

# Uneven democracies of energy: Institutional pathways and justice claims in community energy transitions in Germany and Sweden

*Community energy promises more democratic energy transitions, but its effects depend on national institutions and local governance. Comparing Germany and Sweden, this article shows how legal frameworks, intermediaries, ownership models and justice claims shape who can participate, who benefits and whether community energy becomes inclusive or selective.*

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### Abstract

Community energy (CE) is increasingly discussed as a democratic alternative to centralized energy systems, yet its forms and effects vary substantially across national contexts. This article compares CE developments in Germany and Sweden, two countries with ambitious climate agendas but contrasting energy-governance arrangements. The paper examines how institutional frameworks, political cultures, and infrastructure regimes shape opportunities for participation, ownership, and justice. The analysis draws on six illustrative cases, combining document analysis, published case studies, project materials, and fieldwork-based insights, assessed through the lenses of energy democracy and energy justice. The findings show that CE is neither inherently democratic nor inclusive. Its transformative potential depends on supportive legal frameworks, intermediary support, accessible business models, and explicit attention to social justice. The article concludes with policy recommendations for more inclusive CE systems across comparable European contexts.

### Keywords

citizen participation, community energy, energy democracy, energy justice, local energy transition

The accelerating transition towards decarbonized and resilient energy systems is not only a technical and economic challenge, but also a deeply political and social one. Questions around how this transition unfolds – who participates, who benefits, and who bears the burdens – have moved into the focus of academics and policy makers alike. In this context, community energy (CE) offers a way to link renewable energy deployment with local ownership, participation, and justice (Berka and Creamer 2018, Brummer 2018, Busch et al. 2021, Walker and Devine-Wright 2008, Walker and Simcock 2012).

Yet, as the Special Focus *Northern lights of energy democracy* emphasizes, the contours and consequences of CE differ markedly across national and regional contexts. This paper compares Germany and Sweden because they combine ambitious climate agendas with contrasting traditions of energy governance. The comparison highlights how institutional settings shape participation, ownership, and justice outcomes.

Germany is relevant as a case in which CE has moved from an early phase of broad civic mobilization toward a more mature and contested field. The expansion of cooperatives and citizen wind projects under feed-in tariffs and priority grid access created a strong reference point for democratic energy ownership (Holstenkamp 2021, Punt et al. 2022, Yildiz et al. 2015). Yet recent scholarship shows that this legacy is now shaped by professionalization, auction-based market design, and rising capital requirements, which complicate participation for smaller actors and socially less privileged groups (Berthod et al. 2023, Radtke and Ohlhorst 2021, Wierling et al. 2018).

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Sweden offers a contrasting pathway: a centralized and largely publicly or municipally organized energy system has produced fewer openings for autonomous citizen-led CE, while municipal utilities, local solar projects, and cooperatives have created more selective niches for participation and collective benefit (Magnusson and Palm 2019, Ruggiero et al. 2021). These niches remain constrained by grid-access bottlenecks, low electricity prices, district-heating infrastructures, and the still limited implementation of EU energy-community rules. Recent Nordic comparative work shows that Sweden has not introduced a distinct legal category for renewable or citizen energy communities and that existing microgrid rules permit only limited sharing, while dual connection requirements, taxation, and network fees weaken the economic viability of collective self-consumption (Palm 2018, Borch et al. 2026, in this issue, Neij et al. 2025). At the same time, conflicts over wind energy, particularly in Indigenous territories, raise urgent questions about procedural and recognition justice (Ramasar et al. 2022).<sup>1</sup> This contrast allows us to examine how different governance arrangements condition not only the emergence of CE, but also its democratic and justice-related effects.

Against this background, the paper asks under which institutional and socio-political conditions CE in Germany and Sweden advances – or fails to advance – energy democracy and energy justice. The contribution lies in a context-sensitive comparison of six cases that traces how legal frameworks, intermediary support, and social inclusion shape CE outcomes.

## Background: Community energy in energy transitions

### Conceptualizing community energy

Over the past two decades, energy systems across Europe have entered a period of rapid transformation. This transition is driven by the dual imperatives of mitigating climate change and ensuring long-term energy security, but also increasingly by concerns over justice, participation, and democratic legitimacy. Amid this shift, CE has emerged as a way to link renewable energy deployment with local ownership, participation, and justice. We understand CE as initiatives in which citizens, municipalities, cooperatives, or community-based organizations initiate, develop, govern, or own renewable energy projects in order to generate environmental, social, and economic benefits for local communities (Creamer et al. 2018, Walker and Devine-Wright 2008).

CE is often described as a “local answer to a global challenge”.<sup>2</sup> Beyond its technical role in expanding the share of renewables, CE is also a vehicle for reshaping power relations within the energy sector by redistributing control away from large, centralized utilities and toward decentralized, democratically governed entities. However, while the ideals of CE are widely endorsed, the practical realization of these ideals is subject to institutional, cultural, and economic constraints that vary significantly across contexts.

While CE is a global phenomenon, much of the research in this field has focused on Europe (REN21 2021, 2019). Research that maps the development globally finds that Europe is leading the roll out of CE (Cruz 2025). In the EU, the *Clean energy for all Europeans* package created an important framework for energy communities (Directive [EU] 2018/2001, Hoicka et al. 2021). Yet the current situation varies substantially: some countries, including Germany, have a mature but increasingly constrained CE sector, whereas others, including Sweden, still provide only limited institutional openings for CE. These differences make Europe a particularly useful setting for comparative analysis.

### Energy democracy

The concept of energy democracy has its origin in social movements (van Veelen and van der Horst 2018), and has since received increasing attention from critical scholarship – and policy debates (Szulecki and Overland 2020). It calls for a reconfiguration of energy systems not only in terms of their carbon intensity but also in terms of who controls them and who participates in their governance (Berthod et al. 2023, Burke and Stephens 2017, Szulecki 2018). Energy democracy builds on three core principles:

- **Decentralization:** Energy production and governance should be spatially and institutionally distributed.
- **Participation:** Citizens should have the right and capacity to participate meaningfully in energy decision-making.
- **Social justice:** The benefits and burdens of energy systems should be equitably distributed.

CE is often seen as a practical embodiment of these principles (Stephens 2019), yet empirical studies show that CE projects vary widely in their adherence to democratic ideals. Participation can range from deeply inclusive deliberative processes to mere symbolic involvement, ownership structures can be open and cooperative or restricted to a small group of investors (Brummer 2018, Radtke 2023). In addition, some authors criticized a narrow understanding of democracy in many applications of energy democracy that only considers direct and, more often than not, local democracy (Busch et al. 2023, Wahlund and Palm 2022).

### Energy justice

Energy justice provides a complementary framework for assessing energy transitions from an ethical perspective (Jenkins et al. 2016, McCauley et al. 2019). According to Sovacool and Dworkin (2014), energy justice comprises three main dimensions:

1 Ellingsen (2026, in this issue) develops this problem for Norway through the Fosen and Frøya wind-farm conflicts. The article shows how temporal governance, including acceleration, protraction, and epistemic exclusion, can undermine local and Indigenous agency in wind-power development, with Fosen illustrating a human-rights conflict involving South Saami reindeer-herding territories and Frøya illustrating how prolonged project timelines eroded local trust and opposition.

2 See <https://justclimate.fes.de/e/energy-cooperatives-local-community-solutions-as-an-answer-to-global-energy-crises.html>.

- **Distributive justice:** Are the benefits (e. g., income, clean energy) and burdens (e. g., noise, visual impact) of energy systems fairly allocated?
- **Procedural justice:** Are the decision-making processes fair, inclusive, and transparent?
- **Recognition justice:** Are all relevant stakeholders, including marginalized and Indigenous groups, acknowledged and respected?

This tripartite framework has proven useful for analysing a wide range of contested energy developments, such as wind power on Indigenous land (Avila-Calero 2018) or the social composition of energy cooperatives (Hanke et al. 2021). It reveals that CE can simultaneously promote and undermine justice, depending on how it is implemented and who it includes or excludes.

### Analytical framework

Our analytical framework uses the theories of energy democracy and energy justice as sensitising concepts to examine the cases systematically. The energy democracy lens is used to assess the degree of citizen involvement, public accountability, decentralization, and the distribution of decision-making power in CE initiatives. This includes attention to voting rights, accessibility of ownership, and institutional transparency. The energy justice lens is used to examine how CE initiatives distribute material benefits and burdens, how they organize access to decision-making, and whether they acknowledge the needs, identities, and knowledge of groups that are often marginalized in energy transitions. In the case analysis, this means tracing who gains revenue, savings, infrastructure access, or local value creation; who is included or excluded from planning and ownership; and whether territorial, socio-economic, or Indigenous justice claims are recognized in project governance. Together, these frameworks allow for a multi-dimensional interpretation of CE as a contested and socially embedded field.

### Methodology

This study employs a qualitative, comparative case-study approach to investigate how CE initiatives are conceptualized, developed, and governed in Sweden and Germany. The comparison is intended to show how national and local contexts shape the democratic and justice dimensions of CE.

To capture institutional variation without losing analytical comparability, cases were selected to vary by ownership model, territorial setting, socio-technical focus, and actor constellation, while remaining comparable through a common analytical lens of energy democracy and energy justice. The goal is not statistical generalization but context-sensitive comparison: we use the cases to trace how national institutions and local capacities shape

who can participate, who benefits, and where democratic claims run into practical limits.

For Germany, we selected three clusters that capture different contemporary trajectories of CE: 1. emerging initiatives in the coal-transition regions of Lusatia and the Rhenish Revier; 2. tenant-electricity projects (*Mieterstrom*) such as *BEN BürgerEnergie Nord eG*; and 3. community heat provision, represented by the Seefeld heating network (*Wärmenetz Seefeld*). The coal-region material is the part of the paper most directly informed by the corresponding author's ongoing empirical work within the two research projects *CREATE:ENERGY*<sup>3</sup> and *BE:ST*<sup>4</sup>, including interviews, project observations, and project-related documentation by the authors. The two additional German cases, covering tenant-electricity and community heat provision, are based primarily on published case studies, project reports, cooperative documents, and other grey literature.

For Sweden, we chose three cases that vary in organizational form and degree of bottom-up initiative: a municipally facilitated CE (Kalmar's Energy Republic), a grassroots solar cooperative (Austerland Energi on Gotland), and a cooperative support model focused on household installations (Röstänga Energikooperativ). The Swedish analysis combines published case studies and policy documents with fieldwork-based observations by the authors.

The national context sections and historical comparison are based on literature, policy documents, and transposition analyses of EU directives (see Borch et al. 2026, in this issue). Across the paper, the evidence base is therefore intentionally mixed: in some sections, cases are reconstructed using published sources and documents, while other sections draw on empirical data collected by the authors. We make this distinction explicit in the case descriptions so that the provenance of claims remains visible.

To ensure analytical coherence, we interpreted the cases through a shared set of sensitising dimensions derived from the energy democracy and energy justice frameworks. These included ownership and control, timing and depth of participation, access to benefits, distribution of burdens, inclusion of marginalized groups, recognition of place-based or Indigenous claims, and the role of intermediaries and public institutions. The dimensions were used heuristically to structure the cross-case comparison rather than as a formal coding scheme. These indicators were applied across cases to facilitate comparison while remaining sensitive to local variation in governance, territorial scale, and socio-technical configuration.

Despite its strengths, the study has several limitations. First, it draws to some degree on older data and secondary literature, which – although rich and methodologically sound – cannot fully capture the informal dynamics and evolving narratives of CE initiatives. Second, the inclusion of successful or publicly visible projects may bias the analysis, potentially underrepresenting failed or short-lived CE experiments. Third, while the study foregrounds national institutional contexts, it recognizes that many of the most critical CE dynamics unfold at the regional and municipal

3 [www.rifs-potsdam.de/en/research/createenergy](http://www.rifs-potsdam.de/en/research/createenergy)

4 [www.rifs-potsdam.de/en/research/energy-communities-policy-and-participation](http://www.rifs-potsdam.de/en/research/energy-communities-policy-and-participation)

level, shaped by planning cultures, intermediary actors, and socio-economic legacies. These multi-scalar dynamics warrant further empirical and theoretical exploration.

## Empirical findings

The following section is structured in two parts – Germany and Sweden – each opening with a general overview of national CE development before turning to our illustrative cases that highlight specific dynamics, conflicts, and solutions. Table 1 provides an overview of the six focal cases; figure 1 summarizes the contrasting institutional pathways.

### Germany: A mature but increasingly constrained community energy sector

Germany stands out for its historically strong *Bürgerenergie* movement, rooted in early feed-in tariff policies and cooperative ownership models. Feldheim serves as the historical benchmark for this early phase: local ownership, municipal cooperation, and procedural fairness helped to build legitimacy for decentralized renewables (Kunze and Busch 2011, Busch and McCormick 2014, Mundaca et al. 2018). Yet, the wider sector has since moved far from this model. Over the last decade, the *Bürgerenergie* sector has become increasingly professionalized and exclusive, with significant barriers to entry for marginalized groups. As survey evidence shows, energy cooperatives are socially selective and often

dominated by older, male, and highly educated members, which limits their democratizing potential (Radtke 2023, Radtke and Bohn 2023, Radtke and Ohlhorst 2021).

Furthermore, financial participation in community renewable energy projects, while effective in boosting public acceptance, can obscure deeper democratic deficits. Projects labeled as “community energy” may, in practice, function as investment vehicles with limited political or social engagement. As Radtke and Bohn (2023) point out, financial gain is increasingly the main motivation for participation, especially among those with higher incomes and greater financial literacy, displacing the ecological and civic motivations that once fuelled the *Bürgerenergie* movement.

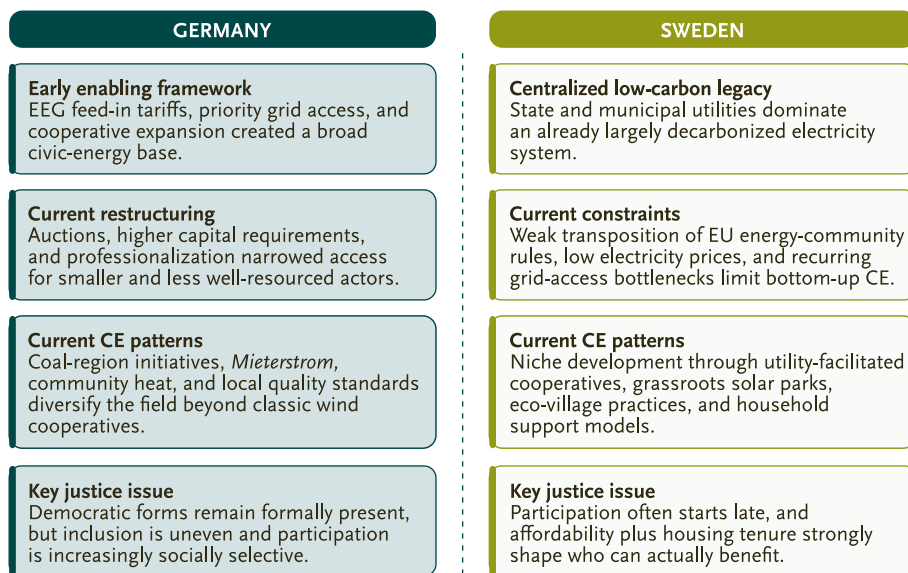
Still, new momentum is emerging – especially in regions undergoing structural transformation due to coal phase-out policies. In coal phase-out regions like Lusatia and the Rhenish Revier, CE is regaining traction as a socially embedded tool for justice-oriented transformation.

### New community energy in coal phase-out regions: Lusatia and the Rhenish Revier

Germany’s lignite phase-out has opened new possibilities for the reconfiguration of local energy systems (Furnaro et al. 2021) and exposed new fault lines. Interviews conducted by the authors in Lusatia reveal that many residents view the energy transition not as an opportunity, but as a repetition of the post-reunification trauma: economic collapse and demographic decline (Radtke and Löw Beer 2024). The Coal Commission (2018–2019) was

**TABLE 1:** The six focal community-energy cases: governance forms, sectoral focus, participation logic, and justice challenges.

COUNTRY	CASE	LEAD ACTORS/ GOVERNANCE FORM	MAIN SECTOR	PARTICIPATION LOGIC	MAIN JUSTICE CHALLENGE
Germany	Lusatia/ Rhenish Revier	hybrid civic-municipal initiatives supported by intermediaries and research projects	renewable electricity and regional transition	early-stage co-creation, assemblies, local debate over ownership and value creation	low-threshold access, local trust, post-coal legitimacy
Germany	BEN <i>BürgerEnergie Nord eG</i> ( <i>Mieterstrom</i> )	energy cooperative with professionally organised tenant-electricity delivery	rooftop PV, storage, tenant electricity	tenants participate as consumers and indirectly through cooperative governance	affordability, inclusion of renters, access without property ownership
Germany	<i>Wärmenetz Seefeld</i>	community-owned heat network with municipal and business partnership	renewable heat	locally coordinated ownership and implementation	regulatory complexity, long implementation period
Sweden	Energi Republiken (Kalmar)	municipal utility initiated cooperative	solar and wind prosumer model	shareholding after technical design and implementation	limited procedural justice, affordability of participation
Sweden	Austerland Energi	grassroots solar cooperative	solar electricity	strong local mobilisation and member ownership	grid-access bottlenecks, inclusion of economically vulnerable groups
Sweden	Röstånga Energi- kooperativ	cooperative support platform for households	solar adoption and energy-efficiency advice	collective learning, individual household installations	exclusion of renters and households without capital or roof space



**FIGURE 1:** Institutional pathways shaping the enabling conditions for community energy in Germany and Sweden. The figure reconstructs the country-specific trajectories discussed in the text and emphasizes that similar democratic aspirations are filtered through different governance legacies. EEG = *Renewable Energy Sources Act*, CE = community energy.

designed to create a just transition pathway, yet its impact was uneven (Radtke and David 2024). Representation was skewed toward industry and political elites, with civil society voices marginalized and regional identities unrecognized. Distributive promises did not compensate for procedural injustice.

CE has the potential to serve as a bottom-up corrective to this top-down legacy – but only if it offers more than low-yield investment schemes. Many residents express a desire for tangible, direct forms of compensation and local value creation that restore agency and visibly benefit the community. CE must therefore position itself not just as a vehicle for renewable energy deployment, but as a socially embedded practice that strengthens local ownership, builds trust, and reactivates civic engagement in regions marked by deep-seated skepticism and post-reunification transformation fatigue.

Lusatia and the Rhenish Revier are both laboratories for participatory energy transitions (Bode et al. 2024, Moss et al. 2015). This section draws on local project materials and ongoing empirical work by the corresponding author in *CREATE:ENERGY* and *BE:ST*, including project documentation, interviews with regional stakeholders, and observations from participatory formats. The material indicates that emerging energy initiatives in Lusatia, including *Energiegenossenschaft Weißkeißel*, *Lusatiaer Natur Energie eG*, and local projects in Herzberg and Boxberg, often take a hybrid civic-municipal form: they are co-produced with municipalities, intermediaries, and research actors rather than emerging as purely grassroots initiatives (Diersch et al. 2025). Empirical findings from *CREATE:ENERGY* and *BE:ST* underscore the importance of low-threshold access, institutional support, and sustained intermediary accompaniment.

However, structural barriers remain: limited cooperative experience, legal complexity, and commercial developers’ dominance continue to constrain genuine community control. Particularly in Lusatia, there are mixed historical experiences with central-

ized energy infrastructure, leading to both scepticism and potential for empowerment if the right participatory frameworks are in place (Bode et al. 2024).

In the Rhenish Revier, conditions for CE are more favourable. Civil society networks, stronger local governments, and a history of environmental activism provide a fertile ground. Recent successes include projects like *Bürgerenergie Hemmerden*, *Erkelenzer Sonnenschein*, and *Kaarster for Future*, often closely linked to municipal climate protection agendas. These projects benefit from well-organized financing structures, technical knowledge hubs, and cooperative models that are open to citizen investment while ensuring democratic control.

*CREATE:ENERGY* and *BE:ST* have piloted citizen assemblies, participatory digital platforms, and visualization tools such as VR to improve co-creation of energy infrastructure. These experimental formats are aimed at increasing inclusion, especially for groups typically underrepresented in energy governance – such as renters, youth, and people with migration backgrounds. The goal is to evolve toward a model of “energy citizenship,” where community members are not merely consulted but actively co-govern energy systems.

**Heat networks and *Mieterstrom***

New domains such as community-led heat networks and *Mieterstrom* (tenant electricity) initiatives, particularly in urban and semi-urban settings, are expanding the field, as illustrated by the following two cases. Both are reconstructed primarily from published case studies, cooperative documents, project reports, and publicly available project materials rather than from the authors’ own fieldwork.

The *Wärmenetz Seefeld* in Bavaria, for example, represents a long-term, locally coordinated initiative that combines community ownership, municipal collaboration, and biomass-based renewable heat. Despite delays caused by local conflict and regu-



latory uncertainty, the project was eventually realized through persistent civic engagement and strategic partnerships with the local sawmill and municipality. According to project-based reporting, it supplies more than 1,500 megawatt-hours of heat annually to private households, senior residences, and public buildings.

Likewise, *BEN BürgerEnergie Nord eG* has developed *Mieterstrom* as a viable and comparatively affordable model for tenants in multi-family dwellings, especially in northern Germany. Across a number of tenant-electricity schemes implemented by the cooperative, rooftop photovoltaic systems with battery storage have been used to provide electricity at prices below standard retail tariffs. These schemes not only reduce carbon emissions but can

At the same time, Sweden contains a few institutional niches for CE. Household solar subsidies make small-scale renewable investment attractive, housing associations provide collective roof space and some internal demand, and regional energy agencies can act as intermediaries. These openings matter because they show how CE can emerge even in a centralized system. Yet they also reveal clear limits: housing-association-based models exclude renters and lower-income households, while household-oriented subsidies do little to support larger community-owned installations.

Despite these unfavourable conditions, a 2017 review identified around 240 Swedish projects with at least some CE characteristics (Magnusson and Palm 2019). Many of them involve col-

*Energy democracy is not a ready-made institutional outcome, but a conditional and politically mediated process that must be actively organized, negotiated, and protected in practice.*

also lower energy costs for households that would otherwise have limited access to the benefits of decentralized renewable energy. *BEN's* broader business model combines citizen investment, democratic oversight, and regional reinvestment, making it a relevant example of energy justice and energy democracy in practice.

Taken together, these cases show that CE is evolving beyond electricity generation alone. Heat provision and localized service models tailored to tenants, renters, or lower-income groups broaden the scope of what counts as CE and extend its potential contribution to social inclusion and systemic change.

#### **Governance benchmark: Steinfurt County**

Steinfurt County (Kreis Steinfurt) is not a project case in the same sense as the examples above but offers a governance instrument for CE. It shows how municipalities can define quality criteria for citizen wind projects. Its 2022 40-point certification system codifies requirements, such as minimum local equity shares, transparent communication, and local governance structures, that distinguish substantively participatory CE from nominally labeled schemes.

#### **Sweden: The challenge of finding niches**

In Sweden, by contrast, CE remains underdeveloped, at least in terms of autonomous, citizen-led projects (Magnusson and Palm 2019). Several structural conditions explain this. The energy system is centralized and dominated by large state-owned or municipal utilities, EU energy-community rules have only partially been translated into national practice, and relatively low electricity prices reduce the incentive for collective investment. In addition, grid operators often act as gatekeepers, and Sweden's already low-carbon electricity mix weakens the climate-mitigation rationale that has mobilized CE elsewhere.

laboration between municipal energy companies and citizens (Bergek and Palm 2024), as illustrated by Energi Republiken in Kalmar. Others take the form of eco-villages, where renewable energy is only one part of a wider collective sustainability agenda (Magnusson 2018).

#### **Kalmar Energi Republiken – municipal utilities as drivers of citizen prosumerism**

In 2017, the municipal utility Kalmar Energi started its campaign *Energi Republiken* (The Energy Republic). The Energy Republic is a humorous branding tool to establish their 100% renewable energy goal, create a local identity around renewables and, thus, tie customers closer to the company (Ruggiero et al. 2021). The company facilitated the construction of an offshore wind park (this was a previous project years before the establishment of the Energy Republic) and two solar parks in the municipality. Local champions in the company tapped into professional expertise in energy development to sort out technical and legal questions and get the projects off the ground (Magnusson and Palm 2019, Ruggiero et al. 2021). Once solar panels and wind turbines started producing electricity, the parks were transferred to the legal form of a cooperative with democratic decision-making structures and citizens, local businesses and public entities were invited to buy shares and become shareholders. Three rules set the frame for potential buyers to be eligible to become shareholders. First, they have to be customers of Kalmar Energi. This is a possibility for households from all over Sweden who can freely choose their energy supplier. Second, local businesses and public bodies have to be based in the municipality. Third, shareholders can only buy shares that correspond to max 80% of their normal yearly consumption. The energy produced by the solar panels is then deducted from the shareholder's energy bill.

This concept attracted a wide range of people, companies, and public bodies. One of the members in the cooperative is the local courthouse, another is a local supermarket. Individuals from all over Sweden bought shares in the solar parks even though the economics of the CE were not overwhelmingly great. This is due to the comparatively low electricity prices in Sweden. The appeal, though, lies in this being the easiest and most convenient way for individuals to become prosumers of renewable energy.

The Kalmar case illustrates three features of Swedish CE. First, local utilities often act as initiators and gatekeepers. Second, low electricity prices weaken the purely economic case for citizen investment. Third, participation begins only after the infrastructure has already been planned and built, which limits procedural justice. In addition, the model primarily attracts households and organizations able to pre-finance shares, and it creates a community of interest linked by supplier relationship rather than a geographically bounded community of place (Boije Af Gennäs Erre et al. 2025).

#### **Austerland – when grid access becomes the bottleneck**

The Austerland CE initiative is a grassroots project on the island of Gotland in the Baltic Sea. Our interpretation of this case combines Envall et al. (2023) with fieldwork conversations at Energi-centrum Gotland. The project, launched in 2016 in eastern Gotland, aimed to construct and manage a member-owned solar park that provides energy to local households and local facilities such as a wastewater treatment plant. As our informants stressed, the initiative benefitted both from local champions and from the island's enduring parish-based social ties, which provided a pre-existing frame for trust and collective decision-making.

Despite these enabling factors, the project took almost ten years from conception to operation. This long lead time reflected several intertwined obstacles. In the absence of a clear national framework for energy sharing, the group struggled to develop a viable technical and economic model. The most difficult bottleneck, however, was grid access: the Austerland group had to negotiate for years with the grid operator GEAB before it was finally connected. The situation on Gotland is particularly challenging because both regional-grid upgrades and additional transmission capacity to the mainland are needed. While this constellation is especially pronounced on Gotland, it also illustrates a wider problem faced by CE groups across Sweden.

Finally, our fieldwork revealed several issues related to energy justice and democracy. In particular, the inclusion of economically vulnerable groups constitutes a challenge, despite recognition of the problem by the leadership board of the CE. The case further demonstrates that CE initiatives in Sweden often struggle with administrative and technical burdens such as access to the electricity grid. This structural problem effectively limits the possibilities of CE groups to participate in the energy transition and contribute to energy democracy.

<sup>5</sup> [www.rekobyn.se](http://www.rekobyn.se)

#### **Röstånga Energikooperativ – alternative ways to come together**

The village of Röstånga is located in the Svalöv municipality in Southern Sweden. Around 1,100 inhabitants live here. The village has strong social capital, not least from the “Röstånga Till-sammans” (Röstånga Together) initiative which started in 2007 with the aim of “developing the village based on the needs, conditions and engagement” that was present in the community.<sup>5</sup> A multitude of activities, many of which have a strong sustainability profile, aim to establish a good village life by fostering social cohesion and providing meaningful activities for the inhabitants.

The village hosts the Röstånga Energikooperativ, which started its work in 2020. Despite its name, the group is not a “classic” CE initiative. It does not focus on collective ownership. Instead, it aims at increasing the number of solar panels on private homes in Röstånga, while also providing energy efficiency counselling. In concrete terms, the cooperative facilitates the purchase, installation and management of local renewable energy production by its members. These panels are then owned by the member. In addition, the cooperative educates local people through a local *studiecirkel* (member-organized education activities) about practical questions of renewable energy production and energy efficiency. The cooperative frames energy as an aspect of a wider eco-friendly lifestyle which resonates well with the local community. The cooperative has supported the installation of more than 60 solar panels in the community. Their success has prompted attention by media (newspapers, Swedish state TV SVT) and the cooperative has been awarded prizes for their engagement (e.g., by the Swedish network of cooperatives or Svalöv municipality).

The case of the Röstånga Energikooperativ shows the creative solutions CE initiatives have to develop to navigate an unfavourable policy frame. While this approach is certainly successful in driving renewable energy production, it does produce justice issues. The approach is not fully inclusive insofar as only homeowners with access to roof space and the necessary funds can benefit from the services the cooperative provides.

#### **Discussion: Synthesising the German and Swedish experience**

Taken together, the German and Swedish cases show that CE is best understood not as a single organizational model, but as a field of institutionally embedded practices encompassing cooperatives, municipally supported ventures, tenant-electricity arrangements, community heat systems, and hybrid projects. The central analytical question is therefore not whether a project carries the label of CE, but how participation is organized, who gains access, and under which political-economic conditions local actors can shape the energy transition. Figure 2 (p. 124) situates the six focal cases along a continuum from citizen-led to hybrid and utility-facilitated arrangements.



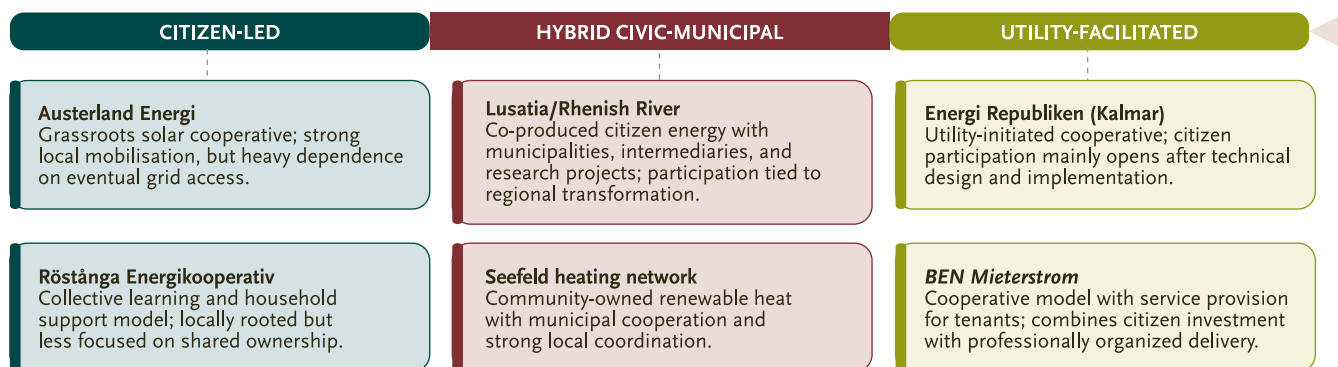


FIGURE 2: Continuum of community-energy configurations across the six focal cases, ranging from citizen-led to utility-facilitated governance.

A first comparative insight concerns the institutional starting points from which CE develops. Germany entered the energy transition with a strong legacy of decentralized renewable deployment, feed-in tariffs, and civic cooperative organization. This historical pathway generated organizational routines, public familiarity with citizen ownership, and a broad normative expectation that local actors could, in principle, become producers and co-owners of energy infrastructure. Sweden started from a different position. There, the electricity system was already largely decarbonized and strongly shaped by state and municipal utilities, which reduced both the economic urgency and the institutional space for bottom-up experimentation. As a result, German CE today appears as a mature but increasingly stratified sector, whereas Swedish CE appears as a set of niches carved out within an otherwise centralized system. The comparison suggests that CE emerges not only where decarbonization is technologically necessary, but where institutions make civic participation plausible, legible, and administratively possible.

A second insight concerns the timing and depth of participation. In the German cases, participation is more closely tied to agenda-setting, project design, and local debates over ownership and value creation. Yet it is often socially selective, shaped by the availability of capital, time, expertise, and confidence in cooperative procedures. Even so, the expectation persists that citizens should be able to enter the process relatively early. In Sweden, by contrast, participation often begins only after technical design and organizational setup have largely been completed. The Kalmar case is emblematic: citizens can become shareholders and prosumers, but only after the infrastructural and legal architecture has already been established by the utility. From an energy-justice perspective, this distinction matters because procedural justice is not exhausted by the opportunity to buy into a project; it also requires influence over how projects are defined in the first place.

A third theme concerns different, but functionally equivalent, forms of exclusion. In Germany, barriers arise through professionalization, legal complexity, auction-based competition, and the dominance of socially privileged demographics within cooperatives. Women, younger people, tenants, and lower-income

groups remain underrepresented even where formal rules are democratic. In Sweden, exclusion is often built into the material and institutional preconditions of participation: access to roof space, the ability to pre-finance shares, homeownership in housing associations, and the capacity to withstand long development periods caused by administrative uncertainty or grid bottlenecks. Germany thus demonstrates how an initially open sector can become more exclusive over time. Sweden shows how a sector can remain narrow because only actors with specific resources can enter it at all. Both trajectories underline that inclusion cannot be treated as a by-product of decentralization; it has to be designed through low-threshold business models, supportive regulation, and sustained attention to underrepresented groups.

A fourth theme concerns the role of public actors and intermediaries. The literature often contrasts CE with centralized or state-led energy governance, but the cases suggest that this binary is too rigid. In Germany's coal-transition regions, municipalities, research projects, and intermediary organizations are often indispensable for enabling civic participation. They provide legal knowledge, procedural support, visualization tools, and arenas for trust-building. In Sweden, municipal utilities and regional energy agencies play a similarly important enabling role, although they can also act as gatekeepers. In both countries, CE therefore emerges less as a purely grassroots phenomenon than as a relational process in which civic actors, public institutions, and professional organizations co-produce new energy arrangements. The democratic quality of CE depends not on the absence of public institutions, but on whether those institutions widen participation and accountability or narrow them.

The cases also demonstrate that CE is becoming sectorally broader and socially more differentiated. The classic image of a local wind or solar cooperative no longer captures the full field. In Germany, *Mieterstrom* and community heat networks experiment with forms of collective benefit that speak to renters, multi-family housing, and shared thermal infrastructures. In Sweden, Röstånga shows that CE can also take the form of facilitation, knowledge-sharing, and coordinated household action rather than collective ownership in the strict sense. These developments expand CE from a question of electricity generation into

a broader governance question of how communities organize energy services, affordability, and local learning. They also suggest that the future relevance of CE may depend less on the figure of the citizen-investor and more on everyday arrangements that connect decarbonization to housing, heating, mobility, and local welfare.

Recognition justice emerges as a particularly persistent blind spot. In Germany, the coal-region cases show that place attachment, post-socialist transformation experiences, and mistrust of externally steered transition processes shape whether CE is seen as empowering or as yet another imposed reform. In Sweden, renters and lower-income households can be structurally sidelined even when projects present themselves as collectively beneficial, while the wider Swedish literature on energy conflicts reminds us that Indigenous and territorial justice concerns remain central to assessing the legitimacy of low-carbon transitions more broadly. Recognition justice is therefore not an optional ethical add-on; it shapes whether communities see themselves reflected in transition projects and whether participation is experienced as meaningful rather than symbolic.

A final difference concerns the temporal politics of CE. In Germany, CE is often evaluated against the memory of an earlier cooperative heyday and therefore appears as a field in decline, or at least in transformation, with debates revolving around how democratic quality might be recovered under changed market conditions. In Sweden, CE is less a story of decline than of delayed emergence: projects are assessed against the difficulty of opening space in a system that has long functioned without large-scale civic co-ownership, and debates focus on how viable institutional niches can be created in the first place.

This contrast also inflects the distinction between communities of place and communities of interest. German coal-region initiatives draw strength from territorially embedded concerns about local value creation, historical identity, and procedural recognition. Swedish cases such as Kalmar show how prosumer-oriented communities of interest can mobilize participation and symbolic commitment even when they are less territorially bounded. Each configuration generates different democratic possibilities and justice dilemmas. Communities of place may deepen local legitimacy, but they can also reproduce local exclusions; communities of interest can widen participation across space, but they risk weakening local accountability and early-stage deliberation. For policy, the key challenge is therefore to connect these forms more productively by enabling place-based benefits and recognition while also lowering entry thresholds for actors who are not already embedded in property ownership, established associations, or existing civic networks.

The comparison ultimately qualifies any simple opposition between a “successful” German model and an “underdeveloped” Swedish one. The two cases do not merely represent more or less CE. Rather, they reveal different combinations of decentralization, institutional support, and democratic control. Germany highlights the limits of assuming that market access alone will sustain democratic participation; Sweden highlights the limits

of assuming that low-carbon public utilities automatically create inclusive opportunities for civic agency.

More broadly, high levels of institutional trust, administrative capacity, and environmental ambition do not automatically produce democratic energy transitions. Where legal frameworks, intermediary support, infrastructural access, and social inclusion align, CE can create local value, strengthen energy literacy, and generate new forms of energy citizenship. Where they do not, CE risks becoming either a niche for already privileged actors or a symbolic participatory layer wrapped around fundamentally centralized systems. The central lesson, then, is that CE should be analyzed and governed as democratic infrastructure: not as a romantic residue of localism, but as a politically constructed arena in which questions of ownership, justice, coordination, and belonging are negotiated in concrete institutional settings.

## Conclusion and policy recommendations

CE is neither a universally replicable model nor an inherently democratic one. As the German and Swedish cases show, its emancipatory potential depends on concrete institutional arrangements, accessible participation rules, and the social infrastructures that support collective action. The comparison reveals a shared tension: formal commitments to citizen participation do not automatically produce equitable outcomes, and in both contexts CE can become a vehicle for already well-resourced actors rather than a corrective to energy injustice.

Three cross-cutting policy lessons follow from this comparison. First, legal frameworks matter: transposition uncertainty, auction design, and grid-access rules can open or foreclose space for citizen initiatives irrespective of stated policy ambitions. Second, intermediary support matters: municipalities, regional energy agencies, and cooperative support organizations enable groups to navigate technical and administrative hurdles that would otherwise exclude all but the best-resourced actors. Third, inclusion requires deliberate design: it does not emerge from ownership models alone, but from low-threshold participation options, active attention to diversity, and recognition of place-based identity and knowledge.

In practical terms, this means simplifying market access for small and community-based actors, resolving grid bottlenecks, and supporting organizational learning through advisory services and long-term funding. Municipalities can play a particularly important role as conveners and co-creators, but their involvement must complement rather than substitute for citizen agency.

More broadly, CE should be understood as a flexible governance field rather than a fixed organizational template. Its democratic value lies not only in formal ownership, but in whether communities can shape decisions, share benefits, and develop durable local capacities.

At the same time, community initiatives need to be connected to wider energy-system planning. Clear ownership models,



transparent planning procedures, and regional coordination can help reconcile local agency with system-wide goals such as grid stability and decarbonization.

Whether CE remains a niche supplement or becomes a substantive democratic component of the energy transition ultimately depends on political choices about regulation, participation, and justice.

Read in relation to the wider Special Focus, the German-Swedish comparison also underscores that CE must be situated within a broader Northern European landscape of uneven democratic transition. Across the contributions, a common lesson is that more democratic and just energy transitions do not follow automatically from renewable expansion or decentralization, but depend on planning capacity, regulatory design, ownership structures, grid access, and the recognition of affected communities. The present article contributes to this broader argument by showing how two high-trust, environmentally ambitious countries nevertheless generate markedly different and uneven community-energy trajectories. In this sense, the paper reinforces the Special Focus' central claim that energy democracy is not a ready-made institutional outcome, but a conditional and politically mediated process that must be actively organized, negotiated, and protected in practice.

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