

# A cooperative approach for joint BECCS and CCS deployment ☆

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20 May 2020

## Abstract

Bio-Energy with Carbon Capture and Storage (BECCS) and Carbon Capture and Storage (CCS) are recurrently depicted as critical technologies to limit global warming to 2°C. However, their current diffusion remains slow as a series of social and economic barriers inhibit their up-scaling. In the present research, we focus on one of these economic barriers: the provision of a joint BECCS/CCS transportation infrastructure connecting the industrial sites equipped with BECCS and CCS capabilities to the dedicated storage sites. We apply cooperative game theoretic notions to: (i) examine the conditions needed for its construction to be decided, and (ii) determine the threshold CO<sub>2</sub> value needed to build such a shared infrastructure. We apply this modeling framework to a large contemporary joint BECCS/CCS project in Sweden. Our results indicate that sustainable and incentive-compatible cooperation schemes can be implemented in the Swedish case if the value of CO<sub>2</sub> is high enough; it should reach 120€/tCO<sub>2</sub> or more, depending on negative emissions accounting scenarios. These findings position pragmatic policy recommendations for local BECCS deployment.

*Keywords: Carbon Capture and Storage; BECCS; CO<sub>2</sub> transport network;*

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☆ We are indebted to Pascal Da Costa and Filip Johnsson for insightful comments and suggestions. Remaining errors are, of course, our responsibility. This research has been supported by the Chair “Carbon Management and negative CO<sub>2</sub> emissions technologies towards a low carbon future (CarMa)”.

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