Applying the polluter-pays principle to agricultural emissions via emissions trading

Pricing agricultural GHG emissions along the value chain via emissions trading and linking carbon removals in the land sector to an agricultural ETS

Directorate General for Climate Action

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Study consortium

European Commission, DG CLIMA
Applying the polluter-pays principle to agricultural emissions
CLIMA/2022/OP/0006

Trinomics

Institute for European Environmental Policy

eco logic

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CARBON COUNTS

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Objectives of the study

- This main objective of this study builds on the ECA recommendation and can be split in two inherently linked objectives:

    1. Assess potential applications of the polluter-pays principle towards GHG emissions from agricultural activities

    2. Develop policy models how application of the polluter-pays principle on agricultural GHG emissions could be used to reward farmers and landowners for long-term carbon removals

- The study is exploratory in nature for considering the application of polluter-pays principle on agricultural GHG emissions as one of the many possible policy directions

Key challenges and objectives of the policy options assessed in the study

#	Key challenges	Objectives of the policy options
1	Large number of farms and other land users	Minimise the burden of implementation, and once implemented, balance the costs and benefits of the system
2	GHG monitoring, reporting and verification tools are not yet commonly used by farmers	Be based on reliable but cost-effective monitoring, reporting and verification
3	Risk of production moving outside EU	Provide safeguards against the risk of carbon leakage
4	Risks to farmer economic security	Provide financial incentives for innovation and changes in agricultural production in this transition
5	Social barriers to applying the polluter-pays principle	Designed in a fair and inclusive manner so that no stakeholders or vulnerable Europeans feel left behind

Part 1: Pricing agricultural GHG emissions along the value chain via emissions trading

Policy design options and considerations for an ETS (AgETS study)

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Criteria for selecting potential policy options for applying the polluter pays principle

Key criteria for a comprehensive set of policy options:

- Variation in coverage
  - Scope of GHG emissions
  - System boundaries
  - Incentives among GHG emitters
- Variation in point of obligation
- Variations in agricultural actors/activities applied

Other criteria for selection:

- Is it feasible for the instrument to be applied at the EU level?
- What is the data availability on GHG emissions for a particular policy instrument?
- Can an instrument address carbon leakage?
- Are there existing empirical examples that can be examined to better understand potential impacts?

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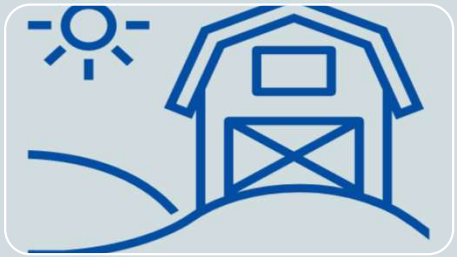
5 ETS policy options explored (AgETS options)



On-Farm ETS (3)

- **Point of obligation:** farm operators
- **Three ETS options**
  - All GHG
  - Livestock
  - Peatlands

Upstream ETS

- **Point of obligation:** fertiliser and feed producers and importers

Downstream ETS

- **Point of obligation:** meat and dairy processors

Other policies investigated but not retained for the analysis include CAP payment deductions (not solely a climate policy instrument) and emissions taxes (legally and politically challenging at EU level).

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Cross-cutting aspects of an AgETS: Two proposed MRV methods

Default MRV method

- Default emission factors for all compliance entities
- Use of readily identifiable data (e.g., livestock numbers, fertiliser use) and default emission factors
- Can use central database
- Administratively simpler
- Will not reflect specific GHG emission reduction actions

Certified MRV method

- Voluntary opt-in to use own data
- Third-party verifier obligatory
- Need to establish approved methodologies
- Stricter governance required (e.g., random sample checks)
- Able to capture specific GHG emission reduction actions

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Generation of certified on-farm voluntary credits

- Provide farms that are not regulated by an ETS option* an opportunity to receive financial support in transitioning towards mitigation practices
- Non-obligated farms could calculate and certify their emissions in a detailed and accurate way on a voluntary-basis
  - Given tradeable credits generated through the certified MRV approach
  - Quantity of credits generated can reflect the difference between their certified emissions, and what their calculated emissions would have been on the standard proxy calculation.
  - Regulated entities could present these certificates to help meet their obligation to retire allowances covering the total of their emissions

*These can also be obligated farms regulated under an ETS option as long as the emissions that are reduced do not fall under the regulatory scope of the ETS option and double-counting is prevented.

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Conclusions: opportunities for an AgETS

- An AgETS can provide incentives for farmers to change their practices:
  - Impact of on-farm AgETS options mainly depends on the emissions covered and cost-effective on-farm mitigation measures available
  - Impact of the upstream and downstream AgETS depends on the extent to which incentives are passed on to farms
- Upstream and downstream AgETSs can further facilitate new vertical arrangements in agri-food value chain and incentivise innovation:
  - Upstream, innovation for more efficient and lower emitting fertilisers could be facilitated
  - Downstream, food processors could change food recipes to lower emissive ingredients or innovate to develop new products such as alternative protein technologies
  - The Certified MRV method could further create collaborative approaches and generate additional income for farmers should they choose to adopt mitigation actions on-farm

Potential next steps for an AgETS

- Consider combinations of various design aspects of ETS options
- Establish a harmonised GHG reporting tool at the farm-level in the EU
- Introduce a user-friendly Decision Support Platform with information on cost-effective high impact mitigation actions
- Plan now to direct transitional aid through the form of subsidies, grants, and loans for farms in support the adoption of climate-friendly practices
  - Dedicated fund for farms towards innovation and modernisation of farms
  - Opportunities for financing from financial institutions
  - Further development of risk sharing mechanisms between private and public financing for small and medium sized farms to have access to private financing options

Open questions moving forward

- The feasibility of a Carbon Border Adjustment Mechanism for agri-food goods
- The implications of tariff rate quotas for an agricultural ETS
- The link between evidence of consumer behaviour and theoretical risks of carbon pricing
- The impacts of marketing strategies on willingness of consumers to change consumption behaviour
- Potential distributional impacts across Member States and income groups on consumer budgets and ways to address them
- The larger policy ‘mix’ needed to facilitate climate mitigation in the agricultural sector

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Part 2: Linking carbon removals in the land sector to an agricultural ETS

Policy models for an AgETS+Removals and associated challenges (AgETS+Removals study)

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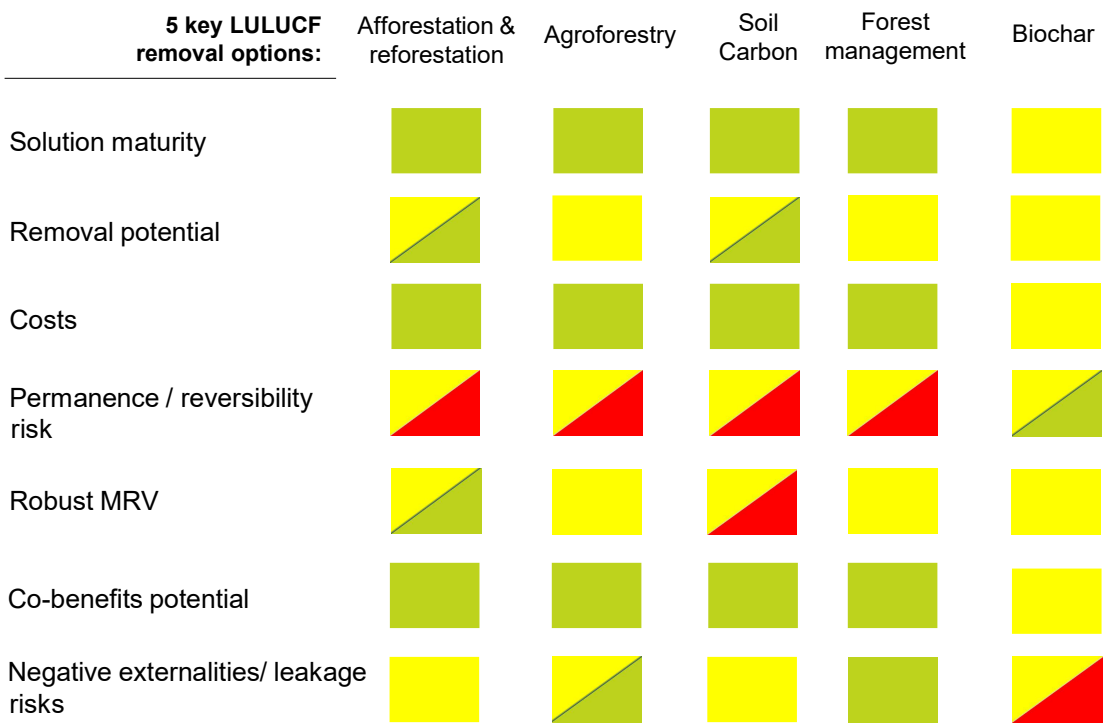
Potential supply of LULUCF removals: options and key challenges

LULUCF removal options



Adapted graph based on Bay et al. 2021 and own compilation

- Key challenges to address:
  - Permanence
  - MRV robustness & cost
  - Additionality
  - Leakage
- EU supply that can be used for an AgETS likely to depend on the rules set by certification mechanisms to ensure real climate benefits
  - Key role for the EU Carbon Removal Certification Framework (CRCF), which is under development

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Key cross-cutting design aspects: Agricultural emission reduction deterrence

Key issues to consider

- **AgETS cap:** linking expands options to meet the AgETS cap, which effectively increases the cap level and could decrease incentives for emissions reductions
- **Cheaper options:** availability of cheaper removal options can deter emissions reduction efforts under an AgETS

Policy design solutions

- Quantitative restrictions (amount of removals in an AgETS)
- Qualitative restrictions (criteria for removals in an AgETS)
- Limited validity period of removal credits
- Discounting or conversion factors
- Pooling for risk spreading

Other considerations

- Solutions can make removals more costly, reducing initial supply
- Only a key risk when removals can be directly used as credits for compliance under an AgETS
- Whether deterrence is an issue depends on policy objectives

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Key cross-cutting design aspects: Non-equivalence

Key issues to consider

- **Non-permanence risk:** AgETS emission reductions are permanent, while LULUCF removals can be re-released
- **Quantification uncertainty:** different MRV uncertainties between emission reductions and LULUCF removals
- **Sustainability impacts:** removals show additional positive co-benefits

Policy design solutions

- Temporary credits
- Buyer liability
- Eligibility restrictions
- Ongoing monitoring
- Discounting
- Buffer accounts
- Insurance approach
- Pooling for risk spreading

Other considerations

- Non-permanence risks can be managed with policy solutions, but not completely dispensed
- **Key role for the EU Carbon Removal Certification Framework (CRCF), which is under development, to address this challenge**

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Other key cross-cutting design aspects

- Ensuring that carbon removals support other sustainability objectives
- Ensuring coherence with LULUCF accounting and national inventories
- Avoiding double-counting between:
  - LULUCF removals and AgETS reductions (net GHG fluxes)
  - Different providers of removals and polluters (e.g., double claiming and double use)
- Managing distributional impacts and increasing social inclusiveness

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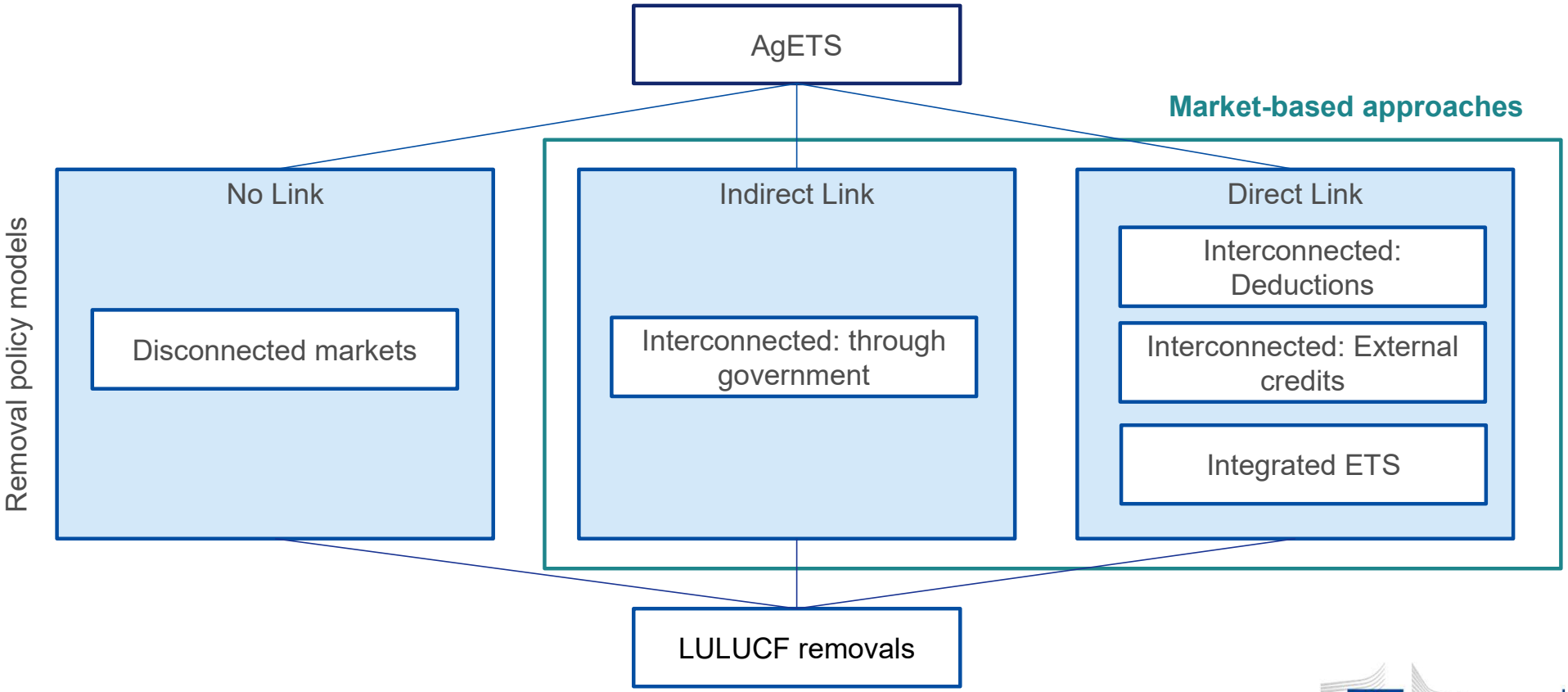
5 removal policy models to link to an AgETS



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Conclusions

- LULUCF carbon removals will be essential to attain the EU's climate objectives – but cannot replace rapid emissions reductions in all sectors
- The nature of LULUCF removals poses challenges to their incorporation into an AgETS, especially related to non-equivalence of LULUCF removals and AgETS emissions reductions and emissions reduction deterrence
  - Policy design, including the CRCF, may be able to address these challenges
- The different removal policy models explored in this study pose different strengths and weaknesses, and there is not a single best solution
  - Different removals types could and should be governed by different policy models
  - Sequencing of policy models over time should also be considered
- AgETS+Removal policy design should be considered as part of a wider systemic change to best transition the agriculture and land sector and our food system to sustainability

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Areas for further research

- Fit of the final CRCF methodologies with the removal policy models
- Marginal abatement cost curves of LULUCF removals
- Impacts of the removal option Biochar
- Further development of MRV approaches for LULUCF removals
- Potential role of and interactions with the Common Agriculture Policy
- Development of removals policy models into concrete AgETS+Removals policy options
- Assessment of economic, environmental and social impact of concrete AgETS+Removals policy options

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Combinations of AgETS options and removal policy models: stakeholder preferences

- Strong stakeholder preference for a downstream AgETS in combination with the No link: Disconnected market policy model or the Direct link: Deductions
- General opposition to an on-farm ETS in almost all combinations

Policy models for linking LULUCF carbon removals	AgETS options		
	On-farm ETS	Upstream ETS	Downstream ETS
No link: Disconnected market	+/-	+/-	++
Indirect link: Interconnected through government	--	-	+
Direct link: Deductions	--	+/-	++
Direct link: External credits	--	-	+
Direct link: Integrated ETS	-	+/-	+

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Study management: Trinomics
Study Part 1 lead: IEEP
Study Part 2 lead: Ecologic Institute

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