending on grid carbon intensity)	6,500 (35 km electric range) – 25,000 (350 km electric range)
BEV	40-100 (depending on grid carbon intensity	Cf. PHEV

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Discussion / Questions