



ie-nets

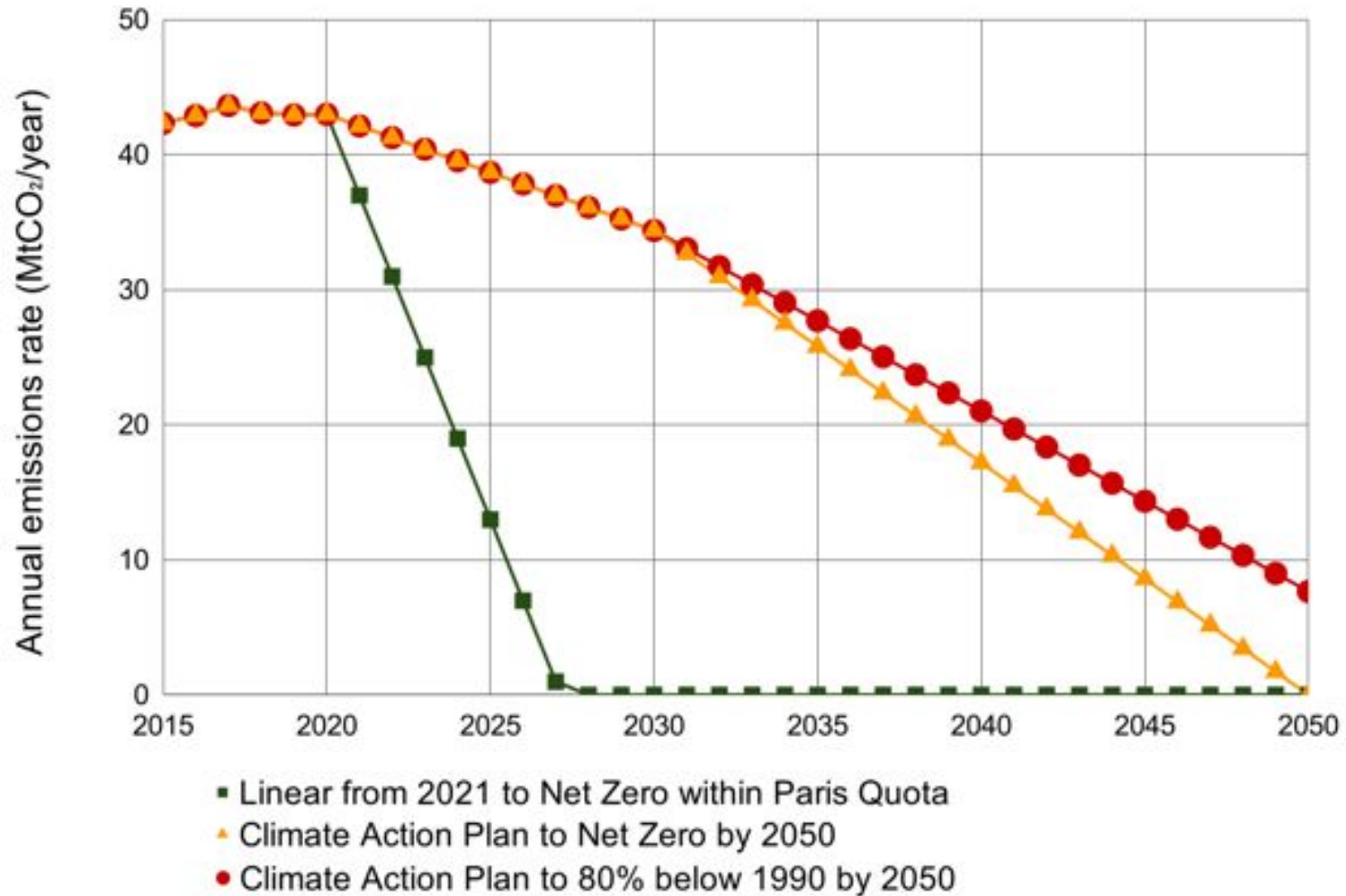
Investigating the Potential for Negative Emissions Technologies (NETs) in Ireland

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IE National 'Fair Share' of the Remaining Global CO₂ Budget?



IE National 'Fair Share' of the Remaining Global CO₂ Budget?

“The project has found that a **prudent, minimally equitable, Paris-aligned** CO₂ quota for Ireland has an upper bound of approximately **400 MtCO₂ from 2015**. This relies on particular interpretations of prudence, equity and Paris-alignment, and assumptions about the **global mitigation of non-CO₂ greenhouse gases**.

... Based on current emissions rates the projection is that **this national quota would be exceeded by around 2024**. Therefore, the analysis presented here indicates an expectation of national CO₂ quota overshoot beginning to accumulate within the next decade. Assessment of the national Climate Action Plan (DCCA 2019) suggests that, under that plan, this NCQ overshoot will keep increasing until at least 2050, **reaching an accumulated level of at least 600 MtCO₂ by that date.**”

IE NETs (CDR): Options?

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

IE NETs (CDR): Options?

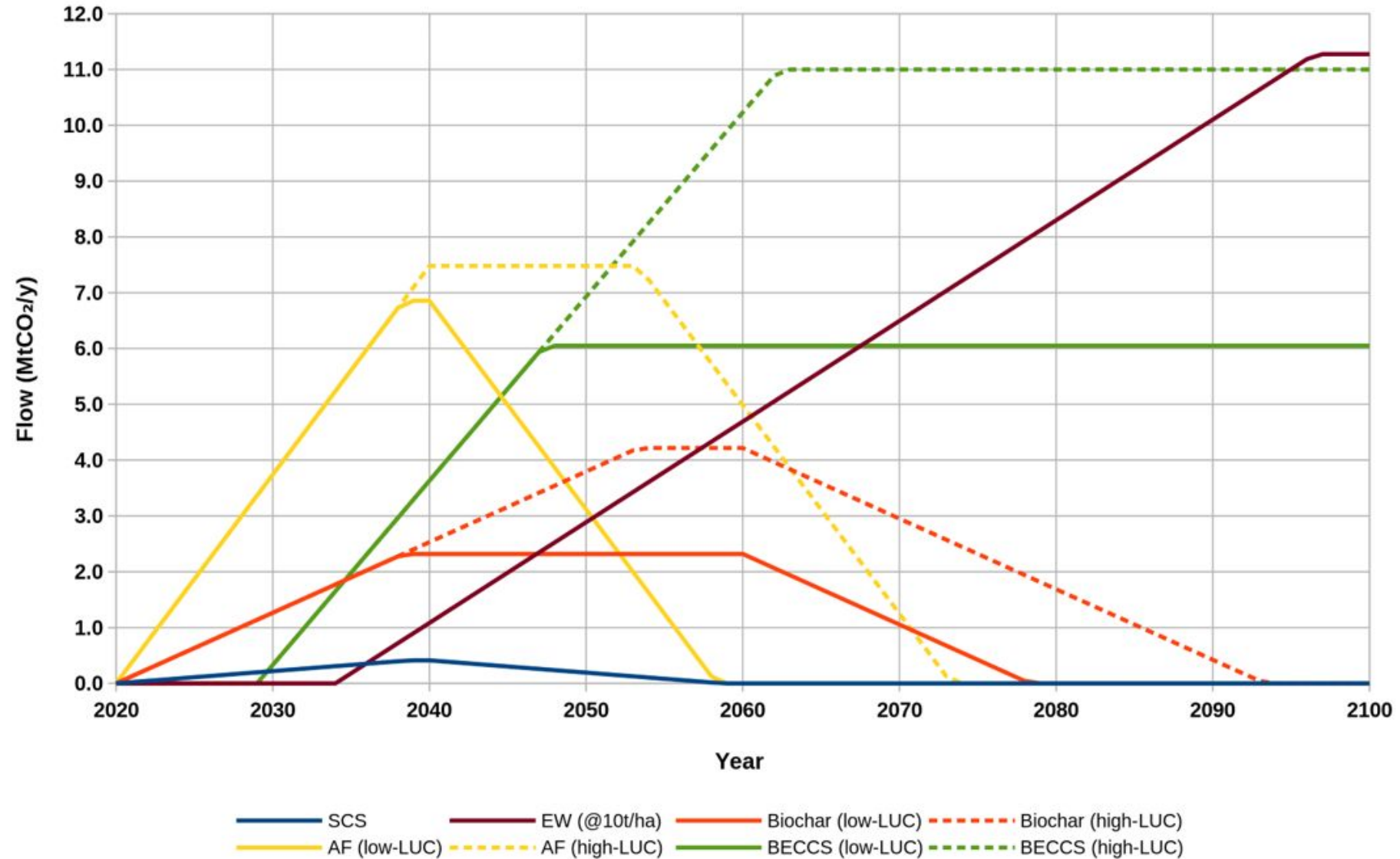
** "... denotes assessments with **low** or **very low** confidence, in the sense of (IPCC 2010). All options have both **opportunities** and **difficulties** for decision-makers with significant uncertainty ranges in many cases requiring specific assessment."*

IE NETs (CDR): Potential?

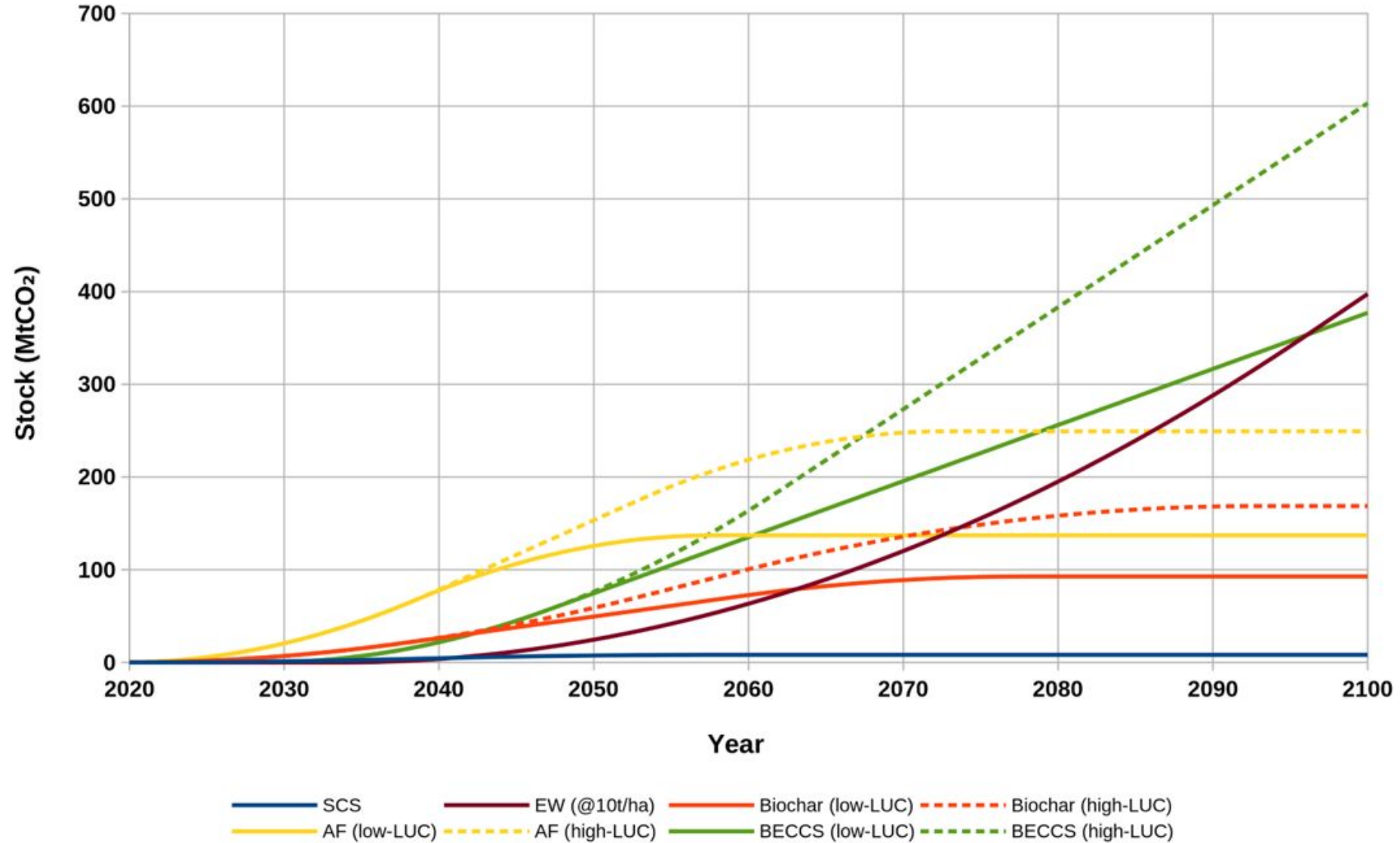
Method:

Smith P, Haszeldine RS, Smith SM (2016) [Preliminary assessment of the potential for, and limitations to, terrestrial negative emission technologies in the UK](#). Environmental Science: Processes & Impacts 18:1400–1405.

IE NETs (CDR): Potential?



IE NETs (CDR): Potential?



“In conclusion: NETs/CDR is not a panacea...”

- IE aggregate **technical** gross CDR potential to 2100: c. **600 MtCO₂**
- **Practical** potential? Recommended upper policy assumption of **no more than 200 MtCO₂**
- Ambitious, near-term, reduction of gross CO₂ **emissions** remains the most urgent policy priority
- Proposed new Climate Action Act should set a statutory **national net CO₂ quota (NCQ)**, with limits on both scale and duration of overshoot
- This would provide the essential basis for developing society-wide consensus on an **equitable and prudential balance** between **immediate reductions** in gross CO₂ emissions and **inter-generational commitment** to future, sustained and large scale, gross **removals** of CO₂

“In conclusion...”

‘... we find that a current **prudent** assessment of cumulative indigenous CO₂ removal potential for Ireland, across the full portfolio of NETs considered, would be significantly less than **200 MtCO₂**... This assessment is **preliminary** and it is recommended that a programme of continuing research should be sustained to allow ongoing refinement and updating of estimates of CO₂ removal potential in the light of improvements in both underlying scientific understanding and deployment experience...

“In conclusion...”

‘... **Nonetheless**, in the current state of knowledge, this [indicates] a minimum **overshoot** of Ireland’s prudent, Paris-aligned, “fair share” CO₂ emission quota by as much as **600 MtCO₂** as early as 2050... Even assuming “anticipatory reliance” on NETs for future CO₂ removals, it is still the case that much deeper, near term, reductions in gross CO₂ emissions are required than are considered under current policy parameters. A prudent ceiling on the accumulation of CO₂ debt would be c. 200 MtCO₂ ... implying the achievement of national net-zero territorial CO₂ emissions by about 2035-2040, i.e., **much earlier than the currently “most ambitious” net-zero target of about 2050.**’

Thanks to the IE-NETs Team

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