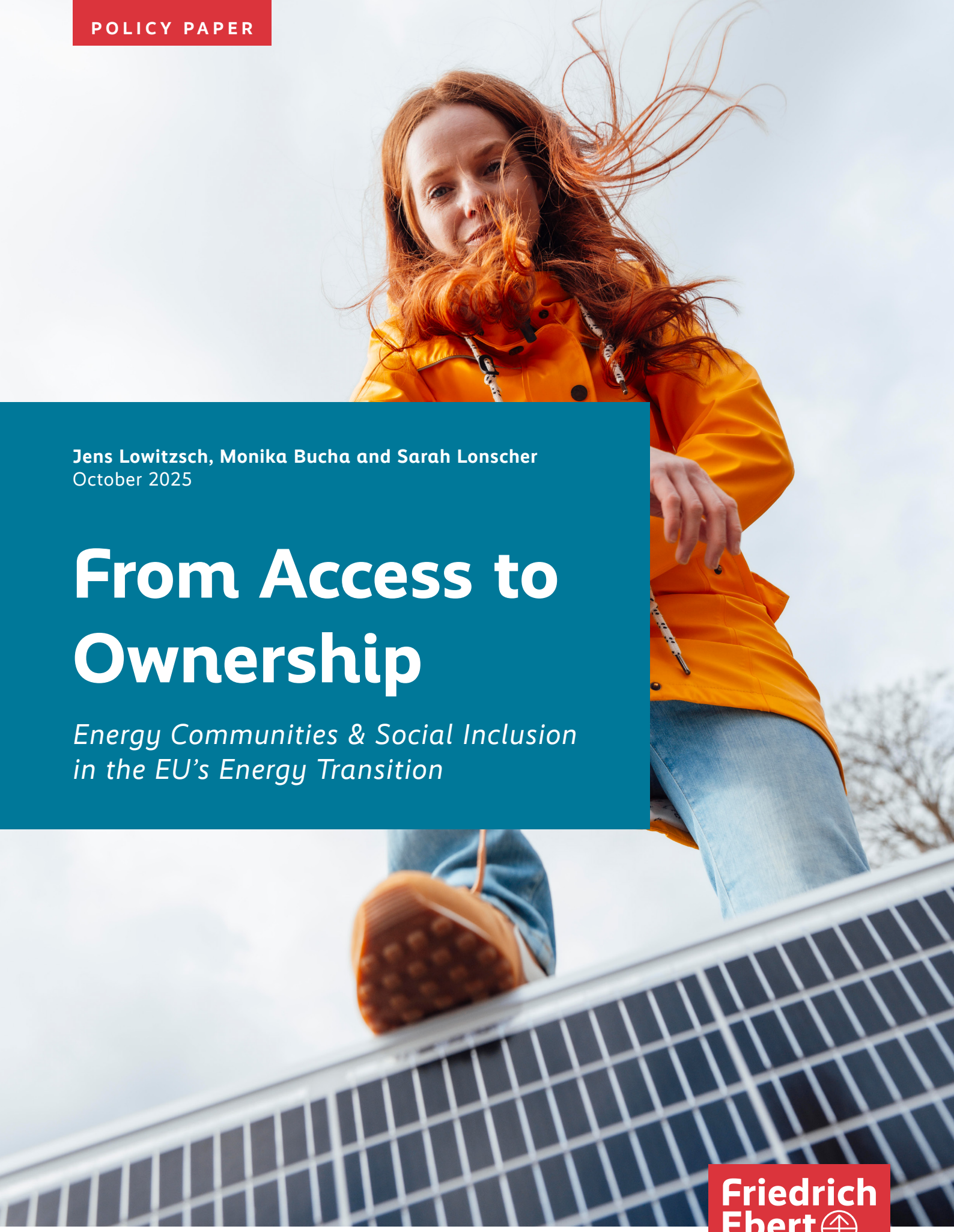
POLICY PAPER



Jens Lowitzsch, Monika Bucha and Sarah Lonscher
October 2025

From Access to Ownership

Energy Communities & Social Inclusion in the EU's Energy Transition

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I.
Introduction

The energy transition requires inclusive engagement across all sectors. However, delivering on this task is becoming ever more complex due to the rapidly evolving landscape of rising energy costs, market volatility, and affordability concerns affecting European consumers.

In response to these challenges, the EU has explicitly placed the citizens at the centre of the future energy landscape via its Clean Energy Package (CEP), reflecting the importance of aligning technological and economic advancements with social equity. Nonetheless, the everyday life of millions of Europeans tells a different story, as escalating energy costs exacerbate the ongoing cost-of-living crisis.

The recent EU legislative reforms embedded within the »Fit for 55« package significantly raised the EU's climate ambition. However, the strengthening of climate targets further underscores the **urgent need to enhance the equity of the just energy transition and raises critical questions** about how we can ensure that the transition is accessible and beneficial to all citizens, **especially those with limited financial capacity**. Addressing this aspect is essential to ensure the transition's social acceptance and ultimately its success.

This policy paper examines the social implications of the EU's energy and climate framework, emphasising the **need for targeted measures that facilitate the inclusion of vulnerable and low-income households in energy transition initiatives**. It advocates for integrating social justice considerations into regulatory and financial mechanisms to safeguard fair access to renewable energy (RE), affordable energy services, and participation in clean energy ownership.

1. EU-Policy Context and Aims

Launching the CEP, the European Commission emphasised »consumer empowerment« as one of three mainstays of future consumer energy policy (see »Delivering a New Deal for Energy Consumers« (COM(2015) 339 final) and »On a New Energy Market Design« (COM(2015) 340 final). In this context, one of the EC's priorities was to **put consumers »at the centre of the future energy system«**, including the rights to self-consumption and to (co-)ownership in renewable energy (RE) (COM(2015) 080 final). Correspondingly, the CEP introduced basic energy rights to generate, self-consume, store and sell electricity and energy both for individual citizens (including SMEs) and for citizens collectively organised in energy communities (ECs) with a separate and distinct legal personality.

The Electricity Market Design Regulation 2024/1711 (EMDR) introduces, among other things, the **»right to energy sharing« for all European citizens—also independent of the establishment of an EC**—in the second half of 2024.[1] In addition, it is establishing the legal figure of the »Energy Sharing Organiser« with a corresponding business area, from which ECs can benefit both as providers and users of corresponding services. Thereby, also people who are not members of ECs, including those who do not have direct access to RE, will be able to benefit from energy sharing. Finally, the EMDR (inserting Art. 20a (5) to the RED III) introduced the obligation of Member States (MS) to ensure that the national regulatory framework allows small storage systems to participate in all electricity markets, including congestion management, flexibility and balancing services.

In addition to the inclusion objectives already enshrined in the Renewable Energy Directive (EU) 2018/2001 (RED II) and the Internal Electricity Market Directive (EU) 2019/944 (IEMD), the EMDR introduces **a minimum quota of 10 per cent of shared electricity for households affected by energy poverty** to be achieved by the Member States **in public RE projects** in Article 15a (8). According to Art. 15a EMDR, MS shall

> *»ensure that energy poor and vulnerable households can access energy sharing schemes«, that »energy sharing projects owned by public authorities make the shared electricity accessible to vulnerable or energy poor customers or citizens« and that »"[i]n doing so, **MS will do their utmost to promote that the amount of this accessible energy is at least 10 per cent on average of the energy shared**.«*

However, the EMDR remains silent as to how this quota is to be achieved.

1 In particular Art. 15a, which must be transposed into national law by the Member States within six months by late autumn following the conclusion of the legislative procedure in April 2024.

2. Problem Description – Distributive Asymmetries and Participation Deficit

Low-income households (LIHs) are particularly affected by electricity costs as they spend a proportionally larger share of their disposable household income on energy (Frondel & Sommer, 2018). In 2022, German households in the lowest income quintile spent 14.8 per cent on energy bills, while the 10 per cent highest income earners paid 5.4 per cent of their income (Praktiknjo & Priesmann, 2022). Spending a higher proportion of available income on energy, **LIHs have a stronger incentive to use energy more efficiently**, as every Euro saved on energy has a proportionally larger effect on their budget. Nevertheless, their room for manoeuvre is limited as they often are already saving by foregone consumption, leading de facto to »under-consumption« (Hünecke et al., 2025). Already at the lowest consumption levels, LIH's price elasticity is limited if not inexistent, with households not being able to react to price changes even if they were aware of it (Theine et al., 2022). Additionally, LIHs typically live for rent, providing them with very limited options for autonomous improvements in energy efficiency.

At the same time, overall per capita energy consumption of LIHs is lower than that of richer households as they inhabit smaller and more crowded living spaces and own fewer appliances (Theine et al., 2022). Therefore, **LIHs contribute much less to global warming than rich households**. Schöngart et al. (2025) find that two-thirds (one-fifth) of warming is attributable to the wealthiest 10 per cent (1 per cent), meaning that individual contributions are 6.5 (20) times the average per capita contribution. Yearly individual carbon footprints range from several hundred tons of CO_2 per year for the richest to less than 1 tCO_2 for people living below poverty lines (Bruckner et al., 2022). Chancel & Piketty (2015) find that the top 10 per cent emitters contribute to about 45 per cent of global emissions, while the bottom 50 per cent emitters contribute to 13 per cent of global emissions. Top 10 per cent emitters live on all continents, with one third of them from emerging countries.

For the EU, in a literature review, Theine et al. (2022) find a **general relation between higher income level and higher carbon footprint** and the role of urbanization. In Austria, for example, the top income decile is emitting 4.1 times more CO_2 than the bottom income decile. This asymmetry is also reflected with regard to the type of housing, with residential building type being a proxy for wealth. In Germany, for example, single-family and two-family homes emit, on average, 46 per cent more CO_2 annually compared to multi-family dwellings, regardless of household size (co2online, 2025). These conclusions are corroborated by similar results for Austria, where Muñoz et al. (2020) tested the influence of urbanization on carbon footprint finding that semi-urban areas have the highest carbon footprint compared to urban and rural areas.

Considering above asymmetry, it is puzzling that **LIHs carry a comparatively larger burden of the energy transition than rich households**. Given their larger proportion of energy costs in disposable household income, they pay a proportionally larger share of grid fees, consumption taxes and RE surcharges financing the grid integration of RE. **This imbalance is exacerbated by the many exemptions** from such contributions for energy-intensive industries and investments possible only for wealthy households. The offshore levy, dedicated to the expansion of offshore wind, for example, is not applied for electric vehicles and heat pumps (Agora Energiewende, 2025), typically purchased by higher income groups. Furthermore, self-consumption of RE is generally exempt from grid fees and levies. Households able to invest in RE installations can reap the advantages compared to households that have no or limited capacities to invest in such installations while having to pay fees and levies on every kilowatt hour consumed. **Notwithstanding, the costs of grid integration are increasing over time**, as e.g., in Germany, overall grid fees have nearly doubled since 2015 (EnBW, 2025). Ironically, prosumers – consuming much of their electricity behind the meter – contribute to feed-in peaks that drive the need for further grid expansion, with the resulting costs being distributed across all consumers, exacerbating above-described imbalance (Agora Energiewende, 2025).

In summary, **LIHs carry a larger share of the burden of the energy transition while contributing less to global warming**. At the same time, they are underrepresented when financially benefiting from the integration of RE into the energy system (Radtke & Ohlhorst, 2021). Notwithstanding, social legislation across the EU creates a »welfare dilemma«: For citizens receiving social transfers, dividends or income from RE-(co-)ownership are likely to reduce their social transfers (see Section IV). As social transfers depend on income, people who receive these benefits may not be able to own or earn money from RE projects as such income conflicts with eligibility for means-tested transfers (Lowitzsch & Hanke, 2019). The result is a zero-sum game which in the worst case wipes out the benefits of engagement and financial participation leaving LIHs merely with the associated risks. In this way social legislation, unintentionally discourages low-income households from taking part in RE ownership.

II.
Energy Citizenship at the Intersection of Renewables Integration and Social Policy

Matching volatile RE production with consumption, that is, demand flexibility, is one of the core challenges of the energy transition. In a similar way, Energy Efficiency (EE) is key to its success as the best kilowatt hour is the one not consumed at all. However, both demand flexibility and EE require **change of the consumption behaviour of EU citizens**. To trigger such changes and to motivate individuals to adapt them in turn **requires engagement and financial incentives at the household level**. Consequently, with the CEP the EU provided a legal framework for individual citizens for RE (co-)ownership, engagement and behavioural change. At the same time, the potential of making use of such rights is impacted by individual's capabilities (or their absence) and the institutional area they are active in. Therefore, **the question of how citizens can actually make use of their new rights is crucial for these policies to have real-life impact**.

Against this background, this section gives a brief overview of empirical evidence for the relation between engagement, RE (co-)ownership and behavioural change of LIHs. Outlining briefly the new EU citizen's rights backing the inclusionary approach we then discuss why participative rights should be accompanied by rights enabling citizens to make use of the former.

1. Why Citizen's Financial Participation and RE (Co-)Ownership? – Empirical Evidence

Two large surveys among German households show that (co-)ownership matters to increase household income while increasing EE (Roth et al., 2018, 2021, 2023). When consumers become fully-fledged prosumers of RE, they produce a part of the energy they self-consume, reducing their overall energy expenditure while increasing household income from the sale of excess production. These positive effects further increase when prosumership is coupled with EE measures. Investing in RE while reducing consumption by improving EE reduces investment amortisation since a larger share of (excess) production can be sold to third parties. With self-production being cheaper than buying energy from utilities less money is spent. This outcome is also key to mitigating rebound effects: **Every kilowatt-hour not consumed becomes a kilowatt-hour potentially sold, providing an economic incentive for energy-efficient behaviour.**

Thus, when households own or co-own RE, they are more likely to behave in ways that stabilise the grid while saving energy and invest money in energy-efficiency technologies. These results were especially strong for homes with solar panels because people can engage directly and see the results near their home. More importantly, **these findings also hold true for LIHs, as long as they have the chance to financially participate** (O'Shaughnessy et al., 2020), which goes against the idea that only wealthy people will get involved. Moreover, research also shows that while people with higher incomes are more likely to buy energy-efficient technologies, they, at the same time, are less likely to change their daily habits in order to save energy (Radtke et al., 2022; Umit et al., 2019). So contrary to a widespread assumption, LIHs are actually very willing to change their habits and invest in RE and EE. The problem is that **many low-income families cannot act on this potential** because:

(i) they are not eligible for the respective financial incentives,

(ii) they lack own funds or savings to invest, and

(iii) even if they engage, they run the risk that financial benefits are set off with social transfers (»welfare dilemma«).

Furthermore, the potential to mitigate rebound effects and increase EE are even larger with LIHs when compared to middle- and upper-class households (Hanke et al., 2023), a finding confirmed by a 2023 survey among German households (Magalhães et al., 2025). Data shows that if low-income households get the right information, tailored financial help, and support, they are more willing to become (co-)owners in RE projects and change their consumption behaviour than wealthier households. This shows that **including LIHs and other underrepresented groups is not only a social policy angle to be addressed but a huge opportunity for improving demand flexibility and EE**.

In summary, to tap into the enormous potential for engagement, in particular with regard to the necessary decarbonisation of our energy systems, requires the involvement of Energy Citizens not engaged yet - that is, the vast majority of actors. Finally, according to the European Environment Agency (2022), prosumers—whether acting individually or collectively—could technically supply up to 60 per cent of the EU's total electricity demand by 2050.[2] However, to tap into this potential will require the adoption of supportive economic and social policies. Therefore, **inclusion is a key part of the solution**.

2. Inclusion and Individual and Collective Energy Rights at the EU Level

Regarding individual rights, the RED II introduced »Renewables Self-Consumers« while the IEMD speaks respectively of »Active Consumers«. Concerning collective rights, the RED II introduced »Renewable Energy Communities« (RECs) while the IEMD defined »Citizen Energy Communities« (CECs). Members of both types of ECs have the privilege of sharing electricity (for RECs also other forms of energy) between members or shareholders, even when using the public grid. As mentioned, this privilege was extended with the EMDR to individuals, independent of the establishment of an EC. To be effective, these rights require operationalisation stipulating how citizens can concretely make use of them and how this is supported. In this light it is puzzling that, while responsibility for the energy transition is often seen with the citizen as consumer, stressing the need for behavioural change, the question of citizens' agency is rarely addressed, let alone that of empowerment (Lennon et al., 2019). As of now, no ancillary rights in the realm of energy production and consumption rights mentioned above have been codified. **While the policy aim is sufficiently clear, there is no roadmap indicating how to reach these goals.**

Therefore, we argue that the rights to take part in the energy transition should come with support that helps people to actually make use those rights. This means giving citizens the practical and accessible tools to get involved. For vulnerable groups, energy rights should go beyond just being connected to the grid — they should include a guaranteed minimum energy supply provided by the State to make sure everyone can also benefit of this grid access. Furthermore, while inclusion and empowerment are clearly on the EU agenda, to be effective in the energy context should imply an active engagement in the energy system. When embedding energy rights in this functional context to ensure that individual citizen can actual exercise these rights, we can identify three institutional environments, each with a different specific function as regards Energy Citizenship: a) underpinning private ownership in the *market*, b) equal access to *public/state* facilities, and c) *collective/civil* self-regulatory capacity. Of all stakeholders, LIH's position in these institutional environments is the weakest since —as we show below— they face a broad variety of obstacles, both stemming from their precarious position and from the regulatory framework.

2 It is estimated that as many as 83per cent of EU's households, i.e., 187 million, could potentially become energy citizens contributing to RE production, demand flexibility and/or energy storage of which 113 million having the potential to produce RE (Kampman et al., 2016).

III.
Focus on Low-Income Households (LIHs): Interdependency of Obstacles – The »Engagement Chain«

1. Implications for Inclusion and the Energy Poor

Empowerment and active engagement of the EU energy citizenry are key to triggering behavioural changes and to overcoming scepticism and resistance to RE deployment (Biresselioglu et al., 2022). However, the large majority of citizens are still excluded from any active participation, be it with regard to prosumership, EE or the governance of energy systems. Until now, it is mostly a small minority of citizens, i.e., early technology adopters with adequate financial means or environmental advocates, that actively participate in these areas (Łapniewska, 2019; Yildiz et al., 2015). Moreover, **contrary to expectations, ECs primarily support vulnerable households through services rather than by empowering them to participate as members;** most beneficiaries receive assistance as non-members (Hanke et al., 2025) stressing **how challenging real inclusion is**.

This participation deficit is particularly large amongst LIHs and the energy poor, as their precarious living situation strongly impacts their potential for engagement (Lowitzsch & Hanke 2020). Scarcity in particular leads to focusing on short-term and poverty-related issues and the resulting »tunnelling« suppresses long-term thinking simply because the scarcity-induced mind is preoccupied with present challenges (Lowitzsch & Hanke, 2019). Therefore, long-term investments in RE and EE will typically lie outside the individual's scope of action. These negative effects, in turn, are reinforced by »ego-depletion« translating into less capacity for self-discipline and increased tendencies for short-sighted behaviour and decision making (George, 2020). A comprehensive policy approach to facilitate Energy Citizenship and to promote (co-)ownership in RE and make investments in EE available to LIHs, must therefore take into account these soft factors when designing specific instruments and measures (Anand & Lea, 2011; Schilbach et al., 2016). A general vulnerability context further prohibits pro-active participation of energy consumers in the energy market. Poverty limits consideration of alternative options, ignores possible long-term benefits, depletes the willpower necessary to adhere to a long-term objective and in general makes it more difficult to choose between options or to calculate trade-offs (Lowitzsch & Hanke, 2019). It narrows the time horizon and alters perceptions of risk.

As a result, these factors impair financial commitment to long-term investments in RE. Furthermore, cognitive capacity is a scarce resource necessary to understand the use of new technologies, e.g., smart meters, and their adaptation to local circumstances (Hanke & Lowitzsch, 2020). The engagement of vulnerable households, among which LIHs and women to become active energy consumers, is a niche field in energy literature with most work linked to energy poverty. Moving beyond this field Lowitzsch and Hanke (2019) started early to explore innovative ways to empower the most vulnerable to enable them to become prosumers, by putting forward a **»Renewables Asset Formation Agenda for Low-Income Households«**.

2. Capabilities and their Link to Institutional Environments

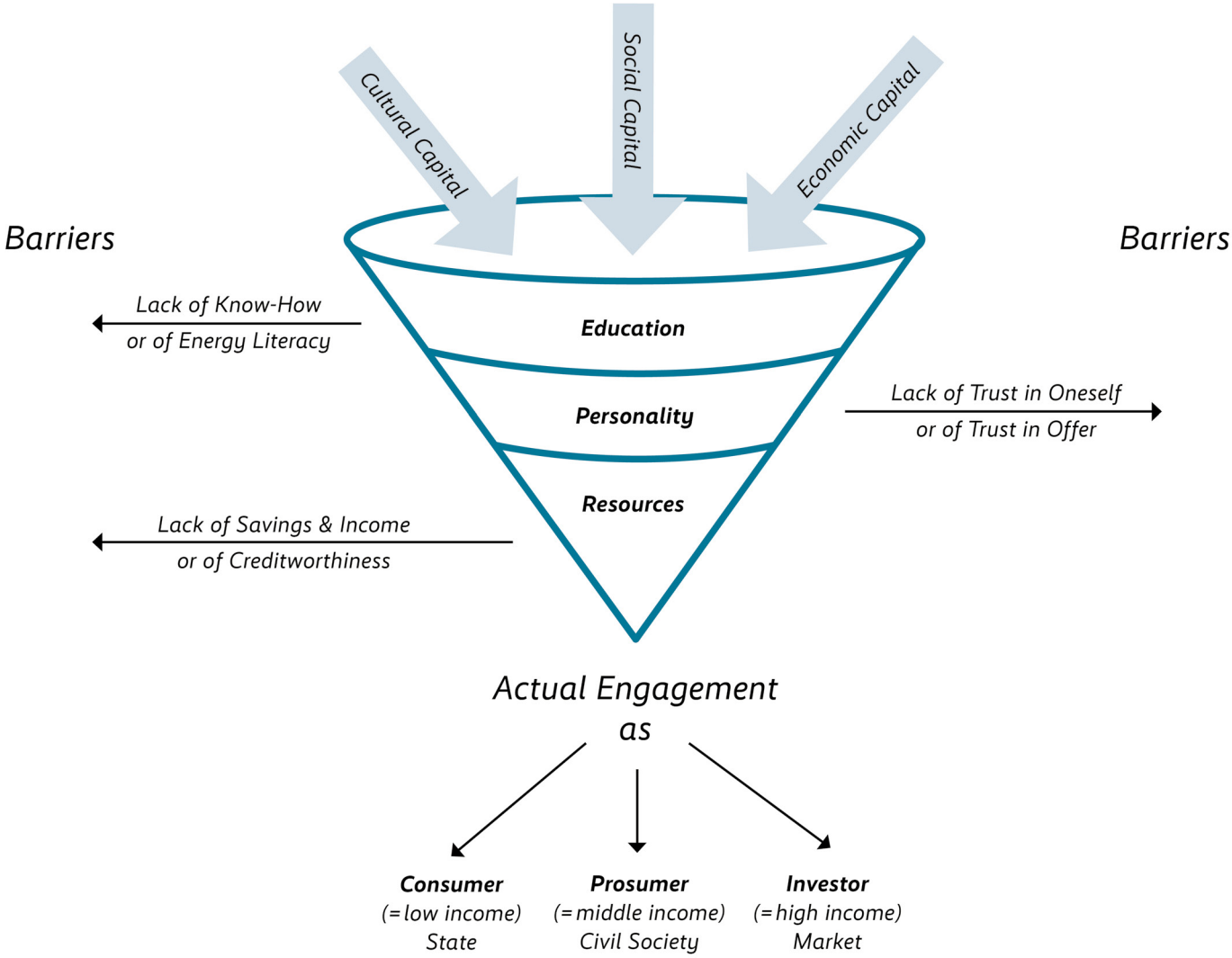
To better understand the reasons of the above empirical findings and the described participatory deficit, it is important to look at individual abilities to get involved, the influence of the surrounding rules and institutional environments.

Building on the notion that citizens can engage with the energy system in multiple ways, the conditions for creating individual pathways of engagement (and eventually Energy Citizenship) are a key element in understanding barriers to engagement. Citizens have different forms of economic, social, and cultural capital, such as income, education and networks, which determine their resources and opportunities for engagement (Bourdieu, 1986). **Depending on individual resources and capabilities, citizens are more or less likely to assume different roles spanning from mere consumers to prosumers or co-owners.** Each citizen can take on different roles and therefore acts as an energy citizen in different areas (see Figure 1).

The output of these roles is actions that are not exclusively limited to one sphere but are interrelated. As the individual action of each citizen is strongly related to

Engagement potential for energy citizens

Figure 1



the person's capabilities, it is crucial to understand what barriers prevent citizens from taking on more roles in the energy system and how they are interrelated. Correspondingly citizens' radius of action may be limited in the three above-mentioned institutional environments. While »Market« and »State« are well-established institutional environments in the energy world, that of »Civil Society« is emerging in the context of the CEP acknowledging citizens' and communities' rights to engage directly in the energy sector.

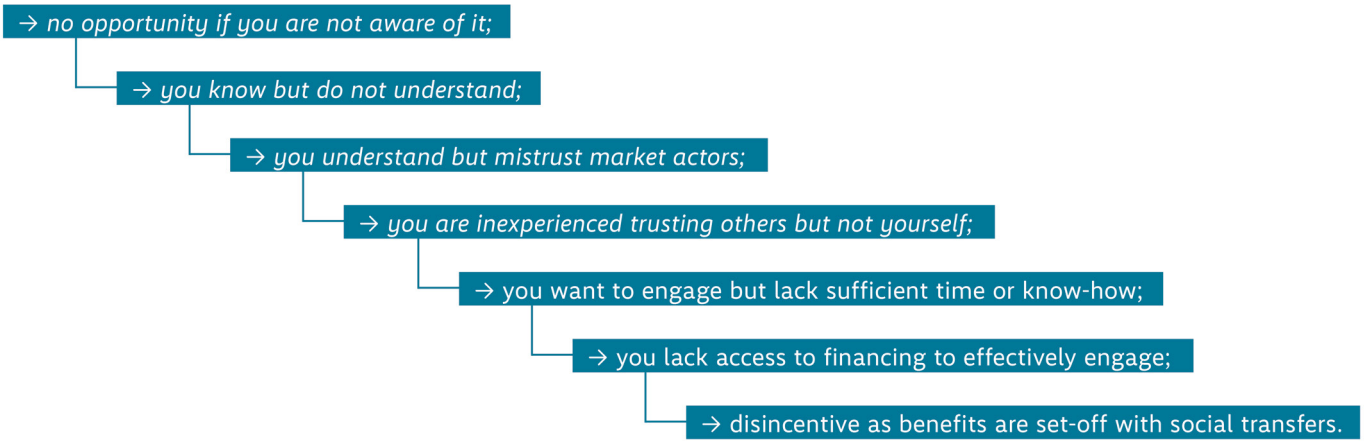
3. Interdependency of Obstacles – The »Engagement Chain«

To put the individual at the centre of analysis requires going beyond a market-based approach and an understanding of citizens as mere energy consumers. One needs to reach past the concept of »consuming«, employing a holistic human-centred approach, postulating a »homo ecologicus« (e.g., Becker, 2006; Bosselmann, 2004; Cecchi, 2013; Dryzek, 1996; Huntjens, 2021). Applying an intersectional approach, three dimensions need to be considered: (i) individual characteristics and living contexts; (ii) systemic variables and discriminating systems (e.g., the energy and housing market); and (iii) the political dimension and its rooted social policies (Hanke & Lowitzsch, 2020). Each of these three dimensions brings specific hampering factors, determining the passivity of Energy Citizens.

We observe that, **while provision of more choice and information** (a key pillar in EU consumer engagement strategy) **is a necessary condition for consumer engagement, it does not suffice on its own** (Lowitzsch & Hanke, 2019). A rational approach solely relying on this logic incentivises agency but stays ignorant of the bounded rationality, and with that, of the living reality of the majority of energy consumers. Engaging passive citizens depends on a good understanding of motives, restrictions, and derived incentives, all of which are shaped by **local context**. Lowitzsch and Hanke (2019) provide an overview of negative effects on economic decision-making and their relations.

The Engagement Chain

Figure 2



Source: own elaboration

They show that behavioural effects of individual problems (often but not necessarily rooted in scarcity) of involvement, commitment, decision-making, etc. are interdependent and reinforce themselves reciprocally. They form an **»Engagement Chain« (Figure 2) with engagement being hindered already if the chain is broken in only one place**.

These dynamics play a particular role in the engagement in participation models as they determine to a large extent whether these models are perceived as an opportunity to improve the households' situation or are obstructed by the effect of tunnelling. In this sense, barriers for engagement are more prevalent in certain social milieus like the precarious milieu (people with low household income and low education level) or the conservative-civic milieu (in which women take over more stereotypical roles like childcare duties). Multiple obstacles (financial, language, access to information, etc.) cumulate, amounting – when combined with systemic barriers – to almost insurmountable impediments and can only be encountered through combined and comprehensive policy solutions. **Measures to address individual obstacles and systemic barriers, therefore, need to go hand in hand**.

IV. Additional Systemic Barrier to Low-Income Households Asset Formation, the »Welfare Dilemma«

An additional (unintended) systemic barrier for LIHs to acquiring (co-)ownership in RE or EE technologies and to enjoy the fruits of such investments, the »Welfare Dilemma«, roots in the rules pertaining to eligibility criteria for means-tested social transfers (i.e., payments or benefits given by the government only to people whose income or resources are below a certain level).

1. Systemic Barriers Stemming from the Principles of Need and Subordination

European countries base welfare state support on the principles of need and subordination, implying that before need for public support is recognised, all private means must be exhausted. Eligibility thresholds are typically defined either in terms of movable assets (e.g., cash, savings, or other liquid resources) or total assets (including both movable and immovable property). For movable assets, thresholds vary considerably: at the upper end, Portugal applies a limit of EUR 28,825, Italy EUR 6,000, Greece EUR 4,800, and Hungary EUR 2,100; at the lower end, Croatia sets a threshold of EUR 132, Bulgaria EUR 255, and Latvia EUR 272 (see Annex 1). By contrast, thresholds based on total asset value are generally higher. Examples at the upper level include Italy (EUR 46,800), the region of Akmenė in Lithuania (EUR 26,400), Spain (EUR 20,353), and Slovenia (EUR 20,250). At the lower level, Denmark applies a threshold of EUR 1,340, while the region of Vienna in Austria sets the threshold at EUR 6,321, and the Netherlands at EUR 7,605 (see Annex 2).

This mechanism effectively discourages LIHs from building up assets as every effort to do so directly impacts their eligibility for social transfer payments:

(i) **Acquisition of (co-)ownership in RE or EE** – Means-tested transfers unintentionally become a barrier to LIHs asset formation since to be eligible for social transfer payments, they must first liquidate their assets; however, with different thresholds in the MS (Sherraden et al., 2013). In this way, LIHs are prevented from acquiring (co-)ownership in RE or EE, fearing to become ineligible for social transfers or eventually even be forced to liquidate their capital stakes to remain eligible.

A similar problem arises concerning the needs-tested minimum income which takes into account any income received, debiting it from the transfer:

(ii) **Enjoying the fruits of such investments** – Even if LIHs manage to raise the necessary funds to invest and the value of the investments remains below the applicable threshold, they risk the financial benefits from their investment being offset with social transfers they receive. As both assets and income are taken into account for the means-test any additional household income from RE (co-)ownership, e.g., when selling excess production to third parties via electricity sharing, may be offset with social transfers they receive. In this way, LIHs are deprived of the main motivation to invest while still carrying the risk of the investment.

2. Impact

Across all European MS, means-tested systems restrict eligibility based on asset ownership as described above. At the same time, in 2024, around 93.3 million EU citizens – 21 per cent of the total population – were at risk of poverty or social exclusion (EUROSTAT, 2025). Against this back-

*A typical LIHs in Europe with a monthly disposable income of EUR 1,200 is entitled to minimum income assistance. While **joining an EC requires, on average, EUR 560** (Dannemann, 2020), the **median allowance for the value of movable assets is around EUR 590** (Mroczka & Pacifico, 2025), i.e., the value of savings, investments, cooperative shares, etc. one may own while still qualifying for minimum income benefits. Consequently, the value of the EC share reduces this allowance to EUR 30 while at the same time carrying the risk of losing its value if the RE project fails for any reason. Furthermore, the recommended **savings buffer of three times the monthly income** (Altmann, 2024), **in this case EUR 3,600**, for emergencies is reduced accordingly **leaving little if no room for »non-essential« investments**. Finally, once the EC starts to pay dividends, these would be fully offset against the minimum income benefit making the investment even less attractive while, however, leaving the LIHs with the associated risk. This structural disincentive for LIHs to participate in ECs, reinforces social exclusion in the energy transition.*

ground, it is safe to assume that at least these 93.3 million citizens are either eligible for or are recipients of social transfers, and thus are potentially affected by the "welfare dilemma". In spite of the synergies between investments in renewables and in EE this condition also prevents LIHs from participating in EE investment, especially since capital requirements are large. A further, however, independent impediment is that financing measures for EE are as a rule tied to real estate ownership, which LIHs rarely have. Consequently, asset-owning households are supported in further increasing their wealth while poor households are forced to spend down all their assets, if any, to receive support.

The same result pertains for a LIHs that when entering the EC did not receive social transfers but at some point in the future applies for them: **If savings and assets are above EUR 590, the household either has to liquidate assets above the threshold or renounce the social transfer.**

This mechanism effectively discourages LIHs from building up assets as every effort to do so directly reduces their eligibility for social transfer payments. This paradox has also been dubbed »dual asset policy« (Sherraden et al., 2013): The same social policy that supports mid and high-income households to form assets and hence increase private wealth disincentivise LIHs to even attempt to increase wealth beyond subsistence. Any income paying more than the minimum income threshold is equally disincentivised, with the recipient being caught in the »poverty trap«.

In summary, **LIHs owning a share in an EC face the risk of being forced to liquidate the share when applying for social transfers while still carrying the risk of investment.**

V. Best Practice Examples from Selected Countries

Despite the obstacles to engagement, both rooted in individual capabilities and in systemic barriers, a number of MS and Commission-financed projects have implemented innovative approaches to empower LIHs and boost their engagement as prosumers, or is currently doing so. In this section, we are presenting a selection of these approaches, which is, however, not exhaustive.

1. Assisted Consumer Stock Ownership Plans under the H2020 project SCORE

The Horizon 2020 project SCORE developed Consumer Stock Ownership Plans (CSOPs) which, employing a leveraged financing approach, also permit citizens without savings or access to capital credit to become prosumers and members of ECs. A typical CSOP can buy into an existing or invest in a new RE plant. In particular, citizens with low income – who as a rule do not dispose of savings necessary for conventional investment schemes – are enabled to repay their share of the acquisition loan from the future earnings of the investment: A fiduciary entity set up under this concept, e.g., by the local community, managed by an independent trustee is authorized to borrow funds for the acquisition of shares in the RE plant on behalf of the energy consumers. The shares acquired by the trust are allocated among the CSOP consumer-beneficiaries. Revenues from savings resulting from lower energy bills or from the sale of the energy produced are used to repay the acquisition loan assumed by the CSOP trust. Once this debt is amortised this revenue is distributed to the consumer-beneficiaries.

In the case of an »Assisted CSOP« a) the RE installation is donated while b) the acquisition of the shares by the consumer-beneficiaries is additionally facilitated by a matching contribution from a donor. The joining consumers need an even smaller initial contribution to participate and do not have to wait for the amortisation of the investment before they benefit from revenues. Both elements are of importance regarding particular vulnerable groups like for example the homeless living in a shelter run by the charitable association Holy Brother Albert in Słupsk, one of the SCORE pilot projects. An »Assisted CSOP« differs to some extent from the classic CSOP inasmuch as creating a source of income for its participants is not its primary purpose. The »Assisted CSOP« is envisioned as a low threshold participatory instrument to empower vulnerable consumers that even in a conventional CSOP would not have been able to participate. The sense of ownership and both the benefits as well as the responsibility associated therewith are key for behavioural changes regarding EE but also inclusion and the experience of becoming actively involved in the energy transition. Social, communal and environmental protection aspects are affected at the same time. To this end the Assisted CSOP not only grants participants an ownership stake in the RE installation that supplies the place where they live but enables them to participate in decision-making about saving energy on the one hand and on the use of the benefits on the other.

2. France – Social Housing

An example of an innovative inclusive approach aimed at accelerating participation of LIHs is the French law on energy and climate of November 2019 (French Republic, 2021). In addition to defining the compliance criteria for RECs, **the law defines legal carriers of social housing projects as potential RECs with the residents of the concerned buildings becoming REC members by default** (see Article 41, Loi EC no 2019-1147), however, with the possibility to opt-out.[3] A guide by EnoGrid (2025) focussing on photovoltaics distinguishes three types of projects in this respect: (i) »patrimonial operations« comprising of several buildings owned by the same social housing carrier; (ii) »social operations« comprising the social housing carrier and its tenants; and (ii) »open operations« additionally involving other local actors. Regarding value sharing, business models include donating electricity to tenants, selling surplus production to the grid, or splitting benefits between tenants and landlord via a service charge on the electricity bill allowing landlords to cover the operating cost of their power plant and to amortise the investment cost. The report contains **pilot case implemented in September 2023 by Habitat Hauts-de-France** where three photovoltaic installations were installed during the refurbishment of one of their residences, »Résidence Arcen-Ciel«. The project provides 229 households with free renewable electricity covering about 30per cent of their needs and generating estimated annual savings of EUR 90 to EUR 300 per household.

3 An implementation decree of July 2021 (French, Republic, 2021) stipulates the details of the opt-out mechanism including due information, timelines and formal requisites.

This initiative highlights the key role of social housing carriers in the energy transition when empowering vulnerable consumers and exemplifies how they can help to overcome constraining prerequisites for engagement by a **simple default participation mechanism**. Coupling default membership for residents of public establishments with an opt-out mechanisms can thus effectively help overcoming the cognitive barriers LIHs are confronted when it comes to joining an EC.

3. Austria – Solidary Energy Communities

In Austria, »solidary energy communities«[4] are emerging as a new participation model in the energy transition, combining RE production with principles of social justice and inclusion. Unlike conventional ECs, their **focus is to ensure that also vulnerable households gain access to affordable, clean and sustainable energy** with several pioneering projects demonstrating how such solidarity can be embedded into EC's design and operations. One of them is the project Energy WITH Spirit which commits 10 per cent of produced energy or financial profits to disadvantaged households. Rooted in an ethical and theological framework developed with the University of Vienna, it brings together institutions like the Evangelical Student Home in Bad Goisern and the Evangelical High School Donaustadt in Vienna to pioneer inclusive energy sharing. Another example is SOL:E, a project taking a research and co-creation approach to explore solidarity in the EC context involving partners such as Caritas and the Energy Agency of Styria. It seeks to design and test models of inclusive participation, with the city of Graz serving as a pilot site to establish a replicable framework for inclusive ECs.

Two additional initiatives illustrate how redistributing unused electricity from individuals, businesses, and institutions can put solidarity directly into practice: (i) »Energiespenden« already stretching across several Austrian regions enables citizens to donate surplus electricity to people in need; and (ii) »Robin Powerhood« which has brought 90 energy-poor households into a socio-ecological community translates donated energy into thousands of warm meals, wash cycles, and baked goods.

4. Germany – Stromspar-Check and Balcony Power Plants

As part of the »Electricity Saving Check« (*Caritas Stromspar-Check*), low-income households are informed about how to use energy more consciously, thereby reducing their electricity and water bills. **Long-term unemployed people are trained as energy-saving assistants to check the consumption values of electrical appliances in these households and install energy-saving light bulbs, switchable power strips and water aerators.** The environment is relieved as CO_2 emissions are reduced. The energy-saving helpers learn the technical basics in a specialised training course run by Berliner Energieagentur GmbH. They are then trained by qualified Caritas trainers, particularly in communication: How do I behave in a strange flat? How do I give advice? Caritas social workers provide socio-educational support and supervision for the participants during their work as energy-saving helpers. In Berlin alone, in cooperation with services such as general social counselling, debt counselling, »CARIsatt« shops and assisted individual living, around 50 energy-saving helpers work at nine locations with further locations spread across Germany. In a complementary initiative, Caritas affiliates across German cities are advancing »balcony solar initiatives« linking social support to climate action.

In Hamburg for example, Caritas continues its successful *Stromspar-Check* programme until the end of 2026, providing LIHs with free energy-saving consultations, subsidies for efficient appliances, and practical support such as LED lamps with annual savings of on average EUR 258 per household while reducing CO_2 emissions. Starting in summer 2025, a complementary scheme subsidises 90 per cent of the cost of balcony solar panels, turning financially vulnerable households into prosumers, thus lowering their bills while actively contributing to climate protection. Both initiatives are backed by the BMUV and BUKEA, exemplifying the integration of social justice with sustainable energy efficiency. Similar efforts are underway in Berlin where in partnership with HOWOGE housing association, the Berlin Energy Agency and the *Caritas Stromspar-Check* have already installed balcony solar systems in 22 LIHs. Equipped with two ultralight modules of max. 300 W these systems provide renewable electricity for immediate household use, such cutting costs and emissions alike. Under the guiding motto »Save electricity – Save money – Spare the climate!«, the project demonstrates how small-scale solar can deliver tangible climate benefits while promoting social equity.

5. The Netherlands – 50 per cent Co-Ownership

The Netherlands has included a policy-goal of 50 per cent local co-ownership for on-shore PV and wind initiatives in a progressive approach to encourage cooperatives and municipalities to actively participate in planning and ownership of RE projects embedded in the Dutch Climate Agreement (2019). A 2023 study (National Programma RES & EnergieSamen, 2023)) conducted shows that **out of 342 municipalities, 107 have effectively secured local ownership policies in their solar energy projects and 69 in wind energy projects**, respectively. The Financial Monitor by AS I-SEARCH (Schwencke, et al., 2024)highlights that by the end of 2023, the share of local ownership of solar parks increased to 22 per cent while that for wind farms reached even 40.5 per cent.

4 https://energiegemeinschaften.gv.at/solidarische-energiegemeinschaften/.

EnergieSamen (2025), a national interest group for sustainable ECs in the Netherlands, formulated three principles for setting up energy cooperatives with low financial barriers allowing LIHs to engage: (i) The lever principle reduces members' financial contributions by financing most of the investment through loans with lower interest rates than the project's expected return. Increasing members' returns on smaller investments, makes cost intensive projects like wind farms accessible. (ii) The low-entry principle enables participation with modest contributions, such as small one-time or monthly fees, with successful examples being the Rotterdam model and ZutphenEnergie. (iii) The solidarity principle relying on donations, redistributed returns, or publicly financed »virtual shares« removes the need for direct investment. In addition, Dutch cooperatives train energy coaches who help households reduce their energy consumption specifically targeting LIHs.

6. Greece – Plans to Introduce Free PV Panels for Vulnerable Households

Greece is currently launching two major government programs to promote the energy efficiency of homes, with a particular focus on supporting vulnerable households. The first, »I Save 2025« (Exoikonomo 2025), is backed by EUR 434 million from the EU's RePowerEU plan, **offering 50 to 100 per cent of financial support for a wide range of upgrades such as window replacements, insulation, heating and cooling systems, RE installations, energy storage, and smart energy systems.** The program targets vulnerable households, including those affected by natural disasters or with disabled family members. The second initiative, »I Change My Water Heater«, supports the replacement of inefficient systems, providing subsidises of up to 60 per cent for solar water heaters and of up to 50 per cent for heat pumps. With a budget of EUR 223.2 million, of which EUR 44.6 million is earmarked for energy-vulnerable households, the programme subsidises equipment but also part of the installation cost. Subsidy levels are determined by income, ensuring that those most in need receive the greatest support. The scheme thus directly addresses inefficient heating and hot water systems as key drivers of high household energy bills while simultaneously promoting RE uptake.

VI. Tailoring Support Measures to Different Institutional Environments

With a view to the institutional embeddedness of Energy Citizenship, policy measures need to be tailored to the concerning institutional relations. Obviously, the state (represented by municipalities at the local level) has the role of the rule-maker, but both market and civil society can make crucial contributions, e.g., by voluntary self-commitment, be it in statutes or charters:

1. Supporting Self-Regulated Local RE Clusters

When supporting **self-regulated local RE clusters at the intersection market and civil society** the focus is on joining ›liberty‹ with ›solidarity‹ by securing a proper balance within the EC between people, planet and profits (»Triple P«) in how benefits and burdens are fairly and sustainably distributed: Here partnerships between civil society organizations (CSOs) and businesses that address development challenges, leverage market-driven investment, and promote inclusive development are opportune. Where LIH's are financially supported to participate and share in benefits and in exchange for an inclusive EC-charter such »CSO-firm partnerships« would receive statutory recognition and financial support to participate successfully in the competitive energy market.

2. Supporting Regulated Civil Networks

When supporting **regulated civil networks at the intersection of state and civil society**, the focus lies in aligning ›solidarity‹ with ›equality‹ by enabling diverse civil participation, particularly of vulnerable citizens, through financial, informational, and managerial support. This includes recognising inclusive participation based on individual ownership rights in ECs and rewarding ECs that adapt their charters to secure inclusiveness, potentially through a local service identity and preferential treatment in public tenders. Introducing additional public procurement criteria (e.g., rewarding citizen participation) will be key to balancing market, state, and community interests in the energy sector. The Energy and Environmental Design (LEED) (Uğur & Leblebici, 2018) in the U.S., which uses point-based models for green building construction, offers a relevant example.

3. Supporting the Regulated Energy Market

When supporting the **regulated energy market at the intersection of market and state**, the accent is on joining ›liberty‹ and ›equality‹ by protecting consumers, especially LIHs, against profit-/efficiency-driven exclusion from services: This includes both a guaranteed minimum energy supply for vulnerable groups and providing market-based incentives that foster inclusive, innovative entrepreneurship upon a profit-oriented competitive basis. This angle for action is especially apt to deliver the obligation of MS to **»do their utmost to promote that the amount of this accessible energy is at least 10per cent on average of the energy shared«** and has the potential for advancing both renewables and social policy.

VII. Three-Point-Plan to Increase Financial Participation of Low-Income Households

Different (financial) benefits have different values for different stakeholders. Regarding LIHs our premise is that maximising reduced costs for vulnerable EC members will provide them with both immediate and tangible benefits. From the EC's point of view, the main advantage of a low electricity price and consequently low profits at the level of the EC is to reduce taxation on profits from the sale of electricity at the level of the legal entity (such as increasing the overall benefit of self-consumption for its members). From the EC members' point of view the advantage of a low electricity price depends (i) on the utility market price they pay and (ii) in the case of private households, on how profits are treated at the level of individual income. Due to the »Welfare Dilemma« for LIHs, equity participation may not have any value but other financial participation mechanisms like energy supply at a reduced price or community channelled benefits are preferable. It is against this background that the »Three-Point-Plan« should be read.

1. Providing Access to Discounted Electricity via »Social Energy Sharing Programs«

The business model of **»Social Energy Sharing Programs«** is based on the strategy to maximise avoided costs of the EC members, i.e., to sell at the lowest price to EC members. In this way, gains are mostly captured as avoided costs of individual EC members, while profits at the level of the legal entity and thus corporate taxation are reduced to the permissible minimum. This strategy results from the premise that it is reduced energy prices that are the most tangible benefit for LIHs (see above »Welfare Dilemma«). Concerning RE (co-)ownership, LIHs receiving subsidies for energy expenditures could be automatically enrolled as (co-)owners in newly founded ECs with municipalities as the pacemakers. With convenience being one of the main determinants of consumer choice (Shove, 2010), auto-enrolment with an opt-out option has shown its benefits in financial empowerment programs where salaries were only paid out to bank accounts linked to a savings-plan and as a result savings increased (Shurtleff 2009); auto-enrolment mechanisms would also reduce the impact of tunnelling, as no extra effort is required. Direct LIHs subsidies could be tied to membership in a RE project immediately increasing household income while providing a strong incentive to participate.

2. Rewarding Inclusive ECs by Targeted Incentives for Both Energy Citizens and Adhering ECs

Tax exemptions could be granted **for those ECs that reach a certain diversity threshold** – e.g., 10 percent of members affected by vulnerability (Hanke and Lowitzsch, 2020); in such a way subsidies or other modes of support for ECs are granted only if membership/co-ownership confirms to a quota for LIHs or other 'marginal' groups, such as to avoid that general membership/co-ownership criteria inadvertently discriminate such groups (e.g., through 'cooptation bias'). Diversity and heterogeneity of members could also be linked to access to preferential treatment in administrative procedures (Hanke and Lowitzsch, 2020); establishing an administrative fast track would lead to an additional incentive for RECs to include vulnerable groups. Finally, the introduction of a specific EC-label for inclusiveness and empowerment based on a self-assessment catalogue containing a set of predefined criteria for qualification (in analogy to e.g., B-corporations) which would allow municipalities / decentralised governments to define eligibility for targeted support.

Turning to financial support to LIHs wishing to become members of ECs, government programs should offer vulnerable households 100% financial support to acquire EC shares and/or RE installations (e.g., as in Austria for the installations of heat pumps, see BMK, 2023). This should be combined with similar support for EE investments given the enormous potential amongst this group (Magalhães et al., 2025). In this way, direct LIHs subsidies would be tied to membership in a RE project immediately increasing household income while providing a strong incentive to participate.

3. Introducing a EUR 1,000 Exemption for RE (Co-)Ownership

Citizen's investments in RE, whether on their own or as members of an EC, should not count as assets they have to sell when applying for social benefits (means-tested social transfers). This exemption could have a limit of at least EUR 1,000 per person per year, with higher limits for investments that support children's education and the like. More generally, and on top of the RE-investment allowance, the gap between when someone receives the full social benefits (with no income or assets) and when they start paying taxes (tax-free allowance) should be flexible (Lowitzsch & Hanke, 2019). In the lower income range, only a small part of the money people earn from RE (co-)ownership should be counted when calculating their tax allowance to encourage RE investments. If all dividend/capital income were counted, there would be no financial benefit to investing in RE.

VIII. Conclusions

Energy poverty occurs wherever poverty exists. Therefore, any attempt to fight the one must include the other. National policy actions in turn, need to be based on a sound understanding of the impact of poverty on all areas of life, not only the financial. Therefore, socio-economic dynamics, both collective and personal, as well as political considerations, described earlier, must be factored in. Not only officially poor households are subject to these dynamics. Any household under conditions of scarcity is likely to behave similarly with respect to economic decision-making. Poverty, therefore, can be considered as a subjective experience with these considerations guiding the design of policies and programs (Chakravarti, 2006).

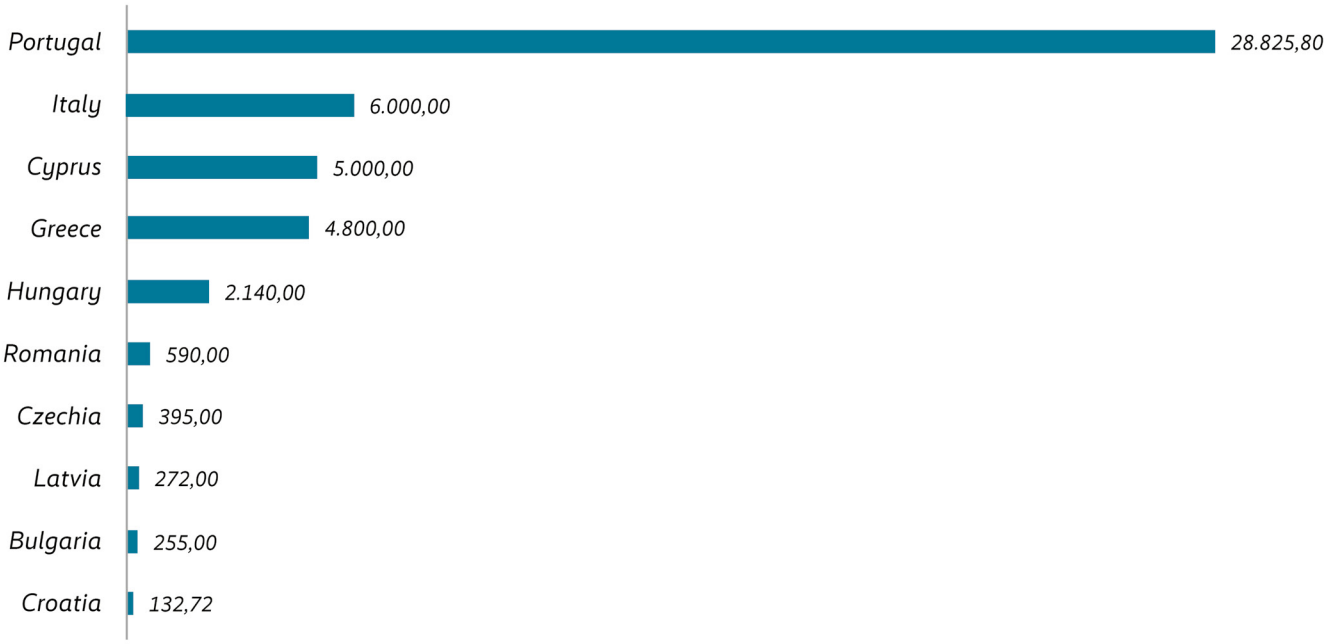
The conventional policy approaches, especially "dual-asset policies" already in place, limit the participation of LIHs in RE projects as consumer (co-)owners. One reason is the application of welfare state principles, where transfers are "means-tested", focusing on evaluations of "need" instead of its prevention. The emphasis is on rules and regulations that must be complied in order to be eligible for governmental support. To prevent freeloading and fraud and to cut costs, savings and assets are required to be "spent down". The causes, abatement and prevention of systemic poverty are omitted from the welfare logic and the instruments currently in place to alleviate poverty do not account for them. This illogic becomes apparent when compared to healthcare: Curing a simple cough is cheaper and more beneficial to the welfare of the patient than withholding cough syrup until, ultimately, pneumonia develops.

Therefore, to fight energy poverty, **a reinterpretation of the underlying welfare principles to actively support asset formation for LIHs, while taking the causes of poverty into account, must become a top priority on the agenda**. Turning LIHs into (co-)owners of RE installations, thereby providing a second source of income, would effectively alleviate the pressure on the welfare system.

Annex

Eligibility Threshold for Moveable Assets (in EUR)

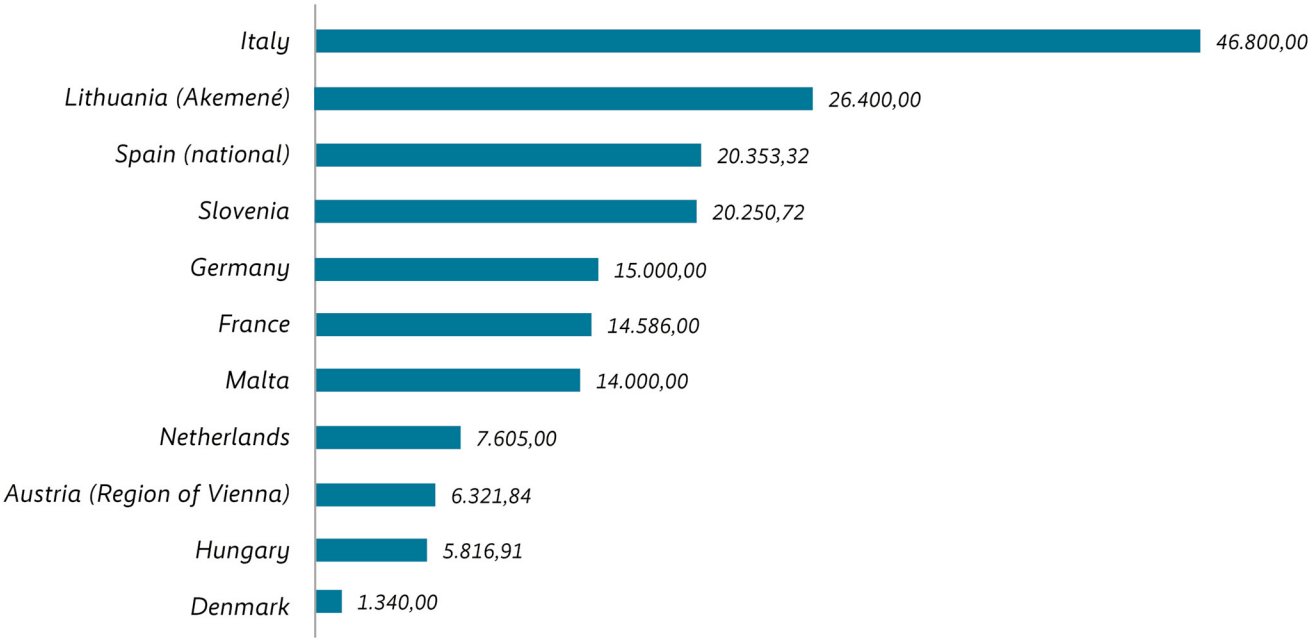
Table 1



Own creation, based on OECD Social, Employment and Migration Working Papers No. 328 (2025)

Eligibility Threshold for Total Assets (in EUR)

Table 2



Own creation, based on OECD Social, Employment and Migration Working Papers No. 328 (2025)

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From Access to Ownership: Energy Communities & Social Inclusion in the EU's Energy Transition

This policy brief examines the challenges and opportunities for achieving affordable and inclusive energy in Europe, particularly focusing on low-income households (LIHs). It highlights how current policies, despite aiming for consumer empowerment and energy sharing rights, create distributive asymmetries and participation deficits, disproportionately burdening LIHs with energy transition costs while limiting their ability to benefit from renewable energy (RE) initiatives. The policy brief introduces the concept of the »welfare dilemma«, where social transfer rules inadvertently discourage LIHs from investing in renewables or energy efficiency due to asset and income eligibility thresholds. Finally, it presents case studies and a » three-point plan« that highlights solutions like social energy sharing, targeted incentives for inclusive energy communities, and an exemption for RE (co-)ownership from social transfer calculations to promote equitable participation.

Further information on the topic can be found here:
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