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Ethical and Social Dimensions of Citizen Energy Development: The Case of Energy Cooperatives in Poland

Etyczny i społeczny wymiar rozwoju energetyki obywatelskiej – przykład spółdzielni energetycznych w Polsce

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Abstract: This article examines the role of energy cooperatives in the process of a just energy transition in Poland, combining descriptive quantitative analysis with normative-ethical reflection. Energy cooperatives are presented not merely as mechanisms for producing renewable energy, but as community-based organisational forms grounded in the values of ecological responsibility, the common good, and socio-environmental solidarity. Drawing on data concerning the number of registered entities, metering points, installations, and installed capacity, the study identifies pronounced regional disparities. The article argues that the development of citizen energy is closely associated with access to resources, the quality of institutional support, and the active engagement of local communities. Energy cooperatives are interpreted as key components of both integral ecology and energy democracy, with the potential to contribute to the co-creation of a fairer and more sustainable energy system. The paper concludes with a set of strategic recommendations aimed at expanding this model in the spirit of equity and shared responsibility.

Keywords: energy cooperatives, environmental ethics, energy justice, energy democracy, integral ecology, citizen energy, SDG 7: Affordable and Clean Energy

Streszczenie: Niniejszy artykuł analizuje rolę spółdzielni energetycznych w procesie sprawiedliwej transformacji energetycznej w Polsce, łącząc opisową analizę ilościową z refleksją normatywno-etyczną. Spółdzielnie energetyczne przedstawiane są tu nie tylko jako podmioty służące do wytwarzania energii ze źródeł odnawialnych, lecz także jako wspólnotowe formy organizacyjne działające w oparciu o wartości odpowiedzialności ekologicznej, dobra wspólnego oraz solidarności społeczno-środowiskowej. Na podstawie danych dotyczących liczby zarejestrowanych podmiotów, punktów pomiarowych, instalacji oraz mocy zainstalowanej badanie ujawnia istnienie znacznych dysproporcji regionalnych. W artykule przedstawiono argumenty, że rozwój energetyki obywatelskiej pozostaje w ścisłym związku z dostępem do zasobów, jakością wsparcia instytucjonalnego oraz aktywnym zaangażowaniem społeczności lokalnych. Spółdzielnie energetyczne przedstawiane są tu jako kluczowe komponenty zarówno ekologii integralnej, jak i demokracji energetycznej, posiadające potencjał współtworzenia bardziej sprawiedliwego i zrównoważonego systemu energetycznego. W końcowej części, zaprezentowano zestaw rekomendacji strategicznych, ukierunkowanych na rozwój tego modelu w duchu równości oraz współodpowiedzialności.

Słowa kluczowe: spółdzielnie energetyczne, etyka środowiskowa, sprawiedliwość energetyczna, demokracja energetyczna, ekologia integralna, energetyka obywatelska, Cel Zrównoważonego Rozwoju 7: Czysta i dostępna energia

Introduction

The escalating climate crisis and the urgent need to move away from fossil fuels necessitate a fundamental shift in the paradigm of energy production and distribution. Within this transition, increasing importance is being placed on models grounded in the principles of sustainable development, environmental justice, and active civic participation. Energy cooperatives—decentralised and democratic organisational forms based on renewable energy sources—represent not only a technological alternative to centralised systems, but also an ethical and cultural corrective to the prevailing energy model.

The development of energy cooperatives in Poland, initiated through legislation in 2019, aligns with broader European and global trends in the expansion of citizen-led energy initiatives. Although still relatively few in number, these cooperatives play a vital role in promoting the values of integral ecology and energy democracy, including responsibility, solidarity, and the common good.

The aim of this article is to examine the spatial distribution of energy cooperatives in Poland, using empirical data on the number of entities, installations, metering points, and installed capacity. The quantitative analysis is complemented by a theoretical reflection drawing on selected concepts from environmental ethics—particularly those developed by Holmes Rolston III and Pope Francis. Combining empirical findings with a normative perspective allows for the interpretation of regional disparities as potential indicators of socio-ecological injustice and serves as the basis for proposing measures to support a more inclusive and equitable energy transition.

From a methodological perspective, the study adopts an exploratory and diagnostic design. It is based on descriptive statistical analysis aimed at identifying spatial patterns and regional disparities in the development of energy cooperatives at the voivodeship level. The empirical indicators applied—namely the number of entities, metering points, installations, and installed capacity—are treated as proxy measures of civic participation and territorial energy justice. The analysis is interpretive in nature and does not seek to establish causal relationships.

1. Normative and Environmental Context

1.1. Holmes Rolston III's Environmental Ethics as a Framework for Assessing the Development of Renewable Energy and Energy Cooperatives

Contemporary ecological challenges are not solely technological or economic in nature; above all, they are ethical. The ongoing environmental crisis compels a re-evaluation of the human–nature relationship, fundamentally questioning the anthropocentric paradigm. Since the 1970s, environmental ethics has emerged as a discipline advocating for the recognition of nature's intrinsic value and emphasising the moral responsibility of humans towards the natural world (Francuz 2020).

While the development of renewable energy is technologically desirable, it is not axiologically neutral. This raises a central question: to what extent do energy-related decisions incorporate ethical values concerning the natural environment? Environmental ethics offers a lens through which to explore this issue. One of the discipline's most influential figures is Holmes Rolston III, whose work provides a foundational framework for contemporary debates on the moral status of nature.

Among the earliest systematic treatments of environmental ethics within academic philosophy is Rolston's seminal article "Is There an Ecological Ethic?", published in *Ethics* in 1975. In it, Rolston challenged the dominant anthropocentric model in Western thought, which posits that nature's value is derived solely from its utility to humans (Rolston III 1975). He argued that ecosystems, species, and natural processes possess intrinsic value independent of human interests. His most comprehensive articulation of this view appears in *Environmental Ethics: Duties to and Values in The Natural*

World (Rolston III 1988)—a work widely recognised as a cornerstone of the field. Rolston contends that nature's worth is not confined to its role as a resource. On the contrary, all forms of life—as well as evolutionary processes and ecological relationships—hold moral significance and are worthy of respect. In this sense, he advances an ethics of interspecies and intergenerational responsibility, obliging humans to safeguard the integrity and diversity of life on Earth.

Rolston's insights are particularly relevant to the development of renewable energy. While such sources are often categorised as "green" technologies—by definition environmentally beneficial—environmental ethics insists that low emissions alone are insufficient. Renewable energy infrastructures—such as wind farms, hydroelectric plants, and photovoltaic systems—can have considerable impacts on landscapes, habitats, biodiversity, and local communities. Rolston's perspective serves as a reminder that technological rationality must be complemented by moral reasoning. The evaluation of energy systems should consider not only efficiency, but also ecological justice and respect for nature as a value in itself.

In this context, energy cooperatives warrant particular attention as practical embodiments of Rolston's environmental ethics. These decentralised and democratic forms of renewable energy generation and governance frequently involve local communities in decisions about the use of natural resources. As such, they contribute not only to energy transition but also to the pursuit of environmental justice. In line with Rolston's philosophy, human actions should be grounded in a deep respect for ecological systems and oriented toward their intrinsic flourishing. Cooperatives—offering an alternative to large-scale, industrial installations—have the potential to alleviate environmental pressures by fostering coexistence with local ecosystems.

Moreover, cooperatives promote participation and responsibility—values that figure prominently in Rolston's later works, such as Science and Religion: A Critical Survey (1987) and Three Big Bangs: Matter-Energy, Life, Mind (2010). In these writings, he argues for a paradigmatic shift away from human domination over nature toward coexistence with it. Humans, as part of nature rather than its external managers, bear ethical responsibility for how they transform their environment. Energy cooperatives, grounded in principles of co-responsibility, can be understood as morally sustainable practices within this framework.

In light of these considerations, the development of renewable energy—especially in the form of grassroots, decentralised initiatives such as cooperatives—should not be assessed solely from a technological or economic perspective. Holmes Rolston III's environmental ethics offers a coherent and philosophically grounded evaluative framework, enabling the determination of whether a given energy model supports a just and sustainable transition—one that addresses both societal needs and the inherent value of the natural world. Rolston's concepts can thus play a pivotal role in shaping ethical criteria for the advancement of citizen-led and environmentally responsible energy systems, as exemplified by energy cooperatives.

Application to the empirical analysis. Holmes Rolston III's emphasis on the intrinsic value of ecosystems and on moral responsibility towards the natural world provides an explicit interpretive framework for the empirical section of the article. In the analysis that follows, regional disparities in the development of energy cooperatives are examined not only as infrastructural differences, but also as potential manifestations of unequal access to the ethical, social, and environmental benefits and responsibilities associated with the energy transition. This perspective allows the empirical findings to be assessed against normative criteria derived from environmental ethics, rather than being treated as value-neutral technical indicators.

1.2. Responsibility, the Common Good, and Ecological Solidarity as Foundations of an Ethical Energy Transition

The contemporary energy transition must not be perceived merely as a technological or economic process. In light of the deepening climate crisis, its fundamental axiological dimension becomes increasingly evident, requiring a grounding in normative categories capable of guiding social and political decisions in a just, durable, and community-oriented manner. As Hans Jonas asserted, the ethics of the technological age must encompass responsibility for the future of life on Earth (Jonas 1979), while Holmes Rolston III highlighted the necessity of cultivating a "new ecological conscience" rooted in the intrinsic value of life and nature (Rolston III 1988).

In this context, three interrelated principles gain particular importance: ecological responsibility, the common good, and ecological solidarity. These principles find practical expression in energy cooperatives—institutions that, through ownership structure, democratic decision-making mechanisms, and local embeddedness, embody the demands of a just energy transition.

From Rolston's perspective, the human being, as a part of the ecosystem, bears moral responsibility for all biological life—irrespective of its utility. Ecological responsibility thus entails evaluating decisions not only in terms of technological efficiency, but also in terms of their impact on ecological integrity, interspecies balance, and the long-term wellbeing of the biosphere (Rolston III 1988; Biswas et al. 2022).

Energy cooperatives align with this vision by promoting a decentralised model of energy generation and consumption that is attuned to local, ecological, and social contexts. As Bechberger and Reiche (2004) emphasise, their structure enables citizens to exert genuine influence over energy policy, fostering a shared sense of environmental responsibility. Responsibility, in this view, is not only individual but also collective and intergenerational—centred on the sustainability and common good of future generations (Tremmel 2009).

An energy transition grounded in the common good presupposes that energy systems should ensure equitable access to energy, strengthen social cohesion, and counteract the marginalisation of disadvantaged groups (Attfield 2016). Cooperatives enact this principle through profit reinvestment, support for prosumer models, and local resource governance.

As Seyfang and Smith (2007) note, such initiatives not only enhance public acceptance of renewable energy but also align with the broader movement of energy democracy, in which citizen control over energy is viewed as a component of the common good. By being embedded in local cultural and ecological contexts, cooperatives serve as carriers of normative values absent in commercial energy sectors.

Ecological solidarity refers to shared responsibility for human and non-human life, as well as to the imperative of fair distribution of the costs and benefits of resource exploitation (Schlosberg 2004; Latour, 2004). Its political dimension is clearly articulated in Pope Francis' encyclical *Laudato si'* (2015), but also in secular concepts of environmental justice and ecological citizenship (Dobson 2007; Sovacool et al. 2016).

Energy cooperatives provide a concrete realisation of solidarity through shared governance, transparency, and collective risk-sharing. They counter both energy exclusion and the degradation of local ecosystems. Examples from Germany and Denmark demonstrate that such models not only support decarbonisation but also enhance local social resilience and contribute to building relationships based on trust (Walker & Devine-Wright 2008; Bauwens et al. 2016).

Ecological responsibility, the common good, and solidarity are not merely abstract ethical categories; they are foundational to institutional practices capable of shaping the energy transition into one that is both just and sustainable. As citizen-led forms of energy

governance, cooperatives offer a real alternative to centralised models of development, integrating moral values with effective technological transformation. Their growth is not only a manifestation of responsibility, but a concrete answer to the question: what kind of world do we want to create—and for whom should it serve?

Application to the empirical analysis. The normative categories of ecological responsibility, the common good, and ecological solidarity serve in the empirical section of the article as interpretive criteria for assessing regional disparities in the development of energy cooperatives. In particular, quantitative differences between voivodeships are examined in relation to the extent to which citizen energy initiatives enable inclusive participation, equitable access to energy-related benefits, and the fair distribution of social and environmental costs of the transition. This approach allows the empirical indicators to be interpreted not merely as technical measures of capacity or scale, but as reflections of deeper patterns of socio-ecological justice.

1.3. Integral Ecology and the Energy Transition: Renewable Energy and Energy Cooperatives

The contemporary energy transition cannot be reduced to a mere shift in technology or energy carriers. In light of the growing tension between environmental degradation and social inequality, the notion of integral ecology—a concept introduced by Pope Francis in the *encyclical Laudato si'* (2015)—has gained increasing significance. It offers a holistic vision of the relationship between human beings, nature, and society.

In Chapter IV of the encyclical (paragraphs 137–162), Francis argues that there are not two separate crises—one environmental and one social—but rather a single complex socio-ecological crisis (Francis 2015, No. 139). Environmental protection, he claims, must be intrinsically linked to the protection of human dignity, economic justice, solidarity with the marginalised, and intergenerational responsibility. Integral ecology thus encompasses four interconnected dimensions: ecological, social, cultural, and spiritual—highlighting that an energy transition must take all of them into account.

Although the concept gained prominence through the Catholic Church's social teaching, its intellectual roots lie in earlier strands of environmental ethics. Hans Jonas called for a new ethics of responsibility that would include future generations and the biosphere as a whole (Jonas 1979), while Holmes Rolston III emphasised the intrinsic value of nature and the imperative of interspecies responsibility (Rolston III 1988). Integral ecology extends these perspectives by incorporating a socio-political dimension, articulating a normative framework for a just transformation of energy systems.

From this standpoint, decarbonisation alone is not sufficient. In the spirit of integral ecology, one must ask whether energy reforms are socially inclusive, whether they empower local communities, respect ecosystems, and serve future generations. The institutional forms that enable these values to be enacted in practice become critically important.

In this context, energy cooperatives can be understood as a concrete realisation of the principles of integral ecology. Their organisational structure integrates ecological (clean energy production), social (participation and inclusivity), cultural (local embeddedness), and ethical (responsibility for the common good) dimensions. As Pope Francis notes, integral ecology requires openness to categories that go beyond technical language, incorporating philosophical, social, and spiritual reflection (Francis 2015, No. 11).

Energy cooperatives not only reduce emissions but also create a space for ethical deliberation over the use of resources. They strengthen social capital and enable democratic co-governance of the energy transition. As community-based initiatives, they embody values of solidarity, responsibility, and justice—values often absent in centralised energy markets.

Application to the empirical analysis. The concept of integral ecology offers explicit normative criteria for interpreting the results of the quantitative analysis presented in the following sections. The spatial distribution of energy cooperatives is examined in terms of social inclusiveness, the strengthening of local agency, and the fair allocation of the social and environmental costs and benefits of the energy transition. This perspective ensures that the empirical findings are assessed not solely through technical or efficiency-based measures, but in relation to broader questions of socio-ecological justice and long-term sustainability.

Integral ecology—as a normative category—thus offers a lens through which to assess energy policies and institutions, allowing for a distinction between superficial and genuinely just transitions. It demonstrates that energy reform demands not only new technologies but also new forms of social coexistence—based on mutual respect, environmental care, and human solidarity.

1.4. Energy Cooperatives as an Embodiment of Energy Democracy

The concept of energy democracy originates from the practices of grassroots social movements and environmental organisations and has been academically developed by scholars such as Becker and Naumann (2017), who frame it as a response to the neoliberal model of the energy sector. At its core lie the principles of power redistribution, social justice, and civic participation in energy governance.

In this context, energy cooperatives represent the most concrete and institutionally embedded form of implementing energy democracy. Through local ownership, democratic control, and collective management of infrastructure, they offer an alternative to centralised, corporate-controlled energy systems. As Stephens (2020) argues, energy can become a tool of emancipation—provided communities have meaningful control over its production and distribution.

Energy cooperatives play a particularly significant role in peripheral, rural, and underinvested regions, where they often mitigate infrastructural and energy exclusion. They facilitate access to clean and affordable energy while engaging residents in decision-making processes, thereby strengthening local social capital (Walker & Day 2012; Gajdzik et al. 2024; Brodzińska et al. 2025). Owing to their inclusive structures, they promote environmental justice not only through ecological benefits but also by enhancing social outcomes such as participation, local empowerment, and counteracting marginalisation.

Energy democracy redefines the very nature of the energy transition—not merely as a technological process, but as a fundamentally political and axiological one. As Fairchild (2017) notes, renewable energy can serve as a vehicle for restructuring ownership and power relations—towards models based on cooperation, equity, and local sovereignty.

From this perspective, energy cooperatives are not merely production units but also normative institutions that enable communities to realise core values: ecological solidarity, the common good, and intergenerational responsibility. Their dynamic growth demonstrates that democratic energy is not a utopian ideal, but a viable and emerging alternative—developed from the ground up, locally, and in the spirit of collective agency.

Application to the empirical analysis. Conceptualising energy cooperatives as institutional carriers of energy democracy provides a direct interpretive framework for the empirical analysis presented in the following sections. The quantitative indicators used in this study approximate the extent to which citizens in different regions are able to participate in, exercise control over, and benefit from decentralised renewable energy governance. Regional disparities are therefore examined not merely as differences in infrastructural development, but as

variations in the realisation of democratic participation and energy-related rights at the territorial level.

2. Regional Disparities in the Development of Energy Cooperatives in Poland: An Empirical Analysis in the Light of Energy Justice

In recent scholarly literature, there has been a growing interest in community-based energy models that align with the principles of energy democracy (Becker & Naumann 2017; Fairchild 2017; van Veelen 2018). Particular attention is given to energy cooperatives, which are seen as tools for decentralisation, equitable resource distribution, and the activation of local communities (Walker & Devine-Wright 2008; Bauwens et al. 2016).

This chapter aims to assess the spatial dynamics of energy cooperative development in Poland using quantitative data (as of July 2025). It explores whether the regional disparities in the emergence of energy cooperatives can be interpreted as manifestations of systemic constraints on inclusive and just energy transitions. The analysis is based on data regarding: the number of registered energy cooperatives, the number of energy consumption points, the number of installed generating systems, and the total installed capacity (in MWe).

The data are aggregated at the voivodeship (provincial) level and interpreted through the lens of energy democratisation and territorial justice. This approach combines quantitative assessment with normative reflection, consistent with frameworks applied in energy justice research (Heffron & McCauley 2017; Sovacool et al. 2016).

Methodological note. Given the early stage of development of energy cooperatives in Poland and the limited availability of harmonised, independently verifiable data at the local level, the analysis is based on a transparent set of descriptive indicators reported for individual voivodeships. This research design enables a first-stage diagnosis of uneven territorial development of citizen energy initiatives. The adopted methodology prioritises analytical clarity and replicability, while further research may extend the approach through cartographic analysis, composite indicators, or explanatory modelling as comparable municipal-level datasets become available.

An analysis of the number of registered energy cooperatives (as of July 2025) reveals clear regional disparities. The highest concentration of such entities is found in the Wielkopolskie (Greater Poland), Małopolskie (Lesser Poland), and Mazowieckie (Masovian) voivodeships. This spatial pattern may be associated with factors such as stronger organisational structures, greater access to capital, and the active engagement of local authorities in promoting citizen-led energy initiatives.

Interpretative scope. The following interpretation is diagnostic in character and based on observed associations in aggregated data; it does not constitute an explanation of causal mechanisms.

In contrast, voivodeships such as Lubuskie (Lubusz), Podlaskie, and Łódzkie (Łódź) display very low levels of activity. Identified barriers include weak institutional support, information deficits, and limited financial resources. From the perspective of environmental ethics, these inequalities highlight the lack of equitable access to the benefits of the energy transition — presenting a challenge in terms of both distributive and procedural justice.

A high number of energy consumption points—particularly in the voivodeships of Zachodniopomorskie (West Pomeranian), Kujawsko-Pomorskie (Kuyavian-Pomeranian), and Dolnośląskie (Lower Silesian) — may be interpreted as indicative of the tangible engagement of local communities in the operation of energy cooperatives. This indicator can be interpreted as a measure of:

1. energy awareness levels,
2. ecological responsibility,
3. the institutional embeddedness of cooperatives within local social structures.

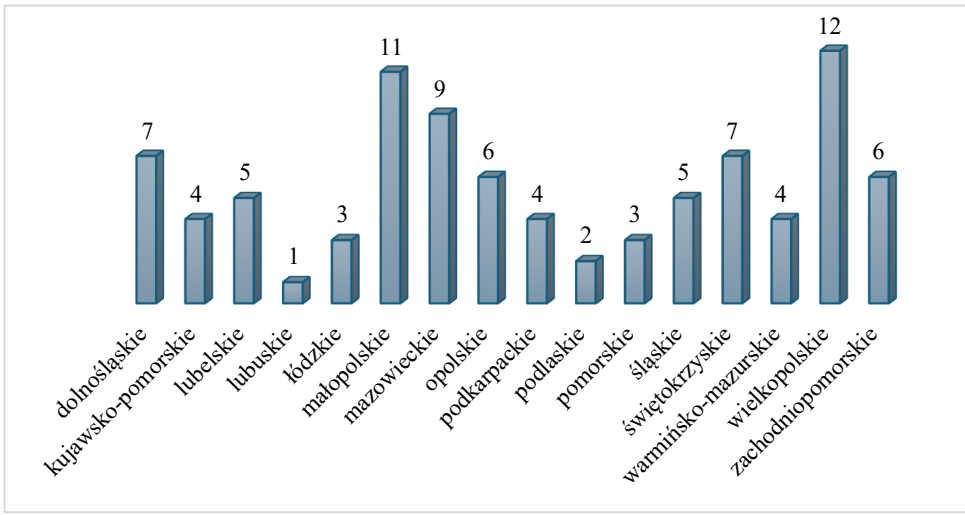

Figure 1. Number of Energy Cooperatives: Unequal Access to Citizen Energy. Source: Author's own elaboration

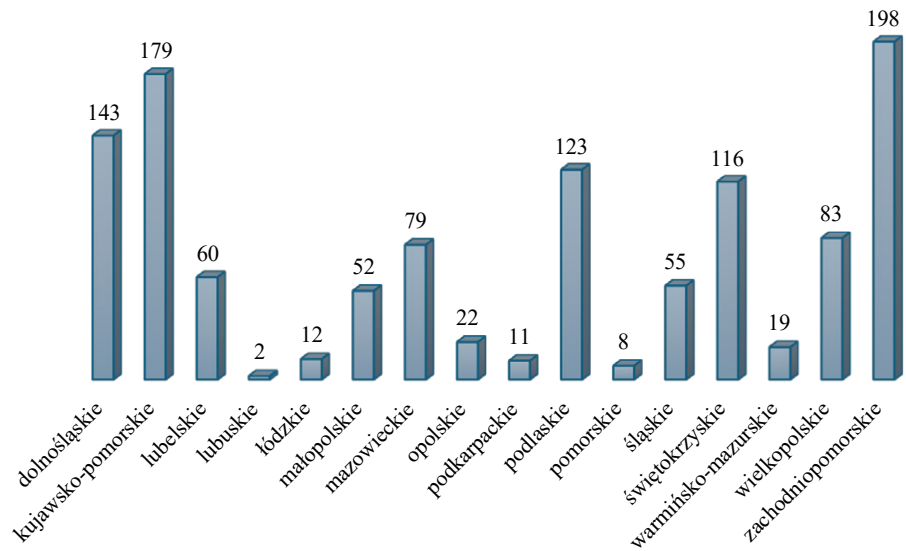

Figure 2. Number of Energy Consumption Points: An Indicator of Social Inclusion. Source: Author's own elaboration

Interpretative scope. The following interpretation is diagnostic in character and based on observed associations in aggregated data; it does not constitute an explanation of causal mechanisms.

In contrast, a low number of consumption points in other voivodeships—such as Podkarpackie (Subcarpathian) or Lubuskie (Lubusz)—points to the existence of institutional barriers and deficits in social capital. From a normative standpoint, these findings reveal deepening patterns of territorial energy exclusion, which threaten the fulfilment of democratic principles of participation.

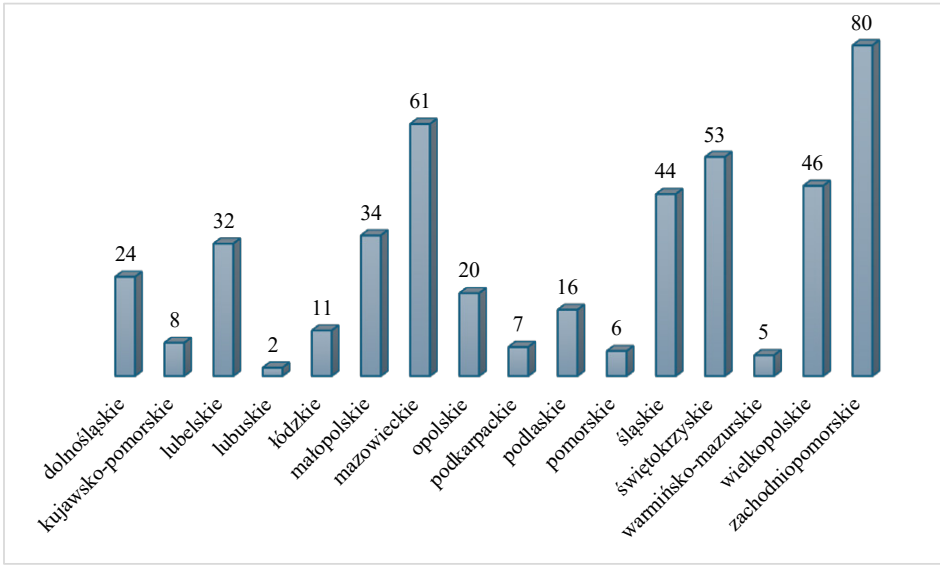

Figure 3. Number of Installations: An Indicator of Operational Agency. Source: Author's own elaboration

The number of active energy installations differentiates regions not only quantitatively but also qualitatively. High activity levels in the Pomorskie (Pomeranian), Zachodniopomorskie (West Pomeranian), and Mazowieckie (Masovian) voivodeships indicate that the idea of citizen energy is being effectively translated into tangible infrastructural outcomes.

Interpretative scope. The following interpretation is diagnostic in character and based on observed associations in aggregated data; it does not constitute an explanation of causal mechanisms.

Conversely, low levels of investment in installations in voivodeships such as Warmińsko-Mazurskie (Warmian-Masurian) and Lubuskie (Lubusz) point to limited implementation of collective energy models. These disparities should be analysed in relation to the degree of local mobilisation, administrative capacity, and access to financial instruments.

The performance table (in MWe) reveals a striking degree of regional variation: from 12.92 MWe in Wielkopolskie (Greater Poland) to only 0.1 MWe in Lubuskie (Lubusz). Such a wide disparity cannot be reduced to technical conditions alone; rather, it may be interpreted as reflecting a complex interplay of institutional, economic, and cultural factors that shape the capacity to implement the energy transition.

Interpretative scope. The following interpretation is diagnostic in character and based on observed associations in aggregated data; it does not constitute an explanation of causal mechanisms.

High performance may indicate:

- effective mechanisms for cross-sectoral governance,
- strong civic agency,
- the presence of supportive institutional structures.

By contrast, low installed capacity serves as an indicator of limited access to the right to energy—as a common resource and public good.

The analysis suggests that quantitative data—though ostensibly technical—reveal a deeply ethical and social dimension of the energy transition. The key findings are as follows:

- Regional disparities in the development of energy cooperatives reflect underlying structural inequalities, which require policy intervention and programme support.

Table 1. Installation Performance: An Empirical Indicator of Energy Justice
The table presents installed generation capacity (MWe) associated with energy cooperative installations across voivodeships; values range from 0.10 MWe in Lubuskie to 12.92 MWe in Wielkopolskie.

Voivodeship	Installation capacity MWe
dolnośląskie	1,640525
kujawsko-pomorskie	2,183735
lubelskie	0,83092
lubuskie	0,1
łódzkie	1,2318
małopolskie	0,727602
mazowieckie	1,43757
opolskie	0,818055
podkarpackie	0,11529
podlaskie	1,44547
pomorskie	0,165895
śląskie	0,610025
świętokrzyskie	1,05525
warmińsko-mazurskie	1,11563
wielkopolskie	12,921455
zachodniopomorskie	3,188845

Source: Author's own elaboration.

- The number of energy consumption points and installations can be interpreted as a practical indicator of the realisation of energy democracy.
- Installation performance highlights a region's potential for energy self-determination—while also exposing the limits of equal access to the benefits of transition.

From the perspective of integral ecology, energy democracy, and environmental solidarity, these indicators are far from neutral measures of efficiency. Rather, they serve as an empirical foundation for assessing socio-environmental justice at the regional level.

Summary and Conclusions

The empirical analysis, enriched by normative reflection, supports the interpretation that energy cooperatives in Poland—although still in the early stages of development—constitute a significant component of a just energy transition. The data reveal pronounced regional disparities in the number of registered entities, energy consumption points, installations, and installed capacity. These disparities are not merely technical; rather, they signal broader structural inequalities encompassing access to knowledge, financing, institutional support, and mechanisms for civic participation.

On this basis, the following conclusions can be drawn:

1. Energy cooperatives can be regarded as a key tool for the democratisation of energy, enabling citizens to participate meaningfully in the production, distribution, and governance of renewable energy.
2. Regional disparities may be interpreted as reflecting not only infrastructural gaps, but also deficits in socio-ecological justice and unequal access to the benefits of the energy transition.
3. Effective civic energy development appears to require coordinated institutional support—including legal, financial, and educational measures—particularly in peripheral regions.
4. The number of energy consumption points and installation performance may serve as indicators of transition

quality, measuring its social reach, local agency, and alignment with ethical objectives.

Strategic Recommendations:

1. Develop a nationwide support programme for energy cooperatives, tailored to regional disparities and the needs of marginalised communities.
2. Establish a national advisory network for civic energy initiatives, operating at the county level and offering technical, legal, and organisational support.
3. Implement integrated programmes of energy and civic education, targeting schools, local authorities, and civil society organisations.
4. Revise national energy policy towards a polycentric and participatory model, grounded in the principles of ecological solidarity, territorial equity, and the common good.
5. Expand community-based financing instruments, including local prosumer funds, public grants, and tax incentives for civic energy initiatives.

From a broader philosophical and interpretative perspective, the following reflections extend beyond the immediate empirical findings of the study. Their development fosters an alternative relationship with energy: not as a commodity, but as a common good around which a new model of civic community is formed.

Ultimately, the question is not simply how much energy can be produced, but what kind of society and social relations are being shaped through this process. Will the transition reinforce control and centralisation, or enable shared responsibility and local agency? The answer depends not only on national policy, but on actions taken at the level of municipalities, schools, communities, and cooperatives.

In the face of growing climate and social challenges, energy cooperatives are becoming not only technical structures but also laboratories of moral imagination—an imagination capable of challenging dominant logics of growth, exploitation, and indifference.

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