Challenges in energy policy legitimacy for wind power industry

Extended abstract

This paper focuses on the long-term effects of this energy policy decision on the so-called legitimacy function of the technological innovation systems (TIS) for the case of WPI. For that, a system dynamics model is proposed to quantify such impacts in the long run, showing the interactions between the wind industry, wind generation costs, and the legitimacy function of the TIS. Although the existing literature has stressed the significance of the expansion of wind power energy, there has been a lack of research on the effects of energy policy on the legitimacy function. To formalise the legitimacy function into the simulation model, the wind technology legitimacy module is proposed to calculate the capacity to construct technology legitimacy regarding auctions policy, which influences wind investors.

Four scenarios of the energy policy are developed to inform the transition narratives. The evaluation of scenarios provides essential elements to comprehend the implications of legitimacy on the dynamics diffusion of the wind industry.

Results indicate that legitimacy helps to align institutions to the investors' targets to get a profitable return and guarantee the energy supply. Our findings further emphasize the critical role of the time required to build capacity in the coordination of energy policy. This temporal aspect facilitates the deployment of the wind industry, contributing significantly to the reduction of legitimacy challenges.

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