

# CLIMATE CHANGE: IRELAND'S CHALLENGE

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Presentation to the *Safefood* workshop

**“The Dairy Industry and Climate Change: Assessing future risks from a farmer, processor and customer perspective”**

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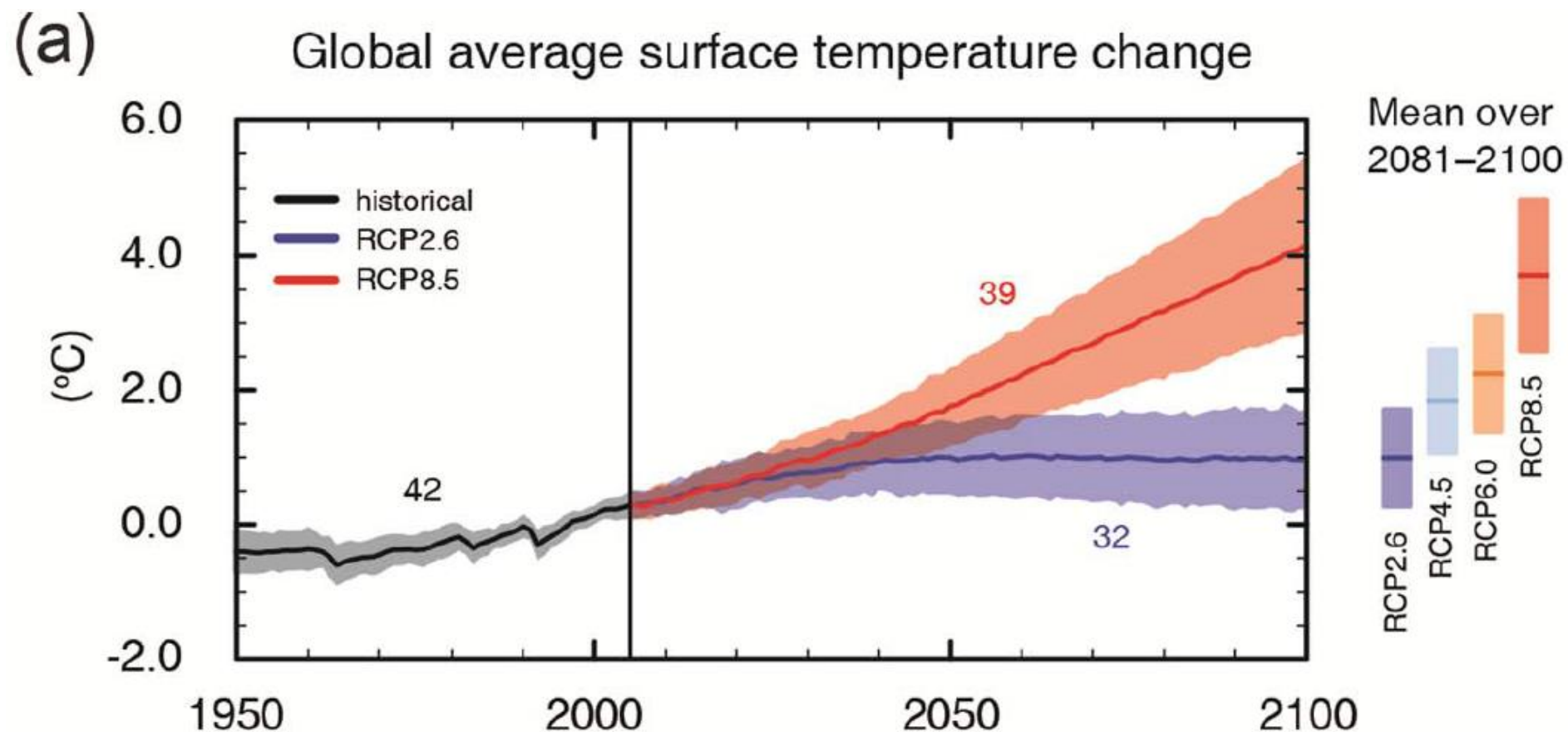
# Scientific understanding

## Ten Indicators of a Warming World



Seven of these indicators would be expected to increase in a warming world and observations show that they are, in fact, increasing. Three would be expected to decrease and they are, in fact, decreasing.

# Scientific understanding



Source: IPCC Working Group 1, The Physical Science, Summary for Policymakers, 2013

# Policy responses

- 1992 UN Framework Convention on Climate Change
  - 1997 Kyoto Protocol – emissions targets for developed countries
    - First commitment period 2007-2012
    - Second commitment period 2013-2020
- Paris Agreement 2015
  - to hold the increase in the global average temperature **to well below 2°C** above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels,
  - to enhance **adaptive capacity**, strengthen resilience and foster climate-resilient and low emission development and
  - to make **finance flows** consistent with a pathway towards low greenhouse gas emissions and climate resilience development

# EU actions on climate change

- The EU adopted the goal of keeping the global temperature increase below 2°C in 1997.
- The overall aim is that EU greenhouse gas emissions will be **reduced by between 80% and 95%** relative to 1990 levels by 2050.
- The EU 2020 Climate and Energy Package is guided by this analysis, as is the EU mitigation contribution to the Paris Agreement, which specifies a reduction of greenhouse gas emissions by **at least 40%** relative to 1990 levels by 2030.

# Irish National Policy Position

- Established a long-term **national mitigation objective** of low carbon transition based on an aggregate reduction in carbon dioxide emissions of at least 80% compared to 1990 levels by 2050 across the electricity generation, built environment and transport sectors.
- In parallel, **an approach to carbon neutrality** in the agriculture and land-use sector, including forestry, is envisaged which does not compromise capacity for sustainable food production.

# Adapting to climate change

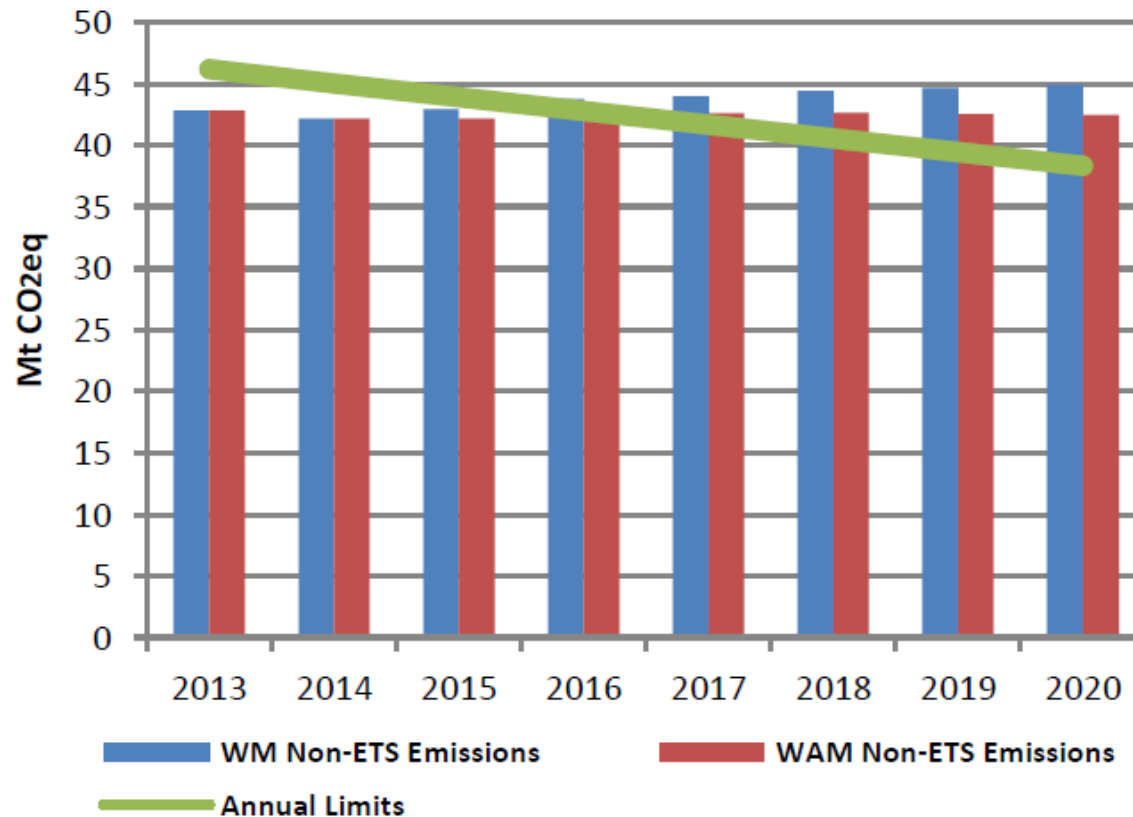
- EU adaptation strategy
- National Adaptation Framework under preparation
  - Critical infrastructure
  - Flooding defences, sea wall defences, waste water discharge
- DAFM draft adaptation plan and vulnerability assessment now out for consultation
  - Climate-proofing of all policies and measures
  - Early warning systems
  - Managing disaster assistance
- Contribution of the Safefood report

# Irish emissions targets under EU legislation

	2020 Climate and Energy Package	2030 Climate and Energy Framework
<b>Target years</b>	2013-2020	2021-2030
<b>Emissions reduction target</b>	Non-ETS. Annual targets based on a linear trajectory. In 2020 - 20% compared to 2005	Non-ETS. In 2030 -30% compared to 2005. Annual targets based on a linear trajectory starting with average emissions for 2016-2018. 4% one-off flexibility from ETS to Effort Sharing Regulation 5.6% flexibility from LULUCF to Effort Sharing Regulation
<b>Further targets</b>	Renewable Energy Directive: 20% share of renewable energy of gross final energy consumption (10% transport fuels); Energy Efficiency Directive: Increase energy efficiency by 20 %	At least 27% share of renewable energy in EU energy consumption; At least 27% improvement in energy efficiency (to be reviewed by 2020, having in mind an EU level of 30%)



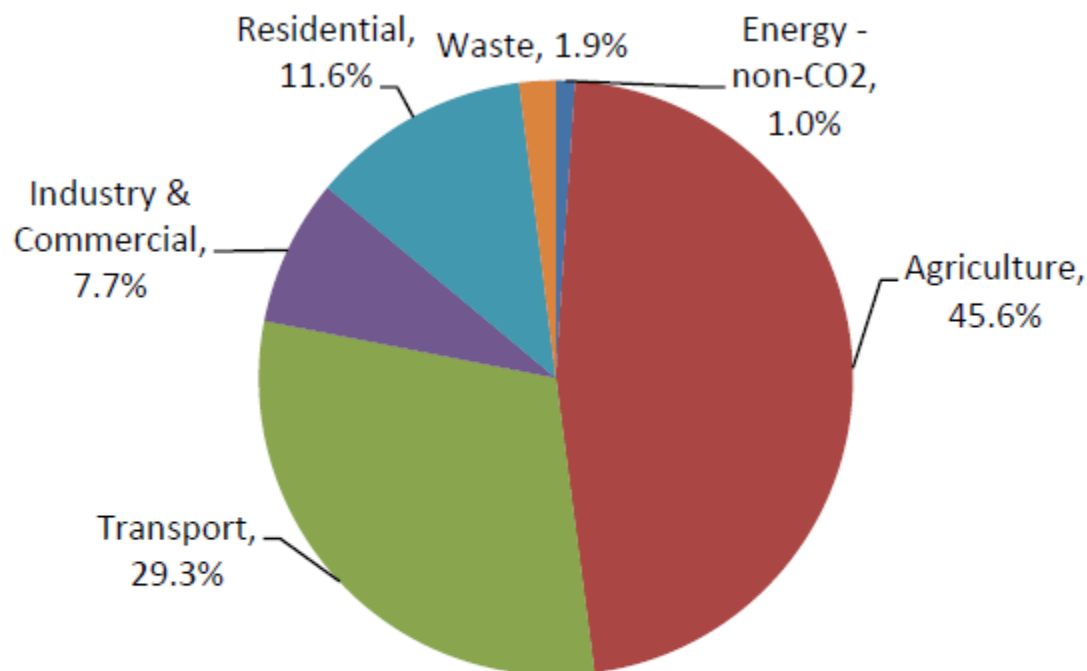
# Ireland at risk of non-compliance with EU 2020 targets



**Figure 1. *With Measures* and *With Additional Measures* greenhouse gas emission projections and comparison with the linear reduction pathway required between 2013 and 2020<sup>6</sup>**

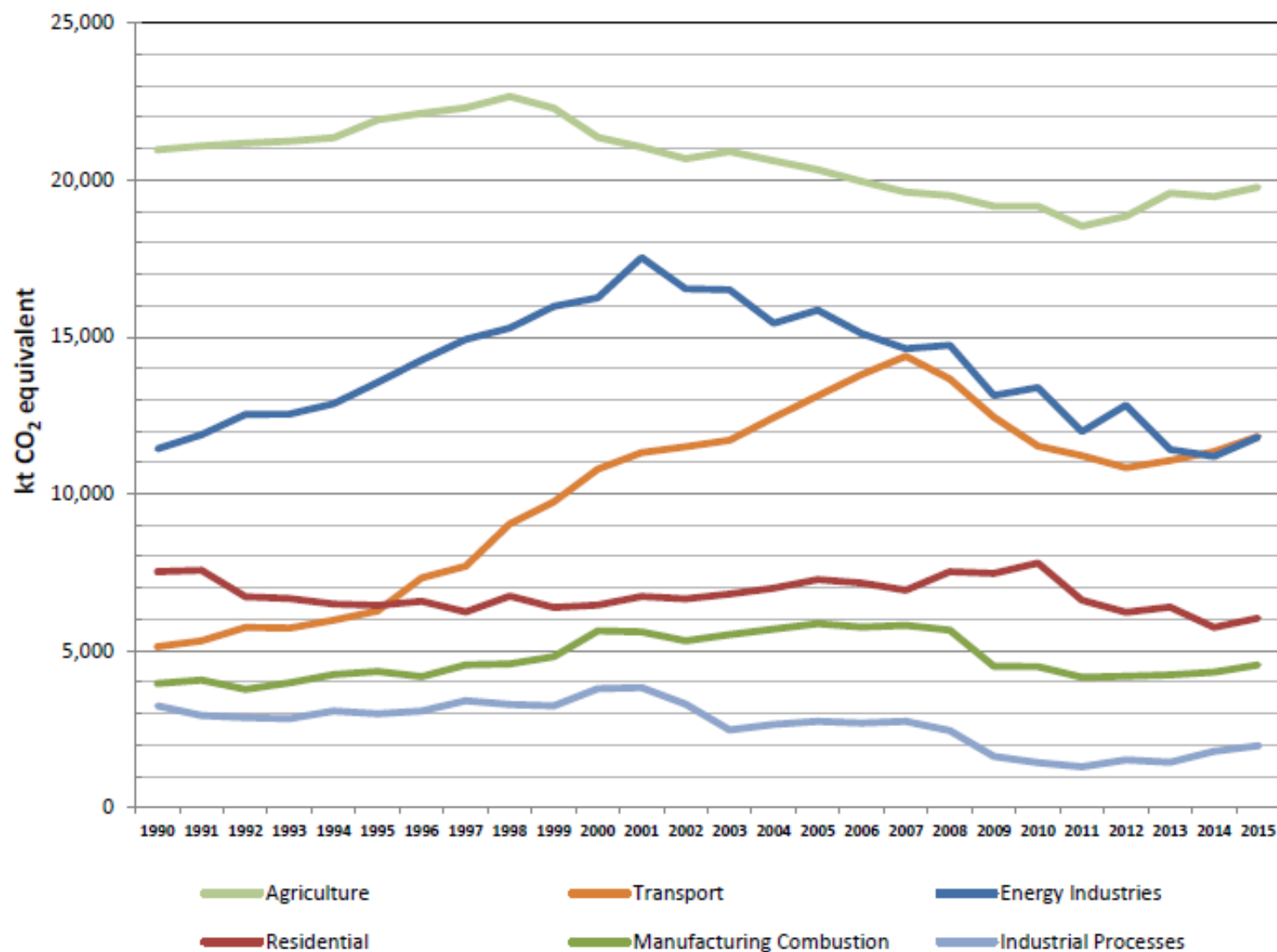
Source: EPA GHG emissions projections to 2020, 2016

# Agriculture and transport dominate non-ETS emissions in Ireland



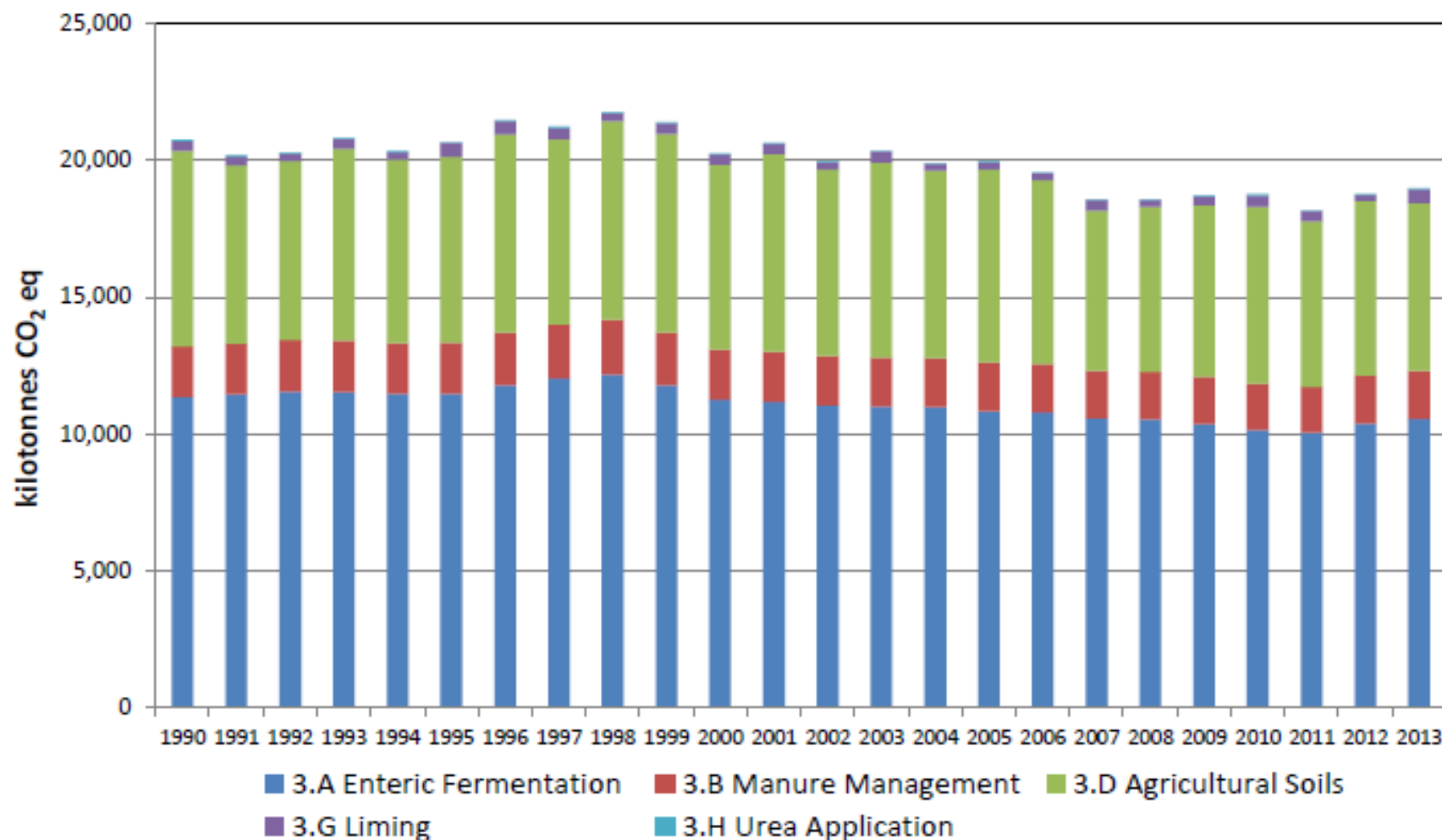
*Figure 2. Projected sectoral share of non-ETS greenhouse gas emissions in 2020 for the With Additional Measures scenario*

# Long-term trends in Irish GHG emissions



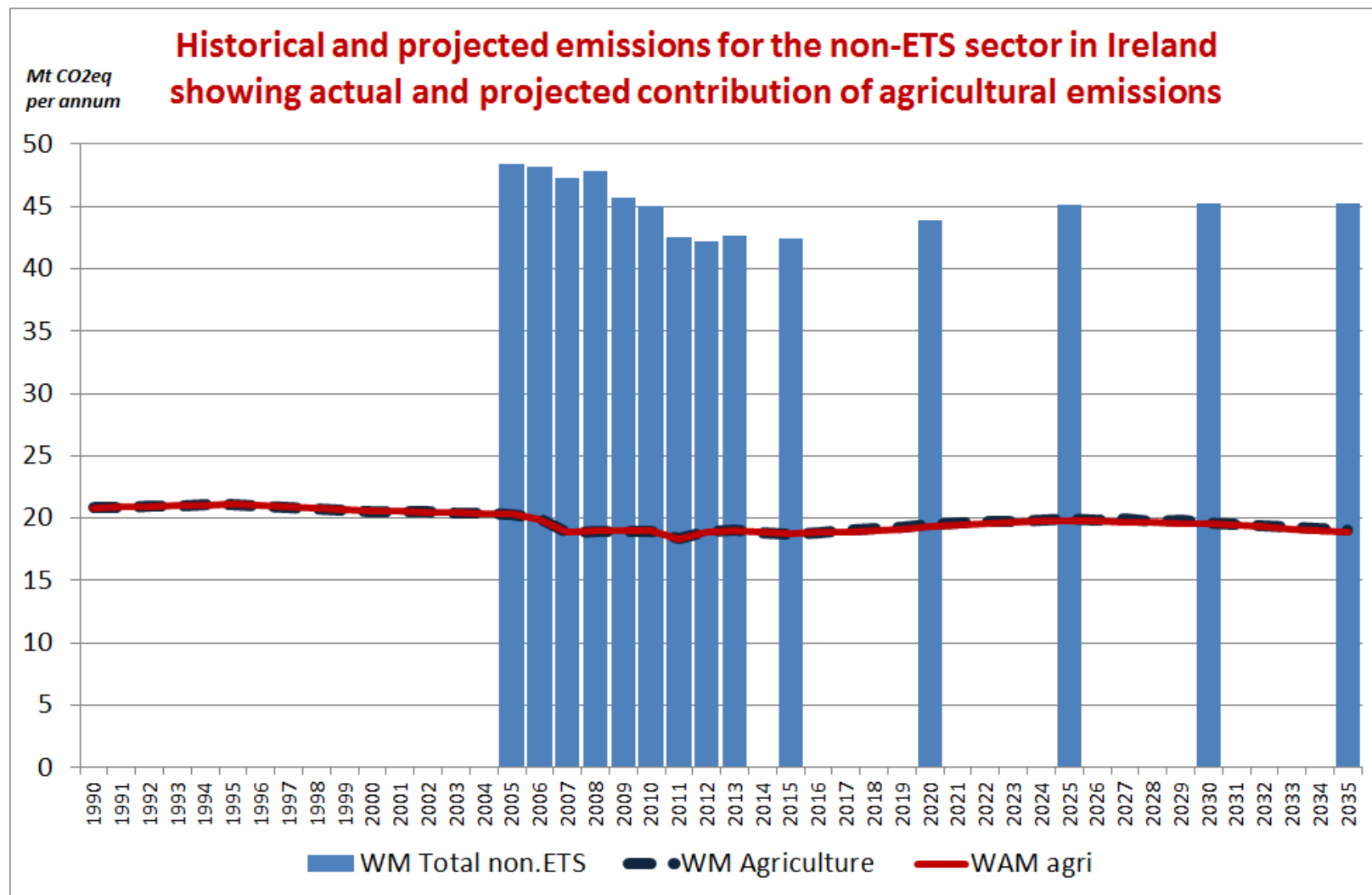
Source:  
EPA.  
Provisional  
GHG  
inventories  
in 2015,  
2016

# Sources of agricultural emissions

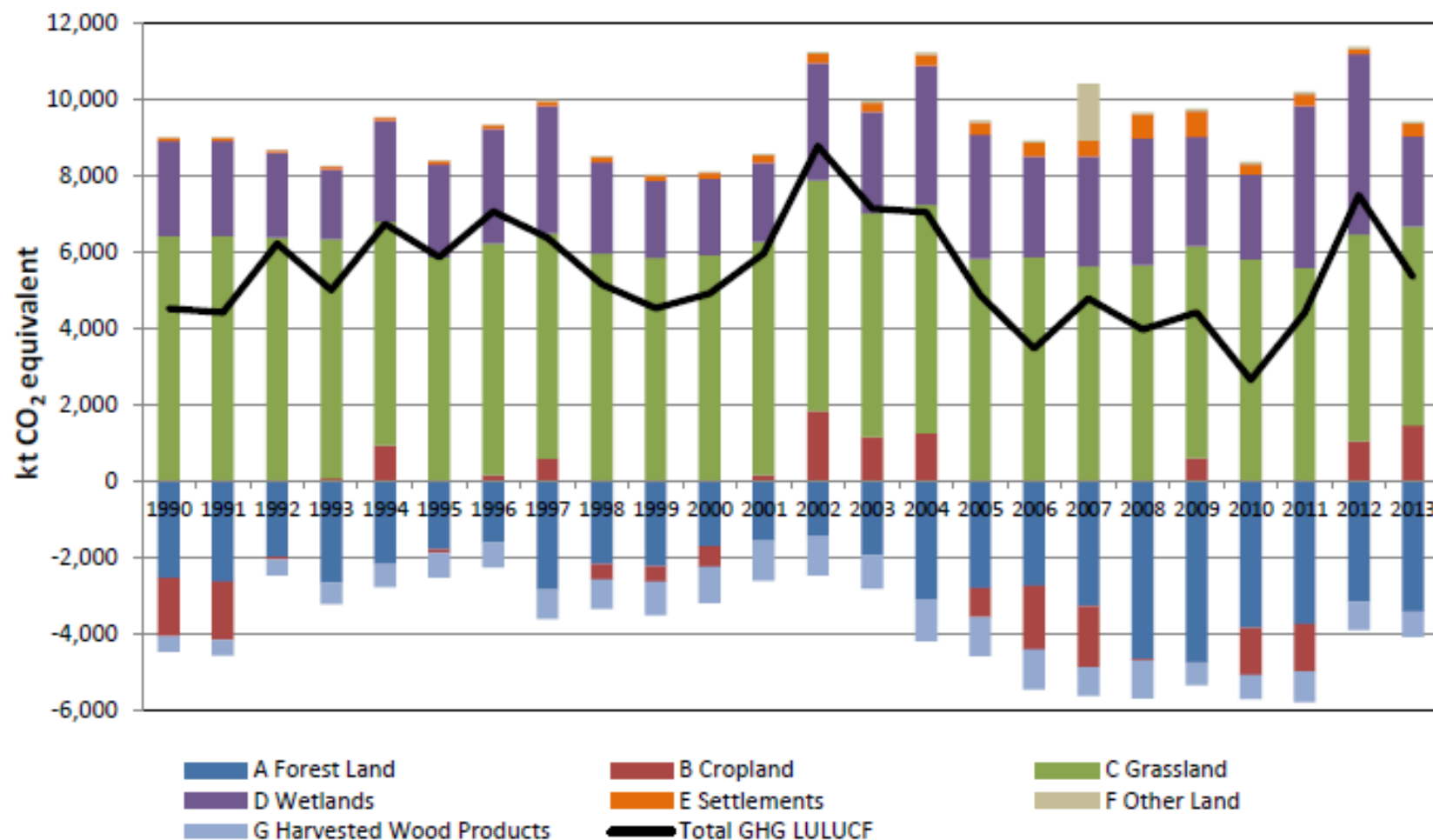


Source: EPA, [National GHG Inventories 2015 report](#)

# Projections of agricultural emissions to 2035



# Sources of LULUCF emissions/removals



Source: EPA, [National GHG Inventories 2015 report](#)

# LULUCF accounting rules up to 2020

- LULUCF accounting rules set out in the [LULUCF Decision \(529/2013/EU\)](#) based on Kyoto Protocol 2<sup>nd</sup> period guidance (Durban rules)
  - Afforestation/deforestation accounted for on **gross-net basis**, meaning all credits/debits fully taken into account
  - Cropland and grazing land management accounted on a **net-net basis**, meaning credits/debits are generated by comparing to 1990 levels
  - Forest management credits/debits accounted against a business-as-usual **Forest Management Reference Level**
- LULUCF emissions/removals are not taken into account in assessing progress to EU 2020 targets (although they account in part towards EU's Kyoto Protocol obligations)
- Commission proposes updated accounting rules for 2021-2030 period

## Irish LULUCF **accountable** mitigation to 2030

- Under proposed ESR, Ireland has **potential to mitigate 2.7 Mt CO<sub>2</sub>eq per annum** (5.6% of 2005 emissions) from LULUCF activities to meet its emission reduction requirements
- Around 14% of agricultural emissions in 2005
- Mitigation potential from **afforestation** (mostly undertaken prior to 2021) under the new accounting method proposed which includes a 30 year transition period, is **2.2 million tonnes/annum CO<sub>2</sub>**.
- Balance of **0.5 million tonnes/annum** to fully avail of the LULUCF flexibility is anticipated to come from an **increase in soil carbon stocks in Managed Cropland and Grassland** relative to baseline period.
- *Memo item: Potential FM and wetlands (WDR) removal credits are not eligible*
- Source: [Joint Committee on Communications Climate Action and Environment Oct 2016](#)



# Feasibility of carbon neutrality by 2050

- “It is likely that only a small part of agricultural greenhouse gas emissions will be offset by carbon-sequestration in grasslands and forestry in the coming decades, thus leaving an ‘emissions gap’”.
- Source: [DAFM Discussion document on mitigation potential in Irish AFOLU sector](#), 2015
- Teagasc study on pathways to carbon neutrality by 2050 estimated emissions gap of  $(22 \text{ Mt} - 9 \text{ Mt}) = 13 \text{ Mt CO}_2\text{eq}$  by 2030 (65% of ag emissions), rising to 16-17 Mt CO<sub>2</sub>eq by 2050 (75% of ag emissions) ([Teagasc, 2013](#))
- Maintaining additional carbon sequestration over time becomes difficult due to saturation in existing land uses and limits on further land use change

# Palette of options to approach carbon neutrality

- Agriculture ([DAFM 2015](#); [Teagasc 2015](#))
  - Reduce emissions intensity of production through improved management with existing technologies
  - Reduce emissions intensity of production through new technologies
  - Reduce emissions intensity of aggregate production through switching land use to less GHG-intensive sectors
  - *Renewable energy substitution of fossil fuels (if included)*
  - Demand-side measures (limited direct relevance in IE)
- LULUCF
  - Protect existing carbon stores (peatlands and organic soils)
  - Rewetting of organic soils (water table management, restoration)
  - Afforestation and other above-ground biomass
  - Soil carbon sequestration through changes in ag management

# Issues in developing the AFOLU mitigation strategy

- Sectoral plan for mitigation being prepared by DAFM
- Agricultural emissions will have to fall – flat-lining is not sufficient
- Metrics are hugely important. Without measurement
  - Farmers cannot tell how rapidly they are making progress
  - Progress cannot be captured in the national inventory
- ‘Carbon leakage’ is no excuse for inaction
- What works?
  - Need to ramp up research and invest in pilot projects
- Make better use of CAP funding to address climate mitigation post-2020