

Public acceptance and the dynamic evolution of adopting carbon capture and storage

Abstract

Public acceptance has influenced the evolution of carbon capture and storage (CCS) in Europe. To study the mechanisms behind this, we use evolutionary game theory where the governmental policy towards CCS, such as subsidies to the industry, is dependent on public acceptance. Public acceptance further depends on the perceived benefits and costs for individuals of CCS. We show that in this model, multiple equilibria may exist, and the starting point as well as the heterogeneity of firms will determine the equilibrium that will be reached over time. While the subsidy is tied to public acceptance, the government can affect development by correcting other imperfections in the market. Using such policy instruments, a new equilibrium may develop with a higher share of investments in CCS. The model also suggests an explanation of the different situations in many countries today with respect to CCS investments and investment plans.

Key words: Carbon capture and storage, evolutionary games, public acceptance, climate change.

JEL classification: C73, H23, Q35, Q38, Q54