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From technical potentials to likely implementation: The case of biochar

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Abstract

Climate policy is often informed by estimates of the technical reduction potential of a given technology, i.e. the maximal reduction that the technology can deliver, given a set of limiting factors, but largely ignoring cost and time constraints.

As policy becomes more focused on implementation, the cost and time aspects become more present. This introduces an interesting question: How do we estimate the cost and implementation time of technologies, which have been proven to work, but which are not yet in use at significant scale?

A recent example is the production of biochar via pyrolysis. In *Aftale om grøn omstilling af dansk landbrug, October 4th 2021*, the availability of biomass was seen as the limiting factor for the technology in Denmark, resulting in an estimated technical reduction potential for the technology of 2 million tonnes of CO₂ in 2030.

The present analysis finds that a lack of production capacity is likely to be the limiting factor for the production of biochar until at least 2030. We base this finding on the experiences from the rollout of similar technologies, specifically biogas production and solar heating systems. As a result, we find that the likely reduction potential for pyrolysis in 2030 is significantly lower than previously estimated.