

Article

The Transposition of Energy Communities into Swedish Regulations: Overview and Critique of Emerging Regulations

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Abstract: One organizational innovation introduced by the clean energy for all Europeans package (CEP) is that of the energy community (EC), including the renewable energy community (REC) and citizen energy community (CEC). The translation of related directives into national legislation is underway in Sweden, and the Swedish Energy Market Inspectorate (Ei) has proposed a new law on ECs, which has been sent for consultation. This article analyzes the Ei proposal and the responses from the 27 referral bodies commenting on the new EC regulations. Positive aspects of the proposal were that it would be a law on ECs and that it would be easy to start and run an EC. Critics were concerned that the law was too vague, the relationship between existing cooperatives and the new ECs was not clear, both CEC and REC are used instead of only using one term, there is a lack of suggestions on supportive measures for ECs, ECs will have less favorable conditions than other micro-producers of electricity, there is a lack of barrier analysis and visions of a future of ECs, and finally, that the situation for marginalized households was not dealt with in the proposal.

Keywords: energy community; renewable energy community; citizen energy community; clean energy for all Europeans package; regulations; Sweden

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1. Introduction

An energy transition from centralized and fossil-based energy towards decentralized and renewable energy has been advocated by governments, businesses, and academia. In the European Union (EU), it has become a strategy to enable communities to take an active role in the energy market in the hopes of transitioning to an increasingly local, renewable, and participatory energy system. These citizen-led energy communities (ECs) have multiple individual and societal benefits and are expected to have a major role in the future energy system. According to REScoop.eu there are 1900 energy cooperatives within the EU and the number is growing.

Citizens and ECs are at the center of the EU's clean energy for all Europeans package (CEP), the new energy rulebook in the EU's Energy Union Strategy [1]. The aim of the strategy is to facilitate a fair energy transition for all energy market actors, and for EU citizens, this entails providing them with better control over and access to energy production. One organizational innovation introduced by the CEP is the ECs, whose aim is to advance a socio-technical energy transition [2]. An EC is a collective of actors who voluntarily join together to realize a shared energy-related project, such as becoming producing consumers ("prosumers"), storing energy, or owning an electricity grid. The main idea of an EC is to produce social, environmental, and economic benefits for the community [3,4]. By combining the environmental advantages of renewable energy and the socio-economic benefits of engaging a community, the wish is to develop a future energy system characterized by being local, renewable, and participatory and which will contribute to a thriving community advancing the energy transition [5,6]. Encompassing these potentials, ECs are expected to play a significant role in the EU's energy system in

the future. Their benefits will, however, depend on how the Member States will implement the CEP and how the directives on the ECs will be adjusted to fit national and local energy systems and conditions. This will be further discussed in this article, using Sweden as a case study.

Two directives in the CEP, the Renewable Energy Directive (RED II) [7] and the Internal Electricity Market Directive (IEMD) [8], provide ECs with an enabling framework (the former) and a level playing field (the latter) on the energy market [9]. RED II defines the Renewable Energy Community (REC) and the IEMD defines the Citizen Energy Community (CEC). CECs have a broader scope and can include RECs, which have stricter eligibility requirements (e.g., regarding proximity to the energy installation) [10]. In both directives, ECs are defined as voluntary, member-controlled initiatives to organize collective cooperation in energy-related activities in a way that emphasizes various benefits, not focusing only on financial profits. The definitions of CEC and REC will be discussed further below.

Translating both directives into national legislation is to occur during 2021. In Sweden, as in most Member States, this has been delayed, but the responsible authority, the Swedish Energy Market Inspectorate (Ei), has already proposed how the directives should be translated into Swedish regulations. The Ei has proposed a new law on ECs. This proposal has been sent for consultation, and the Ei's proposal and responses to it from relevant consultative bodies will be analyzed here. Implementing the two directives with the enabling framework is essential for ECs to emerge in Member States [11]. The CEP needs to be implemented with national and local versions of ECs in mind. How existing cooperatives and/or ECs are defined differs within the EU [12], and an overly strict interpretation of the CEP version of ECs risks excluding versions of ECs already developed in Member States and could limit positive developments. This will be taken into consideration in analyzing the Ei proposal and the consultation responses.

The aim of the article is to analyze the Ei's proposed new law on ECs together with the consultation reports, to scrutinize how the suggested transposition of the EU directives meets the requirements of the enabling framework, and how Sweden will facilitate and incentivize ECs as new emergent market actors.

Prior studies on ECs have analyzed existing ECs in the Member States, emerging before the decided CEP. Studies on how the Member States will transpose the ideas of REC and CEC in the EU directives into national legislation have so far been less researched, even if there are some studies (see, e.g., [13,14–16]). How Sweden plans to implement ECs will be further investigated here. There are several reasons why it is important to research these country-specific processes. How the two directives are implemented in the Member States will decide the future of ECs within the EU. The EU puts great hope on ECs' contribution to an energy transition, but if the Member States do not, for example, implement an enabling framework for ECs, this will severely halt the development. Earlier research also discusses the importance of adjusting the EU regulations, so it fits the historically and geographically conditioned character of energy systems [3,12,17–21]. How this is done can be studied by following proposed national legislation and the comments put forward during the process. How the referral bodies reason around the proposed regulation also captures how ECs, in general, are perceived and understood in a Member State, which is also an important indicator of how ECs will succeed in the future. Additionally, finally, this kind of in-depth study of a country is important for future comparisons to understand how and why ECs develop differently in the country and why they might differ in importance compare [22].

2. Background: Energy Communities in the CEP

In November 2016, the European Commission published the proposed CEP comprising eight legislative acts. Following political agreement by the European Council and European Parliament and the entry into force of the various relevant EU rules in 2019, the EU Member States had up to two years to translate the new directives into national

laws. RED II includes regulations for RECs, and IEMD includes regulations for CECs; together, the directives give EU citizens the right to generate, self-consume, store, and sell renewable energy.

RED II is progressive in creating an enabling framework for bottom-up, citizen-led ECs. RED II states that Member States should “carry out an assessment of the existing barriers” to developing RECs (Article 22, (3)) and “provide an enabling framework to promote and facilitate the development of renewable energy communities.” The Member States should also remove unjustified regulatory and administrative barriers to RECs and ensure that RECs are subject to fair, proportionate, and transparent procedures including cost-reflective network charges and relevant charges, levies, and taxes (Article 22, (4a,d)).

RED II defines the REC as a legal entity (Article 2 (16)) that (a) “is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects owned and developed by that community” and (c) “whose primary purpose is to provide environmental, economic or social community benefits for its members or the local areas where it operates rather than financial profits.”

IEMD leaves it to the Member States to regulate price setting and whether ECs will be able to act as distribution operators. Distribution system operators (DSOs) should, however, cooperate with RECs to facilitate energy transfers within the communities (RED, Article 22, (4c)). IEMD also emphasizes peer-to-peer (P2P) solutions and that consumers should be able to participate in all electricity markets. IEMD requests that all legal and commercial barriers to implementation should be removed, including “disproportionate fees for internally consumed electricity, obligations to feed self-generated electricity to the energy system, and administrative burdens, such as the need for consumers who self-generate electricity and sell it to the system to comply with the requirements for suppliers, etc.” (Article 1 (42)). Consumers should “contribute adequately to system cost.” The Member States are requested to ensure that renewable energy sharing is permitted, including in multi-unit apartment blocks.

IEMD defines the CEC as a legal entity that “may engage in generation, including from renewable sources, distribution, supply, consumption, aggregation, energy storage, energy efficiency services or charging services for electric vehicles or provide other energy services to its members or shareholders” (Article 2 (11c)).

The Council of European Energy Regulators (CEER) states in its report [23] that: “Energy communities owning grid infrastructure remains optional for MS (i.e., the Member States). However, if and where this approach is adopted, it should avoid duplication of assets, ensure economic efficiency, be subject to appropriate regulation in line with the regulatory framework for DSOs and ensure customers receive an adequate level of quality of service.”

Table 1 gives an overview of the similarities and differences between RECs and CECs.

Table 1. Similarities and differences between RECs and CECs [7–10].

	REC	CEC
Geographic limitations	“Member States may provide for renewable energy communities to be open to cross-border participation” Effective control is limited to members living in the proximity of the renewable energy projects owned by the community	No geographic limitations relating to activities, effective control, or eligibility for membership
	Open and voluntary participation	
Membership	Natural persons, local authorities, and micro, small, and medium-sized enterprises whose participation does not constitute their primary economic activity (large enterprises are excluded from membership)	Any actor can participate, as long as members engaged in large-scale commercial activity and for which the energy sector constitutes a primary area of economic activity do not exercise any decision-making power

	Can be effectively controlled by micro, small, and medium-sized enterprises that are “located in the proximity”	Medium-sized and large enterprises are excluded from being able to exercise effective control (i.e., the possibility of exerting decisive influence on an undertaking)
Organization	Possible for Member States to choose any form of entity for ECs	
Energy sources	All sorts of renewable energy (RE; e.g., electricity and heat)	Operates within the electricity sector; all sources of electricity, not necessarily renewable
	Primary purpose is to provide environmental, economic, or social community benefits to its members or local areas	
Major purpose	Stimulating the growth of local community ownership to expand the share of RE at the national level	CEC as a new “non-commercial” energy market actor that can engage across the electricity market

The main distinction between the ECs is that RECs are restricted to operating with renewable energy, i.e., heat and electricity), while CECs are limited to electricity, where they can engage in multiple activities. Roberts et al. [9] stated that CECs can be regarded as larger entities including RECs, which have stricter eligibility requirements (e.g., in terms of the proximity of controlling members). Large enterprises cannot participate in RECs. In CECs, the requirements for control are tied to shareholder size, and medium- and large-scale enterprises previously active in primary energy generation are excluded from control. By defining the legal forms of RECs and CECs, the EU aims to enable the diffusion of ECs, not to restrict other types of ECs, such as cooperatives, from functioning [9]. Earlier research has also emphasized that ECs are not a new phenomenon and must be understood as something that has existed and developed over time in the Member States. The development of ECs has been influenced by spatial factors, and earlier studies have shown how the geographical differences matter for how ECs have emerged within Europe, where, for example, available energy resources influence what technology ECs prefer to invest in [12,20,24].

The intention in the CEP is to reduce barriers and facilitate for ECs to emerge. Historically, energy cooperatives have been the dominating organization form for community energy [25]. In theory, these have an open setup where all citizens can be included, but in practice, this has not been the case. In, for example, Germany, more than 70% of the members of the cooperatives were male, with relatively higher education and higher income. People with lower income were especially underrepresented, which is due to the need to have access to finance to take part in an EC [26]. Financial resources are often mentioned as the main barrier for participation in an EC [27–30], and the implementation of the CEP in the Member States needs to consider how to reduce these barriers to make future ECs more inclusive.

The lack of tailor-made policies for ECs is another often-mentioned barrier [25,31]. Ruggiero et al. [24] discuss that existing energy market regulation and policy instruments, in general, are largely inadequate and not supportive of ECs. Bureaucracy, legislative, and administrative burdens are also barriers often mentioned in earlier research [16,25,32–35]. Wierling et al. [36] discuss the presence of a hostile institutional context within the EU. The CEP tries to deal with this by providing a legal enabling framework that includes, e.g., simplified administrative and regulatory requirements, lower levies, and taxes for EC [26]. RED II obliges the member states to introduce an enabling framework to allow RECs to compete “on an equal footing” [26]. The RED II should ensure that unjustified regulatory and administrative barriers to REC are removed and ensure the participation of all consumers, as well as low-income or vulnerable households. The requested enabling framework should include possible tax incentives and exemptions from levies. Prosumerism should provide tangible benefits with lower energy costs and additional revenues [26]. These barriers will be further discussed below in relation to the suggested

Swedish regulations. Before the results from Sweden are presented, the materials and methods will be discussed.

3. Materials and Methods

This article analyzes the Ei report [37] and the consultation responses. The data were analyzed using qualitative content analysis [38]. The documents studied represent the views of the responsible authority of implementing ECs into Swedish regulations (the Ei) and the views of different key stakeholders in the Swedish society. Through these documents, the reasoning behind a regulation or a policy can be captured together with arguments for and against a decision [39,40]. These documents make up an interdependent stock of written arguments, intentions, and interest representation, which embody the story of policymaking for the development of ECs in a region (in this case Sweden) [41,42].

In February 2019, the Swedish Government commissioned the Ei to analyze the measure required to implement the IEMD and to submit constitutional proposals in those parts where the implementation requires provision in law or regulation. In addition to this, the Ei was also to analyze which measures were required in relation to regulation on risk preparedness in the electricity sector (EU 2018/941), regulation on the internal market for electricity (EU 2019/942), and on establishing a co-operation agency between energy regulators (EU 2019/942) and, if necessary, submit constitutional proposals. Through an additional assignment, the Ei was commissioned by the government in May 2019 to investigate which measures are required to implement Articles 17, 21, 22, and 24 (1) of RED II. The result was published in an Ei report [37], which is analyzed here.

The Ei report was sent for consultation in March 2020, and 76 responses were submitted. Of these responses, 23 did not contain an opinion, i.e., 53 opinions were submitted. Only public bodies, such as authorities, municipalities, and universities, submitted responses that refrained from giving an opinion.

Of those submitting an opinion: 22 were authorities; seven were municipalities; one was a transmission system operator (TSO); four were umbrella organizations representing energy production, distribution, and trade or Regional Energy Agencies Sweden; two were umbrella organizations representing housing associations and property owners; one was an umbrella organization representing regions and municipalities; one was an umbrella organization representing practicing lawyers; one was an umbrella organization representing Swedish enterprises; nine were NGOs representing different energy technologies such as wind or photovoltaic (PV) energy; two were universities. Of the 53 respondents submitting an opinion, 27 included an opinion on ECs, and these were analyzed for this article. Table 2 presents an overview of the actors submitting an opinion.

Table 2. Summary of the actors submitting an opinion.

Category and Number.	Description	Number Leaving an Opinion on ECs
Authorities, 22	National authorities and courts	Five: Swedish Environmental Protection Agency (SEPA), Taxation Agency, Swedish Energy Agency, Court of Appeal in Jönköping, and Administrative Court in Linköping
Municipalities, seven		Four: Ljusdal, Sala, Åtvidaberg, and Östersund
TSO, one		One: Svenska Kraftnät
Umbrella organizations, energy sector, four	Representing energy production, distribution, and trade as well as Regional Energy Agencies Sweden	Four: Swedenergy, independent electricity traders, Power Circle, and Regional Energy Agencies Sweden
Umbrella organizations, customers, two	Representing housing associations and property owners	Two: Property Owners Sweden, HSB Sweden

Umbrella organizations, other, three	Representing regions and municipalities, practicing lawyers, and Swedish enterprises	Three: Swedish Association of Local Authorities and Regions, Swedish Bar Association, and Confederation of Swedish Enterprise
NGOs, energy, nine	Representing various energy technologies such as wind and PV	Six: Solar Commission, Svebio, Swedish Refrigeration and Heat Pump Association (SKVP), Solar Energy Association of Sweden, Swedish Renewable Energies Organization (SERO), and the Association of Swedish Engineering Industries
Universities, five		Two: Gothenburg University, Luleå University

The documents were condensed and coded manually for this article, where the codes emerged from the data. The codes were grouped into categories and, thereafter, themes. The themes will be presented here. The study is situated into the research on ECs, and the results will be discussed in relation to earlier findings on institutional barriers and enablers of ECs to emerge. Figure 1 describes the research process of this study.

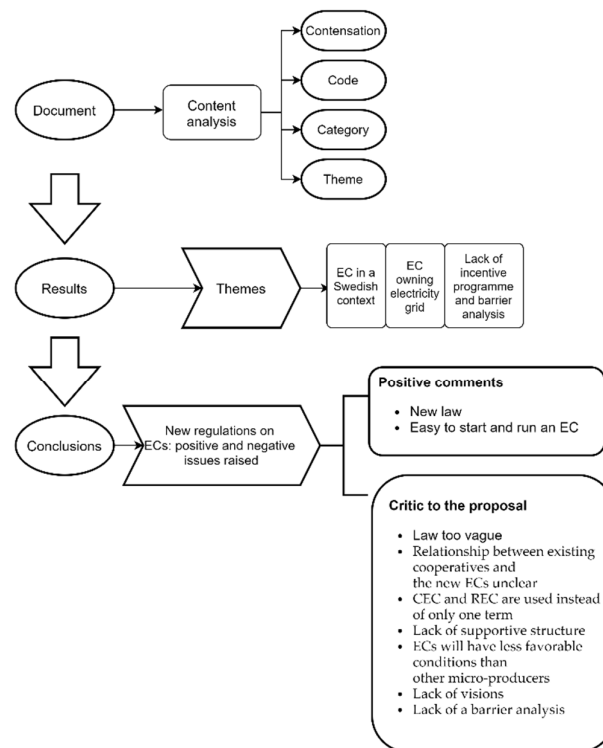


Figure 1. The research process.

4. The Proposed Transposition of ECs into Swedish Regulations

ECs can and should take varying forms depending on the local context [43,44]. How ECs are implemented in each Member State needs to be followed to understand how ECs develop and emerge at the national and local levels. EC development will also depend on the particular national institutional setting, which can encourage or discourage EC emergence [20].

Sweden has had limited experience of “community energy” compared with, for example, the UK and Denmark [45,46]. Wind cooperatives are by far the most common form of community energy in Sweden, and there is some niche experience of, for example, solar communities [19]. One reason for the few energy cooperatives in Sweden is the centralized market structure of the Swedish energy market, in which hydro and nuclear

power are the dominant technologies, owned by a few national or multinational companies. Another prominent feature of Sweden that might explain the small share of citizen initiatives is the key role of municipalities as suppliers of gas, electricity, and district heating [47].

There are currently no regulations in Sweden on ECs, so the Ei has proposed a new law on ECs. This law is presented in a report together with suggestions for implementing other parts of the IEMD and parts of RED II in Sweden [37]. The suggestions in the report are presented next.

The Content of the Proposed Law

The Ei's proposed law on ECs comprises five chapters. Chapters 1, 4, and 5 concern ECs in general, while Chapter 2 concerns CECs, and Chapter 3 concerns RECs. The general chapters state that an EC should be formed by three or more natural or legal persons. An EC must be registered as an economic association. The economic association is described by the Ei as the most suitable organizational form, because it is convenient, has a low administrative burden, and is not surrounded by as many regulations as is, for example, the limited company. This complies well with the CEP idea of reducing bureaucracy.

Another common rule is that an EC is supposed to give its members environmental, financial, or social benefits. An EC will help its members with the production, distribution, consumption, aggregation, or storage of electricity or by offering EV charging, energy efficiency services, or other energy services. An EC will be open to new members, and members can leave at any time. The law on ECs refers to the law on economic association, which gives the governance framework. The proposal distinguishes between non-investing and investing members, with more restrictive rules applying to the latter. For example, if investing members take part in a vote and have more than one third of the total number of votes cast in the ballot, the value of their votes shall be reduced to half the total number of other votes (Law on Economic Association, chapter 6).

The chapters on CECs and RECs both set forth what EC statutes should incorporate, for example, that an EC needs to include either "CEC" or "REC" in its name depending on what kind of EC it is. Both chapters specify that neither a CEC nor an REC is allowed to transmit electricity on behalf of others over an electric power line outside a building.

In the report, the Ei reasoned about why ECs should not be allowed to own an electricity grid and transmit electricity on behalf of others. One reason is that existing regulations prohibit this. The electricity grid is a monopoly, and an actor needs a permit, called a concession, to operate a grid. One opportunity for ECs would be to use an exemption to the law and establish community-owned grids as non-concession grids (IKNs). However, when an EC consists of several separate residential buildings, such as single-family houses, IKN rules are inapplicable. The Ei also believes that an IKN, as a monopoly, lacks the consumer protection prescribed in the IEMD, i.e., it violates the principles that an EC should be voluntary and that members should have the opportunity to exit. Because a grid is a monopoly, it is impossible to leave one grid and join another, and if the grid was to be organized as an EC, it would not be possible to leave the EC.

An alternative, according to the Ei, would be to create rules for separate grid concessions for a given area or a simplified form of concession, although the Ei is skeptical about this option. A professional organization would be required to handle the requirements of an area concession. As a grid owner, the EC would also need to draw up grid development plans, which would impose a high administrative burden on the EC. The Ei means that this is contrary to the idea that an EC should be easy to establish and run. Another problem that the Ei highlights in the report is that if an EC is allowed to own and operate a grid, it is not allowed to simultaneously engage in production, which would exclude ownership of solar and wind power production.

The Ei states that the primary purpose of an EC must be to share electricity between its members, and this does not require ownership of a grid. Sharing of electricity can take place through, for example, blockchain technology or virtual power plants.

Returning to what is written in the proposed law, the chapter on CECs and the one on RECs each includes a paragraph stating that an EC cannot limit its members' right to, for example, switch suppliers. Members of an REC can be only those who reside or operate in the area of the EC or otherwise have a lasting grid connection to the area.

The RED II discussion of the fact that EC members must be natural persons, SMEs, or local authorities, including municipalities (Article 2, (16b)), is not discussed in the law. However, the Ei report states that EC members should be small companies, local authorities, and municipalities. The Ei report does not say anything about medium-sized companies in relation to the Swedish regulations, but it acknowledges that the CEP applies to medium-sized companies, so the omission of medium-sized companies in the Swedish context might simply be a mistake.

The law says nothing about cross-border participation, but the Ei report states that cross-border participation in RECs will not be allowed. The Ei does not justify this, but just states that "there are no reasons to allow cross-border membership" [37] (p. 347); for CECs, however, cross-border membership is allowed [37] (p. 353).

The Ei report states that ECs will have the same rights and obligations on the energy market as other actors. The Ei also claims that existing Swedish legislation adequately protects low-income and vulnerable consumers.

The main suggestions for the proposed law are summarized in Table 3.

Table 3. The proposed Swedish law; boldface text indicates a change, adjustment, or specification compared with the CEP.

	REC	CEC
Geographic limitations	No cross-border membership Members must reside or operate in the area of the EC or otherwise have a lasting grid connection to the area	No geographic limitations relating to activities, effective control, or eligibility for membership
Membership	Open and voluntary participation Investing and non-investing members	
	Natural persons, local authorities, and micro and small enterprises whose participation does not constitute their primary economic activity Can be effectively controlled by micro and small enterprises that operate in the area or otherwise have a lasting grid connection to the area Members must reside or operate in the area of the EC or otherwise have a lasting grid connection to the area	Any actor can participate, as long as members engaged in large-scale commercial activity and for which the energy sector constitutes a primary area of economic activity do not exercise any decision-making power Medium-sized and large enterprises are excluded from being able to exercise effective control (i.e., the possibility of exerting decisive influence on an undertaking)
Organization	Economic association	
Energy sources	All sorts of renewable energy sources (e.g., electricity and heat)	Operates in the electricity sector Involves all sources of electricity, not necessarily renewable
Major purpose	Primary purpose to provide environmental, economic, or social community benefits to its members or local area Not allowed to transmit electricity on behalf of others or own an electricity grid	

In the next section, the key issues raised by the referral bodies will be discussed.

5. The Referral Bodies' Responses to the Suggested Regulations

The main issues raised by the referral bodies will be discussed below. The main issues concerned the introduction of ECs as both a new concept and a new organizational form, the prohibition of electricity grid ownership by ECs, the silence about incentive programs for ECs, and the discrimination against ECs compared with other micro-producers.

5.1. Introducing ECs in a Swedish Context

In Sweden, there are several forms of collective energy ownership, for example, wind power associations and the joint ownership of photovoltaic plants. There are also tenant-owner associations that jointly own solar cells used for joint consumption but that also supply individual apartments [19,20]. These existing cooperatives could all form ECs in the future if they wish to, though they can also continue to conduct their business in the same way as they do today. Nothing in the proposed law forces existing cooperatives to become ECs.

With this proposed law on ECs, new concepts were introduced into the Swedish language, the words for CEC (Medborgargemenskap) and REC (Gemenskap för förnybar energi). These are straightforward translations of the concepts into Swedish, but the terms do not fit easily into the Swedish language. Three of the referral bodies, i.e., Regional Energy Agencies Sweden, Svebio, and SERO, remarked that the EC was a complicated and awkward concept. SERO also questioned why the Swedish word "*kooperativ*" (cooperative) was not kept as it is well anchored in Swedish culture.

Four bodies (i.e., Swedish Bar Association, Taxation Agency, Administrative Court in Linköping, University of Gothenburg) commented on the vagueness of the proposed law. Their criticism claimed that the economic association as an organizational form needed further investigation, as it was not clarified who will be accountable for the EC, what the consequences will be if an EC does not follow the regulations, and who will have criminal liability for an EC's actions. The Swedish Energy Agency stated that the purpose of ECs needs further investigation, as the EC appears to be an unclear concept subject to multiple interpretations. The Energy Agency claimed that the Ei had interpreted the CEP's intentions for ECs restrictively. The Energy Agency also stated that it was unclear to what extent ECs would be allowed to derogate from parts of existing or proposed legislation. The Energy Agency cited several ambitious ongoing testbeds in Sweden whose existence will be directly affected by how the directive is interpreted and the new law formulated.

Östersund Municipality also discussed the vagueness of the law and found it unclear what obligations and rights an EC will have and how ECs differ from actors already established in the traditional energy system.

According to the Taxation Agency, the proposal hints that ECs might offer their members below-market prices, which the agency said was not allowed. The agency stated that ECs must charge market prices to their members, and that this needs to be clarified in the Ei's proposal.

The Court of Appeal in Jönköping deemed the geographical restrictions on the REC too vaguely defined, which could create application problems in the courts. The Court wanted the geographical restrictions explained with examples in the constitutional commentaries.

5.2. ECs and Ownership of an Electricity Grid

The Ei suggestion that ECs would not be allowed to transmit electricity on behalf of others or to own electricity grids was viewed in different ways. Six referral bodies (i.e., Ljusdal Municipality, Swedenergy, TSO, independent electricity providers, Power Circle, and Solar Commission) were generally in favor of this restriction. Swedenergy and Power Circle saw a risk of the development of parallel grids if ECs were allowed to own grids. Swedenergy also addressed the segregation rules and noted that it would be problematic to maintain segregation if ECs could become DSOs and at the same time be free to produce and trade electricity. However, Power Circle emphasized the need to develop other solutions to enable ECs to share electricity.

In its report, the Ei proposed further investigation of non-concession grids (IKNs), and many consultative bodies supported such an effort. Regional Energy Agencies Sweden, together with Property Owners Sweden and HSB Sweden, wished for reconsideration of the grid ownership matter after the IKN investigation had been

conducted. Regional Energy Agencies Sweden stated in its response that the ban on ECs owning grids would mean that ECs would be subject to both electricity network fees and energy taxes. The result would be less profit for EC members than if they were allowed to own grids and transfer electricity on internal networks through IKNs, where the electricity could be transferred without taxes and fees. Regional Energy Agencies Sweden also cited an official report of the Swedish government [48] proposing changes regarding IKN, which would increase the opportunities for actors to own grids and engage in the production and trade of electricity. Regional Energy Agencies Sweden believed this would be very relevant to ECs, because it implies that it would be possible for ECs to own grids via IKNs in the near future. Sharing electricity on internal networks would be more cost-effective for EC members, so the Regional Energy Agencies requested that the possibility of ECs owning grids be further discussed in relation to the abovementioned official government report. Property Owners Sweden cited the same official report and stated that the suggested rules on IKNs must also apply to ECs if ECs are to have any practical significance in the future.

Four bodies emphasized that it would be positive if ECs were allowed to easily use virtual networks. HSB Sweden and the Solar Commission believed that for ECs, especially CECs, to function robustly, the regulations had to be supplemented with regulations on virtual electricity networks, as implemented in several other EU countries. Power Circle noted that it is unclear whether the proposed legislation would enable or hinder virtual networks. They emphasized that it was important that the government not prevent the virtual sharing of electricity.

Sala Municipality and the NGO SERO disagreed with the ban on ECs owning grids and believed that this would reduce the incentives to establish ECs. Sala Municipality stated that forbidding grid ownership and not adapting the legislation concerning IKNs, in combination with current tax legislation, removed major incentives to create ECs. They stated that new business models should be explored in which, for example, ECs owned the grid while a DSO maintained and controlled the network. SERO believed that the ban on grid ownership was the result of lobbying by large incumbent companies and stated simply that ECs should be allowed to own electricity grids.

5.3. Lack of Incentive Programs and Barrier Analysis

Eleven of the consultative bodies noted the lack of incentives for EC formation and that it was unclear how citizens would benefit from getting involved in an EC. Six of them demanded a tax reduction for ECs similar to the reduction offered to micro-producers in Sweden. They also believed that it is problematic both for promoting ECs and for EC cost-effectiveness that ECs will not benefit in the same way as micro-producers do (SEPA; Sala municipality, HSB Sweden, Solar Commission, Solar Energy Association of Sweden, SERO). HSB Sweden believed, for example, that CEC members should be able to act as if they were investing in their own individual PVs. Thus, an EC should not be subject to energy tax on electricity produced for its own use. The Solar Commission agreed with this and said that an energy tax exemption for self-produced renewable electricity would incentivize people to join a CEC.

SEPA stated that the Ei had conducted a poor barrier analysis and that the Ei proposal was insufficient to promote and facilitate EC development. SEPA quoted the Ei report where it states that the proposal would not entail any “significant advantages compared with existing regulations” and that the Ei did not expect the EC, as a legal entity, to be used to any great extent. Both SEPA and the Swedish Energy Agency believed that, given this opinion on the part of the Ei, greater emphasis should have been placed on a barrier analysis and on analyzing measures needed to promote ECs.

SKVP said it was clear that the Ei’s proposal had been developed only to satisfy the requirements of the EU directives. SKVP did not see any suggestions that would make it advantageous to initiate an EC. Sala Municipality agreed with this, stating that it was

unclear what the proposed legislation added to existing regulations, which cover the same aspects as do the suggested regulations on ECs.

SEPA also requested an impact assessment of how the proposal would affect existing energy cooperatives.

5.4. Summary of the Main Issues Raised in the Consultancy Reports

Table 4 summarizes the main critical points raised and suggestions made in the responses.

Table 4. The main critical points and suggestions made in the consultation reports.

Critical Points	Suggestions Made
“Energy community” as a term is awkward in the Swedish language	Keep “cooperative” as a label for ECs as well
The suggested law on ECs is vague The new law will make no relevant changes to existing regulations	Further investigation of ECs is needed, particularly as representing economic associations
ECs are not allowed to own grids, meaning that electricity cannot be shared on the electricity trading market and that grid fees and energy taxes must be paid	Allow internal networks via IKNs, where electricity can be transferred without being subject to taxes and fees Ensure that virtual sharing of electricity is possible
ECs will not have the same regulations as individual prosumers	ECs should be exempt from taxation the way individual prosumers are Introduce programs incentivizing EC formation
The proposal does not include medium-sized companies	Clarify that ECs can also include medium-sized enterprises Conduct a barrier analysis

6. Discussion

Earlier research has found that a conducive legal framework is important for ECs to emerge. When comparing six EU countries and the numbers of ECs in them, the lack of national regulations and national definitions of ECs was one factor affecting the emergence of ECs in a country [20]. The implementation of the CEP will contribute to national legal frameworks for ECs. Simultaneously, it is also important to acknowledge the need for national adaptation and to develop local versions of ECs. How existing ECs and community energy schemes have emerged differs within the EU [12], and an overly strict definition risks excluding already developed variants. An inclusive definition would allow “many flowers to bloom” [3], which would advance the expansion of ECs and promote the flourishing of innovative business models. A vague definition, however, makes it more difficult to target ECs with specific policy measures and support [17]. Thus, the introduction of a new law on ECs in Sweden has its pros and cons.

With the new law, Sweden will have tailor-made policies for ECs, which is an important first step in enabling them to emerge. The lack of tailor-made policies for ECs is as mentioned an often-mentioned barrier [25,31]. Via the Ei’s proposal, a national definition of the EC will be introduced in Sweden. How this definition relates to existing energy actors and the development of energy cooperatives that have existed for many years in Sweden [19] is, however, unclear. The relationship between existing cooperatives and the new ECs has not been investigated, and how these different forms will affect each other’s existence remains to be seen. The Ei was criticized for being vague and leaving too much open to interpretation in the new law on ECs. There could, however, be advantages to having flexibility in the concept, inviting many potential dimensions of ECs to emerge. On the other hand, a shared definition could be attractive because it would make it easier to communicate the idea of the EC and to encourage new ECs to form, which could be important in Sweden where the EC is a relatively unknown concept.

According to the Ei proposal, the founders of an EC will need to decide whether it should become a CEC or REC. PROSEU et al. [49] have issued guidance for Member States when translating the CEP. This guidance recommends that CECs and RECs be combined in one type of EC to avoid confusion and make it easier to explain this new organizational form. This advice was not followed by the Ei, however, drawing criticism from some referral bodies. Horstink et al. [16] discussed how regulating ECs would foster clarity and support, but would also require the formalization of initiatives, such as decisions as to whether to become a CEC or REC. Horstink et al. [16] believed that such formalization could hinder rather than stimulate the expansion of civic-inspired prosumer initiatives. They claimed that it is important for Member States to be aware of this when implementing the directives and to adapt regulations to avoid unnecessary bureaucracy. This would lead to diverse interpretations and treatments of prosumers within the EU, but that could have the benefit of advancing an inclusive, democratic, and faster energy transition [16]. The Swedish choice to have both CEC and REC might then lead to confusion and bureaucratization in the future.

6.1. The Ei Focuses on Ease Rather Than Incentives

Bureaucratic, legislative, and administrative burdens are barriers often mentioned in earlier research [16,25,32–35]. The Ei has noted this and discuss it in relation to other aspects than the choice to keep both REC and CEC. In the enabling framework, it has emphasized that it should be easy to start and run an EC. Low administrative burden is for example the reasoning behind the choice of the economic association as the organizational form and the prohibition on owning electricity grids. The complicated regulations surrounding electricity distribution via grids would make it complicated to start an EC, according to the Ei, running counter to the idea that ECs should be easy to establish and not entail a lot of regulations and administration.

The incentivizing parts of the enabling framework, however, are neglected by the Ei. Financing ECs and their projects is often seen as one of the biggest barriers to overcome [33,36]. Earlier research has highlighted the importance of state funding, subsidy mechanisms, and dedicated support programs for the development of ECs [25,31,43,50,51]. In particular, it seems difficult to secure funding in the early stage of an EC, when plans are to be implemented. Although ECs need subsidies to start, this is not addressed in the Ei report; rather, the Ei emphasizes that ECs will be active on the market under the same conditions as any other actor. Several consultancy bodies were also critical of the fact that ECs will have less favorable conditions than other micro-producers of electricity. According to Horstink et al. [16], both subsidies and grants are critical enablers, while their absence poses a critical barrier. Various support schemes have played crucial roles in helping ECs become economically viable in many countries, and they can offset some of the costs and risks of EC establishment [28].

Earlier research emphasizes the need for policymakers at all levels to help ECs emerge [25,31,32,46]. The lack of ideas about a support structure for ECs in Sweden can be a major barrier to the future emergence of ECs. Ruggiero et al. [24] have noted that existing energy market regulations and policy instruments, in general, are largely inadequate for supporting ECs. Studying Poland and Finland, they found discriminatory taxes, inadequate metering regulations, slow building-permit issuance, and lack of grid connection as examples of existing limitations. Wierling et al. [36] even discussed the presence of a hostile institutional context as a barrier within the EU. The lack of ideas about an enabling legal framework that includes simplified administrative and regulatory requirements, lower levies and taxes, and subsidies for ECs in Sweden might also slow the development of ECs.

6.2. Lack of Alternative Visions and Barrier Analysis

Ruggiero et al. [24] emphasized the need for alternative visions to guide and inspire actors to establish ECs. Kooij et al. [46] discussed how political discourses can enable EC

formation. Their study found that Denmark had a beneficial political discourse emphasizing renewable energy, while the discourses in the Netherlands and Sweden were barriers to grassroots initiatives. The Ei report lacks visions and inspiring imaginaries of the future of ECs in Sweden. The Ei stated that it could see only limited EC influence on the Swedish market, and this statement was criticized in the responses. Several referral bodies remarked that it was the duty of the Ei to create an enabling framework to promote ECs on the Swedish market, but this mission seemed to have escaped the Ei.

A final element not included in the Ei proposal is, as mentioned by several consultancy bodies, a thorough barrier analysis. This is especially germane when it comes to vulnerable households. Considering existing energy cooperatives, these in theory have an open setup so that all citizens can join, but in practice, this has not been the case. For example, in Germany, more than 70% of energy cooperative members are male, with relatively higher education and income. Lower-income people are especially underrepresented, due to the need to have access to finance to take part in a renewable energy project [26]. In Germany, an energy cooperative member usually needs to buy shares, and the average individual cooperative share purchase amounts to EUR 3899 with an average required minimum contribution of EUR 511 [26]. In Sweden, the price of purchasing a share in an existing solar cooperative is EUR 85–1500. This is a barrier for low-income households, and financial resources are often identified as a main barrier to participation in an EC [27–30]. The situation for marginalized households is not dealt with by the Ei or in the responses by the consultancy bodies. Analysis of the members of Swedish solar cooperatives indicate the same membership structure as in Germany, as mentioned above. The Ei proposal will do nothing to change this, despite many existing suggestions on how to deal with this barrier, such as initiating cooperative banks, offering low-interest loans, or providing subsidies targeting low-income groups [26].

To sum up, there were both positive and negative aspects identified in the proposal to a new law on ECs. The positive aspects were that it would be a law on ECs and that, with the suggestions proposed, it will be easy to start and run an EC. Critics were concerned that the law was too vague, the relationship between existing cooperatives and the new ECs were not clear, both CEC and REC are used instead of one term, there is a lack of suggestions on supportive measures for ECs, ECs will have less favorable conditions than other micro-producers of electricity, there is a lack of barrier analysis and visions and inspiring imaginaries of a future of ECs, and finally, that the situation for marginalized households was not dealt with in the proposal.

Parallel with the transposition of the CEP in Member States, ideas will emerge about how to improve the CEP and how countries can translate the related directives in creative ways. It is, therefore, important to continue to analyze the suggestions made in different Member States and to scrutinize the comments in the consultancy reports to be able to collect and share lessons learned and best practices.

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References

1. European Commission. *Clean Energy for All Europeans*; Publications Office of the European Union: Luxembourg, 2019.
2. Tricarico, L. Is community earning enough? Reflections on engagement processes and drivers in two Italian energy communities. *Energy Res. Soc. Sci.* **2021**, *72*, 101899.
3. Seyfang, G.; Park, J.J.; Smith, A. A thousand flowers blooming? An examination of community energy in the UK. *Energy Policy* **2013**, *61*, 977–989.
4. Walker, G.; Devine-Wright, P. Community renewable energy: What should it mean? *Energy Policy* **2008**, *36*, 497–500.
5. Jenkins, K.E.H. Energy justice, energy democracy, and sustainability: Normative approaches to the consumer ownership of renewables. In *Energy Transition: Financing Consumer Co-Ownership in Renewables*; Springer International Publishing: New York, NY, USA, 2019; pp. 79–97.
6. Vansintjan, D. *The Energy Transition to Energy Democracy*; REScoop: Antwerp, Belgium, 2015.
7. European Union. *Directive (EU) 2018/2001, European Parliament and Council Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the Promotion of the Use of Energy from Renewable Sources*; European Union: Brussels, Belgium, 2018; Volume 2021.
8. European Union. *Directive (EU) 2019/944, European Parliament and Council of the European Union Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on Common Rules for the Internal Market for Electricity and Amending Directive 2012/27/EU (Recast)*; European Union: Brussels, Belgium, 2019; Volume 2021.
9. Roberts, J.; Frieden, D.; d’Herbemont, S. Energy Community Definitions. Available online: <https://www.compile-project.eu/wp-content/uploads/Explanatory-note-on-energy-community-definitions.pdf> (accessed on 1 December 2019).
10. Lowitzsch, J.; Hoicka, C.E.; van Tulder, F.J. Renewable energy communities under the 2019 European Clean Energy Package—Governance model for the energy clusters of the future? *Renew. Sustain. Energy Rev.* **2020**, *122*, 109489.
11. Wuebben, D.; Romero-Luis, J.; Gertrudix, M. Citizen science and citizen energy communities: A systematic review and potential alliances for SDGs. *Sustainability* **2020**, *12*, 10096.
12. Candelise, C.; Ruggieri, G. Status and evolution of the community energy sector in Italy. *Energies* **2020**, *13*, 1888.
13. Hoicka, C.E.; Lowitzsch, J.; Brisbois, M.C.; Kumar, A.; Camargo, L.R. Implementing a just renewable energy transition: Policy advice for transposing the new European rules for renewable energy communities. *Energy Policy* **2021**, *156*, 112435.
14. Fina, B.; Fechner, H. Transposition of European Guidelines for Energy Communities into Austrian Law: A Comparison and Discussion of Issues and Positive Aspects. *Energies* **2021**, *14*, 3922.
15. Roberts, J. Power to the people? Implications of the Clean Energy Package for the role of community ownership in Europe’s energy transition. *Rev. Eur. Comp. Int. Environ. Law* **2020**, *29*, 232–244.
16. Horstink, L.; Wittmayer, J.M.; Ng, K.; Luz, G.P.; Marín-González, E.; Gährs, S.; Campos, I.; Holstenkamp, L.; Oxenaar, S.; Brown, D. Collective renewable energy prosumers and the promises of the energy union: Taking stock. *Energies* **2020**, *13*, 421.
17. Gorroño-Albizu, L.; Sperling, K.; Djørup, S. The past, present and uncertain future of community energy in Denmark: Critically reviewing and conceptualising citizen ownership. *Energy Res. Soc. Sci.* **2019**, *57*, 101231.
18. Becker, S.; Kunze, C. Transcending community energy: Collective and politically motivated projects in renewable energy (CPE) across Europe. *People Place Policy Online* **2014**, *8*, 180–191.
19. Magnusson, D.; Palm, J. Come together—the development of Swedish energy communities. *Sustainability* **2019**, *11*, 1056.
20. Palm, J. Energy Communities in Different National Settings—Barriers, Enablers and Best Practices; Deliverable D3.3 Developed as Part of the NEWCOMERS Project, Funded under EU H2020 Grant Agreement 837752. Available online: https://www.newcomersh2020.eu/upload/files/Deliverable%203_3_%20Energy%20communities%20in%20different%20national%20settings_barriers%2C%20enablers%20and%20best%20practices.pdf (accessed on 1 July 2021).
21. Cucchiella, F.; Condemni, A.; Rotilio, M.; Annibaldi, V. Energy Transitions in Western European Countries: Regulation Comparative Analysis. *Energies* **2021**, *14*, 3940.
22. Mikova, N.; Eichhammer, W.; Pfluger, B. Low-carbon energy scenarios 2050 in north-west European countries: Towards a more harmonised approach to achieve the EU targets. *Energy Policy* **2019**, *130*, 448–460.
23. CEER. Regulatory Aspects of Self-Consumption and Energy Communities. Available online: <https://www.ceer.eu/documents/104400/-/8ee38e61-a802-bd6f-db27-4fb61aa6eb6a> (accessed on 1 December 2019).
24. Ruggiero, S.; Busch, H.; Hansen, T.; Isakovic, A. Context and agency in urban community energy initiatives: An analysis of six case studies from the Baltic Sea Region. *Energy Policy* **2021**, *148*, 111956.
25. Gancheva, M.; O’Brien, S.; Crook, N.; Monteiro, C. *Models of Local Energy Ownership and the Role of Local Energy Communities in Energy Transition in Europe*; European Committee of the Regions: Bruxelles, Belgium, 2018.
26. Hanke, F.; Lowitzsch, J. Empowering vulnerable consumers to join renewable energy communities—towards an inclusive design of the clean energy package. *Energies* **2020**, *13*, 1615.

27. Koirala, B.P.; Araghi, Y.; Kroesen, M.; Ghorbani, A.; Hakvoort, R.A.; Herder, P.M. Trust, awareness, and independence: Insights from a socio-psychological factor analysis of citizen knowledge and participation in community energy systems. *Energy Res. Soc. Sci.* **2018**, *38*, 33–40.
28. Bomberg, E.; McEwen, N. Mobilizing community energy. *Energy Policy* **2012**, *51*, 435–444.
29. Koch, J.; Christ, O. Household participation in an urban photovoltaic project in Switzerland: Exploration of triggers and barriers. *Sustain. Cities Soc.* **2018**, *37*, 420–426.
30. Rahmani, S.; Murayama, T.; Nishikizawa, S. Review of Community Renewable Energy Projects: The Driving Factors and Their Continuation in the Upscaling Process. In *IOP Conference Series: Earth and Environmental Science*; IOP Publishing: Bristol, UK, 2020; pp. 012033.
31. Ines, C.; Guilherme, P.L.; Esther, M.-G.; Swantje, G.; Stephen, H.; Lars, H. Regulatory challenges and opportunities for collective renewable energy prosumers in the EU. *Energy Policy* **2020**, *138*, 111212.
32. Brummer, V. Community energy—Benefits and barriers: A comparative literature review of Community Energy in the UK, Germany and the USA, the benefits it provides for society and the barriers it faces. *Renew. Sustain. Energy Rev.* **2018**, *94*, 187–196.
33. Warbroek, B.; Hoppe, T.; Coenen, F.; Bressers, H. The role of intermediaries in supporting local low-carbon energy initiatives. *Sustainability* **2018**, *10*, 2450.
34. Wagemans, D.; Scholl, C.; Vasseur, V. Facilitating the Energy Transition—The Governance Role of Local Renewable Energy Cooperatives. *Energies* **2019**, *12*, 4171.
35. Hall, S.; Brown, D.; Davis, M.; Ehrtmann, M.; Holstenkamp, L. Business Models for Prosumers for Prosumers in Europe Available online: https://proseu.eu/sites/default/files/Resources/PROSEU_D4.1_Business%20models%20for%20collective%20prosumers.pdf (accessed on 1 April 2020).
36. Wierling, A.; Schwanitz, V.J.; Zeiß, J.P.; Bout, C.; Candelise, C.; Gilcrease, W.; Gregg, J.S. Statistical evidence on the role of energy cooperatives for the energy transition in European countries. *Sustainability* **2018**, *10*, 3339.
37. Energimarknadsinspektionen. *Ren Energi Inom EU*; Ei: Eskilstuna, Sweden, 2020.
38. Elo, S.; Kyngäs, H. The qualitative content analysis process. *J. Adv. Nurs.* **2008**, *62*, 107–115.
39. Bacchi, C.L. *Women, Policy and Politics: The Construction of Policy Problems*; Sage: New York, NY, USA, 1999.
40. Parsons, W. *Public Policy: An Introduction to the Theory and Practice of Policy Analysis*; Elgar: Aldershot, England, 1995.
41. Flyvbjerg, B. *Making Social Science Matter: Why Social Inquiry Fails and How it Can Succeed Again*; Cambridge University Press: Cambridge, UK, 2001.
42. George, A.L.; Bennett, A. *Case Studies and Theory Development in the Social Sciences*; MIT: Cambridge, UK, 2005.
43. Creamer, E.; Eadson, W.; van Veelen, B.; Pinker, A.; Tingey, M.; Braunholtz-Speight, T.; Markantoni, M.; Foden, M.; Lacey-Barnacle, M. Community energy: Entanglements of community, state, and private sector. *Geogr. Compass* **2018**, *12*, e12378.
44. Gui, E.M.; MacGill, I. Typology of future clean energy communities: An exploratory structure, opportunities, and challenges. *Energy Res. Soc. Sci.* **2018**, *35*, 94–107.
45. Walker, G.; Hunter, S.; Devine-Wright, P.; Evans, B.; Fay, H. Harnessing community energies: Explaining and evaluating community-based localism in renewable energy policy in the UK. *Glob. Environ. Politics* **2007**, *7*, 64–82.
46. Kooij, H.-J.; Oteman, M.; Veenman, S.; Sperling, K.; Magnusson, D.; Palm, J.; Hvelplund, F. Between grassroots and treetops: Community power and institutional dependence in the renewable energy sector in Denmark, Sweden and the Netherlands. *Energy Res. Soc. Sci.* **2018**, *37*, 52–64.
47. Palm, J. Development of sustainable energy systems in Swedish municipalities: A matter of path dependency and power relations. *Local Environ.* **2006**, *11*, 445–457.
48. SOU. *Moderna Tillståndprocesser för Elnät*; Norstedts Juridik: Stockholm, Sweden, 2019; p. 30.
49. PROSEU; CPC; SCORE; RNP; EREF; Transposition Guidance for Citizen Energy Policy. Available online: https://proseu.eu/sites/default/files/Resources/PROSEU_Transposition%20Guidance%20for%20REDII%20and%20EMD.pdf (accessed on 1 December 2019).
50. Walker, G. What are the barriers and incentives for community-owned means of energy production and use? *Energy Policy* **2008**, *36*, 4401–4405.
51. Hall, S.; Roelich, K.E.; Davis, M.E.; Holstenkamp, L. Finance and justice in low-carbon energy transitions. *Appl. Energy* **2018**, *222*, 772–780.