

The potential role of negative emissions technologies in Ireland

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climate conversations no. 3



Acadamh Ríoga na hÉireann
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the **ie-nets** project

Investigating the Potential for Negative Emissions Technologies (NETs) in Ireland

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2016-CCRP-MS.36

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Understanding the problem

- Global temperature rise is more or less proportional to how much **cumulative CO₂** we emit (ever!)
- For 1.5°C limit (or even 2°C) that “forever” CO₂ budget is **already nearly exhausted**
- Current IPCC **global scenarios for 1.5°C** *rely on temporary overshoot*, subsequently reversed by *net removal* of CO₂
- How much? Who? When? How? (and are there alternatives?)
- **Our project** looked specifically at the potential for “negative emissions technologies” (NETs, CDR, GCR...) **in Ireland**

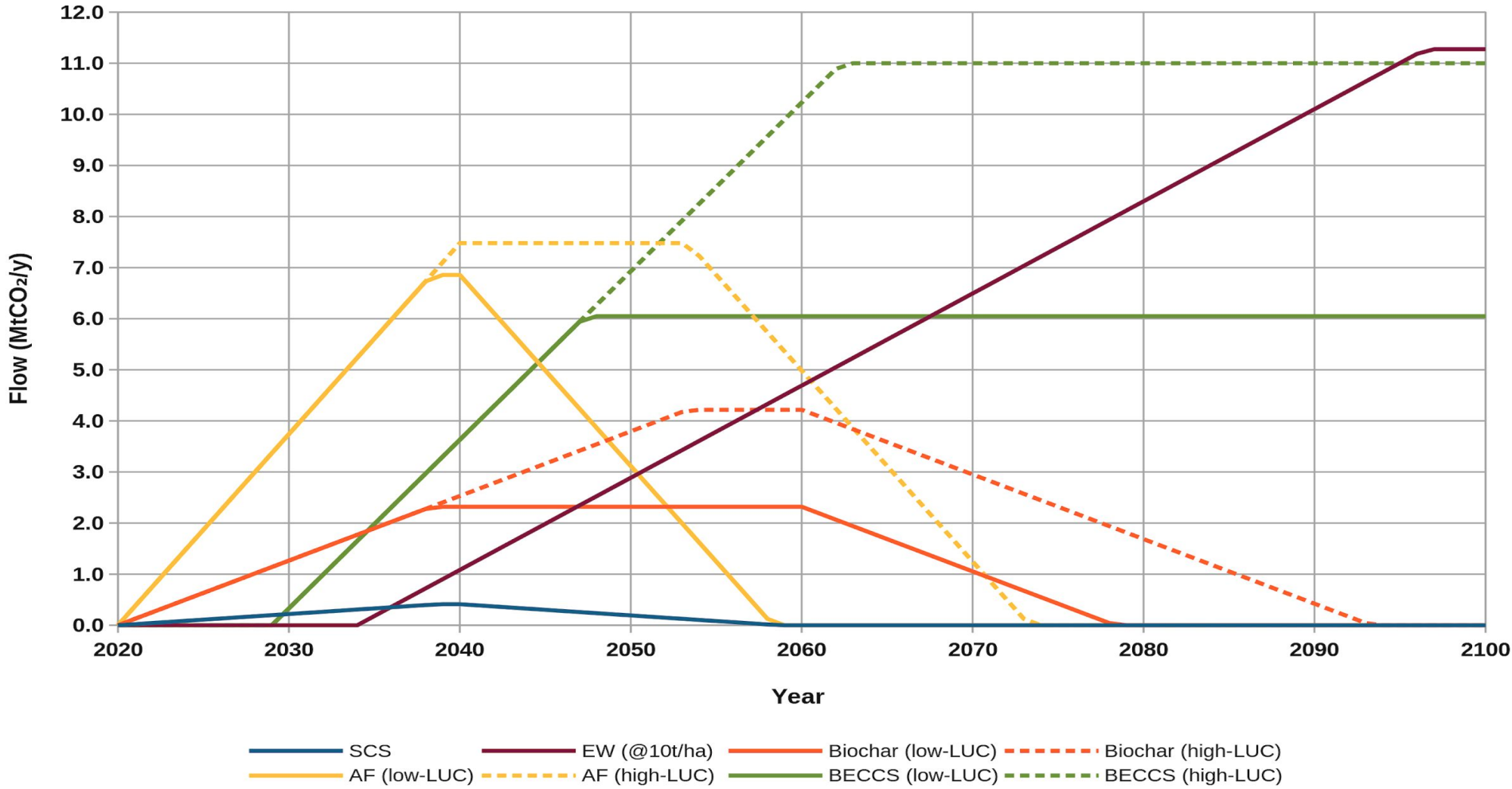
Downscaling to Ireland

- IE “fair share” national carbon quota from 2015: c. 400 MtCO₂
 - (so now <200 MtCO₂)
- *We will overshoot this...*
 - Only questions are *by how much* and *for how long!*
- Climate Action Plan 2019 suggests overshoot of at least 600 MtCO₂ by 2050 (yikes?)
- So ... time for a *preliminary* look at whether or how quickly overshoot might be *limited* and *reversed?*

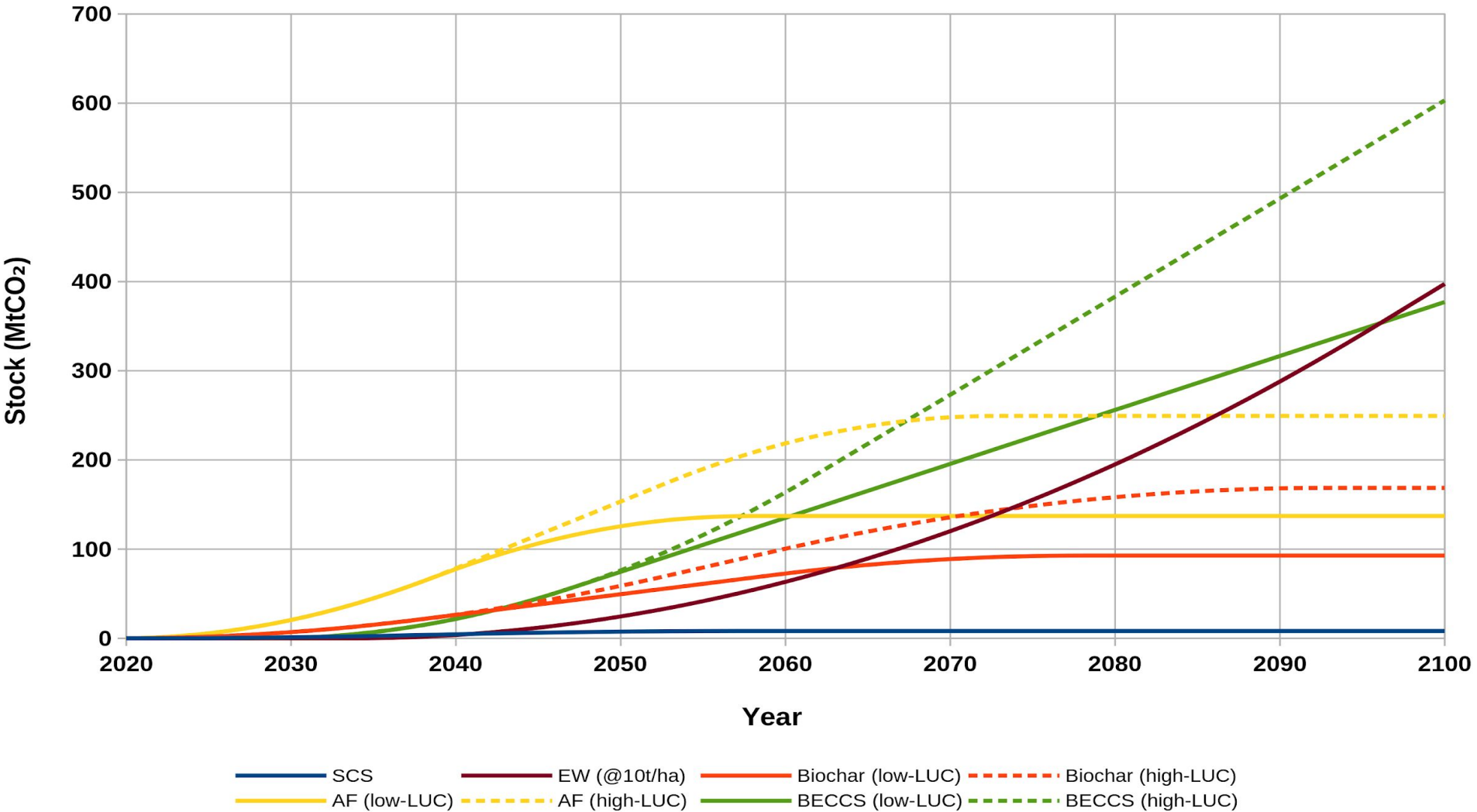
Qualitative NETs possibilities...

Policy Consideration	Positive Sense	SCS	Biochar	EW	Afforestation	BECCS	DACCS
CO ₂ removal potential	High	Low*	Medium	High	Medium	High	High
Readiness	High	Very High	Very High	Medium	Very High	Medium	Very Low
Cost	Low	Medium*	Medium*	High*	Low	Medium*	Very High
Vulnerability to re-release	Low	High	Medium*	Low	Medium*	Low	Low
Vulnerability to future climate change	Low	Very High	High	Medium	High	Medium	Very Low
Biodiversity Risk	Low	Low	Low	Medium	High*	High	Low
Land Use/Conflict	Low	Low	High	Low	High	High	Very Low
Energy Output/Input	High Output	Low Input	Medium Output	High Input	Low Input*	High Output*	Very High Input

Quantitative “flow” (annual) potentials



Quantitative “stock” (cumulative) potentials



In words...

“... the aggregate *technical* potential for accumulated gross removals (up to 2100) is approximately 600 MtCO₂. The corresponding *practical* potential is likely to be substantially less ... a **current, prudent, upper policy assumption** for NETs potential in Ireland should be gross removals of no more than **200 MtCO₂**. The discrepancy between projected net overshoot (at least 600 MtCO₂) and even gross CO₂ removals (at most 200 MtCO₂) indicates that **much more ambitious, near-term, reduction of gross CO₂ emissions remains the most urgent policy priority.**”

Take home messages...

- Current tacit “high overshoot” policy is **very high risk!**
- The distribution of this risk is **highly inequitable** in space and time
- The story here for Ireland likely translates fairly similarly to the overall EU level
- Caveat: we looked at **CO₂ only**
 - Ireland has significant potential to also act on N₂O and CH₄ (“agri”)
 - Needs *appropriate* accounting, but...
 - *Might* ease the CO₂ challenge for Ireland (slightly?)
- **Not** emitting is **much** easier and safer than “**hoping to remove**”
- **Anyone for IE CO₂ net zero by 2035?**
(Or: when is an “emergency” an **actual** emergency!?)

Continue the conversation?

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