LATVIAN JOURNAL OF PHYSICS
AND TECHNICAL SCIENCES
2026, N 1

DOI: 10.2478/lpts-2026-0008

CITIZEN MOTIVATION AND COLLECTIVE ACTION IN THE DEVELOPMENT OF ENERGY COMMUNITIES: A CASE STUDY OF LATVIA

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In line with the objective endorsed by the Council of the European Union, a climate-neutral European Union must be achieved by 2050. This means significantly reducing greenhouse gas emissions in the EU by 2050 and finding ways to offset residual and unavoidable emissions. Energy communities, in particular, are seen as citizen-led energy actions that will help pave the way for a clean energy transition. Along with the European Union's objective of achieving climate neutrality by 2050, the involvement of citizens in the energy transition and the reduction of greenhouse gas emissions is of paramount importance. One way to facilitate the transition is through the creation of energy communities: citizen-led initiatives that promote the use of renewable energy sources and local energy production. However, the success of these initiatives depends not only on regulatory and technological conditions, but also on citizens' willingness to cooperate and act collectively. The paper explores what would motivate Latvian residents to participate in energy communities and assesses their potential for engagement, with a particular focus on multi-apartment buildings and their potential role in energy communities. Drawing on a theoretical literature review and survey data, the study assesses the awareness, motivation, and barriers to the development of energy communities among the public and building managers. It provides an in-depth analysis of residents' attitudes and their potential for participation in Latvia – a country where the concept of energy communities is still relatively new and largely unexplored. The results of the study show that residents prefer economic benefits over the benefits of the local community or the environment, and also show the small experience of the population in collective action. These findings of the study contribute to a broader understanding of the social aspects of the European energy transition in the

case of Latvia and are useful for both policy makers and local governments, which should take the lead in organising and coordinating the development of energy communities.

Keywords: *Citizens' motivation, collective action, decision-making, energy communities.*

1. INTRODUCTION

Traditionally, energy production was believed to be the field of activity for municipalities and enterprises. Today, however, the decentralised energy production opportunities provided by technological developments have created the conditions for citizens to become energy producers themselves, while the vision of European Union policy planners has put citizens as important drivers of Europe's energy transition as they unite in energy communities. Energy Community initiatives are essential as they ensure that renewable energy production is increased in the energy balance [1].

In general, policies that support the development of decentralised and renewable energy promote the development of infrastructure and provide financial benefits such as lower energy costs [2], [3], the possibility to sell surplus energy and increase local economic activity [4], [5]. In scientific literature, energy communities are recognised as the optimal environment for the development of such resources [6], as they combine technological possibilities with public participation and local decision-making [3]. It is also noted that investing in local renewable energy projects raises public awareness of the importance of the energy transition [7] and brings tangible benefits to local communities [8], and energy communities are attractive solutions for reducing carbon emissions and improving sustainability [9]. Therefore, energy communities should not only contribute to the democratisation of energy, but also strengthen local economies, reduce energy costs and increase society's resilience to energy crises.

By contributing to the objective of climate neutrality, energy communities would also contribute to the reduction of greenhouse gas emissions, the fight against climate change and, more broadly, the creation of a sustainable global energy system [3]. Energy communities can support a number of Sustainable Development Goals, including [10] Goal 7, which focuses on a reliable, sustainable, and affordable price for modern energy, Goal 11, which focuses on the capacity of cities and settlements to integrate, adapt, and be sustainable, Goal 13, which identifies the need to take action against climate change, and Goal 17, which focuses on the implementation of the Global Partnership.

However, the "romantic" narrative of energy communities is increasingly criticised in scientific literature because it hides the shortcomings and challenges faced by energy communities [11]. Moreover, they must not only operate in a more hostile institutional environment [12]. There have also been studies that critically assess the social impact of energy communities in Europe. It is also considered that current studies cannot conclusively confirm positive social impacts and even point to a possible exacerbation of existing inequalities in energy communities [13].

There are also practical problems in

establishing energy communities in Latvia, and only one has been established to date [14]. Consequently, Latvia is still very far from the political goal set out in the REPowerEU plan, which is to achieve that by 2025 each municipality with a population of more than 10 000 has one energy community [15].

In Latvia, the area of apartment buildings is almost one quarter of the area of buildings [16]. Thus, there could be great potential for energy savings in Latvia directly in the residential sector, and therefore the successful involvement of apartment owners of multi-apartment buildings in energy communities is essential for achieving energy goals. However, first, citizens' experience in setting up energy cooperatives based on their needs must be taken into account.

Secondly, the level of involvement of citizens in the management of the residential buildings they possess is also insufficient. In contrast, in Finland, housing associations (in Latvia, communities of apartment owners) are considered to be existing local communities that have autonomy to make decisions on energy production, consumption, and management [17]. It is therefore necessary to find out whether citizens will be able to organise themselves and establish energy communities, whose organisational model has historically been ascendant. Thus, this study provides important insights on the aspects of the formation of energy communities and the motivation of residents to join energy communities in Latvia.

The aim of the study is to find out the potential involvement of citizens in the energy communities in Latvia, identifying the main factors influencing the decision-making to participate or form such communities, as well as to provide proposals on the model of energy communities in multi-apartment residential buildings.

2. MOTIVATION OF CITIZENS TO JOIN THE ENERGY COMMUNITY

Previous studies have shown that citizens do not want to participate in energy innovation projects of any kind without benefits. They always have certain motives; these motives are heterogeneous and complex [18]. Hackbarth and Löbbe have expressed the view that there are two main sets of motives for potential members of the energy community: economic benefits and social benefits [19]. These authors have indicated that the main motives are: economic benefits, autonomy, self-sufficiency, environmental benefits, community spirit, rationality, convenience, and simplicity of participation.

It is also necessary to point out that in scientific literature the motivation of citizens to join the energy community is closely related to a set of different factors [20], [21] that cover environmental [22], economic, technical, and behavioural aspects [23]. As citizens are key decision-makers in energy communities [24], their involvement and motivation are essential for shaping these initiatives and their sustainable activities.

Environmental factors are cited as the main drivers in the scientific literature [18], [25]–[26], it is related to the achievement of the goal of environmental awareness [3], [5] and sustainability [2], [4]. Citizens are increasingly aware of global climate change and the need to reduce carbon emissions [9], thus perceiving energy communities as an effective way [2] to play an active role in tackling climate challenges [3], [4]. Such participation not only makes it possible to

reduce greenhouse gas emissions [5] but also to build a sustainable energy system [2], based on local resources and community needs.

Schmid et al. point out that members are also motivated by economic interests, even if it is not the main priority [27]. These authors have cited motives in the following order of importance: environmental, infrastructural, personal, political, social, and economic. Hochstetler and Born, on the other hand, point out that the main motivation is economic. However, it is difficult to distinguish between environmental motivation and economic motivation, since the most competitive alternatives are based on renewable energy sources [28]. Joining a community energy project is a way to reduce energy costs and generate revenue while providing additional societal and environmental benefits both locally and globally [29].

In addition to environmental considerations, economic factors [27], [9] and technological incentives also play an important role. The study by Zadsar et al. also identifies factors such as behavioural and psychological, as well as the provision of social well-being [9]. The development of modern technologies, such as the availability of renewable, decentralised energy resources, makes energy communities a workable solution. Bashi et al. point out that financial benefits are not the main motives, but energy efficiency and the development of a renewable energy production system [30], while Koltunov et al. consider participation in the community's energy transition to be the essential factor [31].

It is also argued that the desire to join energy communities is strongly and positively influenced by environmental concerns and social trust. The social contexts that support the development of energy communities are structural interactions with neighbours and civic norms with family members [32]. Such initiatives are supported by economic benefits, participation in social activities based on energy improvement [27]. Almeida et al. point out that the crucial factor in guaranteeing citizen participation in energy communities is to allow ownership of renewable energy projects, which would include direct involvement – responsibility for some aspects of renewable energy projects and direct involvement in project planning [33].

Other motivation-related factors in scientific literature include financial, self-sufficiency, uncertainty and trust, inconvenience, social, political, technological factors, as well as the divergent views of citizens [27], concerns about energy policy such as the decentralisation of energy systems and energy self-sufficiency [27]. Balcombe et al. also point out that citizens' motivation is influenced by the ability to adopt renewable energy projects [27].

Thus, in general, the literature expresses the opinion that the motivation of citizens to join the energy community is based on the desire to actively participate in environmental protection, to reap economic benefits, and to use modern technologies, while strengthening the local community and building a sustainable future.

The scientific literature has expressed the view that energy communities are perceived as bottom-up energy-related projects directed towards local needs, characterised by strong citizen participation, local responsibility, and decision-making [34]. At the same time, studies show that the organisational model of energy communities can be both "bottom-up" with citizens' initiatives and participation. Still, it also allows for the involvement of institutional actors such as municipalities or local energy companies [35]. It is therefore indistinguishable whether the local community merely

accepts or supports renewable energy projects, since acceptance is a positive but rather passive attitude towards something external, while support would imply greater commitment on the part of the participants [36].

In the context of joint action, the literature suggests that households, small and medium-sized enterprises and other organisations are creating a new energy community or joining an existing energy community because they are ready to take direct action in the field of energy: jointly meeting their energy needs, such as the consumption of electricity produced from renewable or local energy sources. By pooling their resources and coordinating their actions, members of the energy community can overcome some obstacles that often do not satisfy individual consumers who want to be actively involved in energy production. Collective action can, for example, be more cost-effective than individual initiatives, as it allows a greater scale [37].

Collective action makes it possible to harness locally produced energy and reduce the need for external energy sources, which can help achieve significant cost savings and increase the percentage of green energy [38]. Therefore, the desire to achieve greater energy independence [33] through local renewable resources that contribute to sustainability is also important. Energy independence is a priority for energy-dependent countries [39].

At the same time, economic profitability is distinguishable from profit-making. This is limited both by the choice of legal form and the organisational objectives pursued [23] and by the European Union's framework, which stipulates that the main objective of the energy community should be the provision of environmental and social benefits in the community or local area – not financial profit [29]. On the other hand, the Directive leaves the choice of organisational form to the discretion of Member States, providing that they should be able to provide that citizens' energy communities can be formed as any type of entity, such as associations, cooperatives, partnerships, non-profit organisations or small and medium-sized enterprises, provided that the entity concerned is entitled to exercise rights and assume obligations on its own behalf.

Local participation acquires meaning in relation to a particular place and its problems, for example, in the case of apartment owners' associations [40]. Community members are usually not only passive beneficiaries of collective action, but also directly involved in the benefit (38). At the same time, even if energy communities are a local initiative, they differ from each other in several aspects. Some energy communities may have only a few dozen members, while others may consist of thousands of members with very different social and demographic aspects [38]. The motivations of the members of the energy community and the prevailing objectives of their joint action may also vary from one energy community to another [41].

Community energy projects are more successful than those carried out by utility providers, as citizens trust community projects more than utility providers [18]. This aspect has also been mentioned by Steffen Wirth, who pointing out that large-scale wind farms do not gain support from the local community compared to community-wide projects that enjoy broad public support [42]. Trust between the local population and the groups driving the projects is a prerequisite for the project to work [43].

Regulation at the national level also plays an important role in shaping the common motivation of the community. The legal framework often creates barriers that

discourage citizens from joining collective bargaining schemes, so removing these barriers is an essential step. For example, a study on the motivation of Norwegian citizens for collective energy action [44] analysed aspects of energy injustice stemming from Norwegian policies that support the use of solar photovoltaic energy, with a particular focus on apartment buildings and housing cooperatives. In this study, the authors find that the current combination of Norwegian policies, which includes provisions on grid tariffs, taxes and subsidies, is hindering residents of apartment buildings to collectively produce and consume their own electricity, creating an injustice of distribution. A key difference is that single-family building owners are allowed to net hourly accounting [45], exempting them from additional costs, while collectively consumed energy is subject to grid tariffs and taxes. Consequently, one of the conclusions is that in Norway the collective needs of housing cooperatives are not properly recognised. Overall, the authors point out that the main factors that motivate (or hinder) citizens to join the possibilities of using collective energy are closely related to economic profitability and the fairness of the regulatory framework.

A group of Italian scientists also concluded in their study that the main factors influencing citizens' desire to engage in energy communities, including moving towards collective action, were related to economic benefits, structural barriers, energy independence and social cooperation. The greatest motivator is the possibility of reducing costs, which both citizens and experts value above other aspects. Financial incentives and favourable tax policies have a significant impact on the decision to join the energy community [33]. At the same time, bureaucratic and technical obstacles, as well as a lack of policy coordination, are hampering the development of these initiatives. Simplifying administrative and technical processes is essential to facilitate the uptake of renewable energy solutions in energy communities.

3. MATERIALS AND METHODS

In the course of the research, a theoretical review of regulatory framework and scientific literature was conducted, as well as quantitative research methods were used, analysing statistical data. An empirical study was also conducted by conducting a survey of residents and managers on public awareness and attitude towards energy communities.

The following research tasks were set:

- to identify factors affecting the motivation of residents to join energy communities in Latvia;
- to formulate proposals for an optimal energy community model for the situation in Latvia.

Research hypothesis: A horizontal organisational model of the energy community would be applicable to the situation in Latvia.

To find out the factors that could motivate the population to join the energy community in Latvia, a survey was conducted. 238 persons participated in the survey. At the beginning of the survey, respondents were asked to mark their age in the age categories of (1) 18 to 35 years, (2) 36 to 65 years and (3) over 65 years. 46 of the respondents were in the age group from 18 to 35 years, 184 respondents – from 36 to 65 years old, and 8 persons were over 65 years old. The survey also asked:

- place of residence (city, village or rural area);
- income level;
- level of education.

The survey involved apartment owners, tenants, owners of single-family buildings – persons without special knowledge about the management of residential buildings (193 in total), as well as residential building managers (45 in total), i.e., persons for whom special qualification requirements are set by regulatory enactments and who have in-depth knowledge of the management of residential buildings. Before completing the survey, the respondent had the opportunity to get acquainted with brief information about the purpose and areas of activity of energy communities.

Directive (EU) 2019/944 of the European Parliament and of the Council states that the main task of the citizens' energy community is to provide environmental, economic, or social benefits to its members or shareholders or to the local areas in which it operates, rather than to generate financial gain. Therefore, the survey asked about the following factors that would affect the respondent's joining the energy community, asking to rate them on a scale from 1 (not important at all) to 5 (very important):

- economic benefits, such as the possibility of reducing the price of electricity;
- local community benefits, such as the opportunity to develop the local economy, strengthen the local community;
- environmental benefits, such as the use of renewable (wind, solar) resources in the production of electricity.

The authors of the study classified the benefits of the local community and the environmental benefits as motivating factors aimed at achieving the common good. Based on the additional factors identified in the literature review, the question of the importance of the following factors was also asked:

- autonomy and self-sufficiency, such as the ability to produce part of the necessary electricity on their own;
- the simplicity of participation, for example, whether the procedures for participation in the energy community are simple, local and national regulations facilitate the placement of the production facilities of the energy community.

Laws and regulations in Latvia do not provide a territorial restriction on the operation of energy communities. However, in view of what has been pointed out in the scientific literature about the importance of the local community, the question of the scale of the energy community was additionally raised, asking the respondent to answer on what scale the population should be united in order to be considered a "local energy community" – on the scale of one residential building, on the scale of several residential houses (block), on the scale of the village, on the city level, on the scale of the local government, or on the national scale.

To find out whether there are preconditions for citizen-led initiatives in the creation of energy communities, a question was asked about the experience of respondents in any citizen-led initiatives, for example, collecting signatures via www.manabalss.lv, renovating an apartment building owned by them, participating in a non-governmental organisation. It was found out whether the responded had: no experience; a positive experience; a negative experience.

To find out whether there are preconditions for citizen-led initiatives in the creation of energy communities, a smaller initiative of residents was considered in

terms of scale – taking over the right to manage an apartment building owned by oneself as apartment owners, choosing a manager or establishing an association of apartment owners. The process of taking over the rights to manage multi-apartment buildings took place from October 2000 to 1 January 2026. Statistical data for the period from 2000 to 2013 were examined, comparing them with the information provided by local governments on the number of multi-apartment buildings, which management rights had not been taken over in October 2026.

These multi-apartment buildings are residential houses whose owners have not chosen a manager after apartment privatisation. After the privatisation process, apartment owners were required to take over the management of their building, either by selecting a professional manager or by forming an association of apartment owners. However, in many cases, this obligation was not fulfilled, and the management of these buildings remained under a municipality-appointed manager.

To find out the common and different features of the energy community and the community of apartment owners, a comparative analysis of the laws and regulations of the Law on Residential Properties, the Energy Law, and the Electricity Market Law was also carried out.

4. RESULTS

4.1. General Analysis of Factors

Previous studies on improving the energy efficiency of multi-apartment buildings have indicated that economic factors take precedence over environmental, community, or other factors [46]. Also, the results of the survey conducted within the framework of this study show that the economic factor is the most significant for respondents.

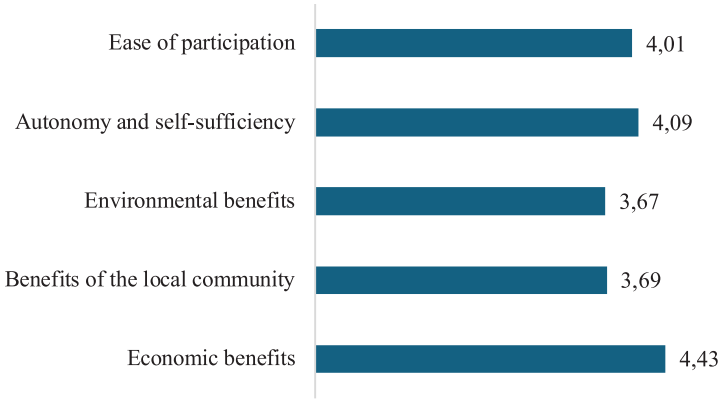


Fig. 1. Arithmetic mean of factors obtained according to survey results (n=238).

The second most important factor after respondents' responses is the need for autonomy and self-sufficiency, followed by ease of participation in the energy community. Respondents rate the environmental benefits and the benefits of the local community

as the lowest. This indicates that the factors that are related to the common good: environmental benefits, as well as the benefits of the local community, are not as important in the opinion of respondents as other, mainly personal benefits. In addition, environmental benefits or local community benefits are not, on average, the most important factor for any category of the population, when selected according to any selection criteria, such as age, income level or level of education. However, environmental benefits and local community benefits are, on average, more important for individuals who have a positive experience with citizen-led initiatives.

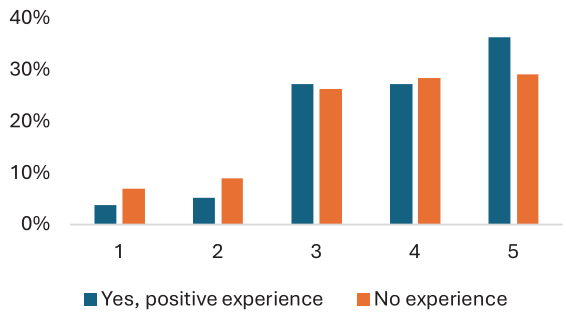


Fig. 2. Share of respondents by importance of environmental factors and experience in citizen-led initiatives.

Overall, environmental factors obtained the lowest rating among respondents. Of the 238 respondents, 74 respondents rated environmental factors as the most important. 36 individuals marked the factor as very unimportant (1) or unimportant (2). Compared to economic factors, economic factors were noted as very important (5) by 153 persons, indicating a higher importance of economic factors in a wider range of respondents.

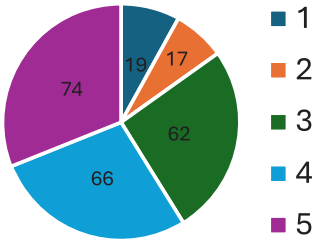


Fig. 3. Ratings of environmental factors by respondents.

Evaluating the profile of persons who marked environmental factors as very important (5), it is concluded that:

- out of 45 managers, 25 managers marked environmental factors as important and very important (4 and 5). Six managers marked environmental factors as very unimportant (1) or unimportant (2);
- of the 79 owners of private houses, 55 respondents rated environmental factors as important and very important. In contrast, out of 129 apartment owners, only 69 apartment owners marked environmental factors as important or very important. Environmental factors were rated as very unimportant (1) and unimportant (2) by almost 9 % of owners of private houses and 17 % of apartment owners.

Overall, 8 % of respondents rated environmental factors with 1, and 7.14 % rated with 2.

4.2. Local Community Factors

Overall, the benefits to the local community are the second lowest motivating factor among respondents. Of the 238 respondents, 71 respondents marked this factor as very important (5), which was the lowest rating among the other factors. Thirty-eight persons rated the factor as very unimportant (1) or unimportant (2).

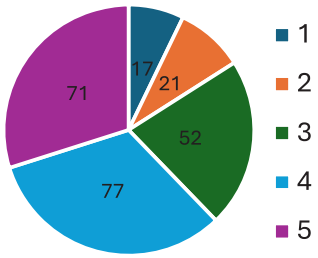


Fig. 4. Respondents' ratings of local community factors.

When assessing the profile of individuals who rated local community factors as significant, out of 45 managers, 27 managers marked community factors as important (4) or very important (5). Six managers noted this factor as very unimportant or unimportant.

Of the 79 owners of single-family houses, 54 respondents marked this factor as important (4) or very important (5), and 11 as very unimportant (1) or unimportant (2). Of the 129 apartment owners, 81 respondents marked the mentioned factor as important or very important. For 24 respondents in this group, the mentioned factor is not important (noted 1 or 2).

Overall, 7 % of local community factors were rated at 1, and 8.82 % were rated at 2.

Evaluating the motivation factors of respondents by the building they inhabited (apartment or apartment building), it can be concluded that for owners of private houses the factors related to the common good are on average more important than for apartment owners or tenants of residential premises.

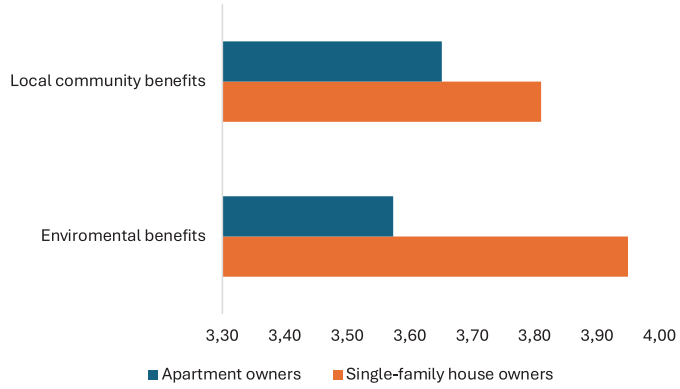
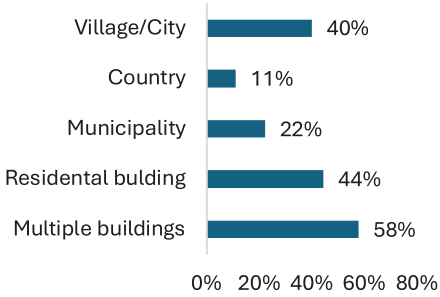
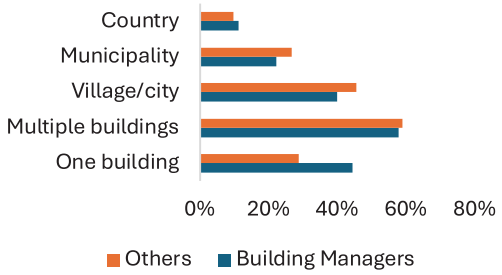


Fig. 5. The importance of common good factors for apartment owners and owners of single-family houses.

4.3. The Scale of the Energy Community

When answering the question about the scale of the energy community, in order to be considered a "local energy community", an energy community of multiple residential houses, followed by an energy community on a village or city scale, is considered the most optimal. In contrast, smaller-scale energy communities (within a residential building) or larger-scale energy communities: municipalities or even at the national level are considered "local energy communities" in much fewer cases. The exception is managers, who on a single-home scale energy community is the second most common answer. Such a difference between the answers given by managers and other respondents can be explained by the practical experience of managers with project management on the scale of only one residential house, carrying out the management of this house.





Figs. 6 and *7*. Respondents' views on scale.

4.4. Citizens' Experience with Self-Initiated Projects

In the survey, respondents were asked whether they have experience in citizen-led initiatives, such as manabalss.lv, building renovation, etc. Respondents had the opportunity to note that (1) they had no experience, (2) had experience and it was positive, (3) had experience but it was negative, (4) another option was also allowed to be recorded. Of the respondents, 144 persons, or 60 %, had no experience in such initiatives, 77 had positive experience, 11 had negative experience, and 6 persons chose to mark another option (where they mostly wrote that they had both negative and positive experience).

Information on the experience of cooperation among apartment owners can be obtained from statistical data on the takeover of multi-apartment residential buildings by apartment owners. This process took place from 2000 to 31 December 2025. It provided for the obligation of apartment owners to form an association of apartment owners or choose another manager who would represent the community of apartment owners and carry out the management. These data show that for a long period of time in some municipalities the activity of apartment owners has been low. Thus, even cooperation in solving common issues within one apartment building, which is the smallest possible scale of the energy

community, is a challenge for apartment owners. In municipalities with the lowest number of residential houses not transferred to the management of apartment owners, there has been a higher involvement of the municipality and the manager in proposing decision-making by the community of apartment owners.

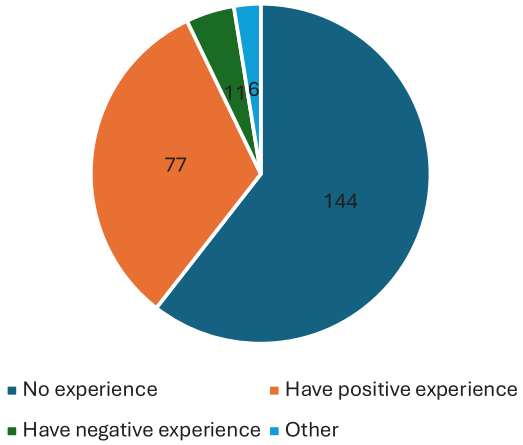


Fig. 8. Citizens' experience of self-initiated projects (number of respondents).

Table 1. Number of Residential Houses without Transferred the Management Rights of Apartment Owners in Selected Municipalities in 2000, 2013, and 2025

Municipality	Number of residential houses to be transferred to the management of apartment owners: (2000)	Number of residential houses not transferred to the management of apartment owners (2013)	Number of residential houses not transferred to the management of apartment owners (2025)
Rīga city	5219	4586	2884
Jūrmala city	978	382	277
Jelgava city	533	120	12
Liepāja city	1380	400	5
Jēkabpils municipality	605	496	390
Alūksne municipality	206	160	80
Mārupe municipality	30	29	0
Balvi municipality	266	181	79
Ādaži municipality	75	26	0

4.5. Energy Community Scale: Energy Community in One Apartment Building

Forty-five managers and 193 respondents, including apartment owners, indicated that an energy community would be considered a "local community" if it operated within a single residential building. Taking into account the fact that in residential houses divided into apartment properties, apartment owners are already united by

a legal entity – the community of apartment owners, which is represented by the manager, the question is whether the community of apartment owners can act as an energy community. Therefore, a comparison of the two subjects of these rights was carried out according to their different characteristics, which are provided for in regulatory enactments: the Energy Law, the Electricity Market Law, and the Residential Property Law.

Table 2. Comparison of the Characteristics of the Community of Apartment Owners and the Energy Community

Characteristics	Energy community	Community of apartment owners
Legal status, legal capacity, capacity to act	Subject of rights: association, foundation, cooperative society, partnership, capital company, or other civil-law society	A special type of subject of rights, possessing legal capacity and the capacity to act. In cases specified by law, it is treated as a legal person.
Composition of the legal entity	Members or shareholders. Members or shareholders of an energy community may be natural persons, small and medium-sized enterprises, as well as municipalities and other public entities. Large enterprises – subject to conditions.	All apartment owners in multi-apartment residential buildings are divided into apartment properties.
Voluntary membership	Membership is voluntary.	Membership is mandatory.
Creation	The entity acquires the status of an energy community after registration in the register of energy communities.	By law, court judgment, transaction, or decision of the building owner, on the basis of which apartment properties are established.
Purpose of creation	Production of energy to its members or shareholders by providing economic, public, and environmental benefits to its members, shareholders, or the territories in which it operates.	1. To implement the common interests of apartment owners, which are related to the management of the share in joint ownership; 2. The community of apartment owners can exercise the individual rights of apartment owners in connection with the conclusion of contracts for utilities.
Statutes	It is necessary.	None, the activity is regulated by the Residential Property Law.
Location	The electricity sharing object must be located in the territory of the Republic of Latvia.	Location of a residential building is divided into apartment properties.

When comparing the two legal entities, the first difference identified is the purpose of creation. However, even if the Residential Property Law were supplemented by a new direction of activity of the community of apartment owners, which would complement the purpose of its creation, the community of apartment owners could not act as an energy community, since participation in an energy community is voluntary, whereas in the case of a community of apartment owners, when a person becomes the owner of the apartment, he or she becomes part of the community of apartment owners as a legal entity, i.e., becomes a member of such an association of persons [47].

5. DISCUSSION AND CONCLUSIONS

The results of the study show that only a fraction of apartment owners have cooperative experience in managing an apartment building they possess, which is the smallest possible energy community model. However, the community of apartment owners cannot function as an energy community and it is therefore intolerable to establish a new legal entity. However, in the case of one residential building, apartment owners can become participants in another decentralised energy exchange model and become active users acting together. In such a model, apartment owners can share electricity even without establishing a legal entity (energy community) and registering it in the register of energy communities. Consequently, the formation of energy communities within the framework of one residential building is not useful, since the same result can be achieved with less administrative costs.

The authors believe that there is a need for wider cooperation among residents when the level of involvement exceeds the scale of a single residential building. However, in cooperation of this scale, apartment owners do not have previous practical experience, as well as the residents have little experience in other public initiatives. A lack of participatory skills and experience is a major obstacle to building energy communities, as such initiatives require a high level of mutual trust and shared responsibility.

At the same time, as the results of the study show, the dominant factor for the population is the economic benefit factor, and not the factors based on common goods – environmental benefits or local community benefits. This means that those living in multi-apartment residential buildings not only lack practical experience in the implementation of projects of this scale, but they are also not motivated to cooperate in achieving the common good, but cooperation can only take place because of mutual economic benefit. Single-family building owners are more motivated to achieve common benefits; however, the main interest of single-family owners is also economic benefits and they lack practical experience in citizens' cooperation projects. The authors conclude that a culture of collective energy responsibility has not yet developed in Latvian society. Similarly, the gap between the individual and the common good is a major challenge in building energy communities. In addition, as the results of the study show, citizens have different understandings of the scale of the energy community, suggesting that the population has not developed a dominant view of the scale of "local" identity.

Therefore, the upward-looking organisational model based on the cooperation of the population is not fully applicable in Latvia. On the other hand, the top-down organisational model is not applicable to energy communities; it fails to reflect the local populations' needs and to promote public involvement in the energy transition.

At the same time, the results of the study also show a very different level of involvement of apartment owners in taking over the management rights of residential houses owned by them in different municipalities of Latvia. This can be attributed to the active involvement of individual municipalities and municipally owned companies, which manage residential houses and play a leading role in initiating decisions within the community of apartment owners. As a result, these municipalities demonstrate a higher level of mutual cooperation among

apartment owners.

Therefore, the involvement of the municipality – as the entity that defines the common good at the local level and promotes local identity – and the manager, as the representative of several apartment owners' communities within one municipality, is critically important to unite and mobilise apartment owners from multiple residential buildings for joint initiatives.

Therefore, the authors believe that a horizontal organisational model for energy communities would be suitable for Latvia, where institutional actors (municipalities, municipal capital companies, energy supply companies, etc.) cooperate with residents and energy communities, ensuring both the development of initiatives and support for the creation and maintenance of communities. Consequently, it is necessary to strengthen the knowledge of residential building managers and provide municipal support to practically implement such a model. Without municipal support, energy communities may remain only a theoretical possibility for the energy transition in Latvia.

The organisational structure of energy communities should be multi-layered, combining local participation, municipal and institutional support, as well as financial incentives specifically aimed at the development of energy communities. The structure must comply with the Latvian context and the requirements of the European Union.

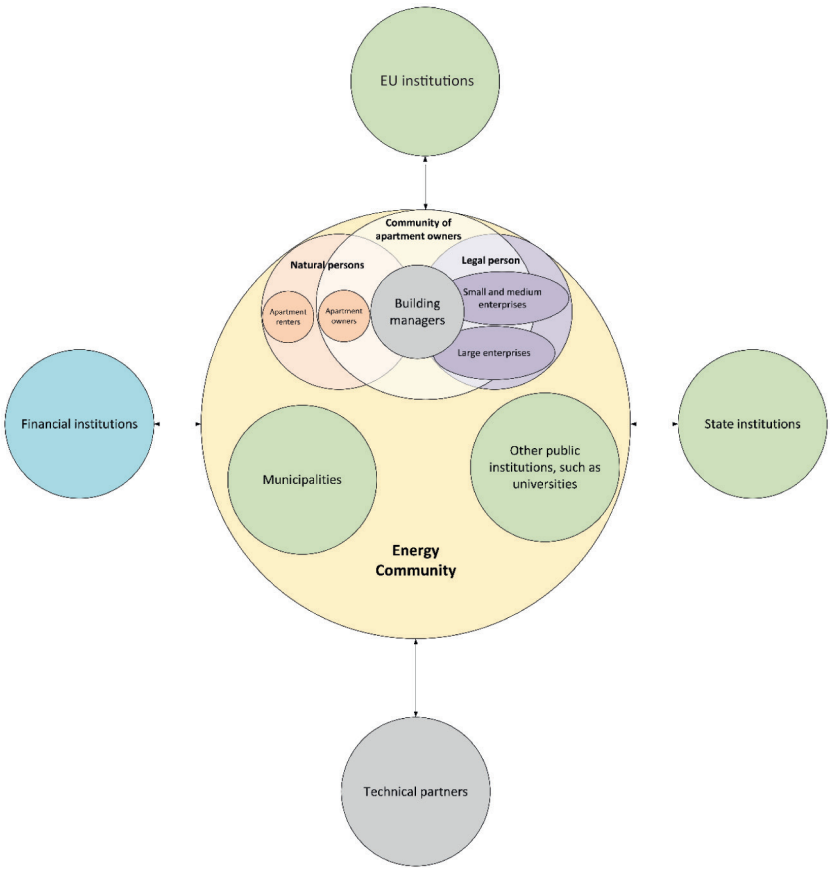


Fig. 9. The energy community model and its key partners.

Within the framework of the model, both the energy community and its participants, as well as its cooperation partners, have defined the main operational functions, which are indicated in Table 3.

Table 3. Main Operational Functions of the Participants and Cooperation Partners of the Energy Community

Parties involved		**Main operational features**
Energy community		Everyone: participates in decision-making, benefits from cheaper electricity.
	Apartment owners	As members of the community of apartment owners, decide on the placement of the production facilities of the energy community in the part in the joint ownership.
	Building Managers	Organise and coordinate the decision-making of the community of owners of apartments of managed residential houses on the placement of energy community production objects in managed residential houses.
	Municipality	Organises and coordinates the establishment of energy communities, which are covered by several building managers of residential buildings managed within the municipality or city.
State institutions	State administration institutions (Ministry of Economics, Ministry of Environmental Protection and Regional Development, Ministry of Climate and Energy, Public Utilities Commission	Development of energy policy, development of laws and regulations, establishment of a support system for energy communities.
Institutions of the European Union	European Parliament, Council of Europe, European Commission	EU policy-making, EU legislation, definition of the energy community.
Technical partners	Energy supply companies, technology manufacturers, suppliers, designers, builders, network operators	Design, installation, maintenance of equipment, involvement of energy communities in the wider energy ecosystem.
Financial sector	State financial institutions (ALTUM, CFLA), commercial banks, European financial institutions, investment funds	Financing installation, providing guarantees, issuing grants, co-financing, administering EU programmes.

The system of cooperation and interaction of all parties involved consists of interrelated elements such as active community involvement in processes, strategic coordination, financial participation, technical partnership, legal support, and transparent exchange of data. The integration of these elements would facilitate the efficient operation of energy communities, ensuring that the energy communities of the inhabitants of Latvia become a sustainable, socially responsible and economically viable model, in which each of the parties involved fulfils a clearly defined and complementary role.

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