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FUELING THE ENERGY TRANSITION WITH FOSSIL (NOT QUITE) STRANDED ASSETS

The energy transition requires large quantities for raw materials to build the infrastructure needed to supply electricity from renewable sources. In the meanwhile, climate policies push out of the market some of fossil-based infrastructure, generating stranded assets. However, decommissioned infrastructure constitutes a stock of scrap, from which materials can be recovered and recycled to develop the infrastructure for renewable energy. We use a stylized dynamic model featuring the decommissioning rate as a control variable: it reduces the fossil-based infrastructure available for energy production, but also increases the scrap that offers recycling potential. With this model first we study the effect of recycling possibilities on decommissioning and on the extraction of fossil and mineral resources. Second, we can fully characterize the dynamics of the stock of scrap. Considering recycling of decommissioned fossil-based infrastructure, makes the stranded assets problem less severe, while mitigating the rise in the price of virgin materials.

Keywords: Energy transition, Materials scarcity, Fossil infrastructure decommissioning, Scrap, Re-cycling