

Agricultural GHG Emissions Abatement – Measurement, Reporting & Verification

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The Challenges

- The National Climate Action Bill set Ireland a target to reduce national emissions by 51% by 2030 relative to 2018
- Agriculture comprises 34% of national GHG emissions
- Land-use is moving from net-net to gross-net reporting → LULUCF becomes a source of emissions due to high emissions from peat soils and low rates of afforestation
- AFOLU = 40% of national emissions

The Policy Requirement

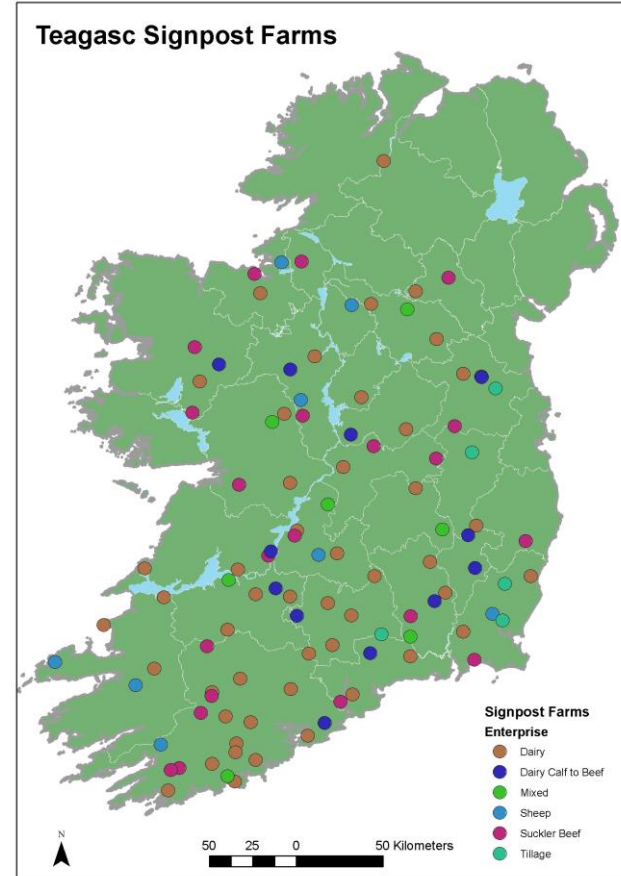
- What are national AFOLU GHG emissions projected to be under a business as usual (BAU) scenario?
- How much can mitigation strategies reduce emissions over the period and how are these subdivided?
- What is the cost?

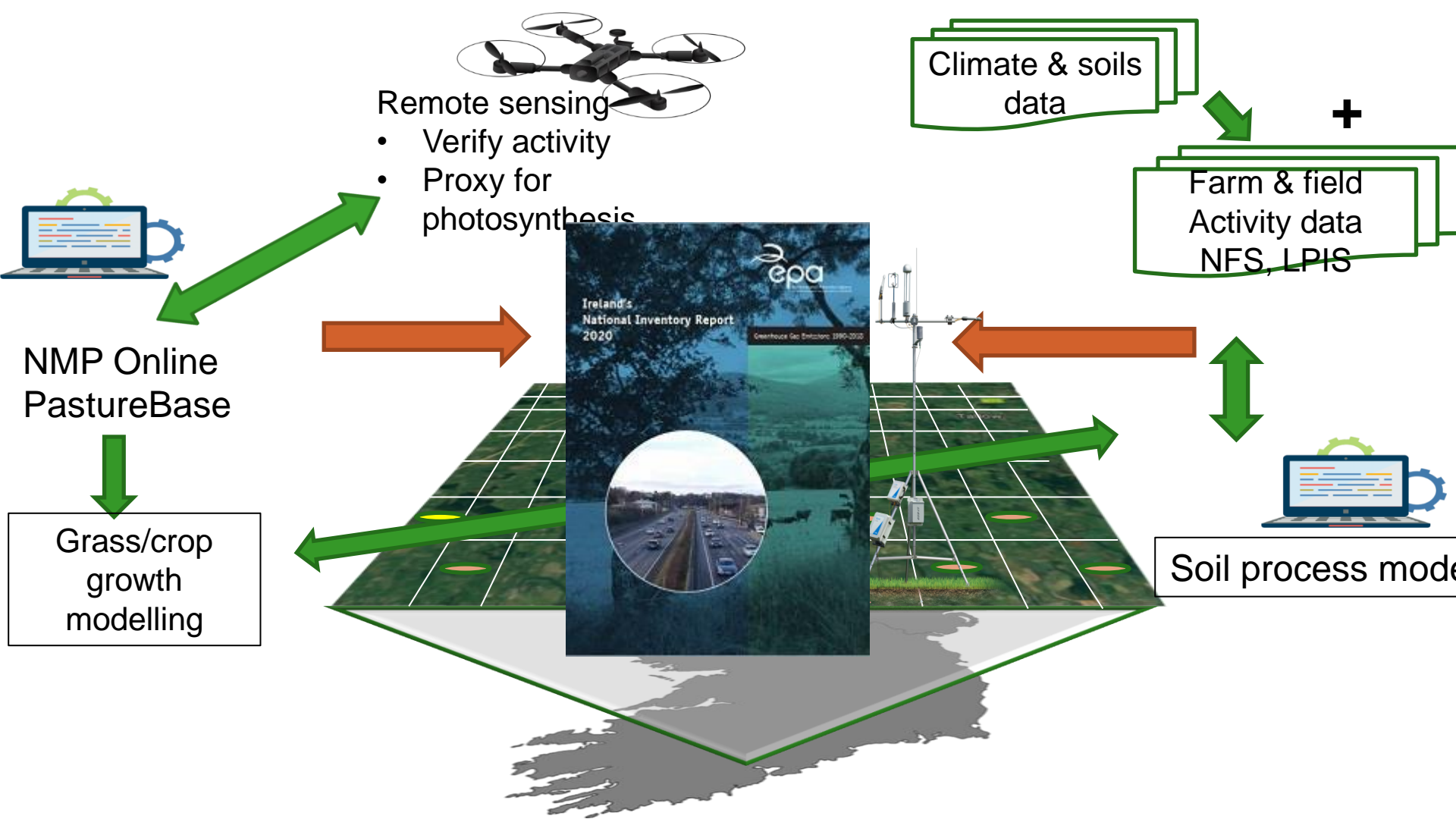
Step 1: Create a robust baseline

- What are my on-farm emissions?
- How much (if any!) carbon are my soils and trees sequestering?
- What measures can I employ to reduce emissions?

Verifying Carbon Sequestration

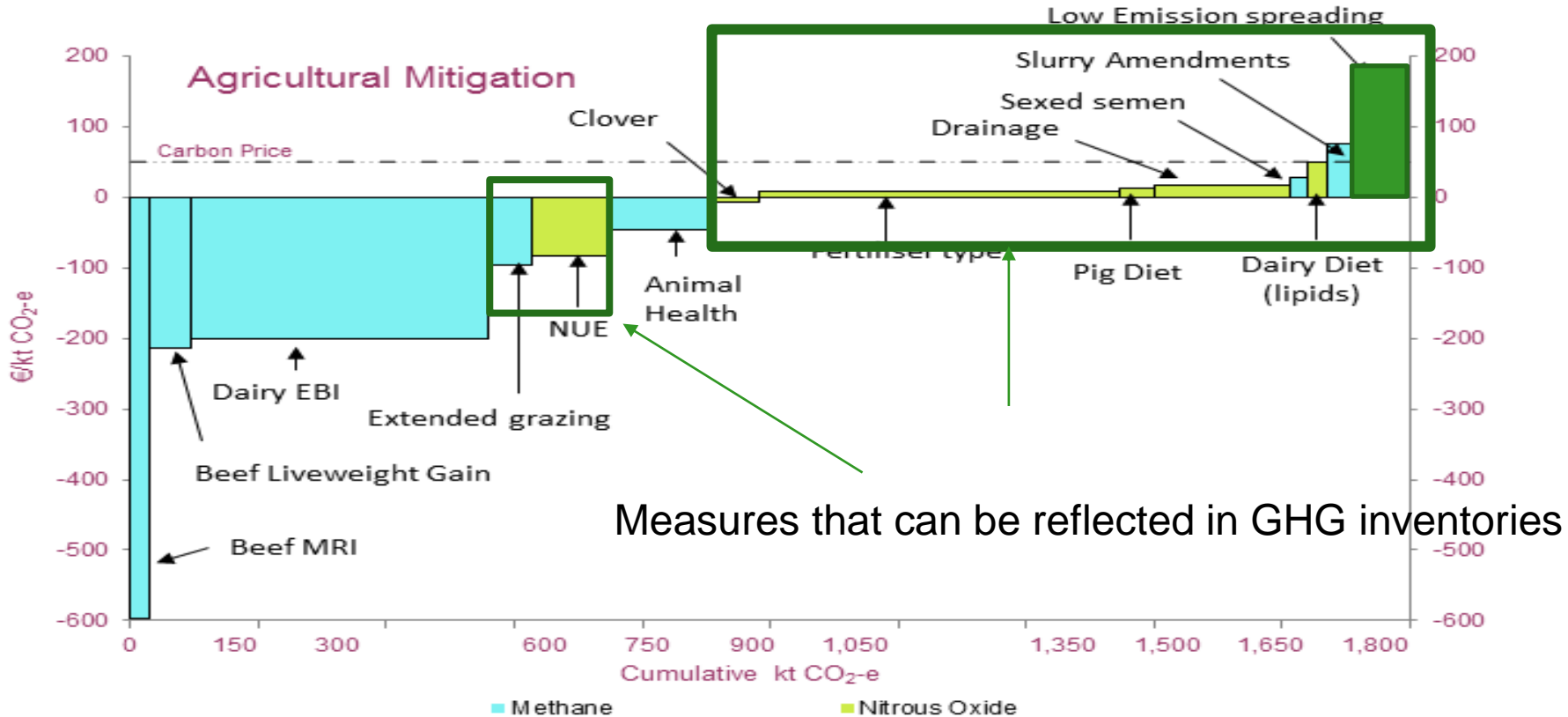
- Investigate management impacts – rewetting and reducing fertiliser
- NASCO = 32 flux towers
- Measure SOC on 110 Signpost farms
- Form part of **ICOS**-Ireland with two towers incorporated in **ICOS**-Europe
- Soil C monitored at these sites, LTE and Signpost Farms
- Couple to remote sensing and AI infrastructure (**Terrain AI**)





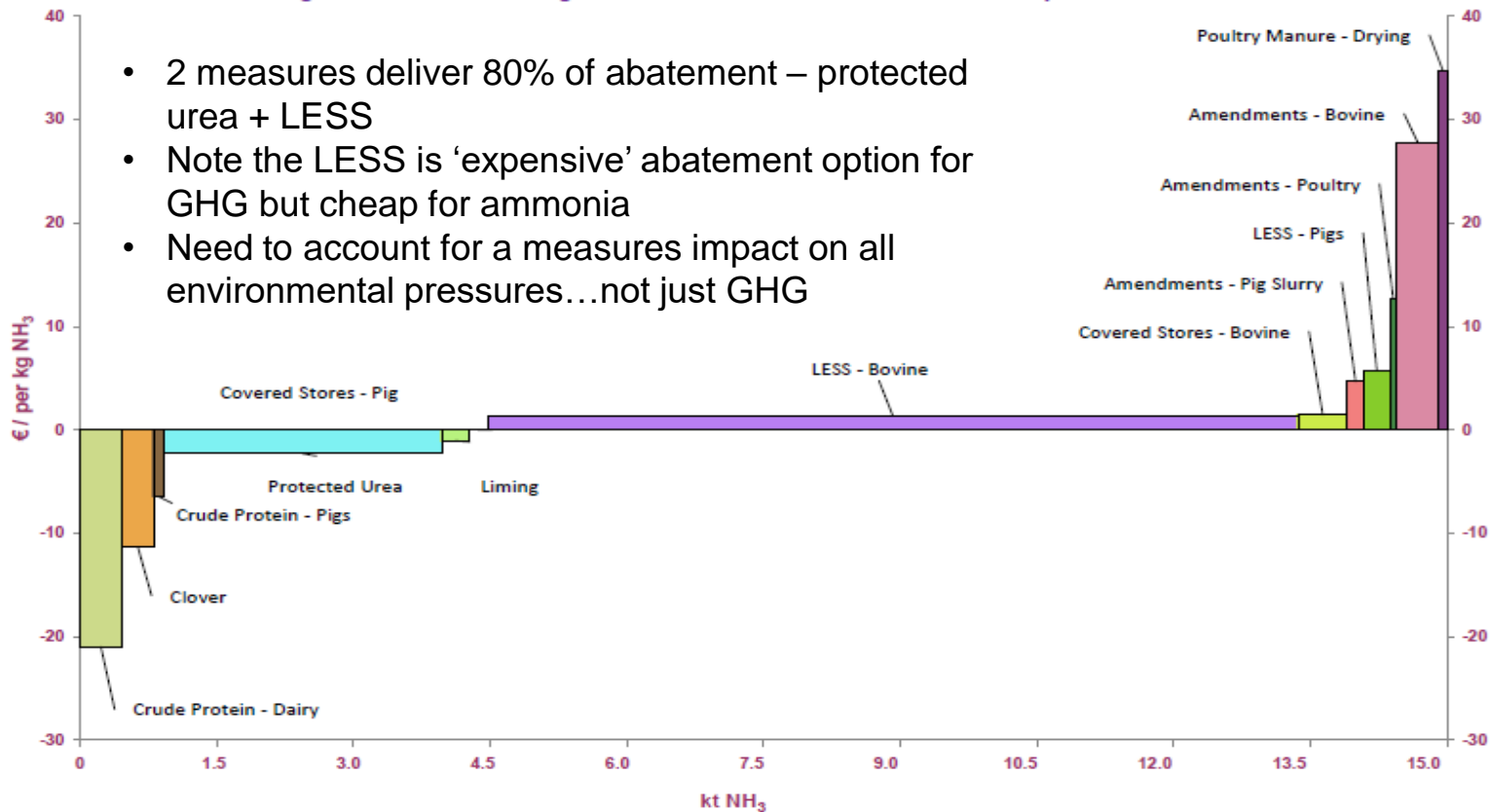
MACC – Agricultural Abatement

- Marginal Abatement Cost Curve for agriculture for 2021-2030 (direct methane and nitrous oxide abatement). Values are based on linear uptake of measures between the years 2021-2030.



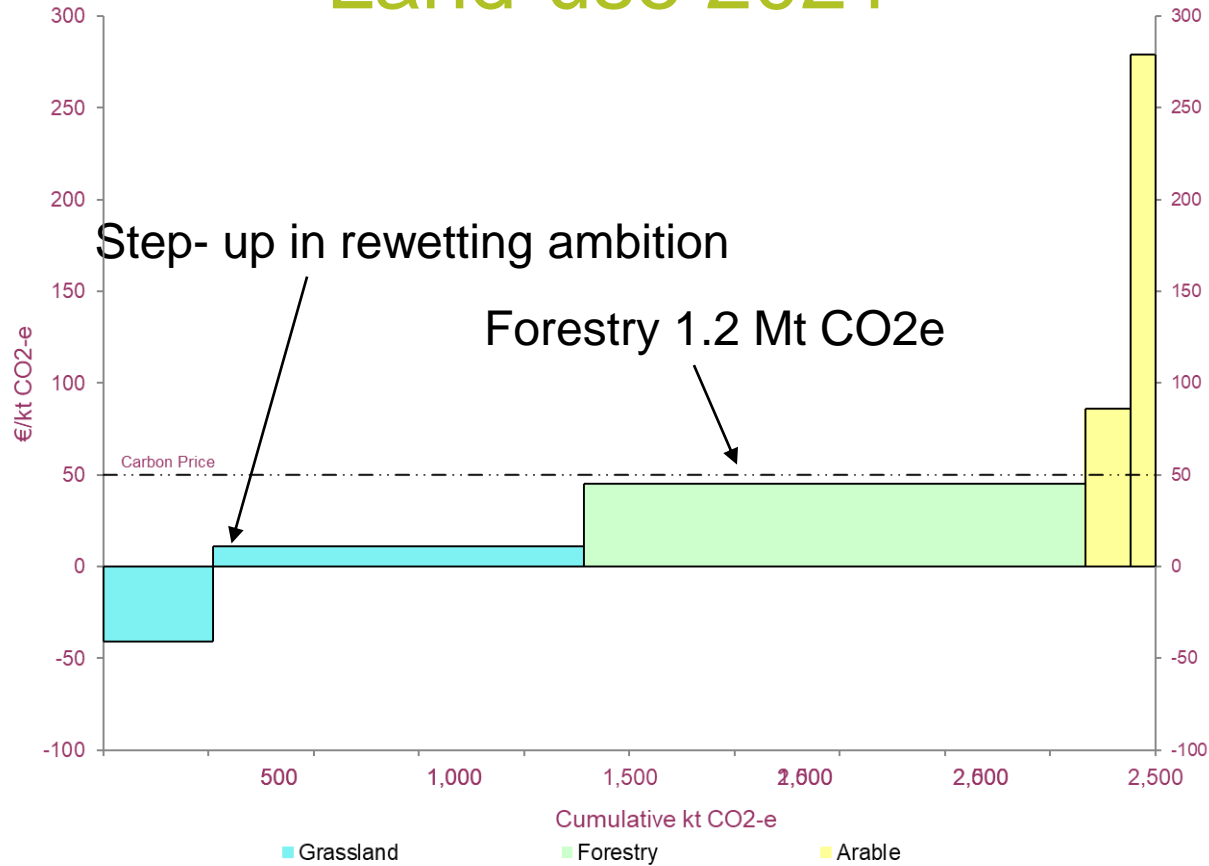
Ammonia MACC

Figure 3.2: Ammonia Marginal Abatement Cost Curve Chart for Activity Level Scenario S1

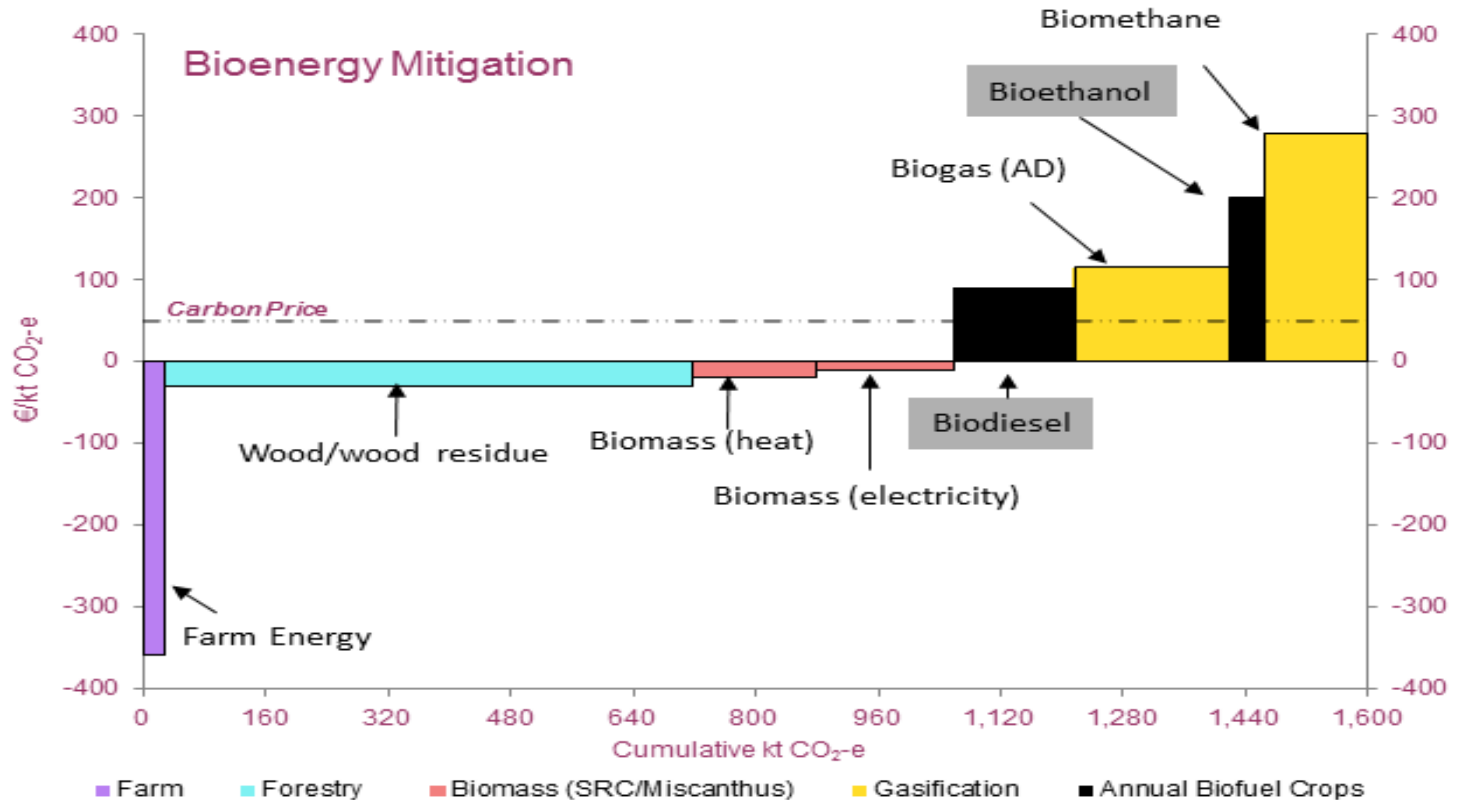


- 2 measures deliver 80% of abatement – protected urea + LESS
- Note the LESS is ‘expensive’ abatement option for GHG but cheap for ammonia
- Need to account for a measures impact on all environmental pressures...not just GHG

Land-use 2021



Energy



New measures

Reduced finishing times

- 3-NOP and other feed additives
- Low emission compound fertilisers
- Use of wastes & digestate for biofertiliser manufacture

Land-Use

- Agroforestry
- Enhanced weathering

Bioenergy

- Feedstock for hydrogen production
- Biorefining
- BECCS (Bioenergy with Carbon Capture and Storage)

Mitigation to 2030 will be circa. extra 1-1.5 megaton CO₂ at most

Questions