

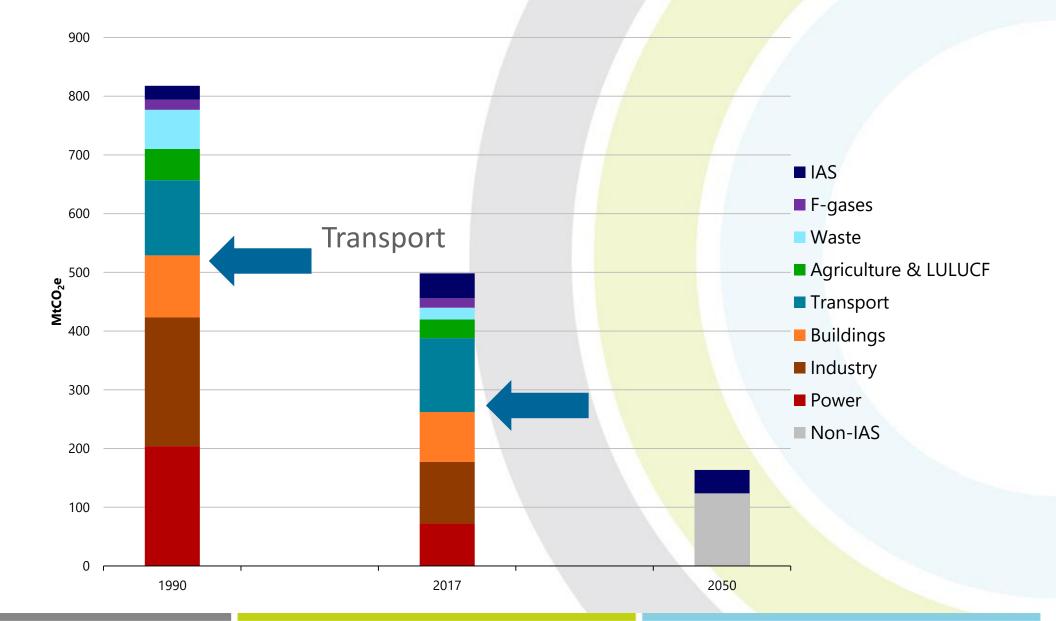
#### 08 July 2019

# Net Zero: the transport challenge

Baroness Brown of Cambridge DBE FREng FRS Vice-Chair Committee on Climate Change

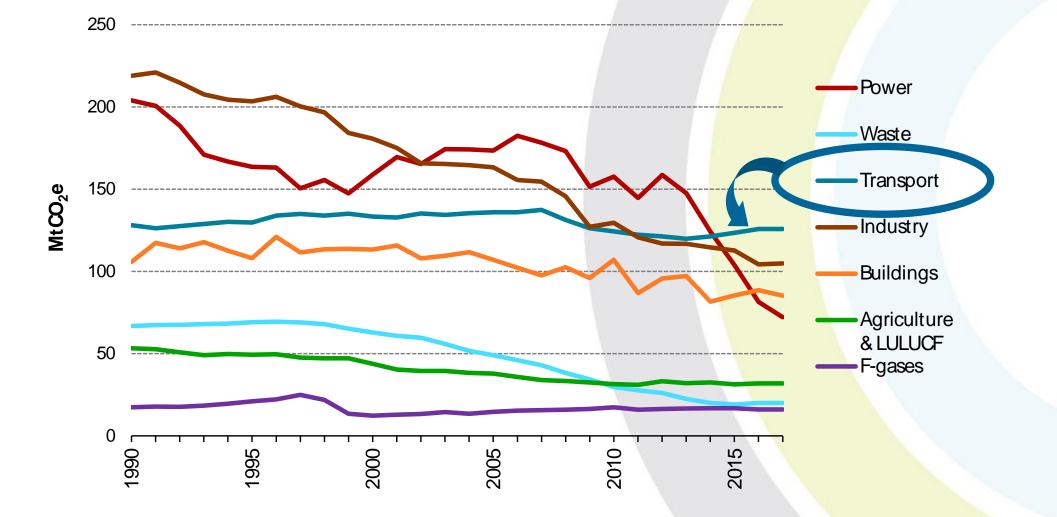


# Progress towards the 80% target



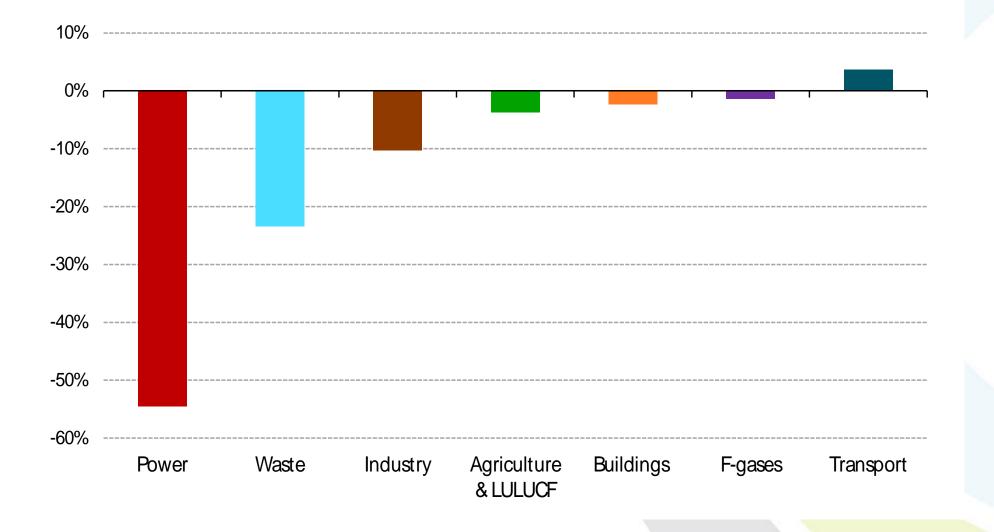


## Progress by sector

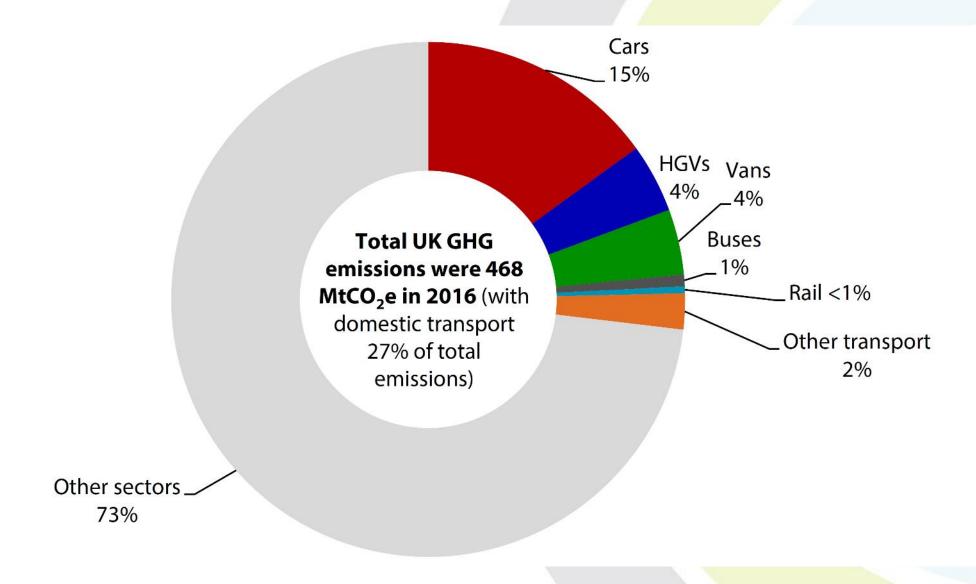




## Changes in sectoral emissions 2012-2017



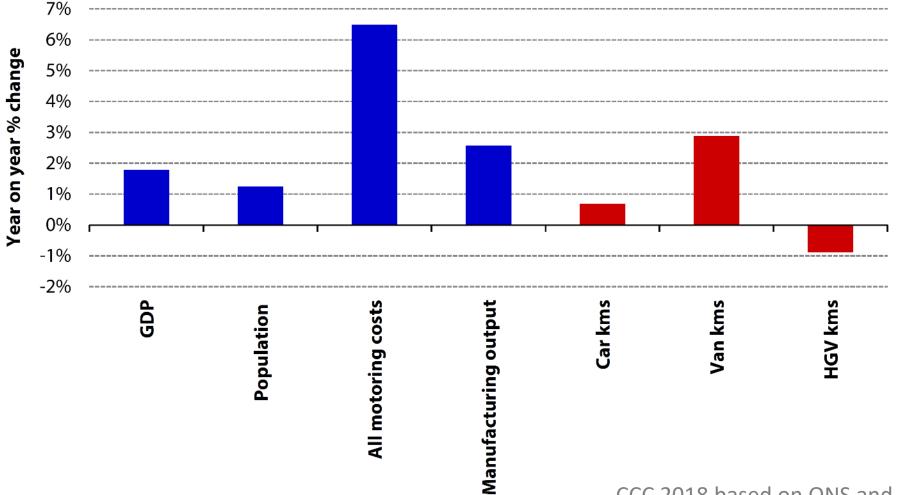
#### Transport emissions 2016



Committee on



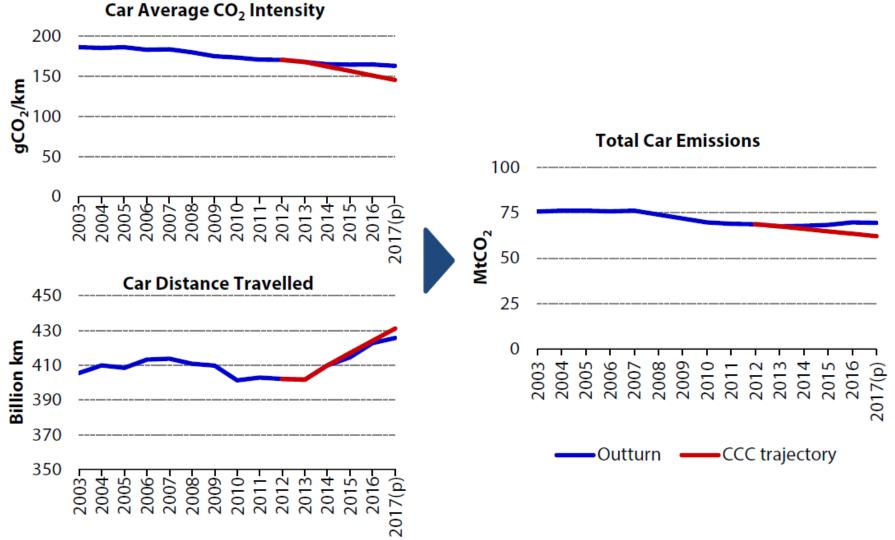
## Changes in travel and transport demand 2016 - 2017



CCC 2018 based on ONS and DfT figures

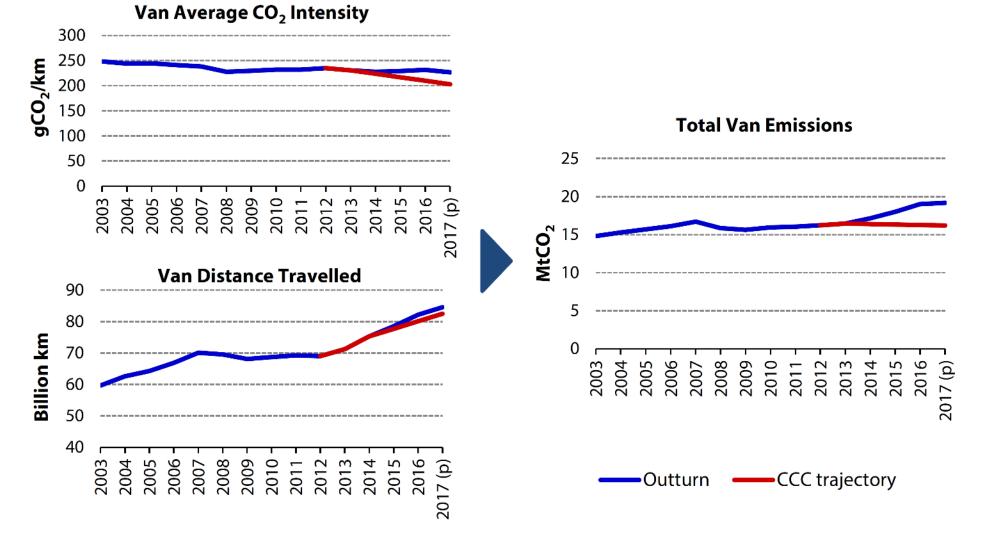


#### Trends in car emissions



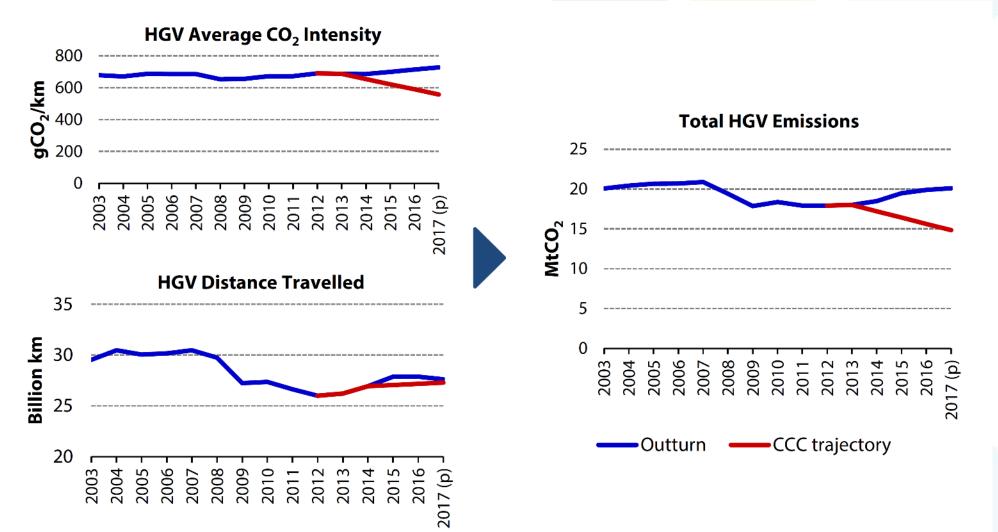


#### Trends in van emissions





#### Trends in HGV emissions







- Freight tonnes per km 9.4% up in 2016
- Emissions per tonne per km 9% down in 2016
- EU:
  - Reporting: January 2019 annual reporting of emissions and fuel consumption by manufacturer
  - Targets:
    - 15% reduction in emissions by 2025
    - 30% by 2030
    - from a 2019 baseline



## **IPCC Special Report**

INTERGOVERNMENTAL PANEL ON GLIMBTE Change

EMBARGOED until 8 October 2018

EMBARGOED

Notion

GLOBAL WARMING OF 1.5°C

an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and an IPCC Special report on the impacts of global warming of 1.5 °C above pre-industrial levels and warming of 1.5 °C above pre-industrial levels and warming of 1.5 °C above pre-industrial levels and related dishal or eenhouse das emission pathways. Warming of 1.5 C above pre-industrial levels and warming of 1.5 C above pre-industrial levels and sin the context of strengthening the global response related global greennouse gas emission pathways, related global greennouse gas emission pathways, the the context of strengthening the global response sustainable sustainable to the threat of climate change.

in the context of strengthening the glopal res sustainable to the threat of climate change, sustainable to the threat of and efforte to eradicate noise to the threat of climate change, sustainable poverty development, and efforts to eradicate poverty

Summary for Policymakers

anu accepted by ute 40" Destination of Republic of Korea, 6 October 2018.

This Summary for Policymakers was formally approved at the First Joint Session of Working Groups I. II and III of the IPCC This Summary for Policymakers was formally approved at the IPCC First Joint Session of Working Groups I, II and III of the IPCC, Incheon, First Joint Session of Working Session of the IPCC, Incheon, and accepted by the 48<sup>th</sup> Session of the IPCC, Incheon First Joint Session of Working Groups I, II and III of the IF and accepted by the 48th Session of the IPCC, Incheon, Republic of Korea. 6 October 2018.

UNEP UNEP

IDCC.

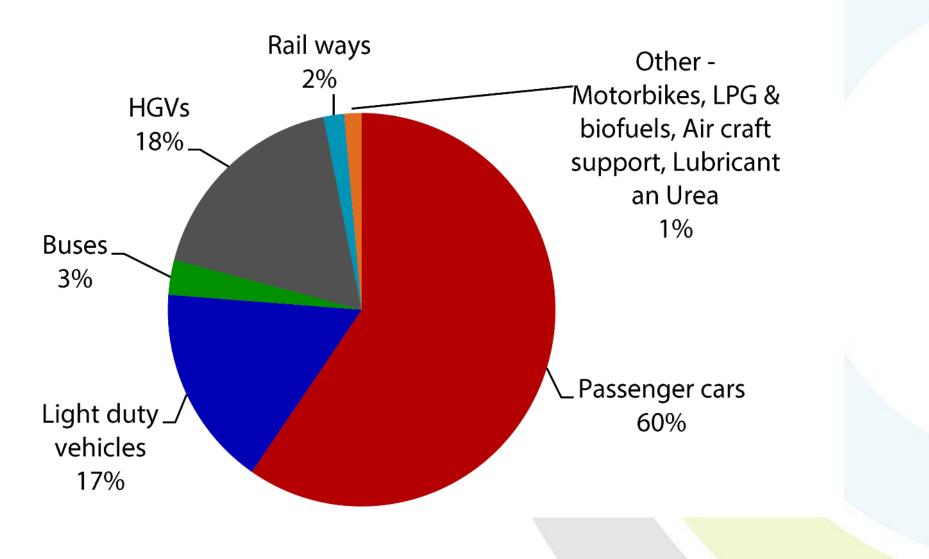


#### UK Net Zero Target

- Legislated 27<sup>th</sup> June 2019
- 80% by 2050 is now 100% by 2050



#### Transport: 27% UK emission to zero





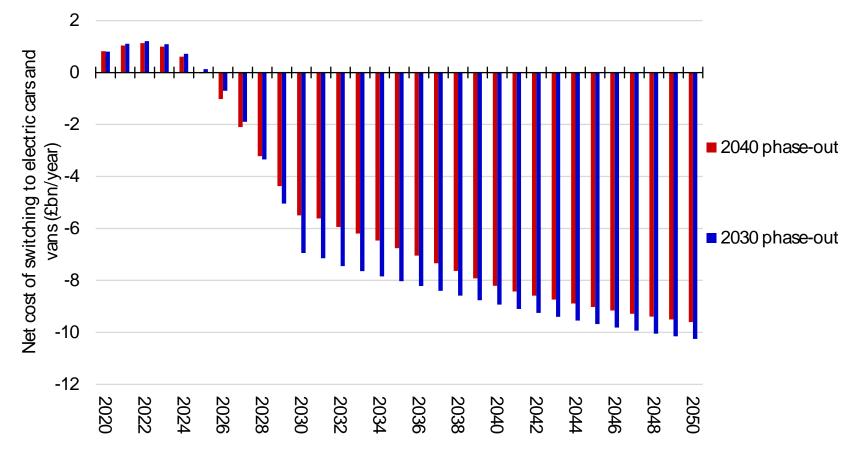
#### CCC Net Zero: cars and vans

- 2035: all new cars and vans to be electric (or other zero emission technology such as hydrogen)
- 2030 switchover better...and cheaper
- Government support needed for charging infrastructure
  - 3,500 rapid an ultra-rapid on motorways
  - 210,000 on streets in towns and cities
- Co-benefits of cleaner air and quieter streets



# Costs and benefits of meeting a UK net-zero target

A 2030 switchover to electric vehicles would save more money than a 2040 switchover



Source: CCC analysis



#### CCC Net Zero: HGVs

- Mid-2020s: decision on infrastructure for zero emission HGVs
- Deployment late 2020s, through 2030s
- International coordination
- Trials of zero emission HGVs and infrastructure: urgent
- From 2020s: vehicle and fuel taxation to incentivise operators to move to net zero
- Support for refuelling infrastructure
- Support for the business case for hydrogen



#### HGV options

#### Hydrogen



**Toyota** Producing hydrogen is more energy intensive than fuelling HGVs with electricity directly.

#### Electricity with on road refuelling



Scania/Siemens Costly and lengthy infrastructure roll-out required.

#### Electricity with 'Megachargers'



**Tesla** Uncertainty over battery developments. Impact on electricity grid.



## CCC Net Zero: hierarchy of fuels

- Electricity first
- Hydrogen
- Synthetic fuels
- Biofuels focussed on carbon capture and storage applications for net zero emissions



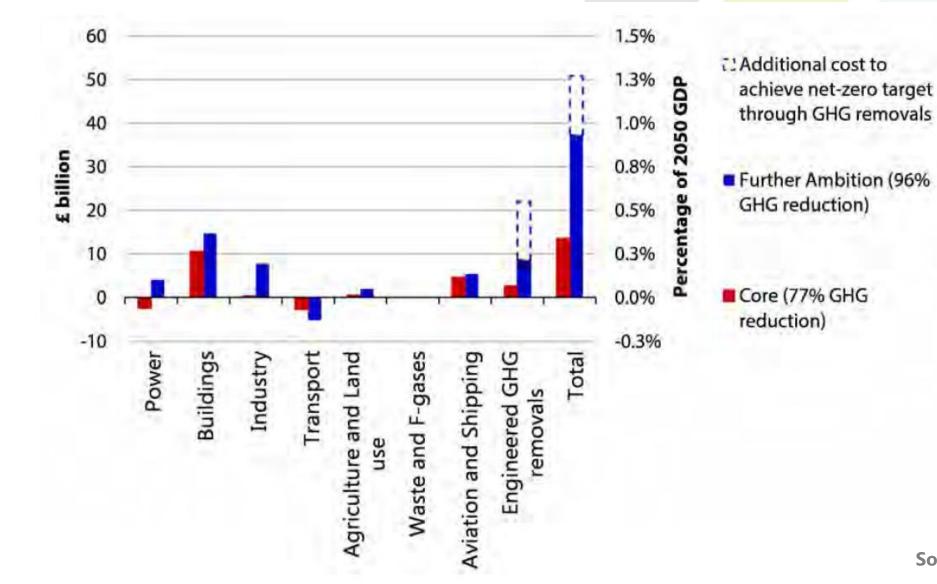
#### **CCC** Net Zero: logistics

- 10% + ?
- Urban consolidation centres
- Extending delivery times: not always just in time
- No return empty
- Smaller boxes
- Data sharing...

. . .



#### Net zero: transport is the easy part!



**Source**: CCC analysis