



# Energy Agencies & Renewable Energy Communities

A new path for energy decentralization

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# Renewable Energy Communities



Steering Committee: ADENE, RVO, AEA, dena, EST, CRES, ADEME



AUSTRIAN ENERGY AGENCY



Agência para a Energia



ΚΑΠΕ  
CRES



Surveys: AEA, SEDA, MOTIVA, ADEME, CRES, ENEA, Klima-Agence, RVO, ADENE, SIEA, IDAE, SEA, EST





# Framework and Methodology



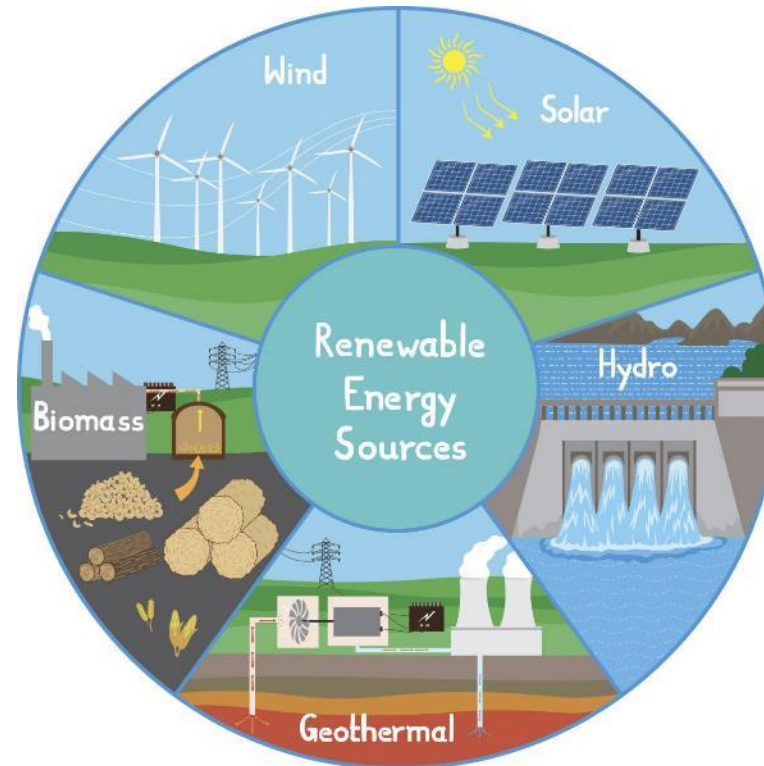


# Renewable Energy Communities Framework

## Clean Energy Package

**Energy Directive  
(EU) 2018/2001**

**Electricity Market  
Directive (EU)  
2019/944**



19,7%  
2019

9,6%  
2004

**REC can own 17% of installed wind capacity and 21% of solar**



# Renewable Energy Communities

## Objectives of the study

- Characterize the state of the art in legislative frameworks and implementation in Europe, with identification of the existing barriers;
- Benchmark solutions to increase investment and dissemination of REC;
- Characterize current grid obstacles and propose solutions to leverage the implementation of REC;
- Analyse good practices of REC and possible replication opportunities;
- Evaluate the role of energy agencies in REC implementation.



# Renewable Energy Communities

## Participants

### **13 E<sup>n</sup>R Energy Agencies involved in the study**

- AUSTRIA / AEA
- BULGARIA / SEDA
- FINLAND / Motiva Oy
- FRANCE / ADEME
- GREECE / CRES
- ITALY / ENEA
- LUXEMBOURG / Klima-Agence
- NETHERLANDS / RVO
- PORTUGAL / ADENE
- SLOVAKIA / SIEA
- SPAIN / IDAE
- SWEDEN / SEA
- UNITED KINGDOM / EST





# Renewable Energy Communities

## Methodology

### Phase 1

**2 SURVEY QUESTIONS**

Answers provided in white cells, currently marked "AGENCY ANSWER HERE" for easier identification.  
Example provided by ADENE with answers for Portugal in a separate PDF file.

**SECTION 1**

**Legislative framework**

1. For EU-member states, is there specific legislation defining Renewable Energy Communities? (non-EU-member states, please proceed to question 2.)

1.1. Is the [Renewable Energy Directive 2018/2001](#) transposed into national law?

☐ Yes ☒ No New Energy law is in preparation and will be published soon. Announcing possibilities for consumers and companies to participate in the energy market by providing energy services  
[Energiewet | Overheid.nl | Wetgevingkalender](#)

1.2. How was the transposition done?

Was the transposition carried out into a specific legislation and regulation guiding REC implementation? Please consider topics such as: was the legislation proposed as a stand-alone or was there an overall revision of electricity market system to include REC creation and other changes to facilitate adoption (namely grid issues)?

☐ Specific legislation ☒ Included in the revision of electricity market system

☐ Other. Please detail: [AGENCY ANSWER HERE](#)

1.3. Legislation revision

1.3.1. How many revisions of legislation have there been since the first transposition?

☒ 0 ☐ 1 ☐ 2 ☐ >3

1.3.2. If the answer at 1.3.1 was more than "0" please briefly describe the most important differences between the previous and the current legislation.

20/05/2022 – phasing out net metering has been postponed until 2025

1.3.3. In what year was the last legislation regarding the RECs implemented?

Year of publication of the current legislation: not implemented yet. Expected to be implemented in 2023

Year of previous publication (if applicable):

### Questionnaire

### Phase 2

**Fact Sheets of Individual REC Projects**

Please identify examples or case studies of implementation of REC, in preparation or implemented, particularly where your agency has had a role (licensing, management, technical or administrative support, production of guidelines, etc.). **Please copy and fill as many tables as needed, according to the relevant projects that should be portrayed in the final report.**

The following energy communities were awarded funds by the Resolution of 12 January 2022 of the Director-General of E.P.E Institute for Energy Diversification and Saving (IDAE), M.P., formalising the first call for the programme of incentives for individual pilot projects of energy communities (CE IMPLEMENTA). Although 45 energy communities received funds, as an example, we provide the detail of the project with highest score on each of the 14 autonomous regions that had an energy community awarded.

The details on the 45 projects can be found in:  
[https://www.idae.es/sites/default/files/documentos/ayudas\\_y\\_financiacion/Comunidades\\_energeticas/Presentacion\\_CE\\_Implementa-Fichas5.pdf](https://www.idae.es/sites/default/files/documentos/ayudas_y_financiacion/Comunidades_energeticas/Presentacion_CE_Implementa-Fichas5.pdf)

#1 NEO BALENYA (BALENYA SOSTENIBLE SCCL)	
Project Name	NEO BALENYA
Website	<a href="https://www.balenyasostenible.cat/">https://www.balenyasostenible.cat/</a>
Country and location	Balenya, Barcelona, Catalonia (SPAIN)
Year of implementation	Project to be developed in 2023.
Number of members	109
Organisation type Example: Example: Cooperative Limited Liability Company; Non-profit customer owned enterprise; Energy collective project (Co-housing community)	Cooperative
Services provided by the REC Example: Supply renewable electricity, purchasing electricity directly from renewable energy producers; Energy savings; Generation renewable electricity and consumption; Energy services; Electro-mobility; Energy sharing; Street lighting; Electric cars; Community based energy sharing; Peer to peer energy trading	1. Generation of renewable electricity and self-consumption 2. Sustainable mobility 3. Energy demand management system
Technology/Energy Example: Solar PV, geothermal heat pumps, battery storage	Solar PV, electric vehicles, charging points

Renewable energy communities – Phase 2 Data Collection

2

### Project Fact Sheet

# Key Findings







# Key Findings



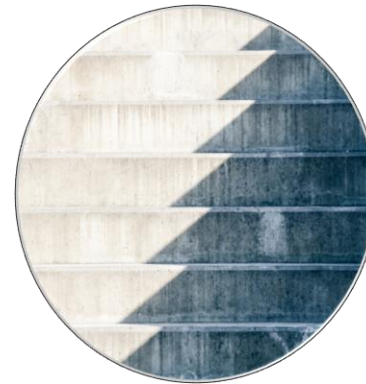
## Legislation

(Transposition and adoption)



## Support

(Actions to leverage REC adoption)



## Barriers

(Block to REC implementation)



## Energy Agencies

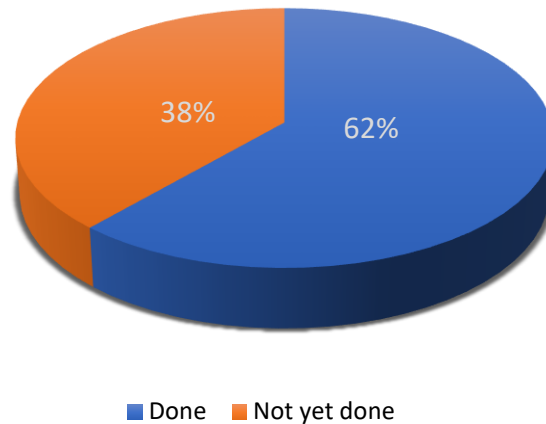
(Current Role and activities)



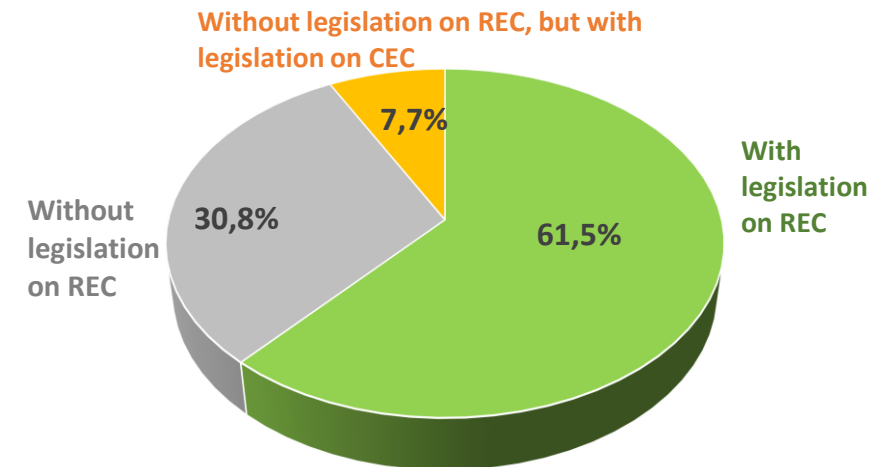
# Renewable Energy Communities

## Findings about Legislative Framework

Status of RED 2018/2001 transposition



Status of countries with specific legislation on REC



Most countries already have transposed RED 2018/2001



# Renewable Energy Communities

## Definition

REC is a legal entity, constituted by open and voluntary adhesion of its members, controlled by them, and having as main objectives to provide environmental, economic and social benefits to the members or the location where the community operates, rather than financial profits.

The REC can produce energy from renewable energy sources (through generation units owned by it), store, consume/share the produced energy within the energy community and sell the excess of the energy produced, and in this way to access the energy markets, directly or through aggregation.





# Renewable Energy Communities

## REC Members and Management

### Possible members in a REC

There is no limitation to the type of members that can be part of a REC. Private and Public Consumers, Enterprises.

### Management options for REC

Management Option	AT	ES	FI	FR	GR	IT	LU	NL	PT	SK	UK
Mandatory to be done internally by REC members		X			X						
Done internally to the REC or by third parties as a service			X	X		X	X	X	X		X
Only operative tasks possible to be done by third parties. Mandatory that legislative tasks be done by the legal entity of the REC	X										
Not specified in the legislation										X	



# Renewable Energy Communities

Services provided by REC

Type of Service	AT	ES	FI	FR	GR	IT	LU	NL	PT	SE	SK	UK
Energy production	X		X	X	X	X	X	X	X		X	X
Energy supply	X		X	X	X		X	X	X		X	
Energy consumption and sharing	X		X	X	X	X	X	X	X		X	X
Energy Distribution					X				X		X	X
Energy Services	X		X	X	X	X		X	X		X	X
Other Activities	X			X	X	X		X		X	X	X
Not yet defined		X										

Focus on energy production and sharing



# Renewable Energy Communities

## Findings about Specific Legislation on REC

### Licensing process

- **Not clear process** or enclosing a few uncertainties, or
- A **simplified process**, because no license is required and a simple notification to the grid operator or a registration with the Regular Authority for Consumers and Markets is sufficient, or
- A **complex/bureaucratic process in the most part of the countries**, not only due to the needed and time-consuming procedures but also because of the high number of licensing authorities involved and other constraints (grid connection barriers, lengthy response time of licensing authorities, etc.).





# Renewable Energy Communities

## Support Instruments

- **Two types of instruments, directly or indirectly linked to the existing REC legislation:**
  - **Economic Type** (reductions or exemptions of taxes, fiscal deductions, subsidies and grants)
  - **Technical Support Type** (creation of “one-stop shops”, production of guides and manuals, helplines, information exchange and best practices).
- However, this is **not yet satisfactory and it has limited results**, mainly because:
  - Legislation is recent and there are still a lot of uncertainties,
  - The created instruments, many times, seem not to be included in a concerted action of policy and appear as single measures, without focusing on the causes of the main barriers that hinder a wider development of REC.

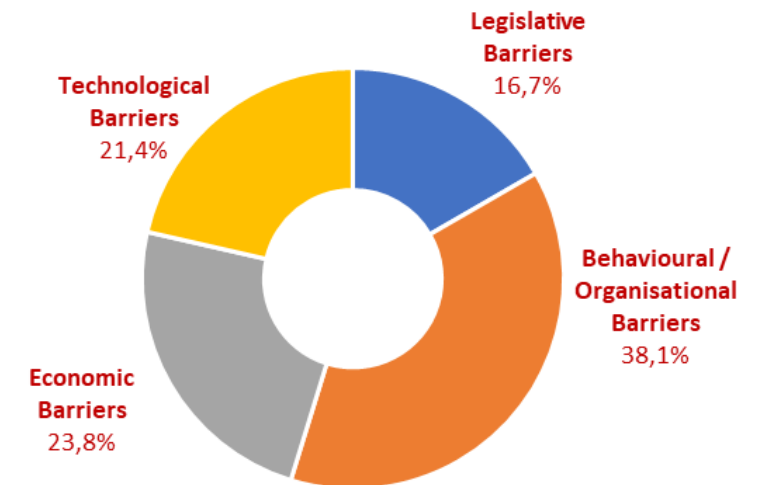


# Renewable Energy Communities

## Barriers to REC implementation

- **Several types of barriers to REC implementation were identified.** Most of them are common to several countries and not all related to the existing legislation.
- These barriers may be grouped into **4 categories**:
  - Legislative Barriers
  - Behavioural / Organisational Barriers
  - Economic Barriers
  - Technological Barriers

Share of each obstacles category





# Renewable Energy Communities

## Legislative Barriers

- 1. REC legislation still not clear.**
2. Bureaucratic and time-consuming licensing process.
3. Type of services to be offered by a REC.





# Renewable Energy Communities

## Organisational Barriers

- 1. Complexity and understanding of REC concept – How to start?**
  2. Finding the adequate energy community.
  3. Information on network area of REC location.
  4. Inexistence of a one-stop-shop approach for administrative tasks.
  5. Lack of statutes or typical articles of association in a REC creation.
  - 6. Lack of awareness and capacity building / Information dissemination.**
  - 7. Grid connection barrier – Lengthy processes.**
  8. Grid connection barrier – REC not possible in all distribution networks.
-



# Renewable Energy Communities

## Economic Barriers

- 1. Lack of competitive and transparent energy tariffs.**
  2. High cost of storage.
  3. Poor knowledge of financial benefits associated to REC.
  4. Penalization on market premium (subsidy) to electricity generated by REC.
  - 5. Grid access costs / Lack of transparency.**
  - 6. Financing obstacles when self-consumption schemes/REC are implemented.**
  7. DSO investments not aligned to REC implementation investments.
-



# Renewable Energy Communities

## Technological Barriers

1. Equipment supply and installers availability.
2. Communication material availability.
3. Need of adaptation of IT processes on the DSO side.
4. Putting into operation of smart meters.
- 5. Grid low capacity / Congestion of grids.**





# Renewable Energy Communities

Actual role of the E<sup>n</sup>R Energy Agencies in REC's policy and implementation

- Awareness campaigns
- Information materials
- Template creation
- Tenders and contracts
- Technical support
- Financing Schemes



**Dissemination and  
Communication**

**Only 9 E<sup>n</sup>R Agencies develop activities related to REC and at different levels**

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# Case Studies





# Renewable Energy Communities

Case studies presented by E<sup>n</sup>R Energy Agencies

## 36 Case Studies analysed:

- 9 from Sweden
- 4 from United Kingdom
- 2 from Greece
- 1 from Austria
- 3 from Netherlands
- 14 from Spain
- 1 from Italy
- 2 from Portugal

**13 of the case studies with 5 or less years of existence.**

**The oldest REC has 12 years of existence.**

**19 case studies not yet implemented, to be established soon.**

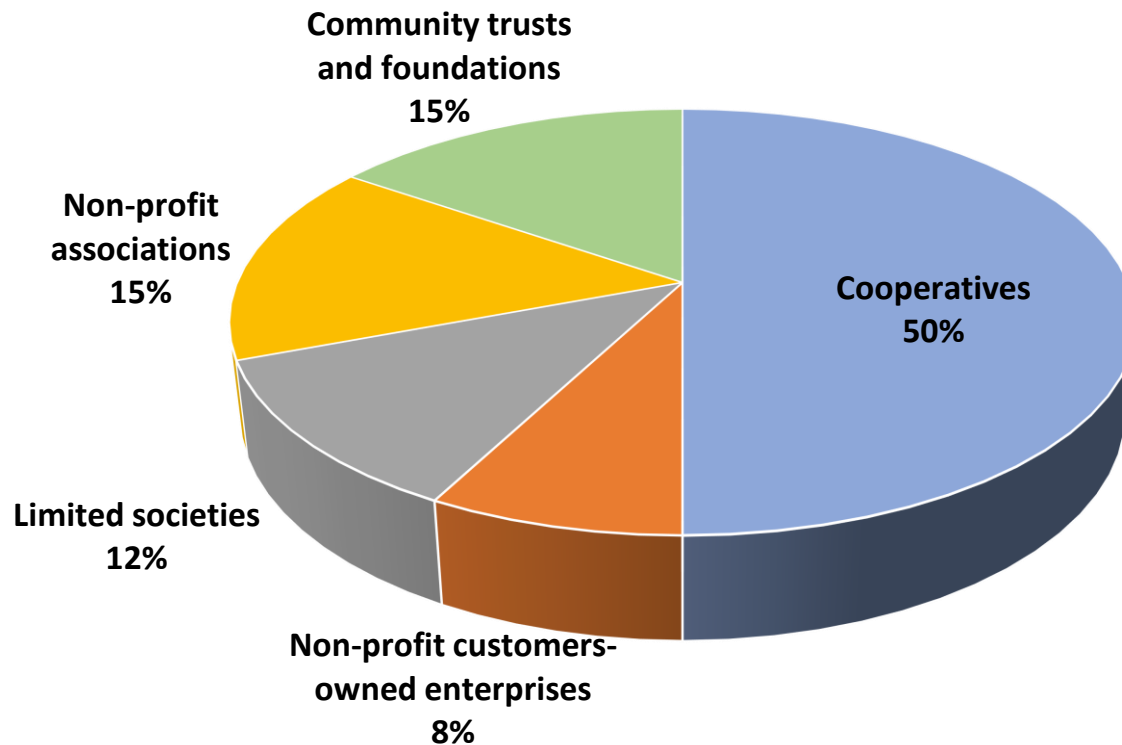
**50% of case studies belonging to countries without specific legislation on REC.**



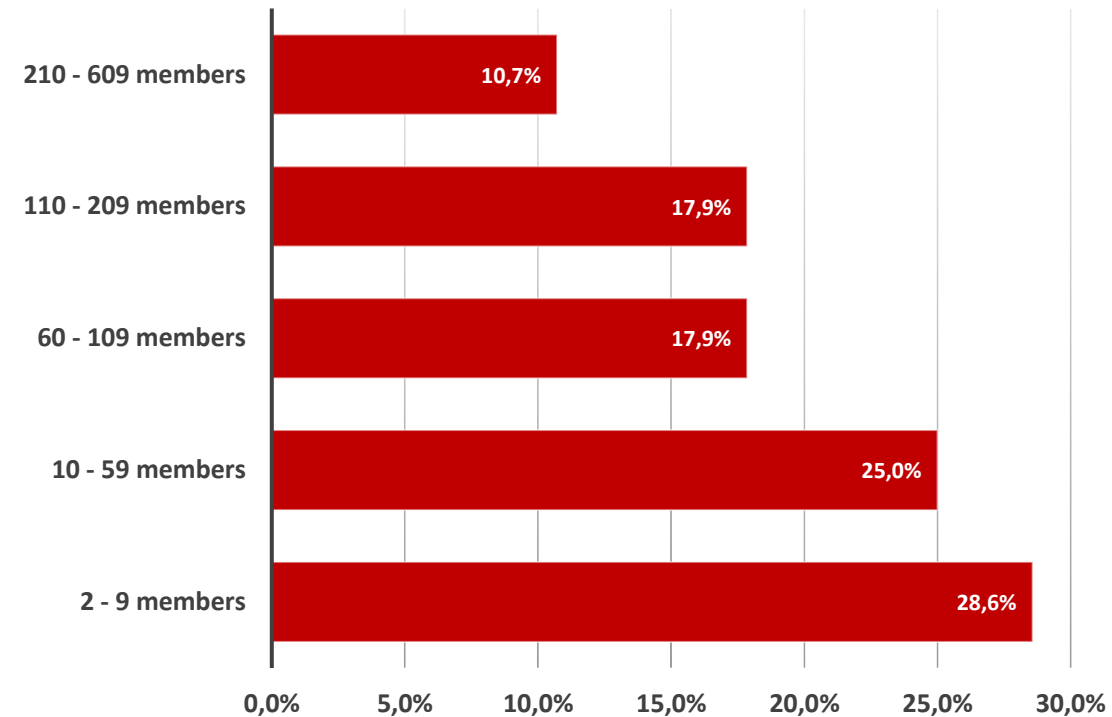
# Renewable Energy Communities

Maximum number of 600 members

## Legal structures of REC



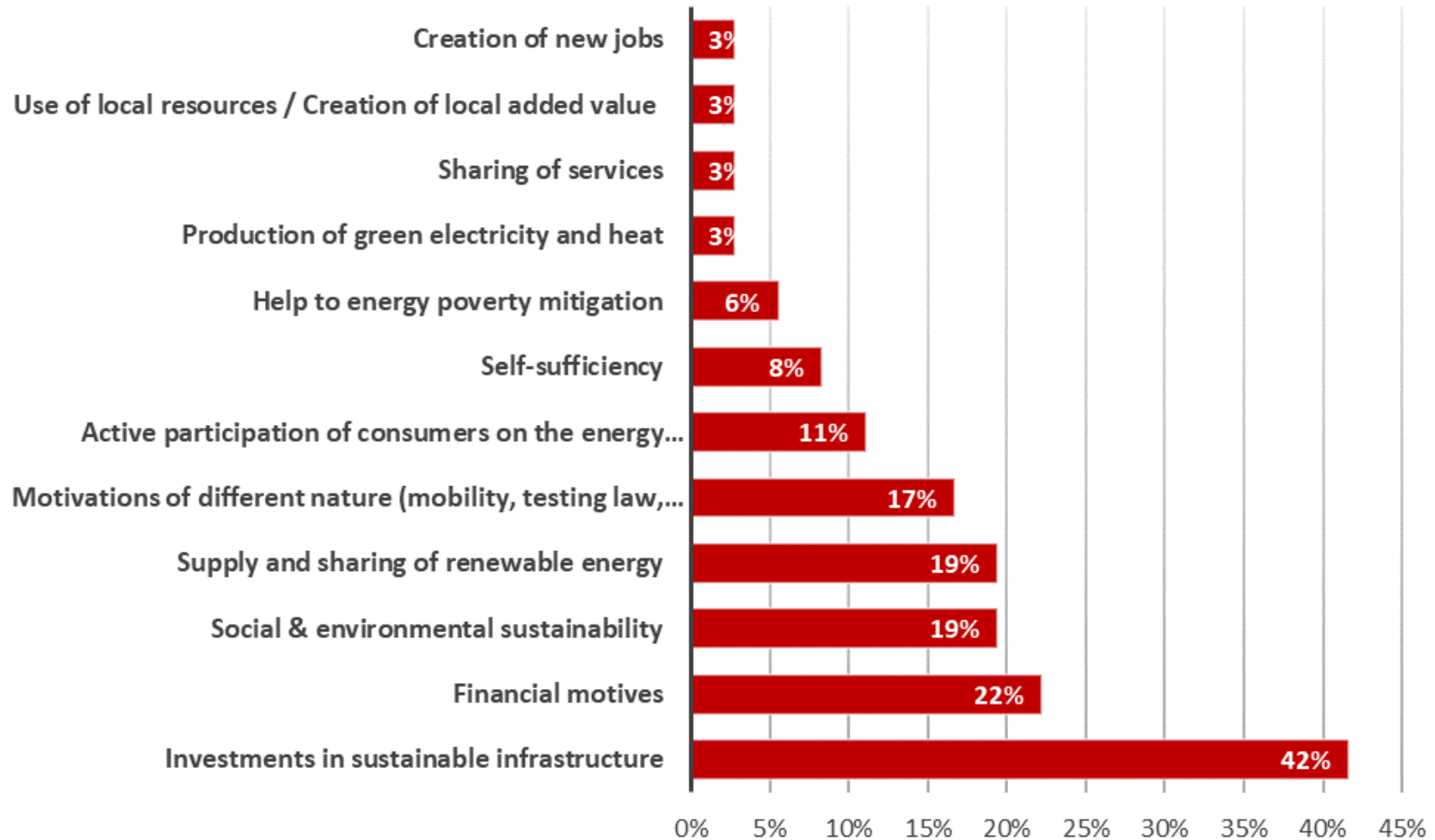
## Number of REC members





# Renewable Energy Communities

Specific drivers of motivation for the creation of these REC

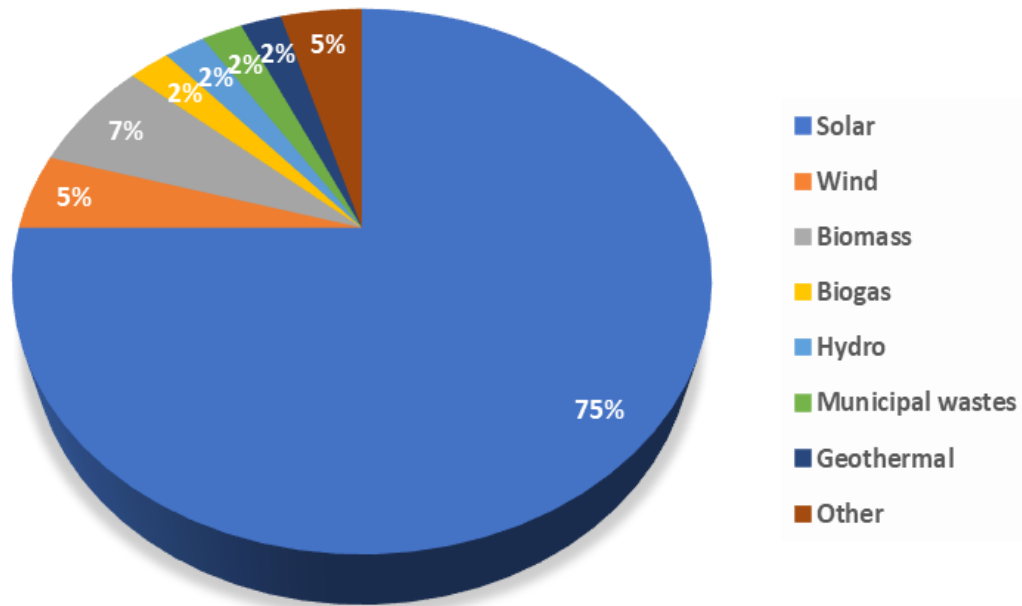




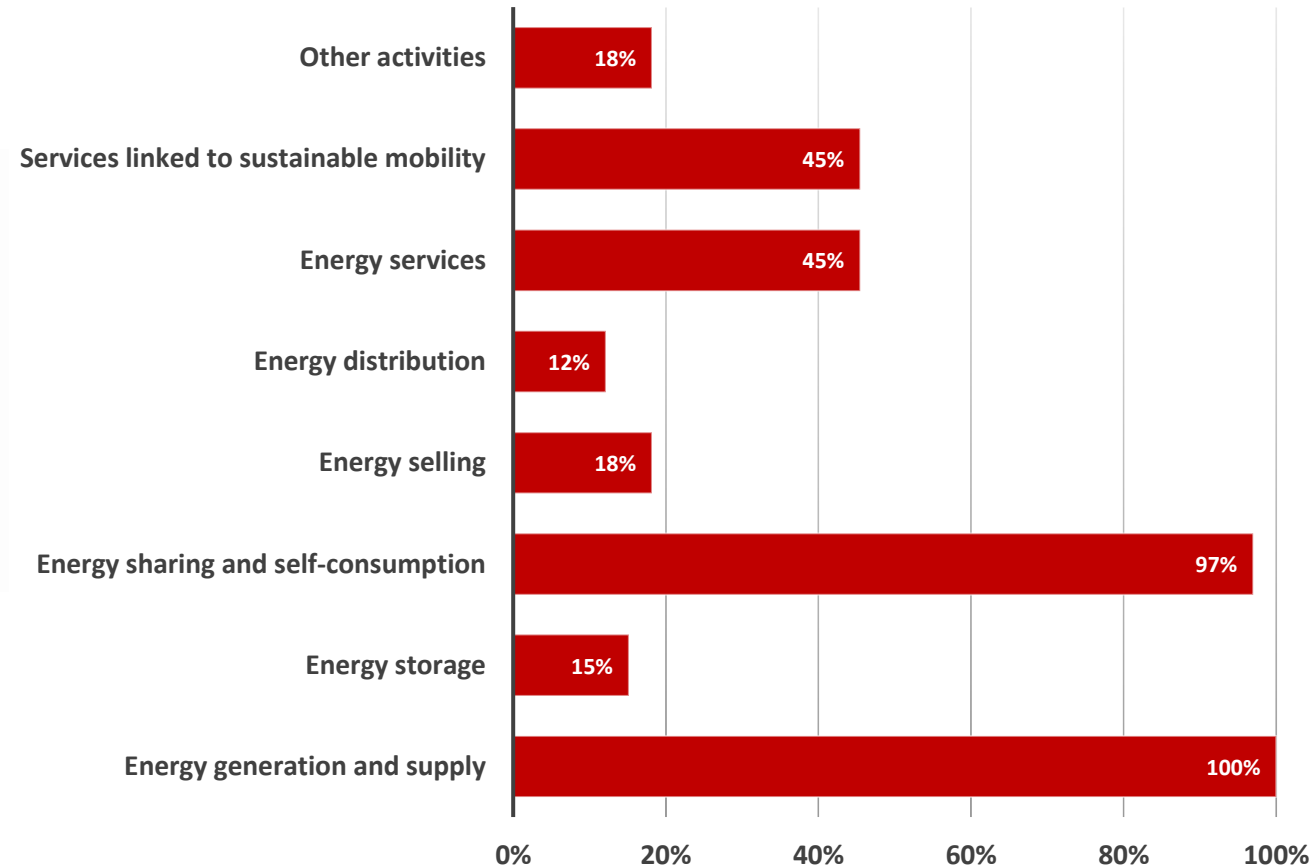


# Renewable Energy Communities

Technology and services provided



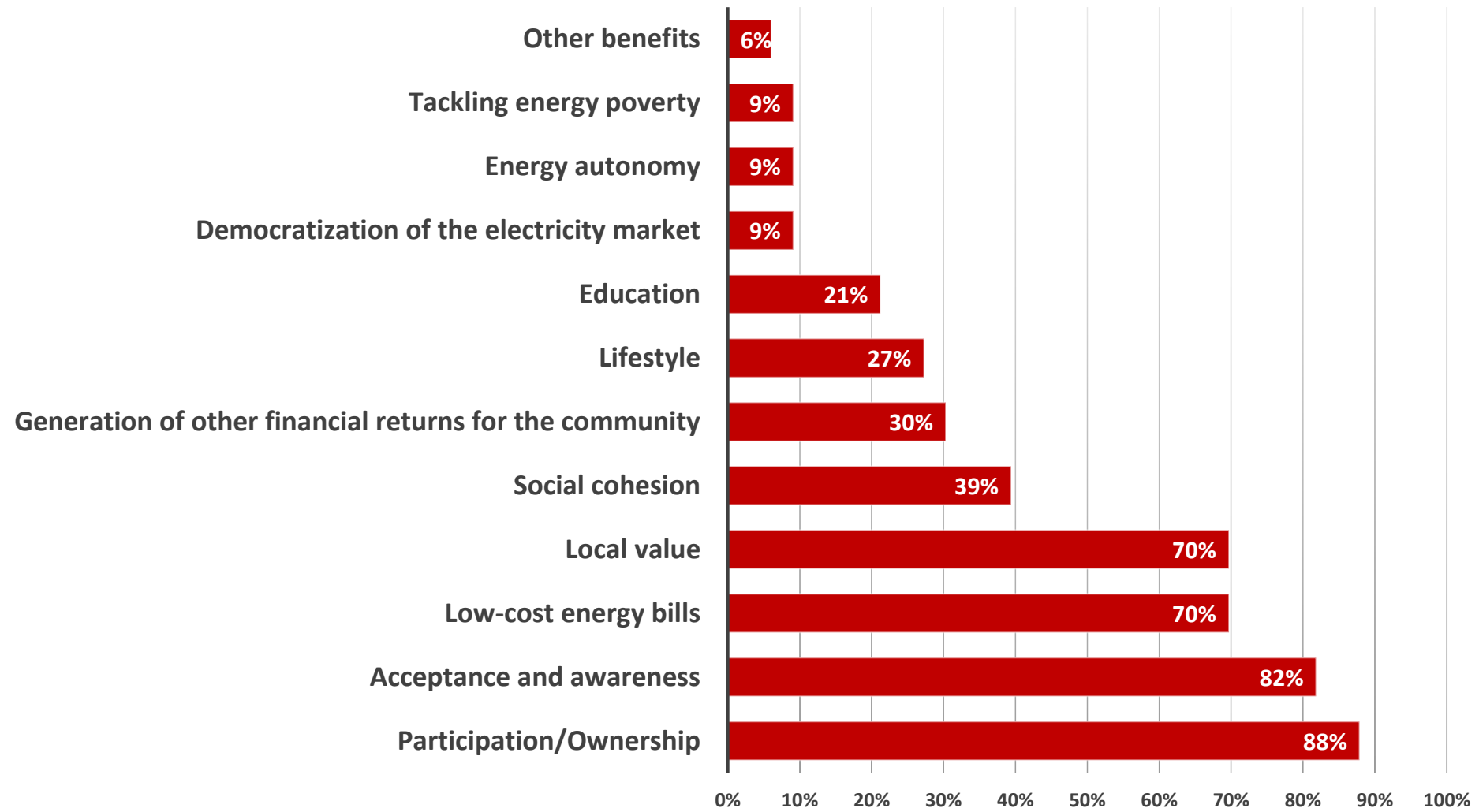
Solar energy represents the majority





# Renewable Energy Communities

## Perceived socio-economic benefits





# Renewable Energy Communities

## Replication opportunities

- 76% of case studies apply to the Residential Sector.
- In almost 80% of the sample may be involved local and regional authorities/municipalities.
- 24% of case studies also apply to the Tertiary Sector (mainly Services) and 9% in the Industry Sector.
- In almost 60% of case studies, it seems that other sectors not explicitly mentioned may be involved like Trade and Service Sectors.
- The rural communities have also a significant contribution for the REC implementation in these case studies, with a share of 6%.
- Therefore, the main conclusion is that **these renewable energy communities may have a wide application, covering practically all sectors of activity.**



# Recommendations for REC adoption





# Renewable Energy Communities

## Actionable recommendations for REC implementation

- A prompt intervention of Governments and legislative authorities for the removal of the grid connection barriers that are transversal to several countries.
- Set up enabling national frameworks that may provide capacity-building support to citizens that want to implement REC.
- Simplification and streamlining of procedures and requirements of legislation where possible.
- To set up adequate finance and technical information support.
- To ensure that vulnerable and energy poor citizens can participate in these REC.
- A more visible and proactive role of E<sup>n</sup>R Energy Agencies in the REC promotion.
- Removal/minimization of the identified barriers.





# Renewable Energy Communities

## Main Barriers



**Legislative**



**Organizational**



**Economic**



**Technological**



# Renewable Energy Communities

## Solutions for the removal of barriers (1/2)

### **For Legislative Barriers**

- . Legislation clarification on procedures for REC implementation, including details from DSOs and regulatory entities.

### **For Behavioural / Organisational Barriers**

- . Public awareness campaigns and information actions.
- . Development of specific communication strategies.
- . Production of text models of statutes and internal regulations for REC.
- . Development of online tools to answer to the question “How to start a REC implementation?”.
- . Reduction of the response time for issuance of REC licenses and administrative tasks in general, mainly related to DSOs.
- . Grids congestion – shorten planning processes and provide geographical info-system and data.
- . Creation of supporting structures for establishment of REC at national and regional/local levels . . .  
(on technical and operational issues, networks, associations and one-stop shops).



# Renewable Energy Communities

## Solutions for the removal of barriers (2/2)

### For Economic Barriers

- . Specific and attractive financial support schemes for REC implementation (exemptions of national tendering schemes, additional subsidies for legal and technical studies, financing to facilities, etc.).
- . Development of a tariff calculator to compare costs.
- . Reduction of taxes and increase of percentage of flexible tariffs.
- . Reduction of cost of storage.
- . To privilege business models for REC with different types of stakeholders, the inclusion of vulnerable and energy poor citizens as participants of REC, a fair division of responsibilities and benefits between all members and respect for the RED II governance requirements.

### For Technological Barriers

- . Adaptation of legislation, concerning smart meters operation + Info-campaign on data transmission.
- . Implementation process of IT solutions closely monitored by political decision-makers / Adoption of a unified data communication standard and a solid IT architecture.
- . Increase of grids capacity.
- . To encourage complementarity amongst renewable energy sources.

# Role of Energy Agencies





# Renewable Energy Communities

## Actions for Energy Agencies (1/2)

- More and better information dissemination and awareness-raising programmes.
- Training and qualification of stakeholders.
- Identification of good practices of REC projects.
- Cooperation with other entities (licensing authorities, DSOs, municipalities, etc.)
- Helping in the design of financial support schemes run by governments.







# Renewable Energy Communities

## Actions for Energy Agencies (2/2)

- Contributing for networking of stakeholders and existing REC projects. The creation of some small eco-systems of REC examples could function as a gateway to this networking assistance.
- Using the E<sup>n</sup>R Network as a privileged channel for access to information and to influence transnational policies, to support implementation and provide advice on REC.
- Contributing for the development in its own countries of a national strategy or program of specific support to REC implementation



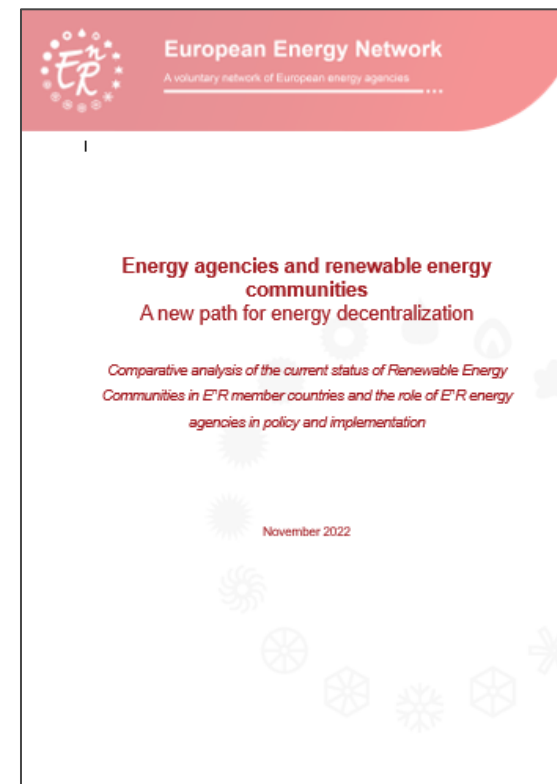
# Conclusions





# Conclusions

- REC can bring a positive impact in energy production and contribute for the European objectives of renewable energy adoption and reduce dependency on fossil fuels;
- Legislation adoption is still far from completion. There is a need for simplified procedures;
- Approval of processes by national entities takes too long and makes difficult for investors;
- Actual grids don't have capacity to absorb all the proposed projects;
- Energy storage is still an expensive asset;
- Need for general and technical support for investors and promoters;
- Energy Agencies can play a role in dissemination, support and capacity.



Available soon  
<https://enr-network.org/>





Thank you!