



Land Use and Forestry in the the 2030 Climate and Energy Framework

**Peter Wehrheim, Head of Unit Land Use
AgriClimate Workshop Roskilde Denmark 26/10/2017**

Outline

- *The Paris Agreement ...*
- *... and its implementation in the EU:
The EU Climate and Energy Framework 2030*
- *Trends in the EU-28: emissions and removals
from agriculture, land use, forestry*
- *Agriculture and the bioeconomy*
- *Climate smart agriculture: what could that imply?*

The Paris Agreement

Mitigation objective

*"Achieve a balance between anthropogenic emissions by **sources** and **removals** by **sinks** of greenhouse gases in the second half of this century"*

This highlights the fact that emissions from agriculture will be more difficult to fully reduce and the important role of soils and forestry, as a carbon sink to contribute to global greenhouse gas reduction efforts.

Adaptation objective

Establishes the global goal of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change



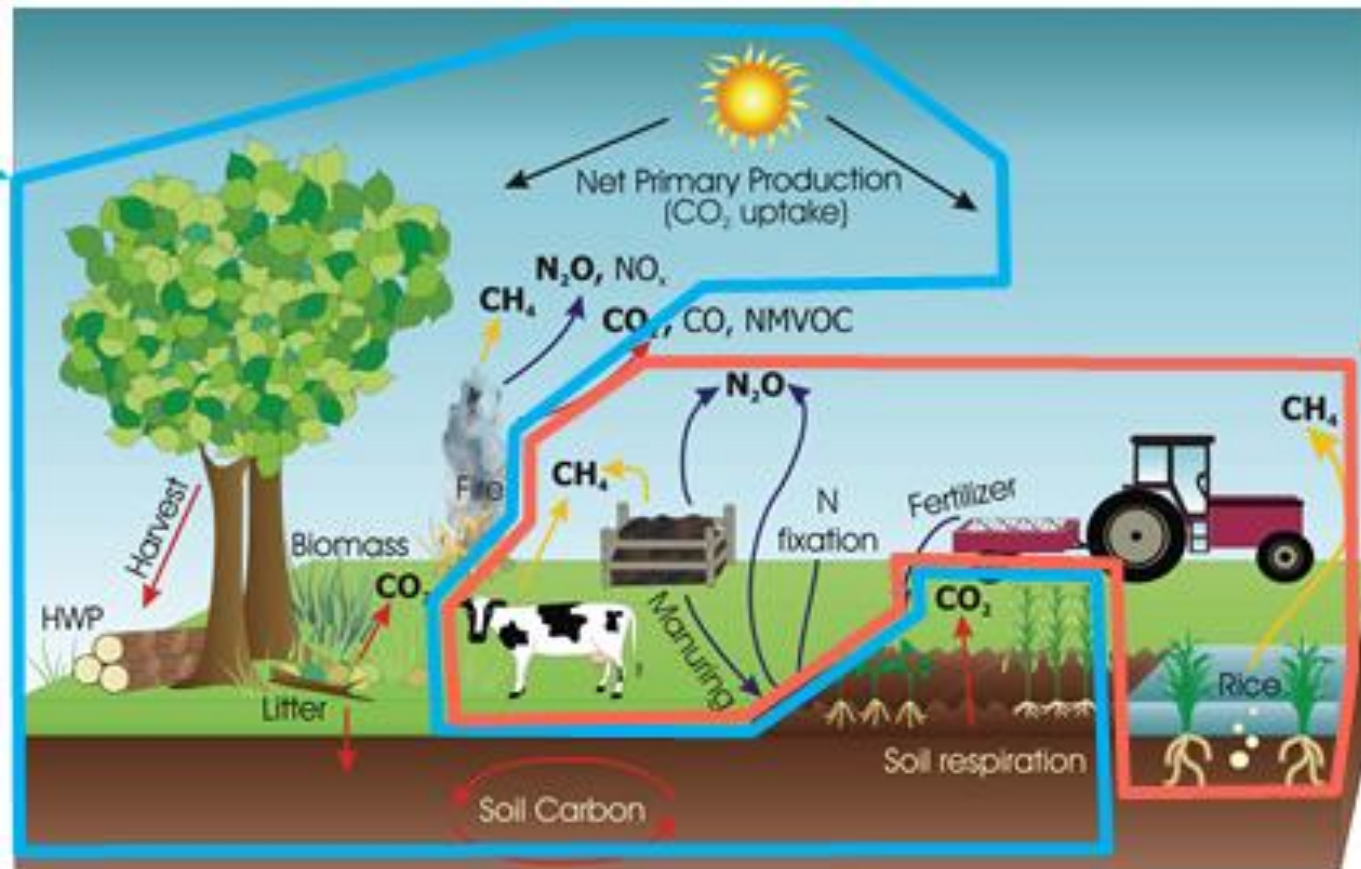
Land use and agriculture in EU climate policies:

CO₂ from Land Use: Land Use, Land Use Change and Forestry (LULUCF)

Agriculture non-CO₂ (CH₄, N₂O): Effort Sharing Regulation

Partly human induced
(linked to global natural carbon cycle)

↓
Uncertainties?
Additionality?
Permanence?
Leakage?



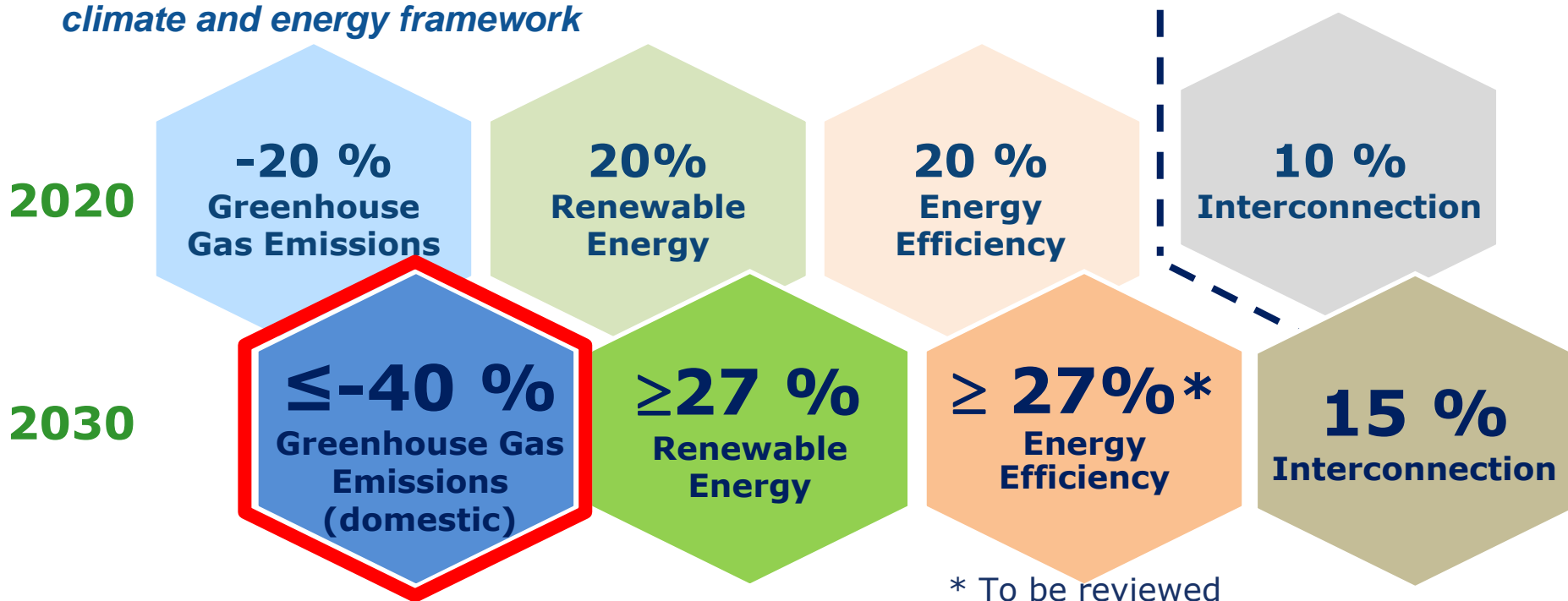
All human-induced

Implementing the Paris Agreement in the EU

Commission

EU Climate and Energy Framework

In October 2014 the European Council gave guidance on how to implement the 2030 climate and energy framework



* To be reviewed by 2020, having in mind an EU level of 30%

Energy Union governance

Climate Action

Implementing the Paris Agreement in the EU

2030 Climate and Energy Framework

$\leq -40\%$ Greenhouse Gas Emissions (domestic)

Emission Trading System (ETS)

-43%

Including: Power/Energy Sector and Industry, Aviation



Max 100 MTC O₂eq

Effort Sharing Regulation

-30%



Full flexibility



Max 280 MtCO₂eq

New!!

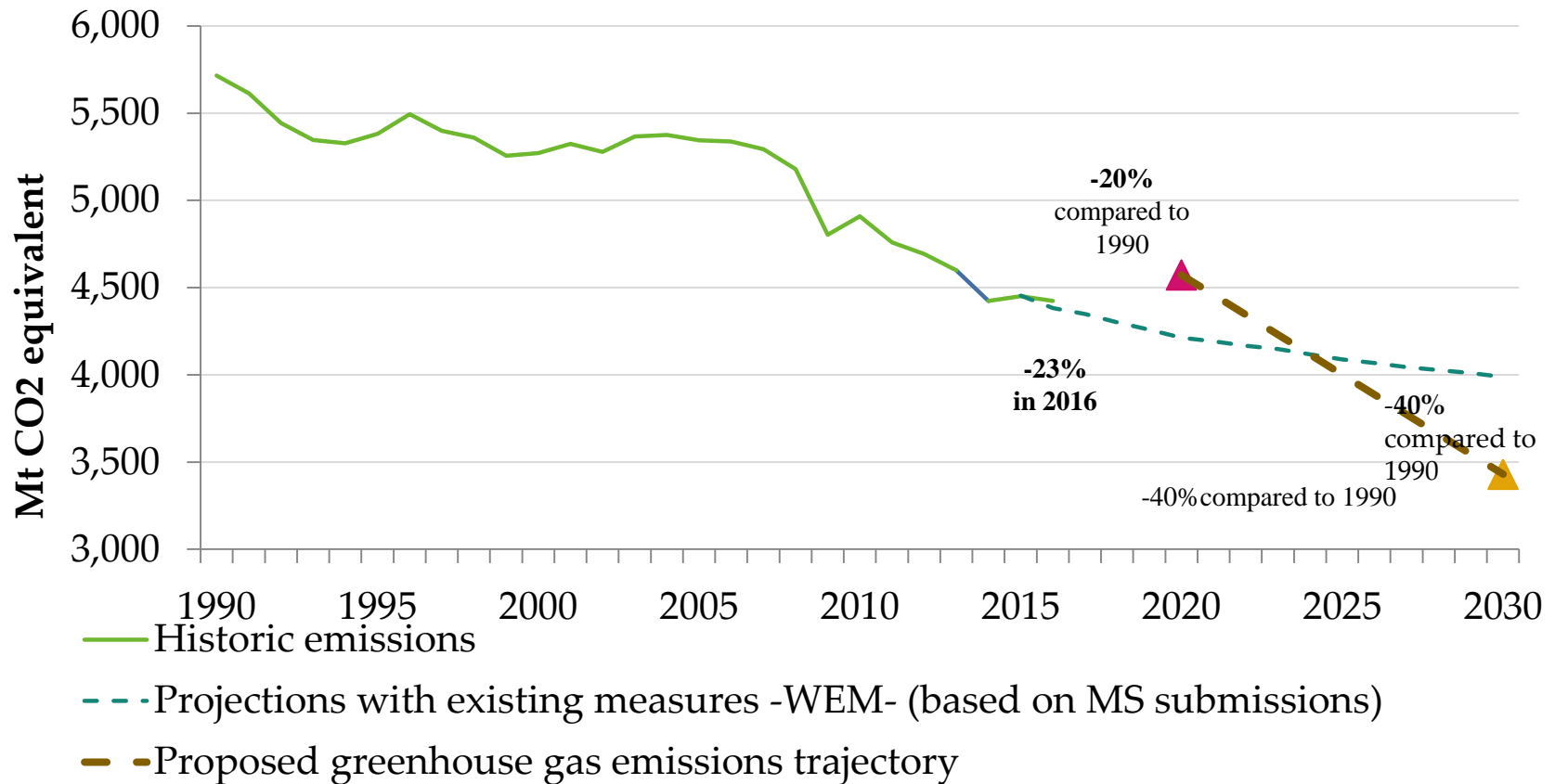
Land Use, Land Use Change and Forestry

$\leq 0\%$

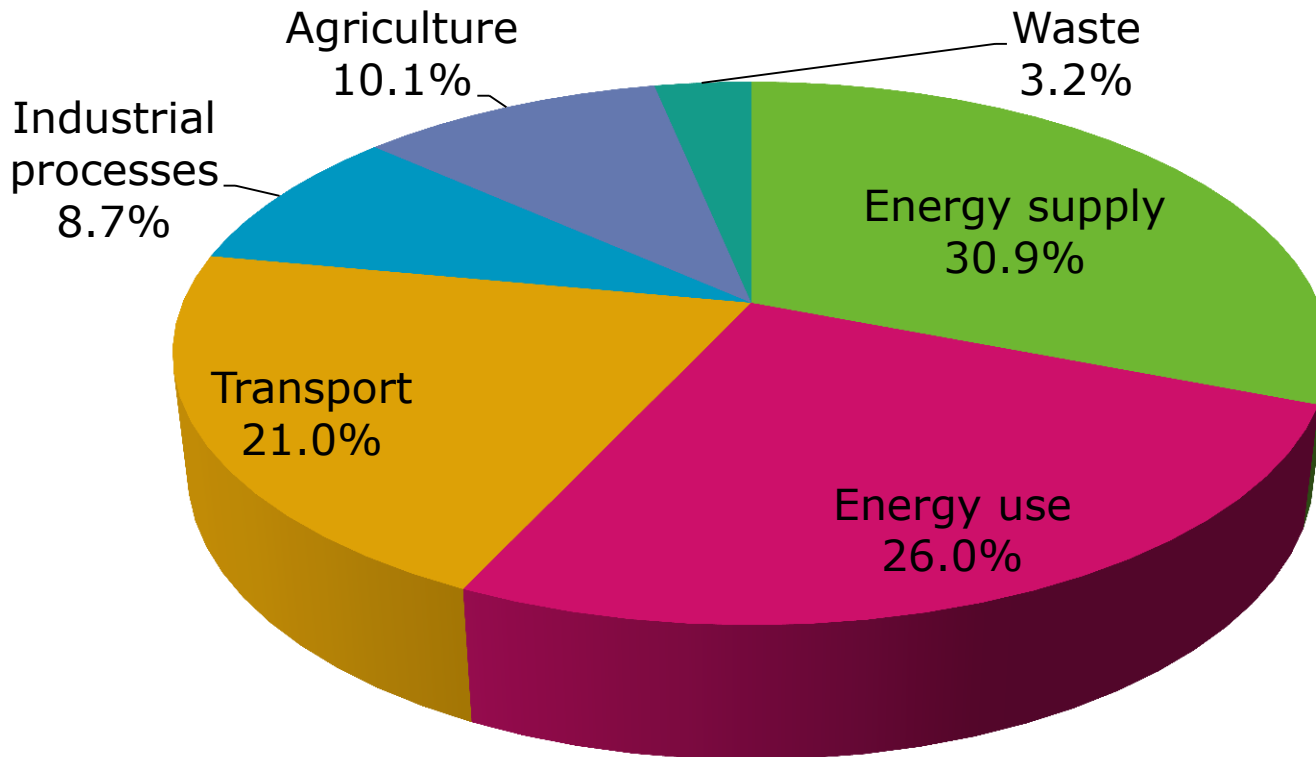
"No-Debit"



Progress towards meeting Europe 2020 and 2030 targets (total EU GHG emissions)



Share of greenhouse gas emissions by sector, EU-28 2015*

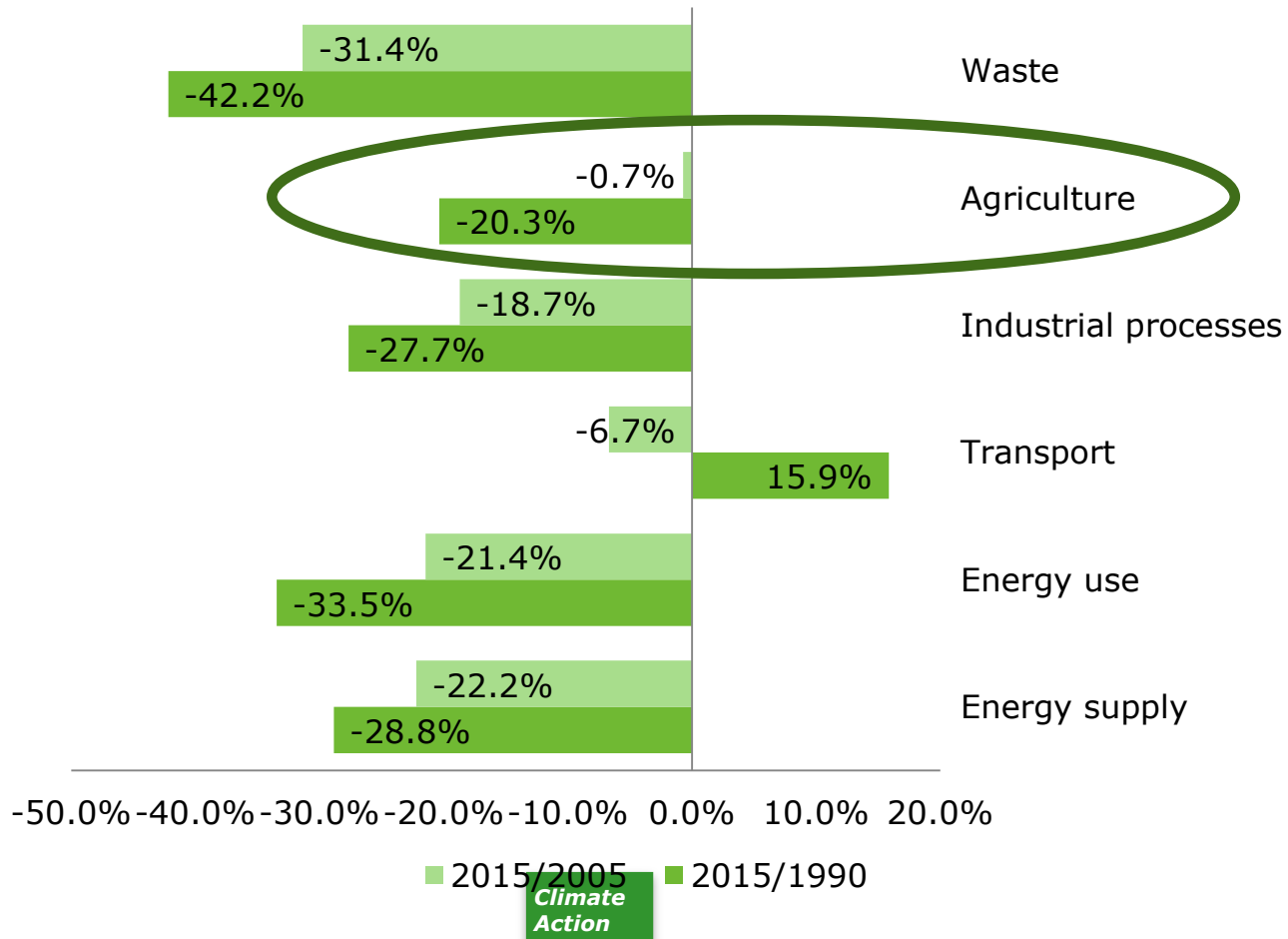


Source: 2017 EU greenhouse gas inventory (European Environment Agency).

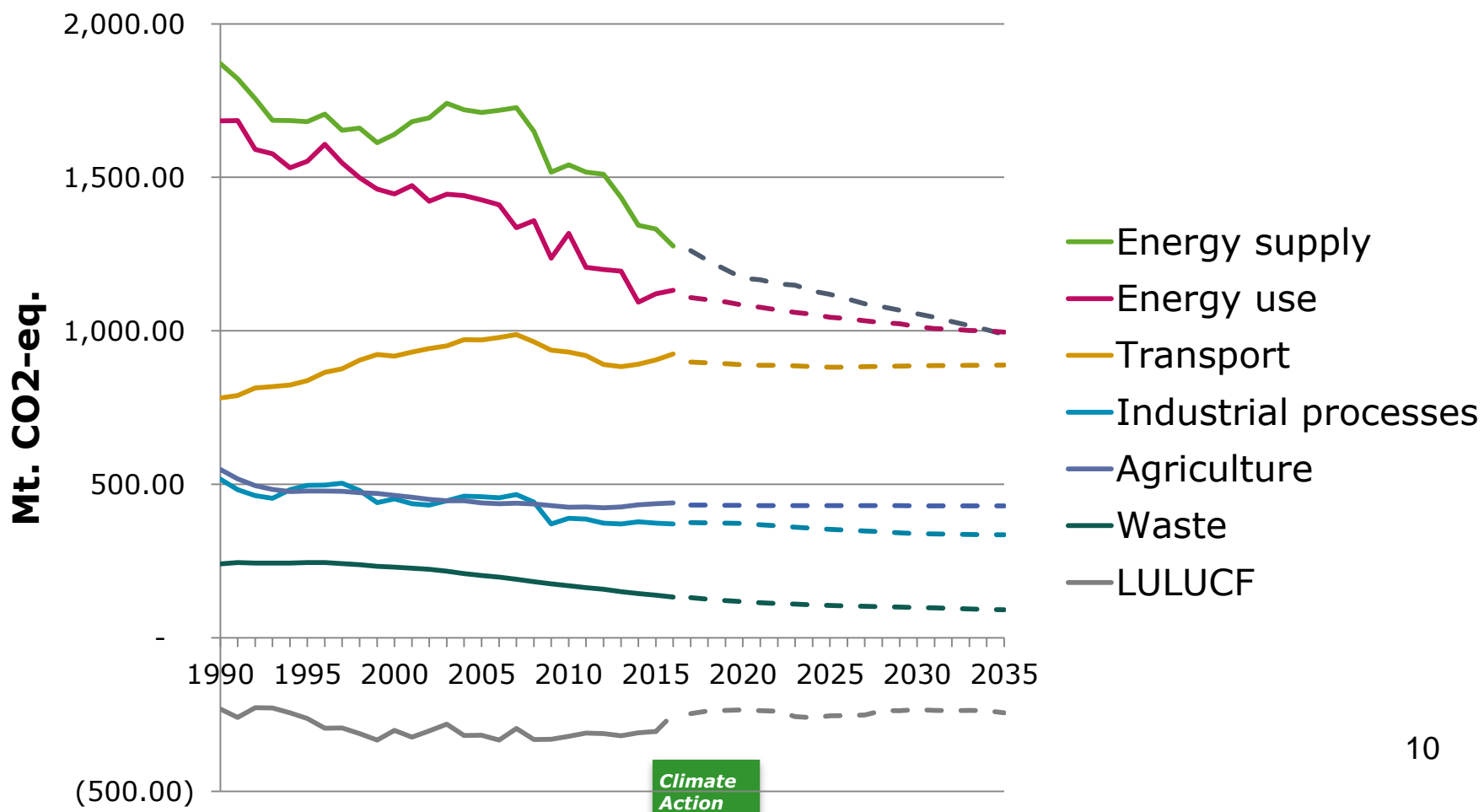
Notes: * the sectors correspond to IPCC sectors; international aviation and LULUCF is not included



Historical change in EU-28 greenhouse gas emissions by sector

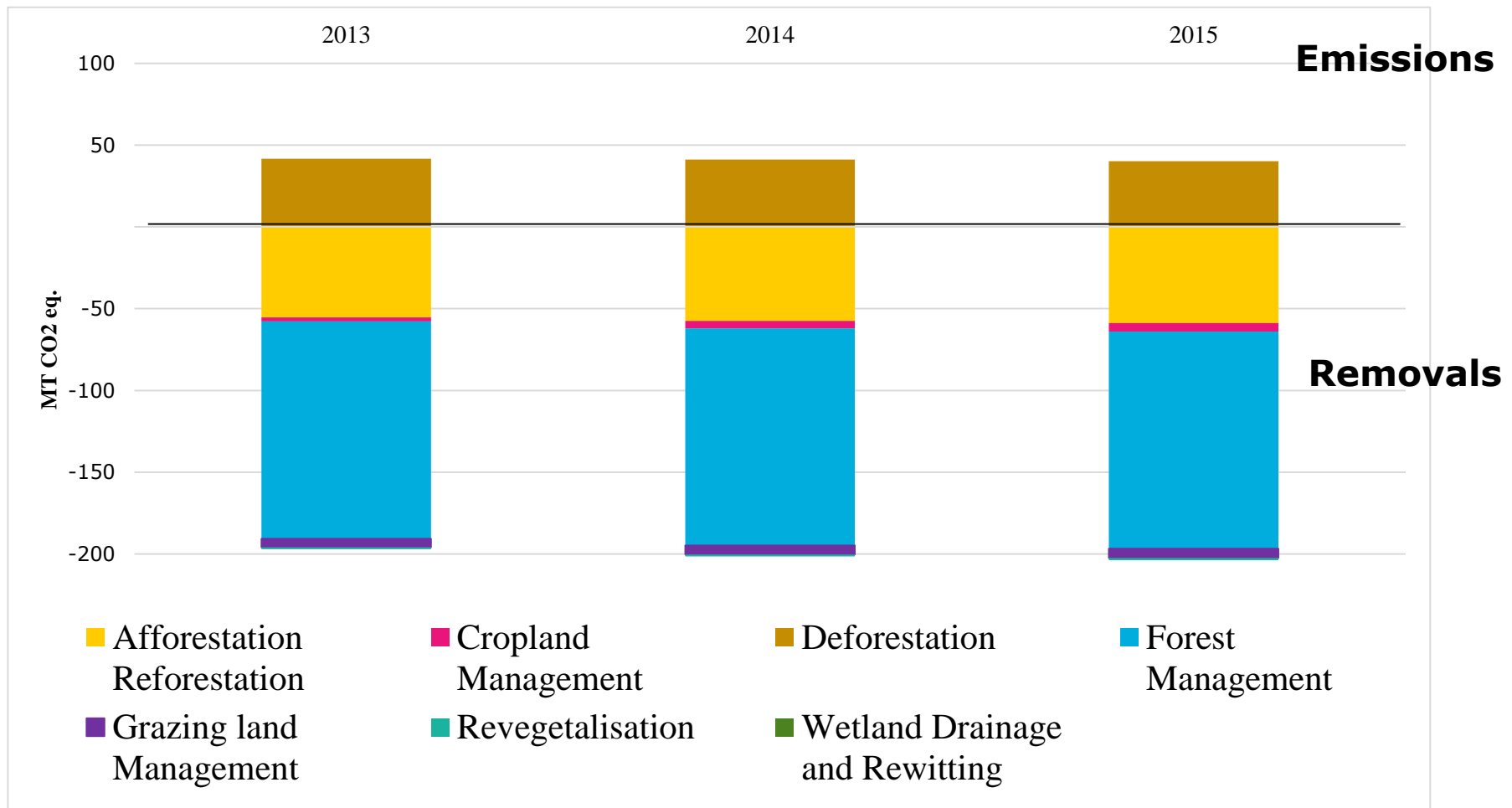


Projected emissions and removals from the EU-28 by sector, 2013-2015





Accounted emissions and removals from the EU-28 LULUCF sector per activity, 2013-2015



Agriculture and the Bio-economy



- The EU's reduction commitment of at least 40% by 2030 is economy-wide: all sectors contribute
- The mitigation potential in agriculture is more limited than in other sectors; however, taking into account the long term it cannot be neglected
- The contribution of **the agriculture sector** is crucial in the three mitigation pillars of EU climate policy:
 - **Emission Trading System**: agriculture can produce biomass to **replace the use of fossil-fuel energy and materials** (thus decreasing emissions) in the ETS sectors (energy, manufacturing...) – **Bio-Economy**
 - **Effort Sharing**: agriculture contributes to the emission reduction targets in the Effort Sharing sectors by **decreasing methane and nitrous oxide emissions** from use of fertilizers, livestock ...
 - **Land Use, Land Use Change and Forestry**: well-managed soils and forests **remove carbon** from the atmosphere; agriculture can also reduce carbon losses due to land use change.

Agriculture and the Bio-economy



- The Bio-economy provides multiple opportunities for agriculture: it can open **new markets for the agricultural sector**
- Farmers will help **reducing emissions in other sectors** by providing bio-based materials/feedstocks to replace fossil-based materials

Construction:
**Wooden buildings,
insulation
materials**

Waste:
Biomethane

Energy & heating:
Biomass

Chemicals:
Bioplastic

Transports:
Biofuels

- The EU Climate and Energy policies incentivize the bio-economy:
 - **Rating the use of biomass as zero-emissions in the ETS and ESR**
 - **Lower emissions in ETS/ESR if fossil-fuel materials are replaced**
 - **Supporting use of sustainable biofuels and biomass in the Renewable Energy Directive**

Climate-smart farming

Mitigation areas	Options for action
Reduce emissions from fertilizer use	Area under precision farming / optimized nutrient management plans; area under organic farming.
Reduce emissions from livestock	Cattle under optimal feed management; cattle under disease management; area under optimal manure management, anaerobic digesters for certain size of farms, introduce breeding programmes to enhance health and productivity.
Maintain and enhance carbon sinks	Area under conservation agriculture (minimal soil disturbance, permanent soil cover and crop rotations); area under fallow organic soils; area under agro-forestry; arable land converted to grassland; afforested area; forest under fire prevention measures, area under development for perennials or short rotation coppice with minimal soil disturbance.
Material substitution	Use of biomass from forests and agricultural land in the bioeconomy, replacement of fossil based materials (energy, plastics, etc.)
Decrease energy use	Number of farms/area covered by carbon auditing tools; reduction of energy use through improved energy efficiency.

Climate-smart farming

- ***Climate smart farming: make agriculture more climate proof and thereby fit for the future***
- ***Climate smart farming can be compatible with intensive, competitive farming***
- ***Climate smart farming is an attractive concept for the "front-runners" among farmers:***
 - 1. reap the benefits of the bio-economy,***
 - 2. enhance sustainability by reducing non-CO2 emissions***
 - 3. enhancing carbon sequestration/removals***
- ***Robust information to monitor climate-performance: geo-referenced data (e.g. Copernicus), on-farm carbon calculators (e.g.), site-specific data (e.g. LUCAS survey on soils)***



Thank you!

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