Meeting carbon budgets – 6th Progress Report to Parliament

Committee on Climate Change, July 2014

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Today's report - Key messages

- **The UK met the 1st Carbon Budget.** Emissions fell 12% over the period 2007-2012 and a further 2% in 2013.

- Over the 1st Carbon Budget there was **good progress on implementing some measures**, for example deployment of wind and new car efficiency. However, **progress on many policies and actions has been limited.**

- There is a "**policy gap**" to meeting the 4th Carbon Budget; **current policies will not be sufficient.**

- Closing this gap is eminently possible and affordable. It will require **strengthening of policies**, including **improvement in design**, **increased ambition** and **extensions of commitments in time**.

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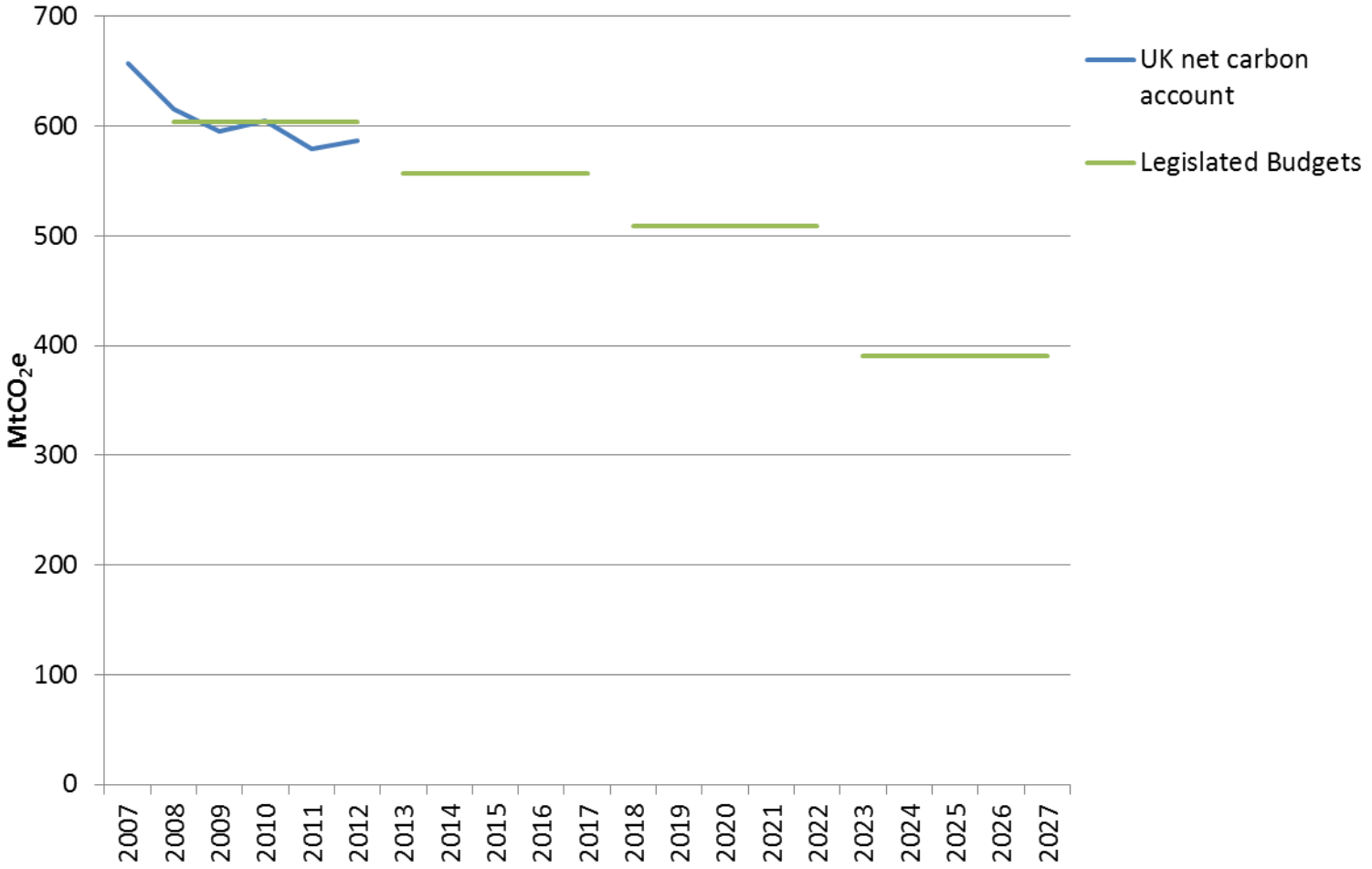
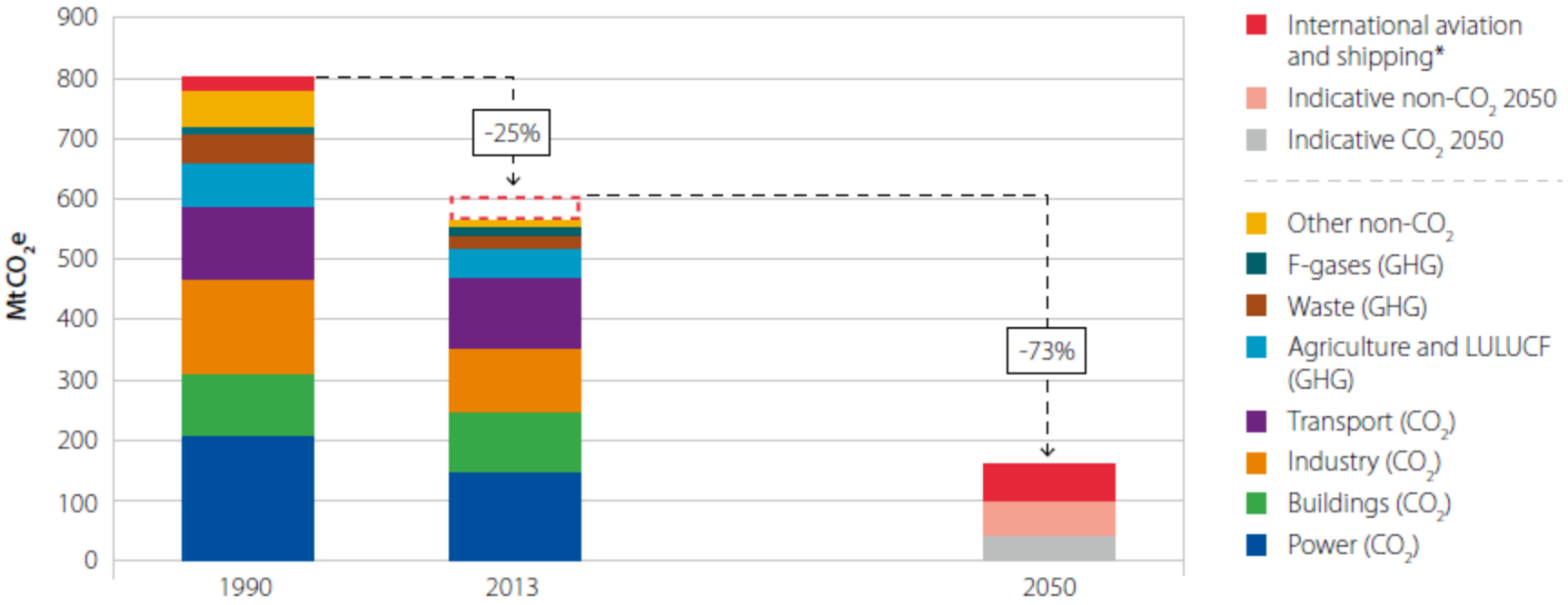
The UK met the level of the 1st Carbon Budget (2008-2012), with a surplus of 36MtCO$_2$e (around 1%)



Source: DECC (2014) *2013 UK Greenhouse gas emissions, provisional estimates.*

In 2013 UK GHG emissions fell 2% to 564MtCO_2e, having fallen 25% from 1990



Source: NAEI (2014) *Final emissions estimates*; CCC analysis.
Notes: *Emissions from international aviation and shipping are not currently included in carbon budgets. This will be reviewed by Government in 2016.

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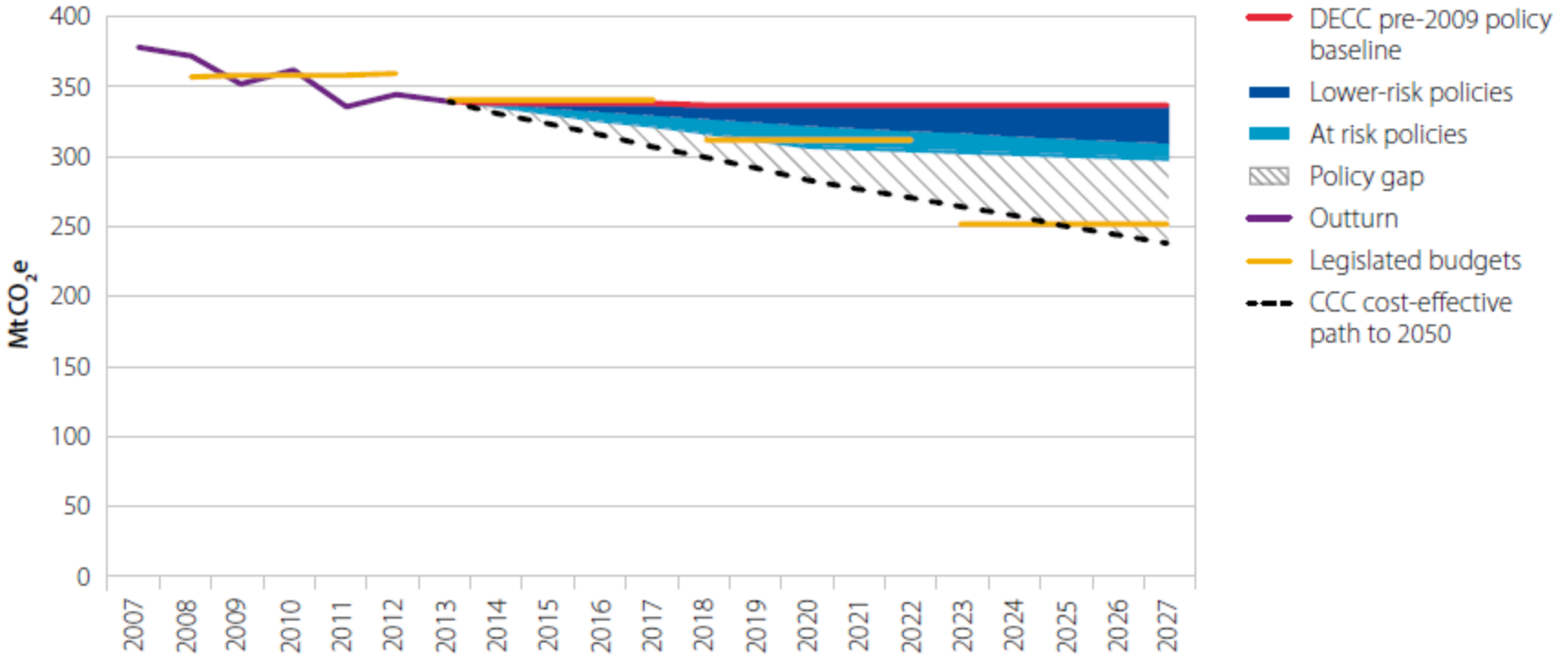
Non-traded sector emissions fell 1% in 2013, after falling 9% from 2007-2012; there is a policy gap to meeting the 3rd and 4th carbon budgets



Source: DECC (2013) *Updated emissions projections*; CCC analysis.

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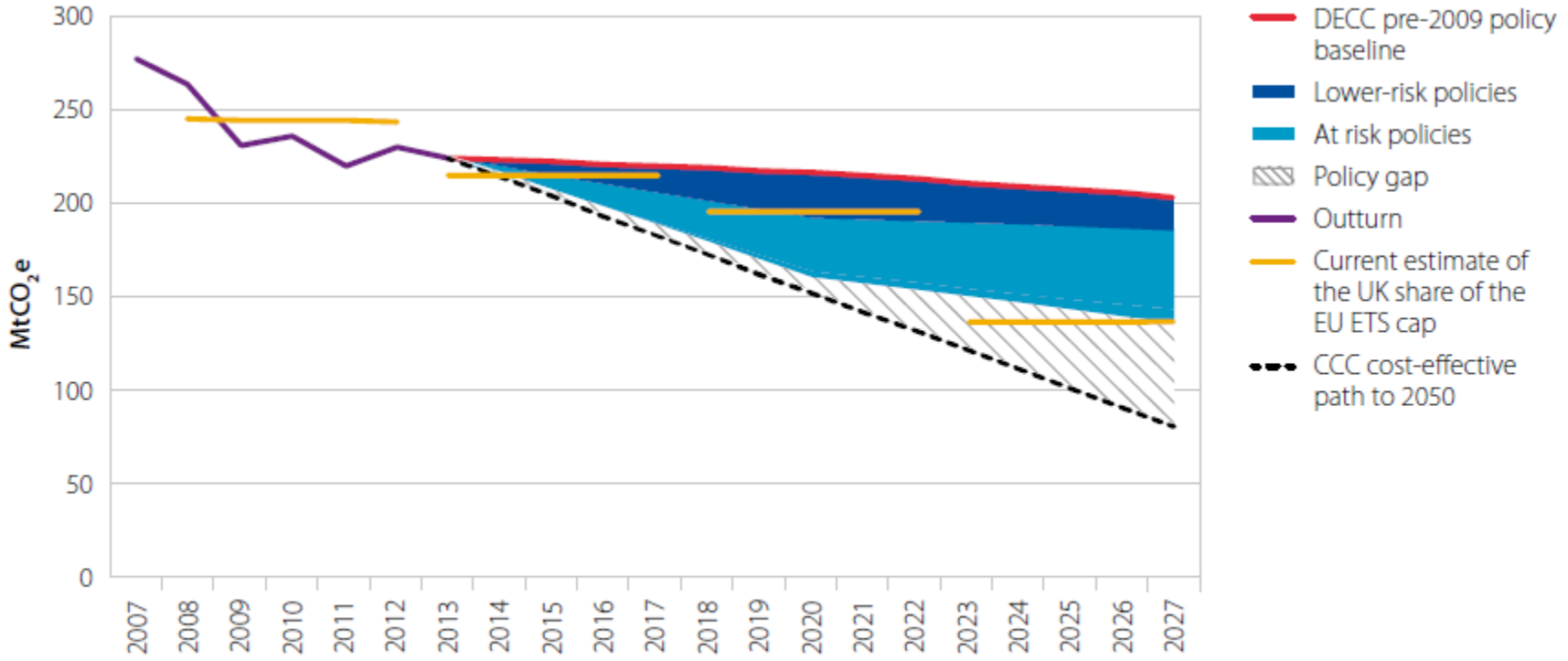
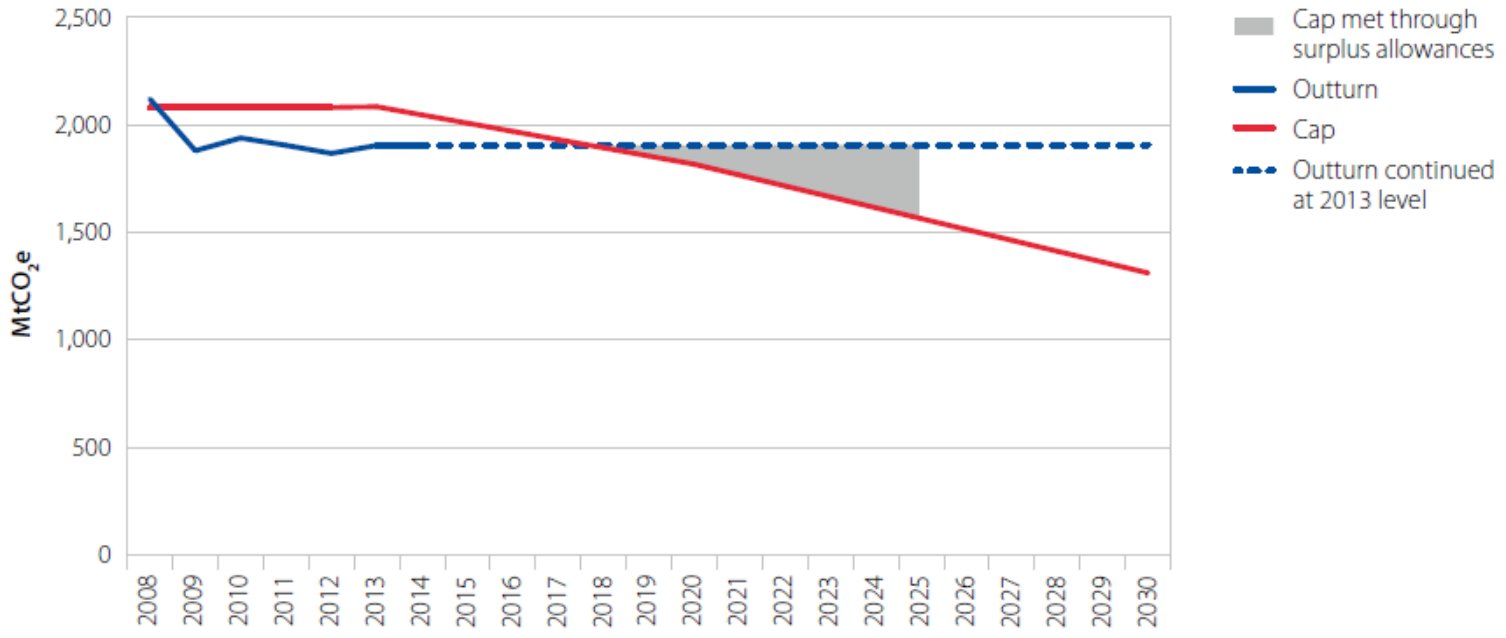
Gross emissions from sources currently in the traded sector fell 3% in 2013, following a 17% fall from 2007-2012; there is a policy gap to meeting the 4th Carbon Budget



Source: DECC (2013) *Updated emissions projections*; European Commission (2014) *Verified emissions data*; CCC analysis.

At the current level of emissions in the EU ETS, the cumulative surplus within the cap could persist until 2024



Source: European Commission (2014) *Verified emissions data*; European Commission (22 October 2010) *Commission Decision 2010/364/EU.*
Notes: Excludes international aviation.

The UK should push for a combination of ETS reform and emissions targets for 2020 and 2030 that will put the EU on the cost-effective path to meeting its target for 2050 and deliver a strong ETS price.

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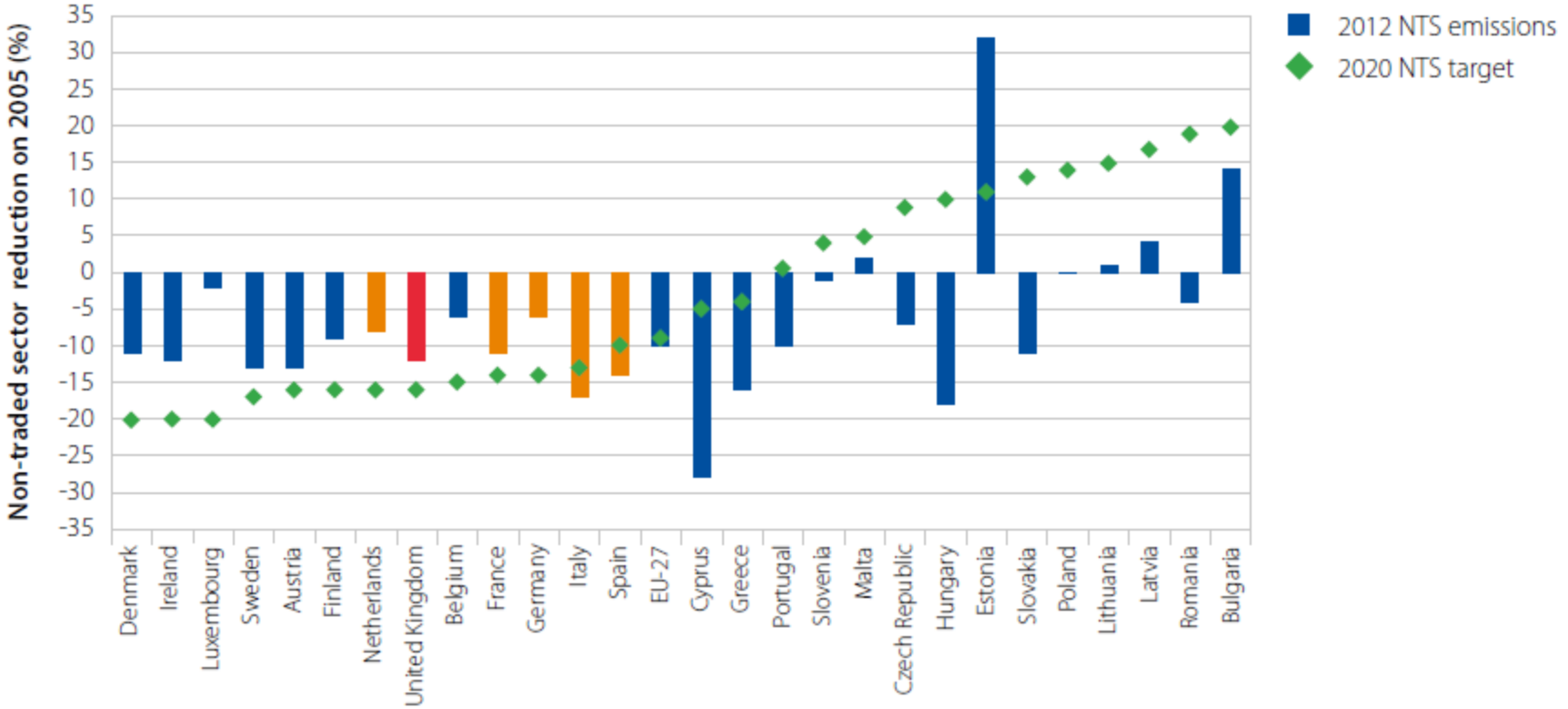
Overall UK progress in reducing emissions is in line with our EU and international commitments, and is broadly keeping pace with other countries



Source: European Environment Agency (2013), *Trends and projections in Europe 2013.*
Notes: Orange bars represent largest six countries labelled in Figure 1.13.

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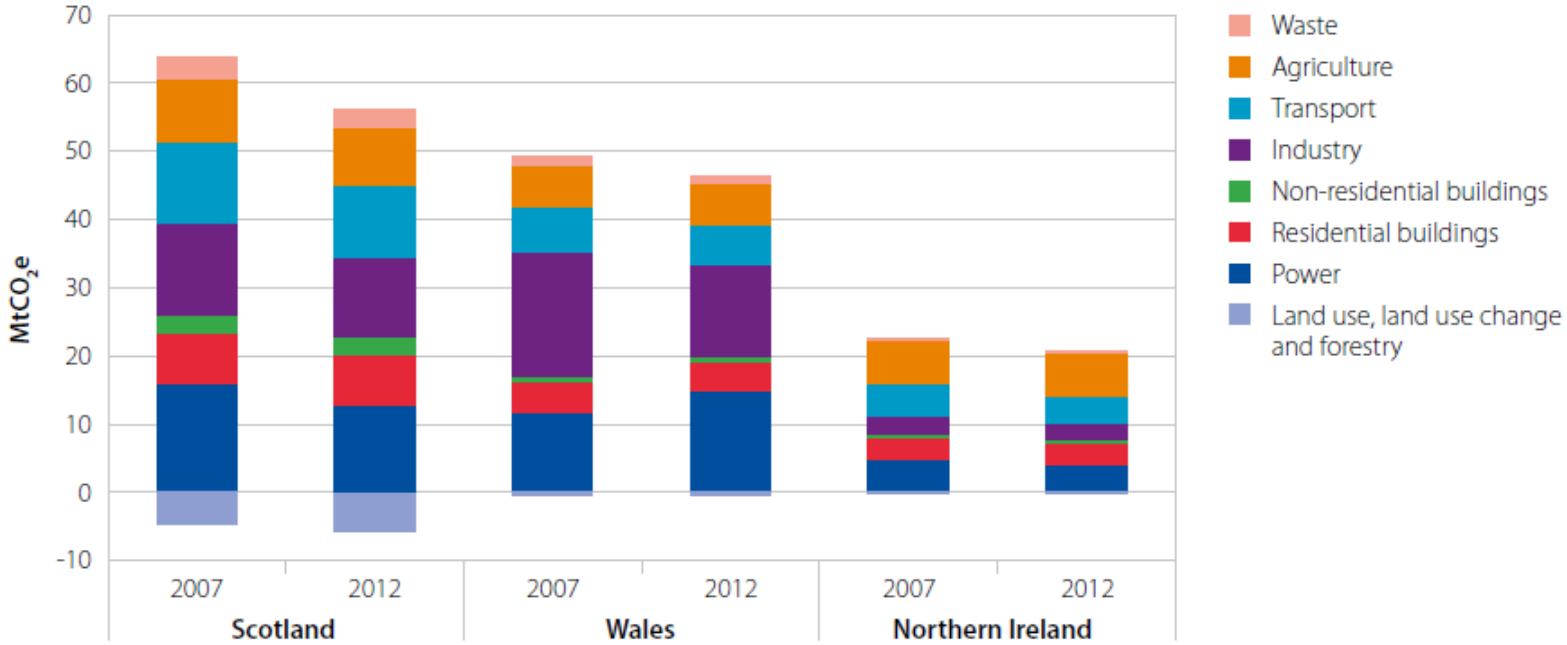
From 2007 to 2012 emissions fell by 15% in Scotland, 6% in Wales and 7% in Northern Ireland, compared to a 12% reduction across the UK.



Source: NAEI (2014).
Notes: Emissions are presented here before accounting for trading in the EU ETS, and do not include emissions from international aviation and shipping.

The devolved administrations lead the UK in some policy areas e.g. fuel poverty, and waste recycling targets.

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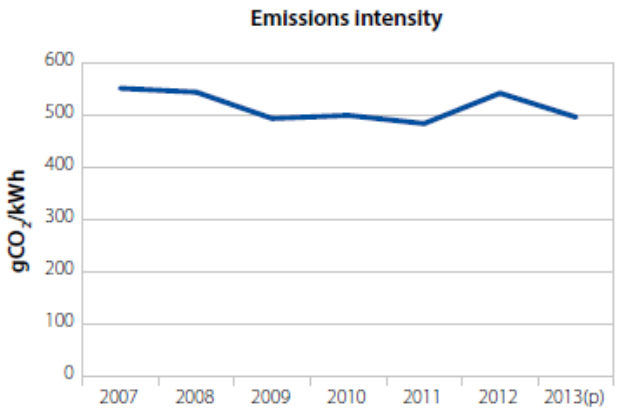
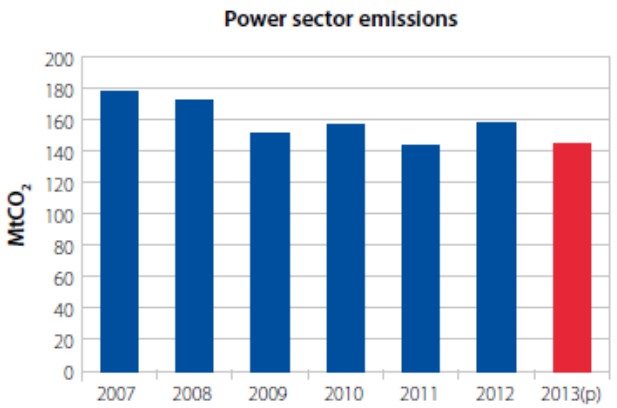
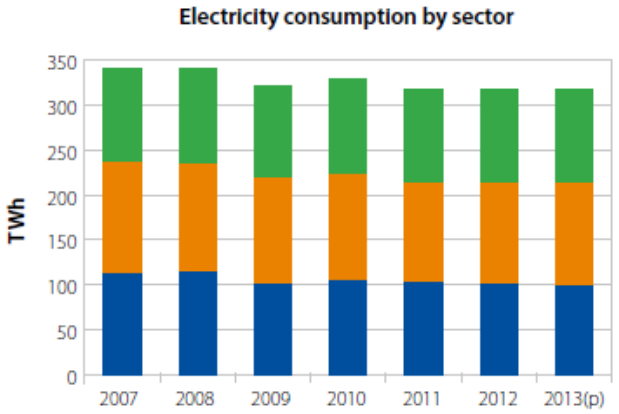
Following an 11% fall from 2007 to 2012 , emissions fell 8% in 2013 - a result of falling demand for electricity and reduced carbon intensity of electricity supply



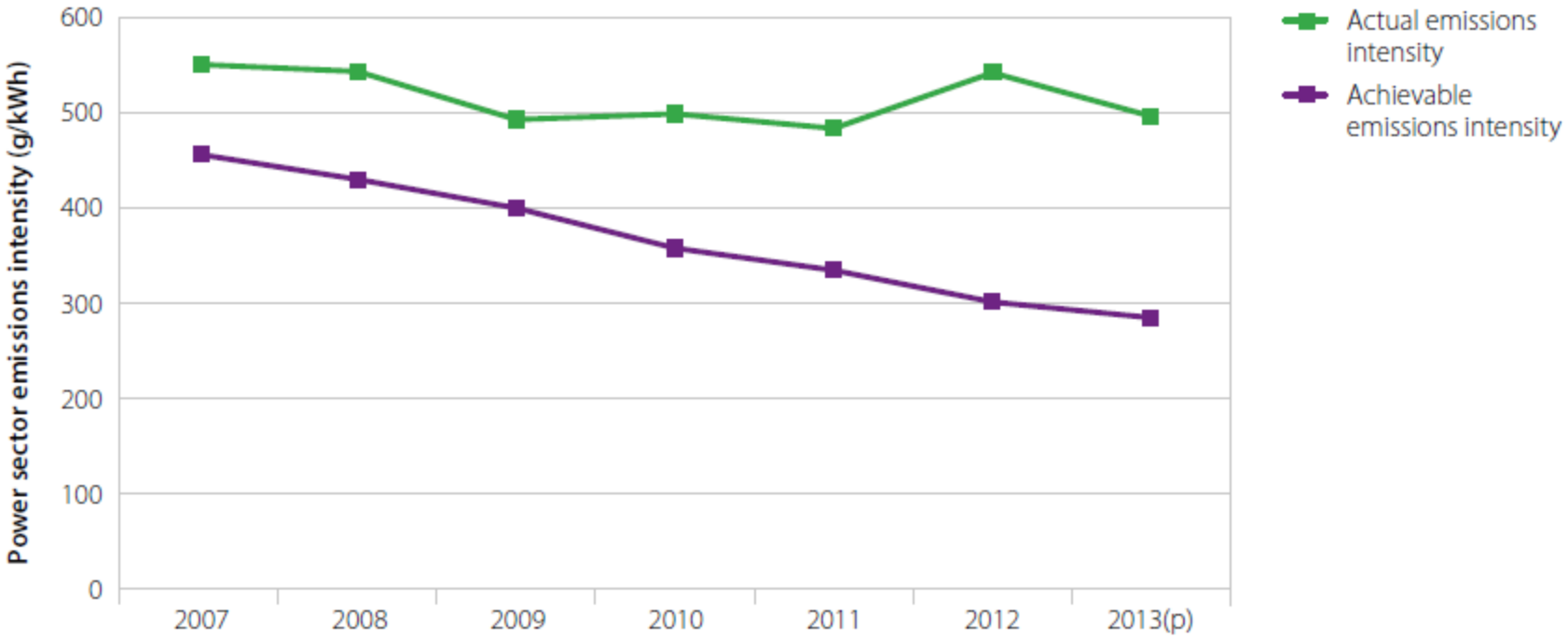




Transport and other final users
Residential
Industry

Source: Source: DECC (2014) *Energy Trends*; DECC (2014) *UK Greenhouse Gas Emissions 1990-2013 (provisional)*; CCC calculations.
Notes: Emissions intensity is UK based useable generation, i.e. excluding losses. Electricity consumption includes imported power. 2013 data are provisional.

Achievable emissions intensity fell from 457 gCO_2/kWh in 2007 to 285 gCO_2/kWh in 2013



Source: CCC Calculations based on DECC *Energy Trends* (March 2014).
Notes: Achievable emissions intensity is the minimum average emissions intensity that could be achieved in a year, given the installed capacity, demand level and profile of that demand. Emissions intensity is UK useable generation, i.e. excluding losses.

Deployment of wind has made good progress and installed capacity is consistent with the level of ambition set out in our indicator framework

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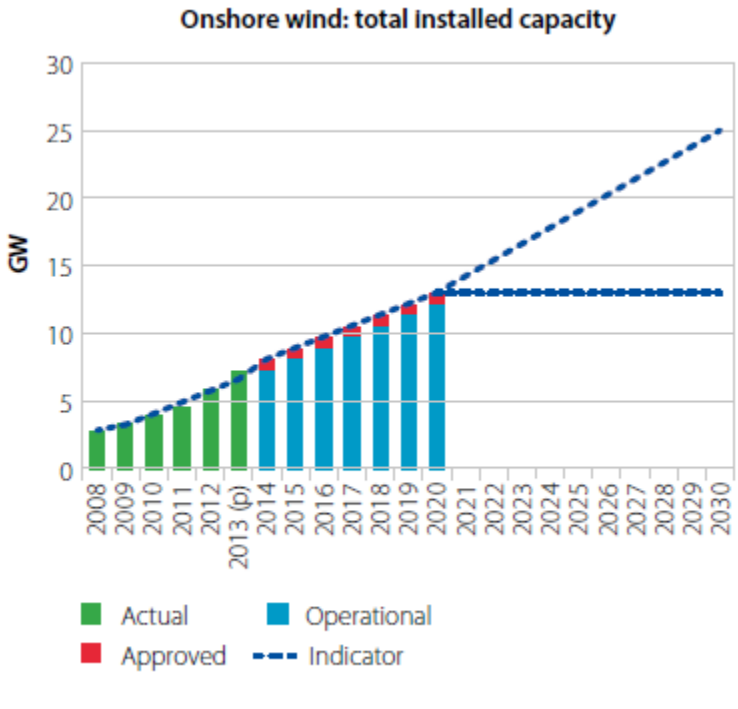

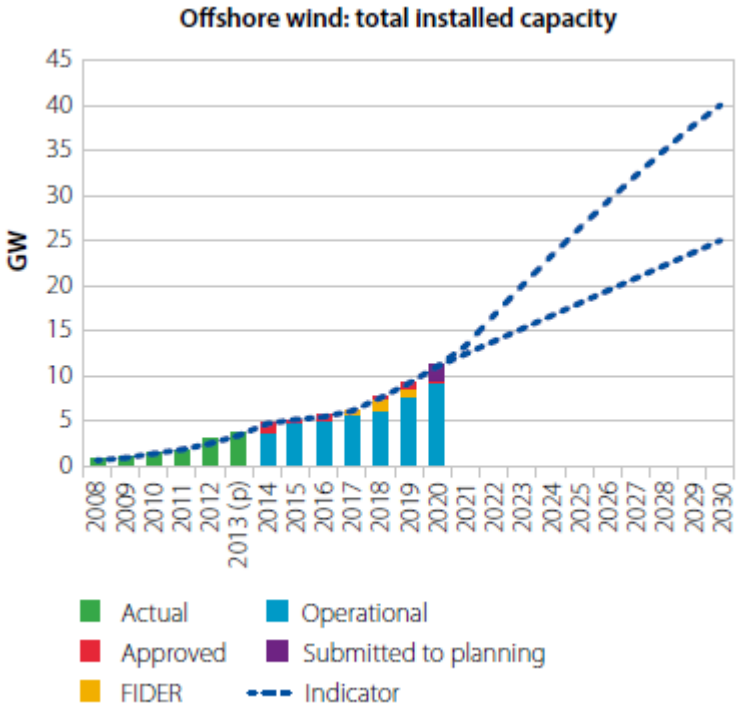

Source: DECC (March 2014) *Energy Trends*; Pöyry (2013) Technology Supply Curves for Low-Carbon Power Generation; CCC estimates.
Notes: 2013 data are provisional. Other indicators begin from 2007, however for renewables a consistent data set is only available from 2008. Volatility in offshore wind additional capacity indicator to 2020 reflects expected dates that specific projects in pipeline commence operation.

Power – key recommendations

- In 2016, **set a carbon intensity target range for 2030**, consistent with cost effective decarbonisation of the economy (e.g. 50-100 g/kWh); no later than 2016 commit funding for low-carbon generation in the period beyond 2020.

- By 2016, **publish a commercialisation strategy for offshore wind** to include levels of ambition to 2030, a target cost reduction schedule under which ambition will be maintained or increased.

- By 2016, **publish a strategy to develop carbon capture and storage (CCS)** in both power and industry, including CO_2 infrastructure development, minimum levels of deployment over the period to 2030, and an approach to funding for projects beyond current policy (including higher levels of deployment dependent on cost reduction).

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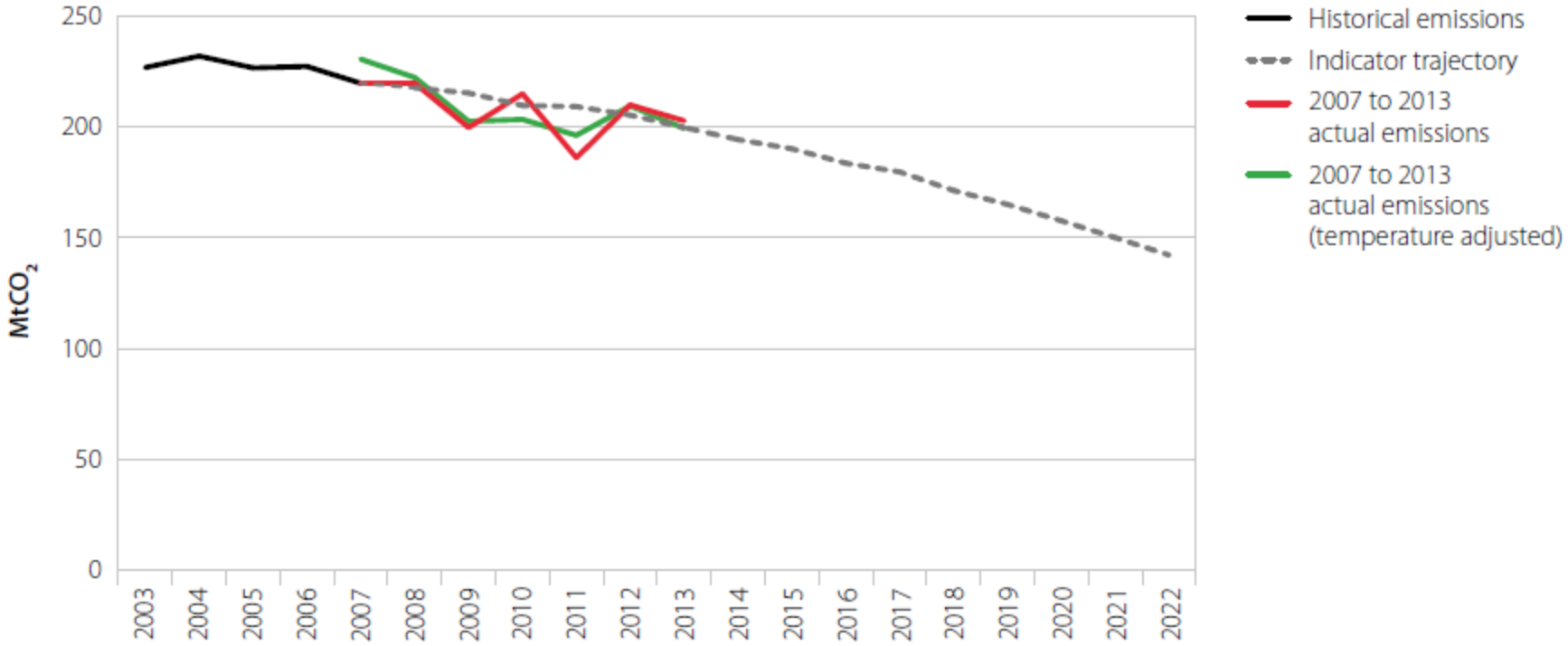
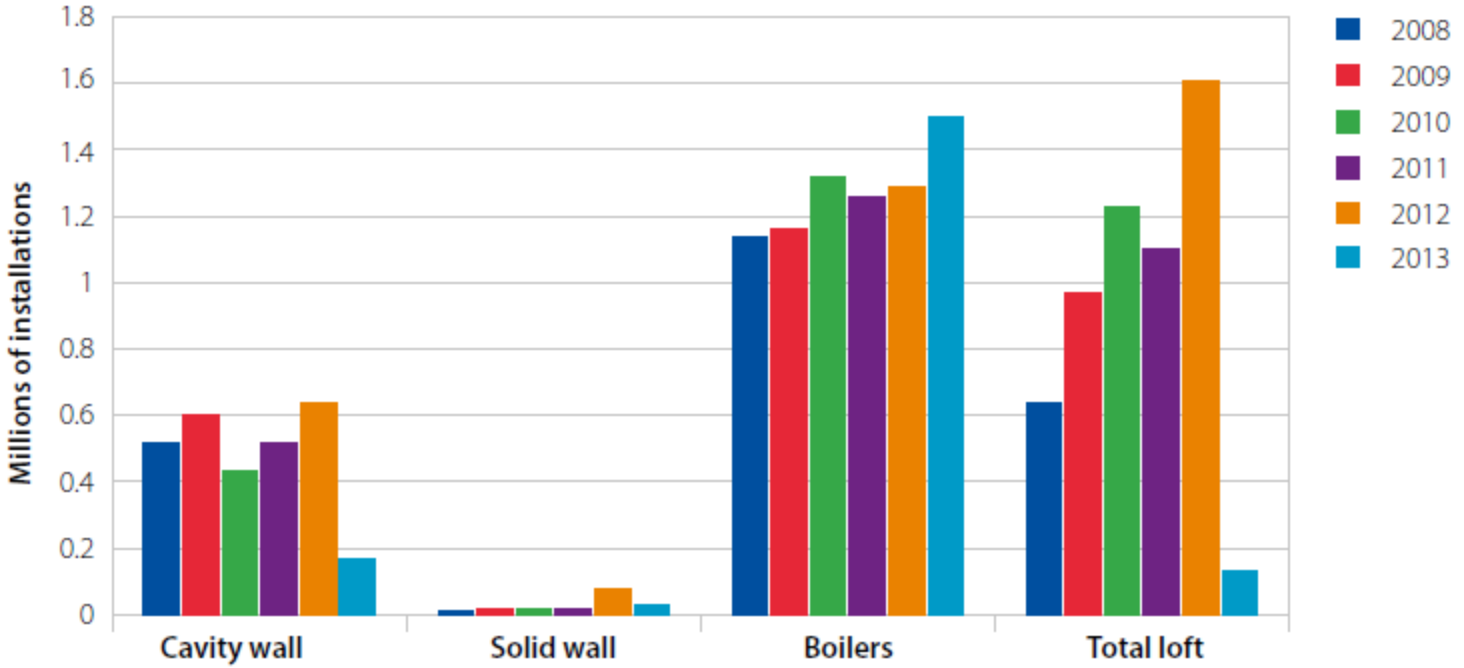
In 2013, buildings CO_2 emissions fell by 3% due to an 8% decrease in the emissions intensity of electricity consumed from the grid, whilst direct emissions rose



Source: NAEI (2014); DECC (2014), *Energy Trends, March 2014*; DECC (2013) *DUKES*; CCC calculations.
Notes: 2013 emission estimates are provisional. Temperature adjustment is based on CCC calculations.

During the 1st Budget a large number of insulation measures were delivered through CERT and CESP; but progress fell away with the new policy regime in 2013



Source: Ofgem (2013); DECC (2013) *Estimates of home insulation levels in Great Britain*; CESP data; CCC calculations.
Notes: 2013 data excludes uptake of 145 cavity walls, 2,666 lofts, and 17,421 solid walls due to CESP mitigation activity.

The proposed re-focusing of the ECO on low-cost opportunities is appropriate.

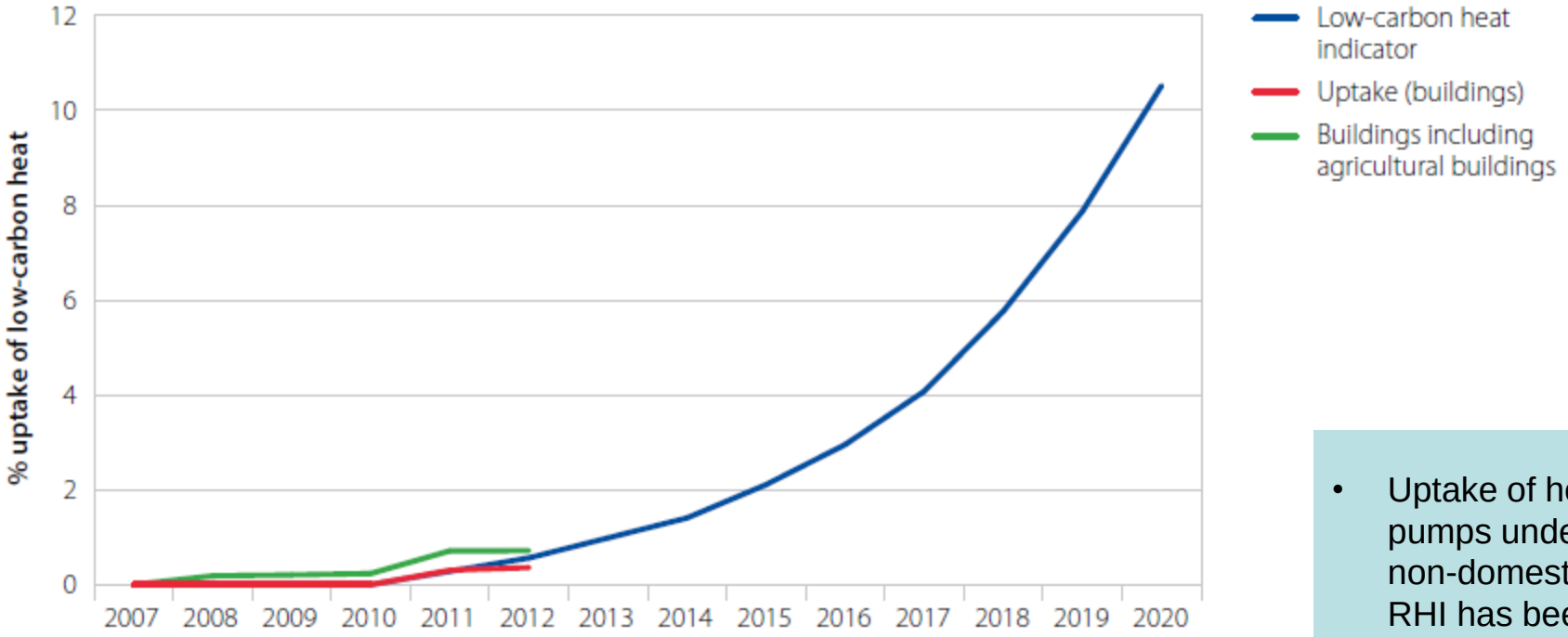
Residential buildings - key recommendations

- Strengthen the near-term framework for energy efficiency improvement in residential buildings: increase ambition on insulating lofts and cavity walls while finalising the Energy Company Obligation (ECO) changes; maintain fiscal incentives to 2017.

- Consider future options for the focus of the ECO (i.e. whether this should be on delivering more difficult efficiency improvements for the fuel poor or across all households).

- By end-2014, publish proposals for minimum energy performance standards for the private-rented sector.

Uptake of low-carbon heat in buildings is off-track, with only 0.3% of low-carbon heat in 2012 coming online since 2007



Source: DECC (2013) *Digest of UK Energy Statistics 2013*; DECC (2013) *Energy Consumption in the UK*; CCC calculations.

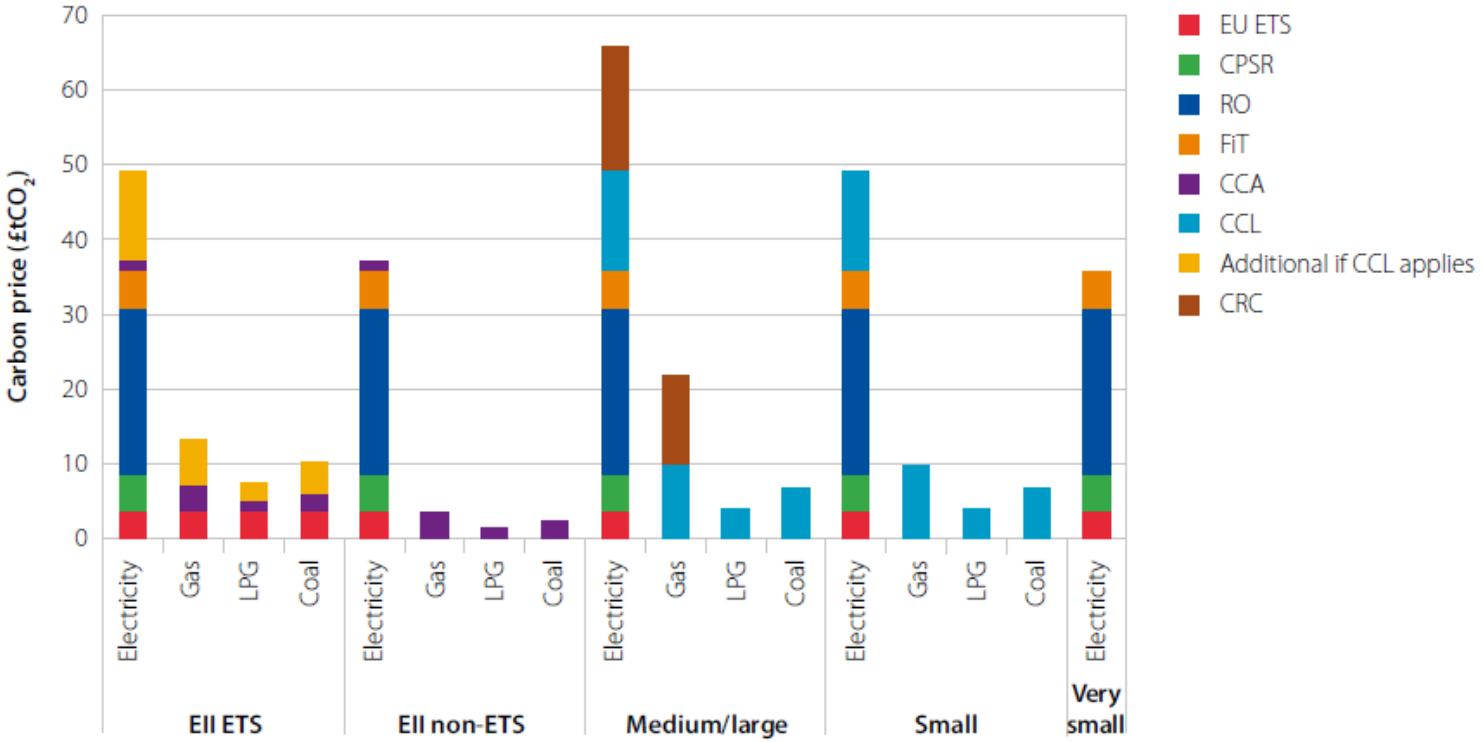
- Uptake of heat pumps under the non-domestic RHI has been low.
- The launch of the domestic RHI was delayed

Low-carbon heat - Key recommendations

- **Build on the existing approach to incentivising low-carbon heat in residential buildings**: commit funding for the Renewable Heat Incentive to 2020 and commit to extending this approach beyond 2020 unless and until an alternative mechanism is in place; extend the Green Deal to cover the upfront cost of low-carbon heat technologies funded under the RHI and consider using Government guarantees to lower the financing cost; develop measures to improve consumer confidence in renewable heat.

- **Ensure that the Zero Carbon Homes standard requires investment in low-carbon heat** unless heating requirements are very low, and only grant exemptions where a clear economic rationale for these has been demonstrated.

Uneven carbon prices for UK business sector, by type and size of business, and by fuel (2013)



Source: Bassi, S., Dechezleprêtre, A., Fankhauser, S. (2013), *Climate change policies and the UK business sector: overview, impacts and suggestions for reform, Policy paper, Centre for Climate Change Economics and Policy, Grantham Research Institute on Climate Change and the Environment.*

Recommendation: In the commercial sector, simplify and rationalise existing policies for energy efficiency improvements with a view to strengthened incentives.

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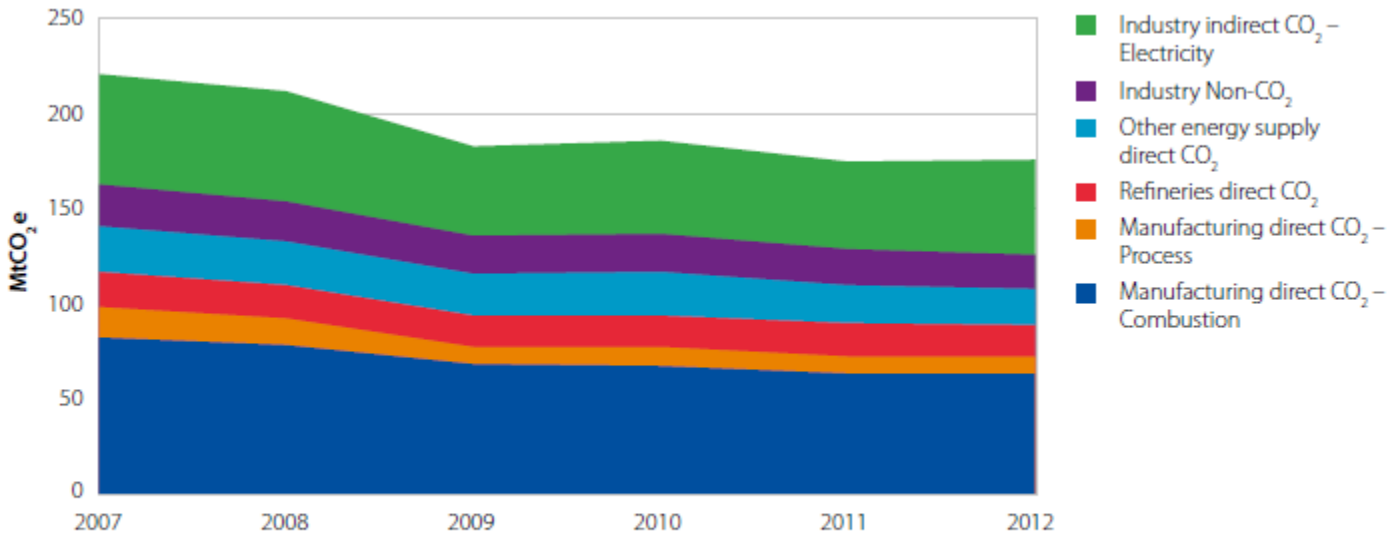
Total industry CO_2 emissions fell 2% in 2013 and are now 22% below 2007 -reflecting the recession, and decarbonisation of the electricity grid.



Source: NAEI.

The decarbonisation roadmaps, due Spring 2015, should be used to identify the opportunities for reducing emissions and must be followed by a strategy to deliver abatement.

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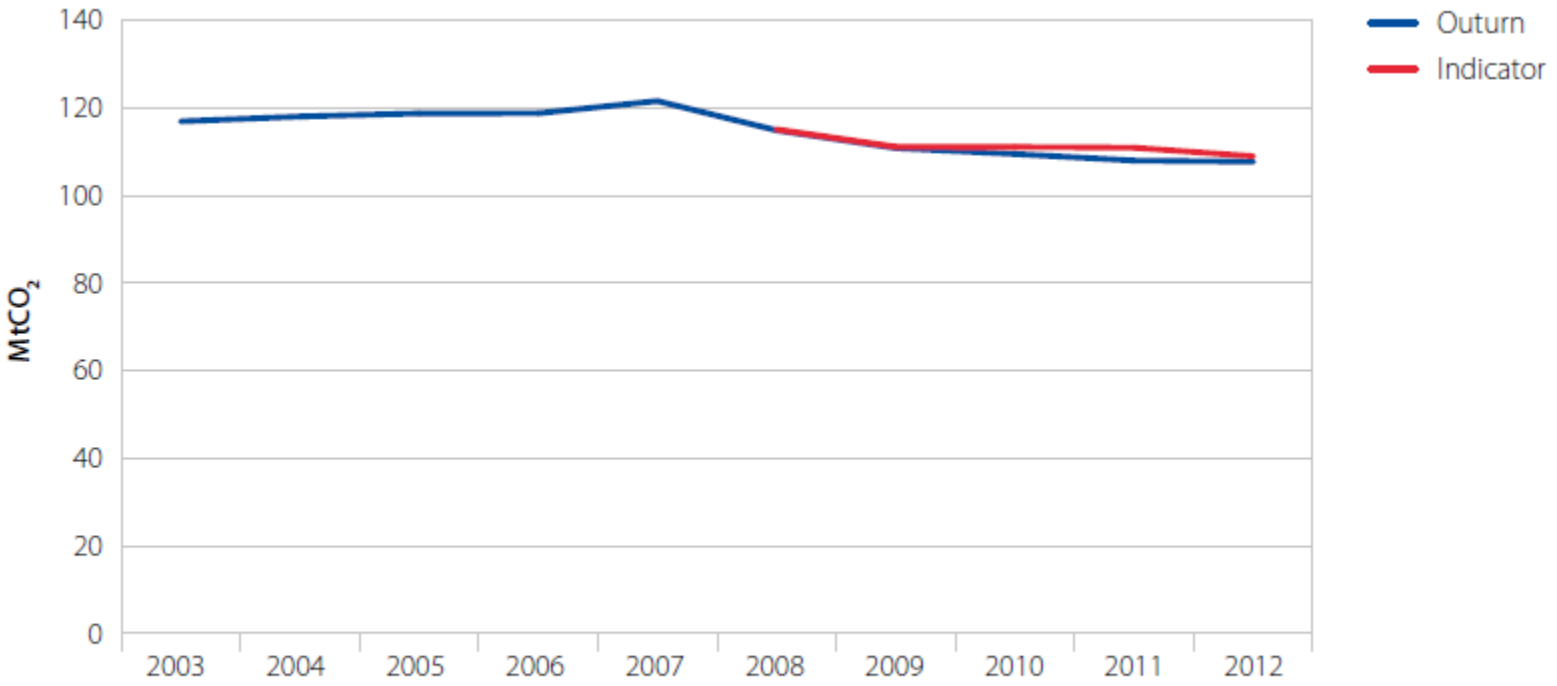
Domestic transport emissions fell 12% over the first carbon budget



Source: NAEI (2014), CCC modelling.

UK new car efficiency improved 4% in 2013 having improved 19% from 2007-2012

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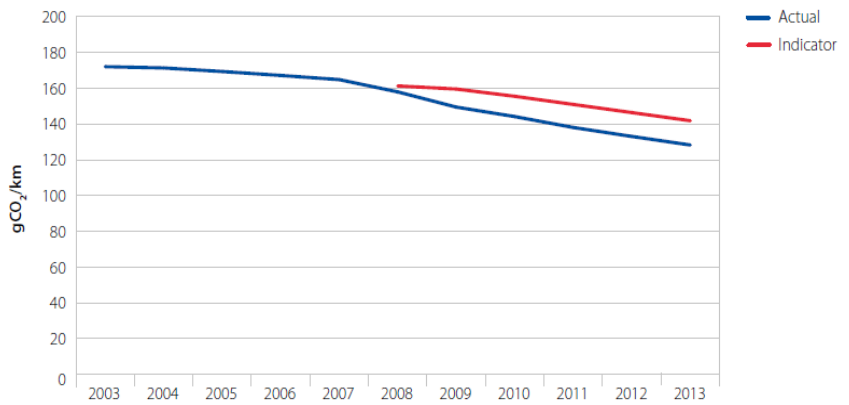
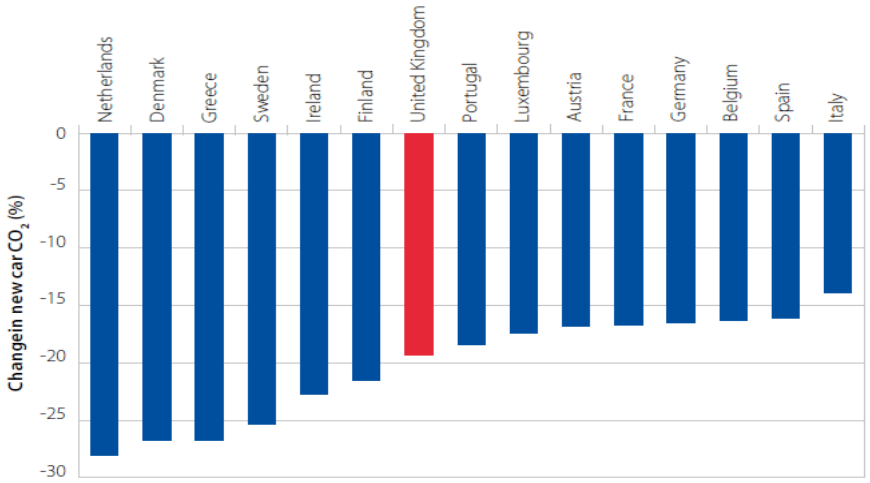
New car CO_2 vs indicator



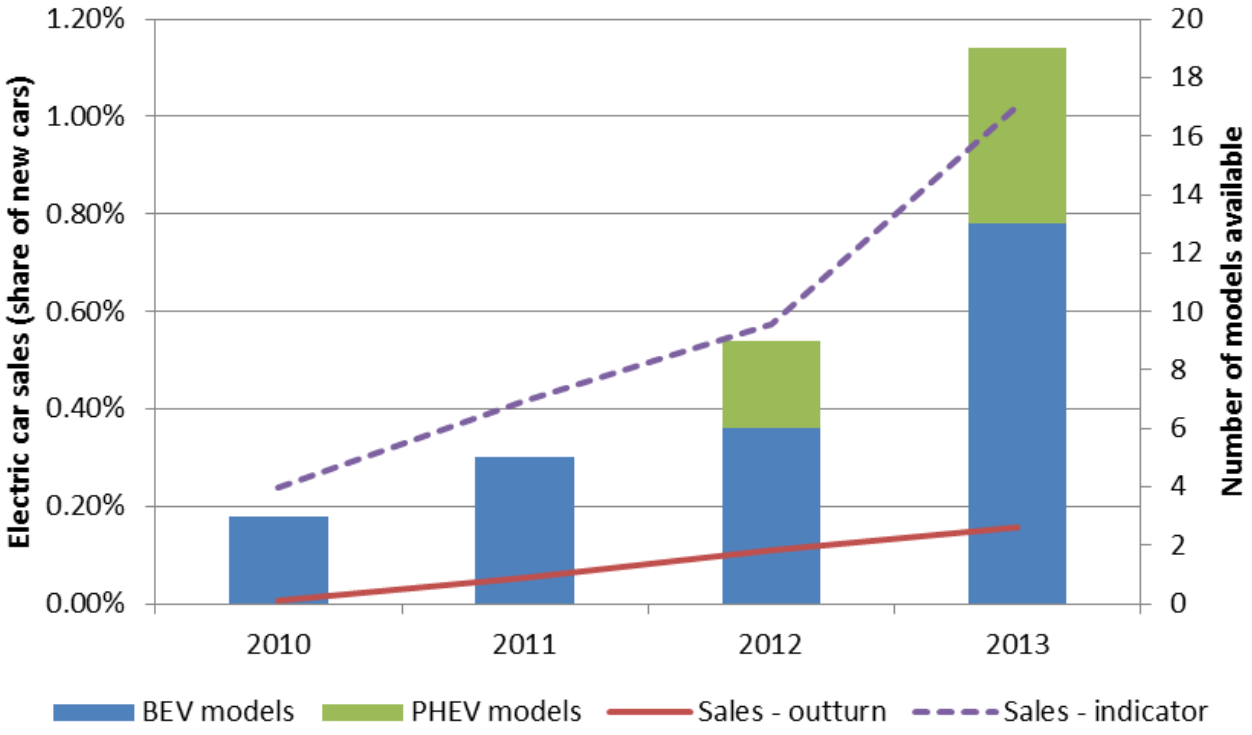
Source: SMMT (2014), CCC modelling.

EU new car and van CO_2 regulations have been instrumental in driving efficiency improvements.

Reductions in new car CO_2 in EU15 Member States (2007-2012)



While sales of electric vehicles remain low, they are increasing - as more models become available



Source: SMMT; Element Energy (2013) *Pathways to high penetration of electric vehicles* ; nextgreencar.com, manufacturer websites

Electric vehicle markets are developing rapidly in some countries. For example, in Norway, EVs represented 6.1% of all new car sales in 2013.

Transport – key recommendations

- In the context of negotiations around the overall 2030 EU emissions reduction package push for **stretching EU targets for emissions of new cars and vans for 2030**.

- Work with partner organisations (e.g. industry, local authorities, the Green Investment Bank) to **tackle financial and non-financial barriers to electric vehicle uptake** - new, low-cost approaches to financing; onstreet residential charge points and a national network of rapid charge points; softer time-limited measures such as access to bus lanes and parking spaces.

- With agreement of a strong EU target and/or tackling of financial and non-financial barriers there would be scope to phase out the existing capital subsidy for electric vehicles.

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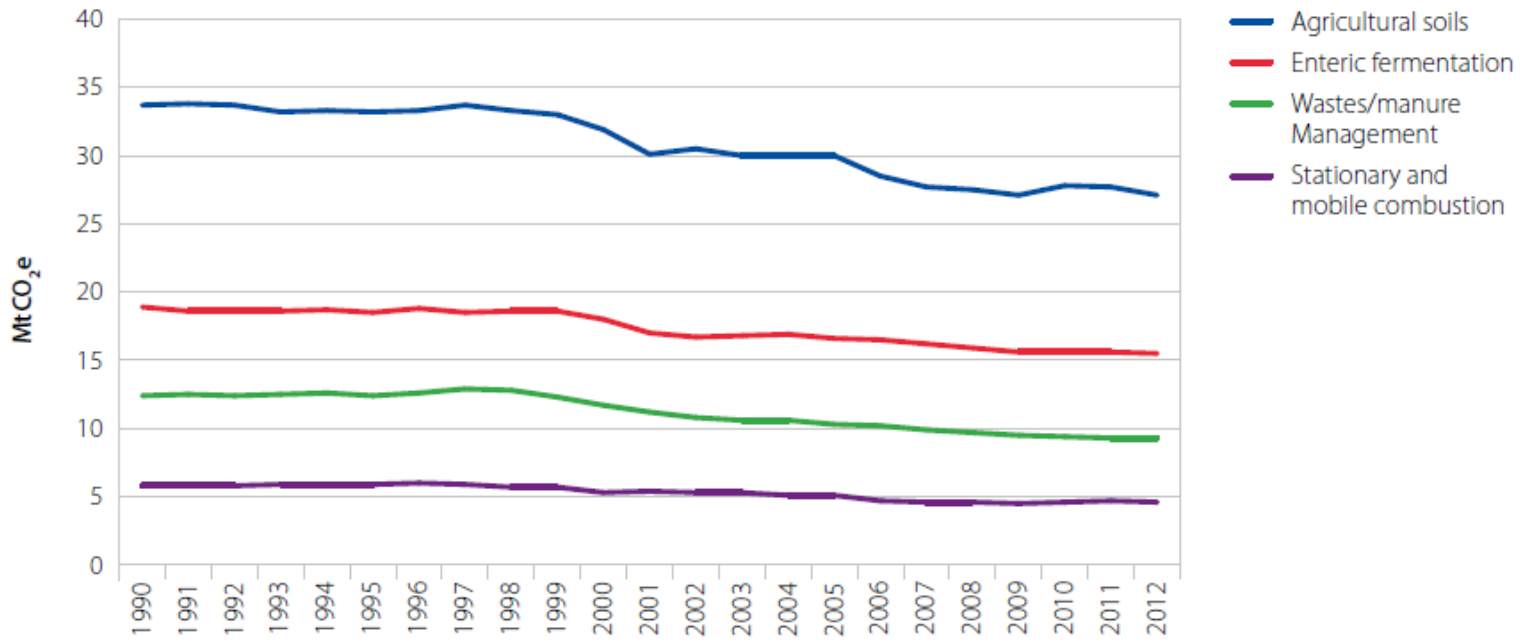
Data suggest agricultural emissions declined in 2012, but there is no clear evidence that farming practice has become more carbon efficient in recent years.



Source: NAEI (2014).

Agriculture emissions are highly uncertain. Better data is needed to fully assess progress. The Smart Inventory to be rolled-out next year should help.

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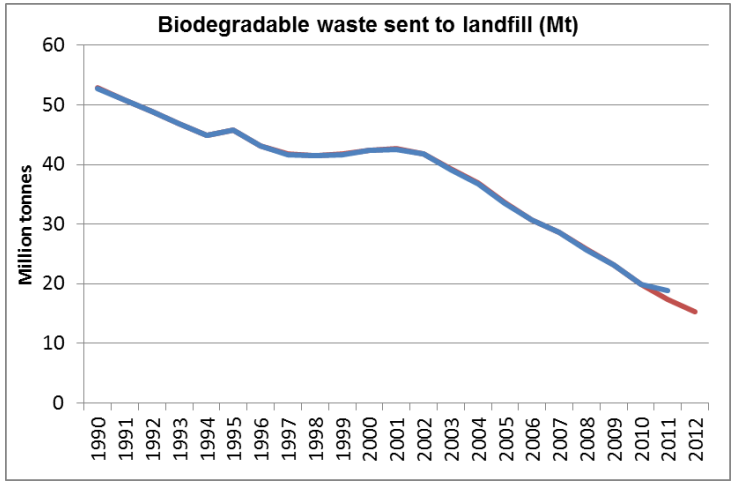
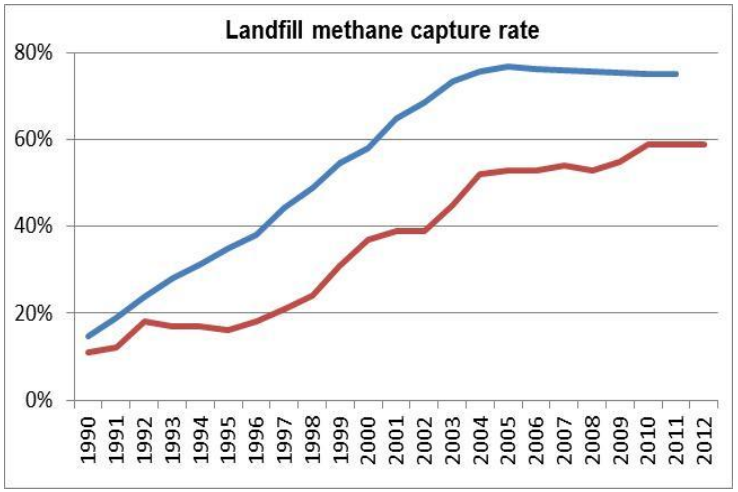
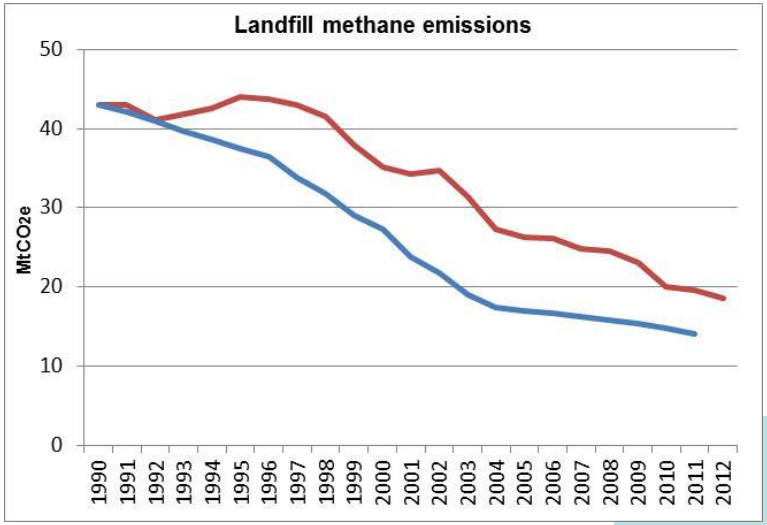
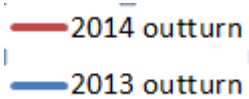
Waste emissions fell by 24% between 2007 and 2012, and are now 54% below 1990 levels - largely due to reduced methane emissions from landfill









Large volumes of biodegradable waste continue to be sent to landfill.

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- There is a "**policy gap**" to meeting the 4th Carbon Budget; **current policies will not be sufficient.**

- Closing this gap is eminently possible and affordable. It will require **strengthening of policies**, including **improvement in design**, **increased ambition** and **extensions of commitments in time**.