

Directed Technical Change and the Energy Transition: The Role of Storage Technology

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Abstract

Despite the need for technologies to address the intermittency problem of renewable energy sources, innovation in energy storage technologies has received little attention in the literature and among policymakers. We analyze the role of energy storage innovation in decarbonizing energy production. Our contribution is two-fold. First, we document that although green innovation has collapsed since 2010, innovation in energy storage is on the rise despite poor public support. Second, we expand current models of directed technical change to accommodate innovation in energy storage.

We show that when renewables and storage technology are complementary inputs, neglecting energy storage in energy policy can delay the transition to clean energy. We calibrate the model to the US economy to evaluate the effectiveness of current energy policy in achieving decarbonization goals. We find that the lack of targeted support of energy storage R&D can in fact explain some of the recent collapse in green innovation.