

Building a national integrated model to explore overshoot pathways

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Aim

Develop a national integrated model (based on the TIMES energy model) that allows the exploration of overshoot pathways, particularly levers associated with reductions and removals across land, energy, agricultural and forest (LEAF) systems.

Key features

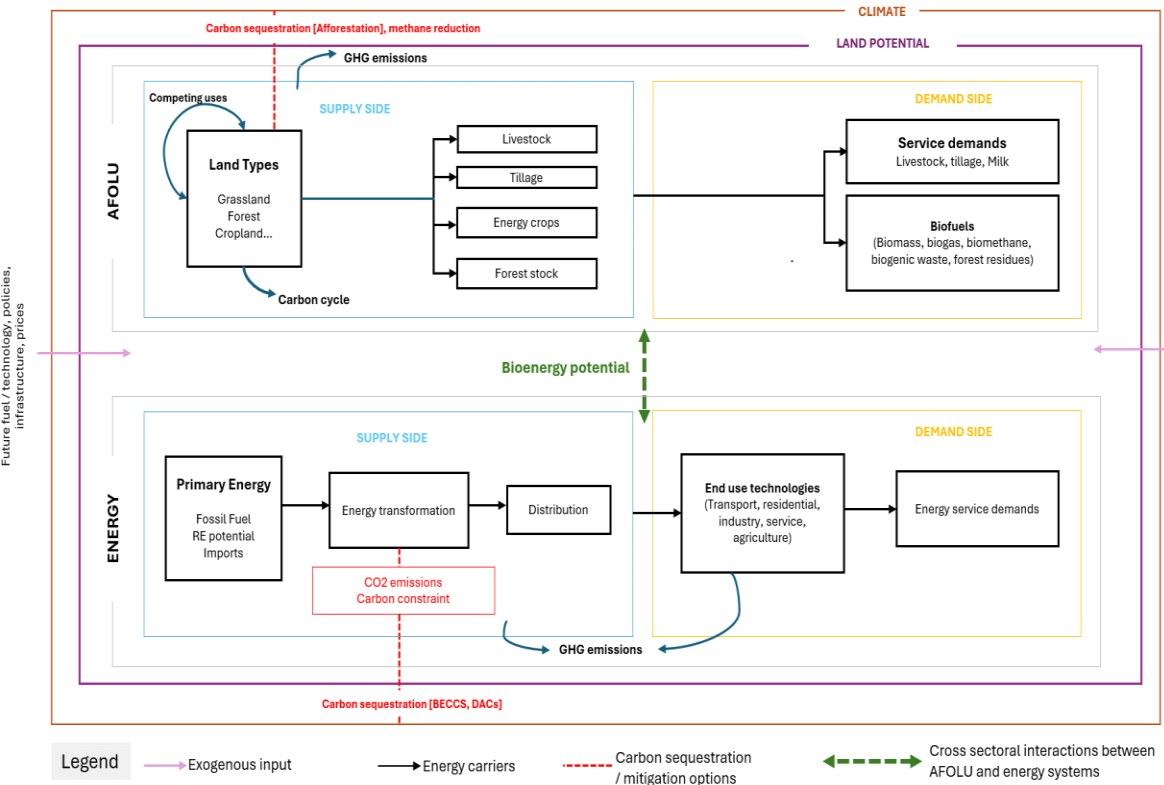
- Integration: energy, agriculture and forest systems linked through shared resources (land, biomass and carbon)
- Land representation & allocation
- Forestry: wood flow via forest area, biomass & harvest flows
- HWP: annual carbon inflows, decay & cumulative stock changes
- complete CO₂ and non-CO₂ emissions and removals

Other findings

- Pasture remains the dominant land use across all scenarios, only under the most ambitious scenario does significant change in land use occur.
- CH₄ reductions under ambitious mitigation driven by lower ruminant numbers, improved manure management, and adoption of advanced technologies.

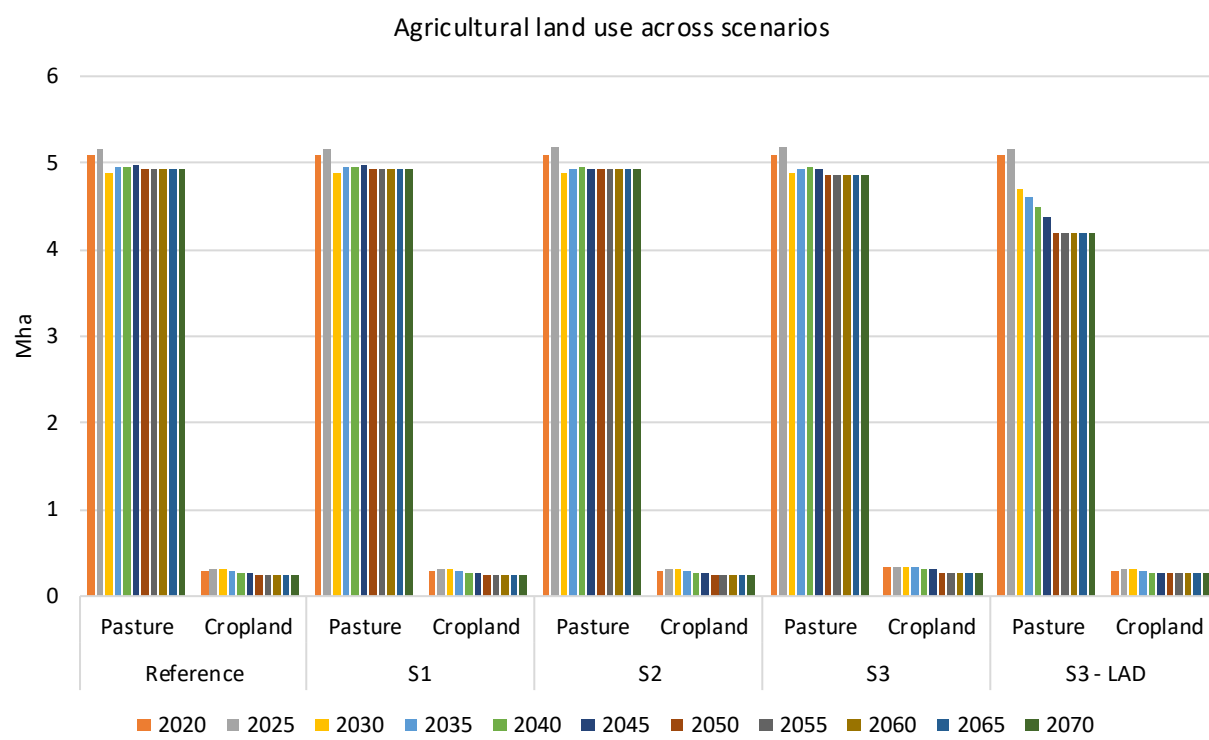


Ambitious mitigation in Irish agriculture (50-55% of GHG emissions) is feasible but requires a coordinated transformation across the application of technological solutions and dietary change.



Agri. scenarios

S1 > currently planned measures
S2 > low-cost, technically mature & min. behavior change
S3 > ambitious options requiring policy support or investment
S3-LAD > S3 + low agricultural demand



Major challenge

Inclusion of carbon sinks within the model's optimisation framework



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