The Institutionalization of Energy Communities for a Just and Democratic Energy Transition

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Abstract

The institutionalization of energy communities is vital for deploying renewable energy sources at scale and empowering citizens globally. Energy communities address a democratic deficit in energy governance by enabling citizens to deploy renewable energy sources at the community level, thus devolving centralized authority, alleviating administrative burdens and reducing excessive corporate profits. The European Union has recognized the potential of energy communities, with approximately 2,000,000 citizens being serviced through such initiatives. While the main developments occur in the Global North, energy communities hold potential in the Global South for democratizing energy resources and contributing to poverty alleviation. Drawing on a 4-year research project, this science-policy brief synthesizes existing knowledge to delineate actionable strategies for policymakers, stakeholders, and practitioners. Policy recommendations include enhancing leadership capacities, formalizing initiatives, fostering learning capacity, and facilitating engagement platforms between communities and incumbents. Energy communities have the potential to shift towards inclusive energy governance, bridging local and global interests. Policy interventions must support cooperative principles, address power imbalances, and overcome regulatory mismatches to enable the success of these initiatives. The empirical examples of energy communities highlight the broader potential of cooperative governance models in fostering sustainability and social cohesion, offering resilient economic institutions grounded in alternative approaches to transitions.

The institutionalization of energy communities presents a pivotal pathway towards deploying renewable energy sources at scale, whilst empowering citizens globally. Energy communities emerged as a response to a democratic deficit in energy governance, offering citizens a means to deploy renewable energy sources at the community scale. They signify a form of democratic participation and devolution of centralized authority, empowering citizens and alleviating slow administrative processes and excessive corporate profits in the energy transition.

A growing number of policy makers, particularly in the European Union recognize the potential of energy communities. This is exemplified by the growth of energy communities in terms of the size of individual initiatives, the overall number of initiatives and the diversity of services they offer. Paralleling the EU's definitions of Renewable Energy Communities and Citizen Energy Communities, the economic block also counts app. 2,000,000 citizens being serviced through such initiatives. Despite the main developments in the energy community field taking place in the Global North, this energy governance form has potential in the Global South as well. Primarily in terms of providing access to clean energy, democratizing energy resources, contributing to poverty alleviation by enabling communities to capture energy-related value locally and by deploying renewable energy sources close to citizens.

This policy brief synthesizes key insights from a 4-year research project conducted at the Center for Urban Studies at the University of Amsterdam in collaboration with the Institute for Environmental Studies (IVM) of the Vrije Universiteit Amsterdam. The project aimed to better understand the mechanisms underlying the growth, replication, diversification and institutionalization (or in short scaling) of energy communities. Building on the project, this science-policy brief summarizes existing knowledge from academic literature and empirical findings examining 28 energy communities with the aim of delineating actionable strategies for policymakers, stakeholders, and practitioners alike. By understanding the mechanisms, challenges, and opportunities inherent in institutionalizing this innovative form of energy governance, effective policies can be formulated to accelerate the proliferation and enhance the impact of energy communities on the energy landscape.

Current Knowledge on the Institutionalization of Energy Communities

The insitutionalization of any type of community-initiative hinges on a number of prerequisite factors (Petrovics et al., 2022a, 2022b). These factors shed light on what happens within, between, and in the context of energy communities. As a result of these factors, institutionalization can follow multiple pathways, where new initiatives, interact with established practices and infrastructure. When considering the

effectiveness of institutionalization, it is worth examining indicators such as growth in membership and technical capacity of a given initiative and the overall developments of rules and regulations resulting in institutional changes. Much of these processes are viewed through mechanisms, which clarify institutionalization as composed of prerequisite factors, processes, and outcomes. This conceptualization aids in understanding how community initiatives evolve and impact the energy transition.

In institutionalization processes numerous factors stand out along the aforementioned three dimensions. Within initiatives, effective communication, simple rules, and broader community engagement are vital, along with shared goals and leadership. Externally, the capacity and willingness to engage other actors, intermediary presence, and knowledge exchange among initiatives foster growth. In contextual support, monitoring frameworks, local innovation support, and innovation-centric policies are central. A qualitative comparative analysis (fsQCA) of 28 initiatives across 14 jurisdictions identified essential conditions for scaling: formal organization, leadership roles, external interactions, learning between initiatives, bonding and bridging capital, openness to innovation in the energy governance system and sustained public support structures. The multitude of necessary conditions however suggests there are challenges facing institutionalization processes as well (Petrovics et al., 2024a).

A key aspect here is the networked nature of energy communities. The organizational structure of energy communities involves a networked approach, as highlighted by both conceptual and empirical work. Polycentric governance theory, drawing from Ostrom (2010) and Jordan et al. (2018), emphasizes the self-organization of actors, collaboration across scales, learning capacity, and overarching rules. Accordingly, energy communities rely on a network of stakeholders, including intermediaries, incumbents, and leading initiatives, for support and knowledge dissemination (Petrovics et al., 2022b). Intermediaries play a crucial role in skill development, knowledge transfer, fundraising, and advocacy for policy changes (Warbroek et al., 2018). The networked nature of the energy community field underscores their relational ties with various stakeholders and their reliance on support from incumbents or leading initiatives. Past research has also shown that governance contexts shape the trajectories of energy communities, with examples from Portugal, the Netherlands, and Belgium illustrating different realities influenced by engagement with local actors and incumbents (Petrovics et al., 2024b). This networked organizational structure highlights the collaborative nature of community initiatives and underscores the importance of diverse partnerships and support systems in fostering their growth and impact on the energy transition.

The specific contextual factors shape the institutionalization process of energy communities, acknowledging the complexity of these processes and the need to move beyond one-size-fits-all approaches. Through several case studies conducted in Belgium, Portugal, and the Netherlands, it becomes evident that energy communities encounter varied institutional logics as they institutionalize (Bauwens et al., 2022), navigating the convergence of cooperative, market, and state logics (Petrovics et al., 2024b). While state support in the Netherlands bolsters community viability, it also risks homogenizing initiatives and fostering dependency. Conversely, Portugal demonstrates that communities can institutionalize their activities autonomously, without the help of external support structures albeit at the cost of the overall number of initiatives. Moreover, these findings underscore potential trade-offs between democratizing grid governance and greening energy systems, influenced by local conditions and resource availability. Despite challenges, community-based institutions are shown to offer resilience in the face of socio-political and economic shocks, aligning with climate mitigation imperatives (Devine-Wright, 2019). Balancing technical and economic demands with the creation of democratic and resilient institutions emerges as a critical task for practitioners and decision-makers in advancing decentralized, clean energy systems (Bauwens et al., 2022).

Policy Advice

The practical implications drawn from this research underline several pivotal mechanisms that can aid the institutionalization of these initiatives. These mechanisms furnish critical leverage points for policymakers, offering pathways to construct institutions tailored to bolster the status of energy communities.

- Initiatives thrive when citizens possess leadership capacities, primarily in the dissemination of knowledge from successful communities to prospective founders. It is imperative to establish frameworks for training project and community leaders, guided by the experiences of existing initiatives.

- It is important to draft rules and allocate responsibilities commensurate with scale and purpose. Here it is paramount to differentiate responsibilities at various scales, accommodate the needs of incumbent actors like transmission and distribution system operators, while facilitating streamlined access to resources for citizens.
- Fostering learning capacity enables initiatives to glean insights from one another. Supporting engagement with existing networks facilitates information dissemination.
- Bolstering communication capacity aids energy communities in broadening their reach and engaging incumbents like energy utilities, transmission, and distribution system operators.
- Facilitating peer-to-peer learning platforms fosters knowledge exchange among individual initiatives.
- Formalizing initiatives enhances their efficacy. It is pivotal to craft legal frameworks that enable effective participation in energy governance, especially in the case of EU member states aligned with EU definitions of Renewable Energy Communities and Citizen Energy Communities.
- Fortifying umbrella organizations, regionally, nationally, or internationally, strengthens connections among energy communities and contributes to interest representation on broader scales. These organizations, primarily funded by members or communities, hold potential in amplifying impact through knowledge dissemination.
- Facilitating engagement platforms and processes between communities and incumbents, such as transmission system operators and municipal decision-makers, fosters constructive relationships within the existing energy landscape.

These mechanisms, constituting actionable outcomes offer adaptable frameworks applicable across diverse contexts, poised to elevate the stature of energy communities.

Conclusion

The most remarkable governance setting, where energy communities have embarked on the institutionalization process is in Europe. This is in reaction to Europe's historic democratic deficit in energy resource governance, which has prompted citizens to establish cooperatives, empowering them to deploy renewable energy sources on a significant scale (Adler & Wargan, 2020). While these initiatives operate largely as a form of democratic resistance against centralized authority, they represent a substantial demographic, of app. 2,000,000 people (RESCoop, 2021). The EU's recognition of these cooperative endeavours indicates a shift towards inclusive energy governance, bridging local and global interests (EU, 2018, 2019; Petrovics et al., 2022a, 2022b).

Next to this, tensions between traditional and emerging institutional logics, exemplified by market and state dynamics, shape energy transition processes (Petrovics et al., 2024b; Bauwens et al., 2022; Stirling, 2019). Energy communities encounter multifaceted challenges, including market oligopoly and regulatory mismatches, hindering their institutionalization efforts (Bousso, 2023; Goldthau, 2014). Market-centric policy approaches, dominant in current frameworks, often overlook cooperative values and democratized decision-making, hampering energy communities' progress (Chronis et al., 2021; Devine-Wright, 2019). Decentralized technologies face resistance from centralized systems and entrenched market actors, perpetuating extractive practices and stifling community-driven initiatives (RESMonitor, 2022). Here policymakers must tailor frameworks to overcome these hurdles by preserving cooperative principles, facilitating the integration of energy communities with existing structures, and addressing power differentials (Petrovics et al., 2024b; Bauwens et al., 2022).

Lastly, the emerging success of energy communities underscores the broader potential of cooperative models in fostering sustainability and social cohesion across various sectors (Bauwens et al., 2022; Saegert et al., 2005; Staatz, 1989). By documenting the insitutionalization trajectories of energy communities, valuable insights emerge that shed light on the potential contributions of cooperative governance models more broadly. In particular, this form can assist in building resilient economic institutions that can withstand shocks of market logic and that help ground alternative approaches to transitions (Bauwens et al., 2022).

Acknowledgments

This work was supported by the European Union's Horizon 2020 Programme (grant agreement # 837752–NEWCOMERS project).

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