

Political backlash against climate policy: The electoral costs of renewable energy in a multilayer government

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EXTENDED ABSTRACT

The pressing need to accelerate the transition to renewable energy sources in the face of global climate change is a consensus that has transcended political boundaries and international borders. The world has witnessed a series of landmark agreements and initiatives aimed at combating climate change, including the Kyoto Protocol, the Paris Agreement, and the Conference of the Parties (COP) gatherings, such as COP23. These international efforts underscore the commitment of governments and public institutions worldwide to foster a profound shift toward sustainable, low-carbon energy solutions. No region exemplifies this commitment more prominently than the European Union, which has embarked on an ambitious journey towards climate neutrality by 2050. This dedication is firmly based on the fact disclosed by the European Environment Agency, indicating that in 2019, the energy sector was responsible for more than three-quarters of greenhouse gas emissions in the EU. The urgency to combat climate change is palpable and undeniable, making the transition to renewable energy an imperative of our time.

However, while the objectives are clear, achieving these goals could be more challenging. Many of these commitments are rarely met. The costs associated with climate mitigation and the transition to renewable energy are substantial, and the burden of financing such endeavors often falls on governments and, by extension, taxpayers (Aldy, Kotchen and Leiserowitx, 2012; Petrova, 2013). Furthermore, the shift to clean energy is not merely an economic undertaking; it requires changing values and behaviors. While the willingness to cooperate for the greater good is admirable, conflicting interests and immediate economic worries frequently eclipse it. The journey towards a sustainable future is further impeded by a web of institutional barriers and the influence of powerful lobbying groups, which seek to protect vested interests in the fossil fuel industry (Wolsink, 2000). Local public opposition is another obstacle to clean energy development (Khan, 2003; Jones & Eiser, 2010; Stokes, 2015). Concerns about the visual impact, noise, land use, and potential disruptions associated with installing wind and solar farms have led to vocal resistance from many communities. Indeed, wind farm development has caused, in some contexts, substantial house price decreases (Gibbons, 2015), making clear that citizens do not want to live in the surroundings of these gigantic towers.

In Spain, this phenomenon is especially salient. According to a survey sponsored by Starkraft, 79% of Spanish citizens favor renewable energies; in particular, 83% support solar power, while 75% support wind power. However, the transition to renewable energy technologies entails a significant transformation in the energy landscape, affecting local communities through changes in land use, potential environmental impacts, and shifts in economic dynamics. In recent years, the deployment of renewable energies, particularly wind farms, has been overwhelming, leading to a total increase of about 40000 MW of installed power. This setting, according to Red Eléctrica Española, is generating almost half of the total power in Spain, but these significant investments have yet to be equally made across the geography. Probably, this is the reason why there is substantial anecdotal evidence of locals demonstrating against them, mobilizing and creating unions to litigate and try to

spoil these projects. Their main argument is reflected in a very repeated slogan: “Renewables? Yes. But not like this.” An argument very alike to the NIMBY (Not In My Backyard) effect. While this could be a crucial factor in the development of green energy, as governments might fear political backlash and potentially slow down the installation pace of these facilities, we lack evidence regarding the causal effects of this phenomenon on electoral outcomes in these municipalities. Furthermore, the extent to which citizens are well informed about who to hold accountable and if they can effectively express their approval or concerns at the ballot box is a pivotal question. Citizen awareness and engagement are central components of a functioning democracy. When residents are informed and feel that their voices matter, governments are held accountable for their actions and policies (Persson, Roland & Tabellini, 1997; Canes-Wrone, Herron & Shotts, 2001; Bruns & Himmler 2016; Devdariani and Hirsch, 2023). However, a lack of information or understanding can lead to misinformed decisions, which may, in turn, influence electoral results and policy outcomes. In this regard, it is crucial to understand to which extent voters are well-informed about accountability and if they try to express their discontent through electoral means.

The framework and institutional background in this study are particularly adequate for this purpose. As far as the economic background is regarded, renewable energy investments in Spain have occurred in two phases. The first phase, from 2007 to 2014, was characterized by factors like cost reductions and government support. In 2014, it ended due to a temporary investment ban. The second phase, beginning in 2019, saw a resurgence in renewable projects due to economic recovery, low-interest rates, and cost reductions. As for the political framework, the process for siting renewable energy facilities involves administrative requests by developers specifying location and technical details. These projects’ portfolios are evaluated by regional governments, which are the ones responsible for granting permissions, while national authorities have environmental measures to designate prohibited areas. City councils determine land suitability, allowing installations only on non-developable land and local residents have administrative procedures available to try to contest projects. At the same time, some municipalities hosting wind farms receive diverse economic compensations, including extra taxes and direct transfers from regional governments. This system leads to varying sentiments among residents, from opposition to acceptance, creating location-based accountability differences.

The aim of this paper is to assess the impact that might have on the installation of wind or solar farms on electoral outcomes. Utilizing the PRETOR dataset from the Spanish Ministry of Ecological Transition and Demographic Challenge (MITECO), featuring 70k+ observations on Spain's renewable energy facilities, alongside electoral results (1983-2019) obtained from the Spanish administration, our study incorporates control variables such as demographic data, municipal finances, unemployment, wind resources, solar potential, and rural surface distribution. This ensures a thorough analysis, considering a broad range of factors that may influence outcomes. Thus, we employ a differences-in-differences (diff-in-diff) strategy to estimate the impact of renewable energy facility installation on electoral results for autonomous communities and local incumbents. However, the staggered project installation challenges the standard diff-in-diff context. To address this, the study adopts a diff-in-diff event study design, leveraging time variation in treatment adoption, aligning with approaches by Autor et al. (2006), Cengiz et al. (2019), and Deshpande and Li (2019).

Our findings, in the case of wind farms, are consistent with what we expected: there is an electoral punishment after the installation of turbines. Moreover, the voters seem to be well informed about the responsibilities of locating the farms since the backlash is making the correct layer of government accountable for it. In the case of municipalities in which the city council and the regional government are aligned, these results are amplified. However, we are still puzzled by some coefficients in the heterogeneity analysis, and we need to dig further into it.

Our research contributes to a strand of the literature on the NIMBY phenomena. Attempting to understand why compensation schemes fail in these types of settings (Frey et al., 1996), modeling optimal solutions for allocating these facilities (Feinerman et al., 2004; Ferraz & Mantilla, 2023), and assessing the inefficiency of local taxes for hazardous waste disposal (Levinson, 1998) are some of the topics economists have explored concerning the NIMBY type of public goods. Of course, this strand of the literature has also explored the case of renewable energies. For example, Bell et al. (2005) highlighted the existence of two distinct types of gaps, revealing a disparity between societal attitudes and actual behavior. These gaps include the "social gap," which represents the difference between social solid support for green initiatives and the limited success in their implementation, and the "individual gap," arising from the resistance of individuals with pro-green development attitudes to specific projects. On the other hand, Wolsnik (2000), after exploring different explanations for the slower implementation of wind farms relative to their public acceptance, concludes that institutional constraints have a heavier impact in that regard than local opposition. Our paper would contribute by measuring the political effects of two NIMBY phenomena.

Either way, local citizens may still want to express their discontent with such projects' development in their homes' surroundings. Could they use the ballot box as an accountability measure? Assessing this question, Stokes (2016) finds in the case of Ontario, Canada, that citizens living near wind energy projects (up to 3 km away) punished incumbent governments electorally due to climate policy, with losses ranging from 4-10%. On the other hand, however, Urpelainen and Zhang (2022) find that Democratic candidates gained about 2-3 percentage points in U.S. elections after the installation, indicating that local benefits of wind power installation outweighed local costs. At this point, our findings will shed light into these contradictory results.

In a broader sense, our paper also contributes to the literature on political accountability in multilayer governments (Berry & Howell, 2007; Papadopoulos, 2021). There is evidence of citizens making use of the ballot box power in order to hold politicians accountable for undesired policies (Bidner & Francois, 2013). However, there is at the same time some evidence that decentralization lowers the quality of a democracy (Tresiman, 2000; Piolatto & Ponzetto, 2016). In the Spanish case, moreover, while the law is unambiguous in that the regional government has the authority to authorize renewable energy facilities installation, the news and social media stories mention the mayors as crucial players in such situations. Thus, if voters want to hold politicians accountable, they first need to be well-informed and know who they should make accountable for the siting of this renewable energy facilities.

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