

Definition of and Criteria for 100 % RES Communities

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Definition of and Criteria for “100 % RES Communities”

The transition towards renewable energy sources (RES) takes place in many different ways all across Europe. Within these activities so-called “100 % RES Communities” play a significant role. They offer the space, the potentials and the political conditions to stimulate a comprehensive change in the regional energy supply and the regional energy consumption. To answer questions like “What are 100 % Communities and where are they located?” and “How can a community become a 100 % RES Community?”, definitions and criteria have to be set up.

For the European project “100 % RES Communities” it is therefore essential to define at first and hence to identify those communities that are able to act as a role model for others to follow. But at this time, no general valid definition of a “100 % RES Community” exists in literature and no standard methodology or tools are available to identify them.

1. Definition of “100 % RES Communities”

A general and shared definition of “100 % RES Communities” has to be developed for all of the participating countries within the project (Germany, Belgium, France, Italy, Hungary, Austria, United Kingdom, Slovenia, Romania and Czech Republic) to be able to identify and build up further 100 % RES Communities. This definition includes conceptual, qualitative and quantitative aspects and addresses four different levels of process (objectives, methodology, execution and specific approaches).

1.1. Aims of the Definition

The definition of “100 % RES Communities” on the EU level aims at identifying rural towns and territories having already achieved results in terms of RES development and to measure their quantitative progress. By creating criteria to identify “100 % RES Communities” the possibility to compare these communities over time in different countries and regions shall be achieved. Finally emulation between them shall be created so that additional projects are developed and the methodological ground is build up to enable a communication campaign based on the promotion of identified front-runners.

As the objective of being a “100 % RES Community” is most probable in rural towns and territories, the given definition focuses these kinds of towns and territories. It aims at describing a “100 % RES Community” suitable for every European country.

1.2. A “100%-RES-Ideal-Community”

Important for regions that want to be completely self-sufficient with RES are strategic considerations about the targeted state and the further steps. As a central and vivid future vision for a general description of a “100%-RES-Region” – which is equivalent to a “100 % RES Community” – a positive, desirable mission statement of a “**100 %-RES-Ideal-Region**” was designed in the German project “100%-Erneuerbare-Energie-Regionen”. This statement shall serve within the project “100 % RES

Communities” as a general description of a “100%-RES-Ideal-Community”.¹ It also serves as an image for the comprehensive way of development of regions towards an energy supply entirely based on RES. It is built upon the assumption and target that this kind of a 100 % RES vision is desirable and feasible:

„A 100%-RES-Ideal-Region covers its energy demand entirely with RES with respect to electricity, heating and mobility. The region acts very energy efficiently and includes the regional potentials in a comprehensive way. The energy supply is ecological, sustainable, safe and secure and increases the regional value creation. Regional players are involved and a high acceptance for this form of energy supply exists in the population of the region. The development process is shaped by regional key players together with end users, producers and practitioners, leading to a comprehensive energy supply with RES. To achieve cost reductions and secure grid stability they interact with other 100%-RES-Ideal-Regions. Energy efficiency, sustainable energy production and regional activities for an energy-conscious behavior are integral elements in the region.”²

As this kind of an ideal type region actually doesn't exist within Europe, the definition for the “100 % RES Communities” has to be adapted according to the specific regional and local conditions in the different countries. As some countries like Germany are already quite far in the development while others are just standing at the beginning of the development towards “100 % RES Communities”, every country will have to find its own way to define and identify their pioneer communities which includes a certain kind of flexibility within the definition of “100 % RES Communities”. But the given definition shall still serve as the major common denominator and be the linking element for the project “100 % RES Communities”. For this adaption of a “100 %-RES-Ideal-Community” it is important to consider four different dimensions influencing the development of a region.

1.3. The Dimensions of “100 % RES Communities”

Looking at regions aiming at 100 % RES, four different dimensions comprising different topics have to be considered:

- Spatial dimension (building, quarter, village, town, district, region etc.),
- Thematic dimension (economy, technology, policy, sociology, ecology etc.),
- Normative dimension (100%-target, sustainability, regional development etc.)
- Temporal dimension (past, present, future).

These dimensions are in a complex relationship to each other. For example content aspects mostly have a spatial dimension and also normative topics can hardly be separated from content/thematic aspects. Normative elements such as the sustainable regional development are often part of the economic considerations. The temporal dimension ensures the inclusion of the process dynamic, the emergence, the latest developments and future visions (see Figure 1).

¹ Projekt "100%-Erneuerbare-Energie-Regionen" (2009): Schriftliche Befragung von Erneuerbare-Energie-Regionen in Deutschland - Regionale Ziele, Aktivitäten und Einschätzungen in Bezug auf 100% Erneuerbare Energie in Regionen. In: deENet (Hrsg.): Arbeitsmaterialien 100EE Nr. 1, S. 12, Kassel.

² Moser, P., Kucharczak, L., Hoppenbrock, C. (2009): How to achieve renewable energy regions and advance sustainable development? - In: Droege, Peter (Hrsg.) (2009): 100 Per Cent Renewable - Energy Autonomy in Action, London, S. 173-187.

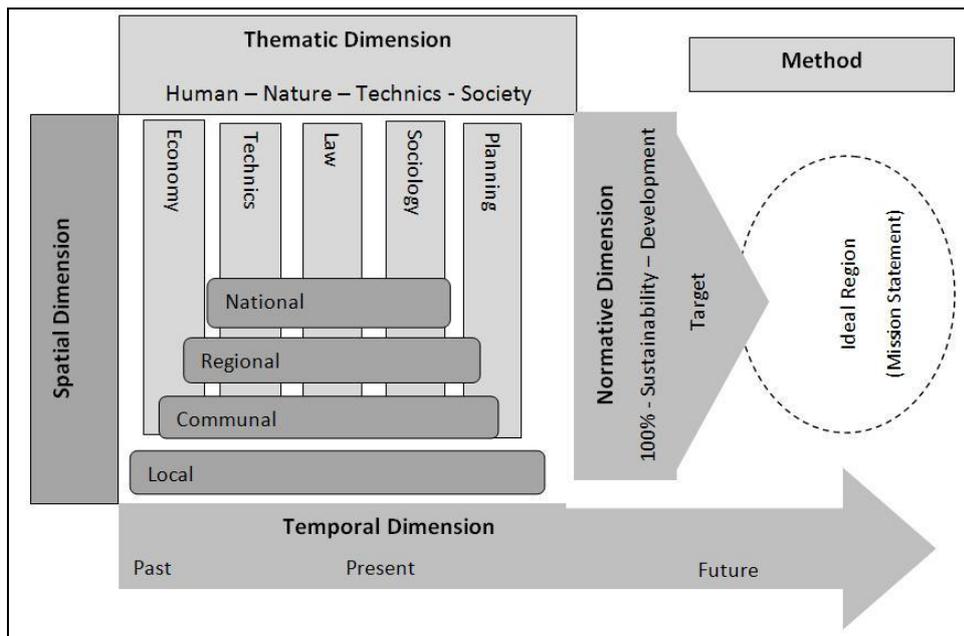


Figure 1: System model for an „Ideal-Region“

Thematic dimension – What are the main topics of a “100 % RES Community”?

A “100 % RES Community” is primarily **willing to achieve 100 % RES**. It is working intensively on the extension of decentralized RES and their implementation. In this context RES are understood as energy resources that derive from natural sources and can renew themselves like sun, biomass, water, wind and geothermal energy. As well technical sources like cogeneration offering heat and electricity serving as measures for energy efficiency, can be taken into account if they are based on RES.

Furthermore a “100 % RES Community” focuses on **electricity, heat and mobility** (including transport). Thereby it adopts a **mix of technologies** that is able to cover the energy demand in the spatially confined area in all sectors (public, private, industry, building, producing, households, farming etc.).

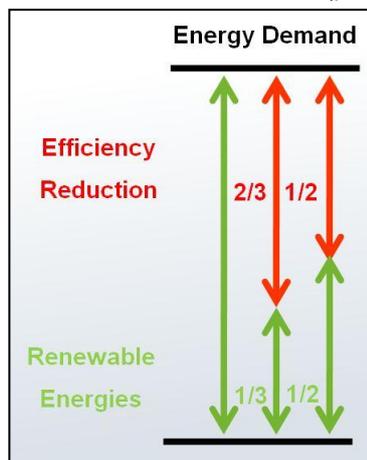


Figure 2: Effects of a decreasing energy demand (source: deENet)

At the same time and with the same effort it is tackling on **Energy Efficiency (EE)** and the **reduction of the energy consumption**. This is important as efforts in EE and energy reduction decrease the total energy amount in the region that has to be covered by RES. Figure 2 shows that 100 % RES can be achieved much easier if the energy demand is lower. Fewer RES are then needed to cover the regional energy demand and they can be used in a more sustainable way. All in all it is important that the **use of RES should not have a negative environmental impact**.

To ensure the sustainability in the transition process to 100 % RES the regional potential capacity of the confined area is very important. It should be avoided to overstretch the regional RES potentials. A “100 % RES Community” is therefore only using the “**sustainably accessible RES potential**”, which is the intersection between the economic, the ecological and the social potential and includes all facets of sustainability (see Figure 3). It is therefore necessary to **account for social, economic and ecological factors** when determining the RES resources. Thus, it is acceptance, involvement in the development of RES as well as regional value creation that play a role. It also has to be considered, that it is more important that the RES potentials are



Figure 3: Intersection of the sustainable accessible RES potential (source: deENet 2009)

developed by the people and actors of the region than that the RES potentials are completely exploited. Therefore it is not only important to cover the regional energy demand to the greatest possible extent but also to question the ownership of the RES plants that produce this energy.

Summarized a 100 % RES Community is a community whose energy needs have been reduced as far as possible and are covered by local sources of RES, according to the three following principles: energy sufficiency, energy efficiency and renewable energies (negawatt³ approach). The achievement of the energy transition is the main objective (constitutive role) of the 100 % RES Community: it meets crucial issues such as climate change, fossil fuel depletion and the reduction of major industrial risks at the local level. A 100 % RES Community is also a community, which adopts specific approaches that tackle many complementary issues (in the economic, social, democratic and environmental fields) for the sake of a true sustainable development. The specific approaches adopted by a 100 % RES Community are the main mean (instrumental role) of the energy transition designed a change process.

The following figure 4 shows the diversity of issues and approaches that move the 100 % RES Communities:

³ Negawatt power is a theoretical unit of power representing an amount of energy (measured in Watts) saved. Energy is saved by either increased efficiency or reduced energy consumption; the conserved energy is a "negawatt". The concept of a negawatt is simply a measure of power that is not used. Negawatts are a form of encouragement to motivate consumers to conserve energy.

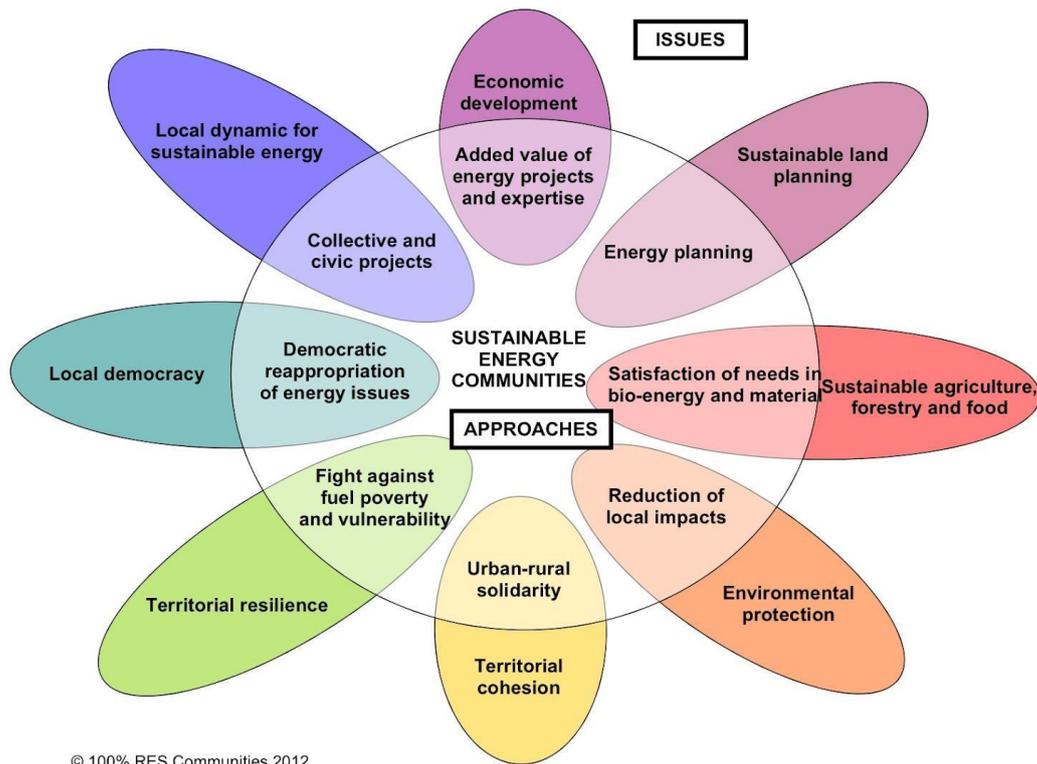


Figure 4: Diversity of issues and approaches that move a 100 % RES Community

100 % RES Communities share the idea that their commitment in such approaches is beneficial in terms of:

- Economy and local development: lower spendings, creation of activities, local jobs.
- Social and democratic issues: participation of citizens, reduction of fuel poverty and vulnerability to erratic but inevitable increase of energy costs, social and territorial cohesion.
- Environment: reduction of local impacts and participation to the achievement of national and international commitments in terms of energy and greenhouse gas emissions.

The communities that aim at reaching the 100 % RES objective share the idea that rural territories can and have to play a key role:

- the reappropriation by the entire community (citizens, elected persons, local actors) of energy issues,
- the implementation of concrete actions for the reduction of energy consumption and the development of renewable energies,
- the questioning of central decision-making organisations (at national and European levels) for the implementation of a favourable context to the necessary energy transition.

Spatial dimension – What size do “100 % RES Communities” have?

While international and national regulations regarding RES, CO₂ reduction targets and energy efficiency are made on a higher level of political action, the implementation of RES, the setting of individual 100 % RES goals and public participation concerning RES are actions taking place on a **regional level**. Therefore “100 % RES Communities” are the main implementation level for RES (see Figure 5).

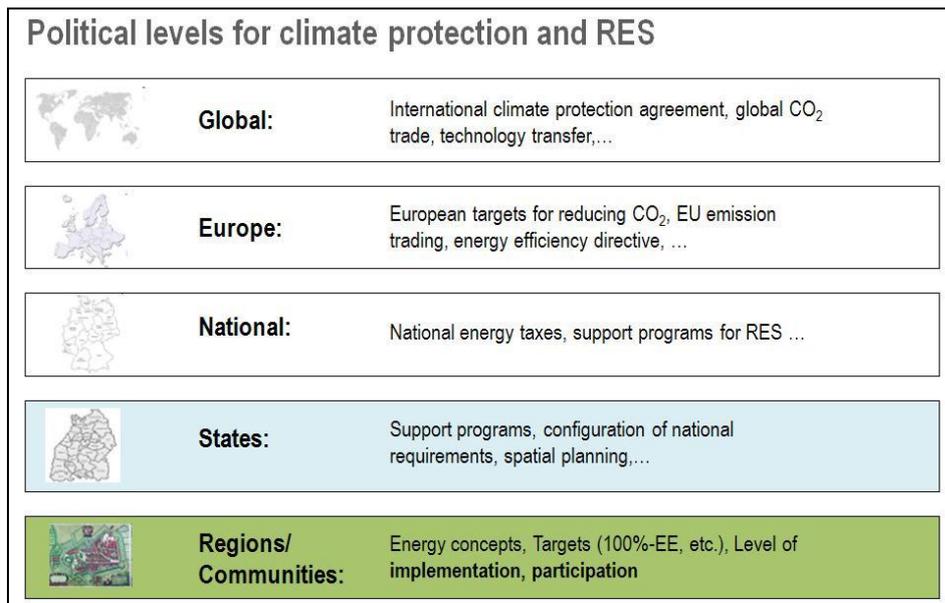


Figure 5: Political levels for climate protection and RES⁴

To realize a 100 % target a comprehensive and sustainable utilisation of the regional RES potentials and the application of different technologies are necessary. In such a decentralised energy system weaknesses and strengths of individual technologies have to be compensated. Therefore the objective of being a 100 % RES Community is only realistic in **rural towns and territories**, that might even have to produce more than 100 % RES to supply bigger cities and towns. As “rural” is an inexact term, it has to be further defined within the project to be able to draw a line in the decision whether a region could or could not be a “100 % RES Community”. Trying to define what “rural” is, in Europe with its diverse geography, is not an easy task as “there is no single, universally preferred definition of rural, nor is there a single rural definition that can serve all policy purposes.”⁵

The population density was recently the mostly used criterion for the characterization of rural regions on European level. The generally suggested border for the classification as an urban area sways between 150 and 500 inhabitants per km²,⁶ while the rural areas are defined as areas with a population density below these values.⁷ For the project 100 % RES Communities the range of inhabitants per km² should therefore stay at least under 150 inh./km² or it has to be proved by a detailed potential study that the region is able to reach 100 % RES on its territory.

As the natural potentials for RES are present along spatial gradients, which vary only gradually (variation of the radiation energy, vegetation, wind potentials etc.), it is important to as well define a “**minimum size**” of the spatial layout for these rural towns and territories. **This size should allow a 100 % RES supply for the territory that is able to cover the actual and future energy demand.** This size should as well be able to be found in every participating country in the project “100 % RES Communities”.

Consequently the spatial perspective can derive from the technical characteristics of the used technologies, the focused sectors and the aimed target. The application of a range of technologies in a

⁴ Magazin der deutschen UNESCO-Kommission Nr. 2/2011, Nachhaltige Entwicklung – wo stehen wir?, S. 7 -10, Uwe Schneidewind, Bonn, modified.

⁵ Rural Policy Research Institute Health Panel, Columbia, USA, March 2007.

⁶ The OECD as well defines “rural” on the basis of the population density less than 150 inhabitants per km² in a certain NUTS II or NUTS III region. The European Commission works at the moment on a definition that shall much better reflect the variety of the rural regions.

⁷ http://ec.europa.eu/agriculture/envir/report/de/rur_de/report.htm

regenerative energy mix involves different players as well as different spatial perspectives. The smallest spatial level is the individual building – this field of activity already covers tremendous opportunities for the utilization of RES. The next larger scale is that of a quarter, village or district. Mainly decentral cogenerated district heating (or cooling) and, to a lesser extent, central district heating – with or without cogeneration of electricity and heat (CHP) are found here. A 100 % supply by RES within the electricity sector is usually only feasible on the regional level and the introduction of electric drive vehicles, which run on RES, will probably need an even larger scale of operation, since vehicles also move out of their region of origin (see Figure 6).

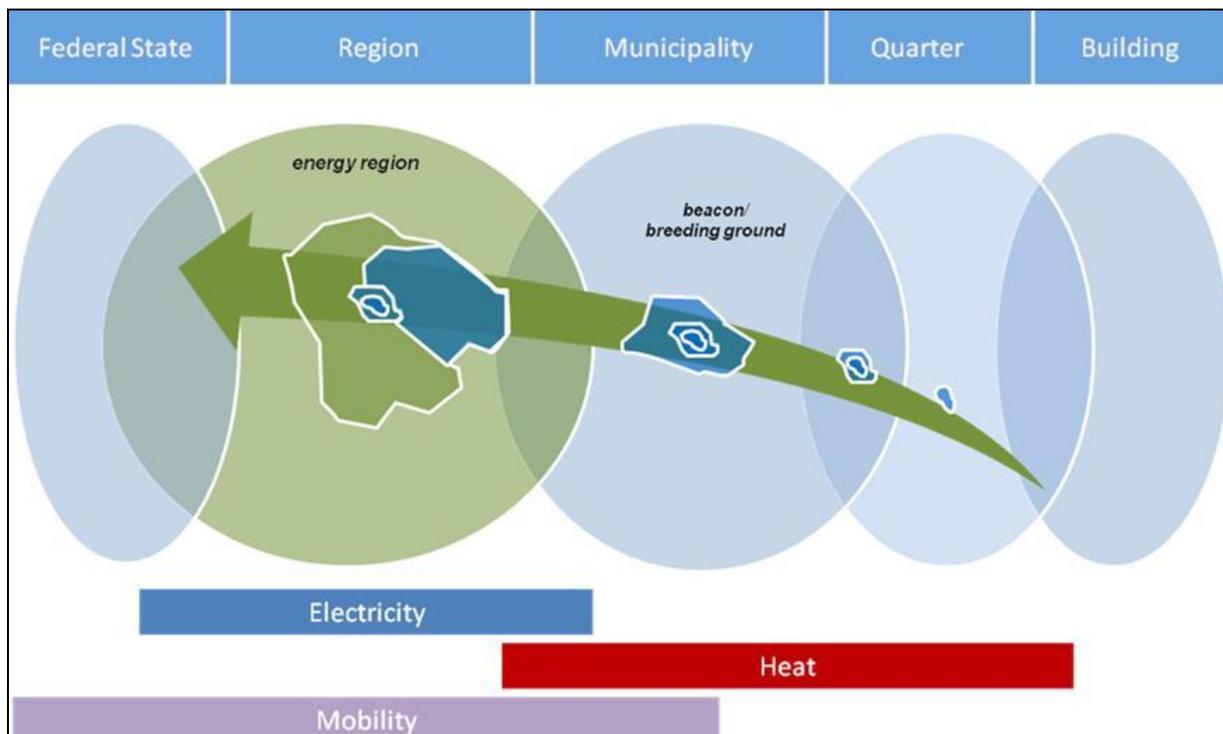


Figure 6: Regional significance of energy types (Moser 2008)

These examples illustrate the required openness of regional systems, which on the one hand have to provide a decentralized energy system for the region in question, and on the other hand have to allow imports of electricity from other regions – at least temporarily – to achieve the 100 % renewable supply. In terms of regional boundaries the term **“Community” and its delimitation should be treated very flexibly.**

The objective of a full supply – a 100 % target – suggests a regional approach, as only at this scale sufficient RES potentials and their profitability can be expected. At the outset, smaller scaled units such as quarters or municipalities can be of interest as well, since these can act as “breeding grounds” or “beacons” for a larger scale development process.

The size of a “100 % RES Community” can therefore be influenced by existing features of the natural landscape, traditional and/or cultural boundaries, the technical infrastructure, administrative borders, constellation of actors or by the requirements of national/international support programs. The delimitation of a region consequently can be more or less favorable for the reaching of 100 % RES and the adequate spatial delimitation of a community concerning its land use structure and the existing RES potentials is of decisive importance for reaching the target of 100 % RES. Therefore, the physiographic composition of the area, the actual land use structure and the population density are important. A city without surrounding area for example is unfavorable, as a city is hardly able to be self-sufficient with

RES due to its high amount of population and low RES potentials. A community that is too large to enable a regional identification is disadvantageous as well.

The nature of the institutional setup of the regional activities concerning the transformation of the energy supply system affects as well strongly the feasibility of energy policy objectives. But a great diversity of institutional setups can be found in existing front-runner regions. They range from associations and companies acting on a regional level, to municipalities, counties and planning consortia. Therefore, “100 % RES Communities” can have different political legitimizations with different financial as well as legislative possibilities. Ideally, a community represents a political unit with region wide supporting institutions for getting 100 % RES.

In conclusion a “100 % RES Community” is a **geographic area** that could be a **region, a county or a group of congregated entities** which should have a **governance system** that is able and legitimated to pass political resolutions. The **smallest unit should be a village** with its communal borders. To obtain comparability between “100 % RES Communities” within the EU-project the mentioned three sizes are the ones that can be used to define the size of a “100 % RES Community”.

Normative dimension – How much RES should “100 % RES Communities” have reached?

A “100 %-RES-Ideal-Region” has already reached 100 % RES in the three energy sectors electricity, heat and mobility. It is therefore energy independent and covers its energy consumption by energy production from RES. But actually no region exists that has already reached this status. Some regions in Germany that have the objective to become a “100 % RES region” have reached 100 % RES or even more in the electricity sector (annual balances), only a few regions have reached up to 100 % RES in the heat sector⁸ and no region is known that has more than a small percentage of RES in the mobility sector. As it may in addition not be possible for some regions, counties or villages to reach 100 % RES on their territory in every sector, a “100 % RES Community” is defined to be **on the way to get to 100 % RES** focussing the three mentioned sectors. Therefore it is more important for the project that the politics in a “100 % RES Community” have the **objective to reach 100 % RES**, that they are **evaluating the progress** in the community and that they are **willing to cooperate** on 100 % RES with the project partners of the “100 % RES Communities” project.

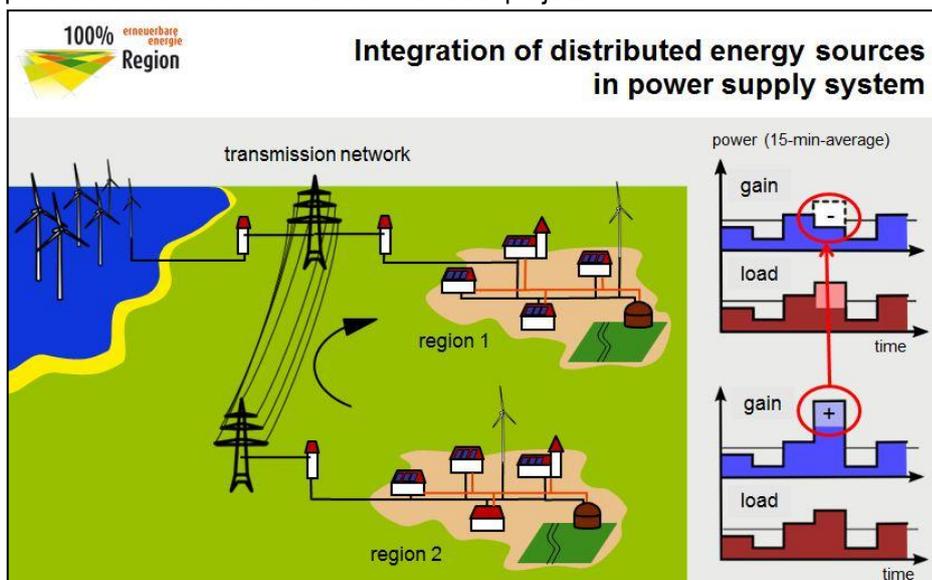


Figure 7: Gain and Load; Example for exchanging electricity from RES between regions (deENet 2009)

But a “100 % RES Community” should still **have the potential to get to 100 % RES at least in one of the three sectors** and it should be in **at least one sector be better than the national average**. This adaption of the description of a “100

%-RES-Ideal-

⁸In the heat sector, usually not more than 100 % are produced as heat is not worth transporting over long distances.

Region” provides as well the possibility that in the future regions may exchange their energy in the electricity sector (see Figure 7) and to certain extend as well in the other sectors. This exchange especially in the electricity sector between regions might offer the stabilizing effect for a RES system that is operating with the 15-minute average.

Temporal dimension – What phase of development should “100 % RES Communities” have reached?

In Germany regions are separated into two clusters – 100 %-RES-Regions and Starter-Regions. While

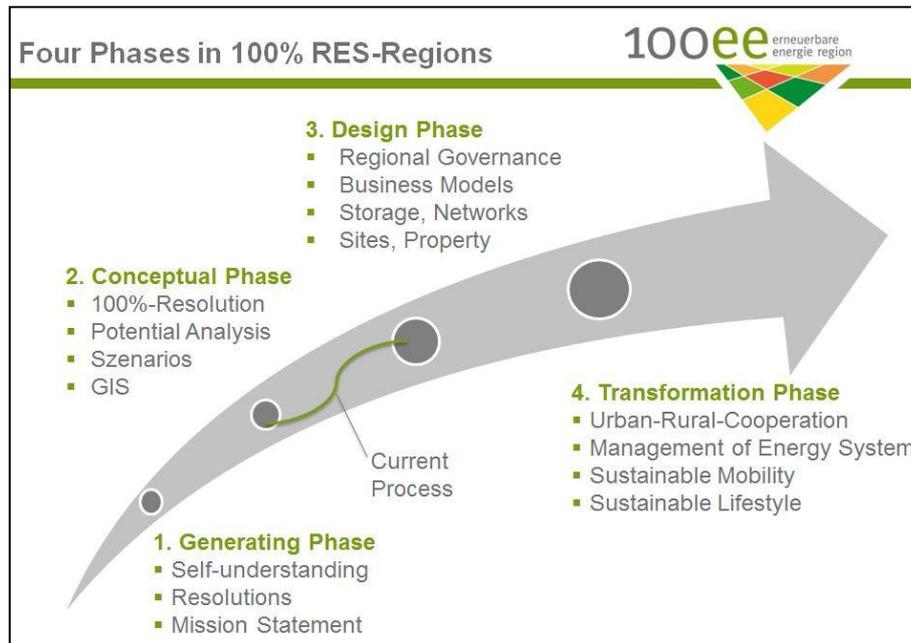


Figure 8: Phases in 100 % RES-Regions (deENet 2011)

100 %-RES-Regions serve as German front-runners in the field of the regional energy transition towards RES, Starter-Regions have recently started and still have a long way to go. Every region setting off on this way passes through four main phases of regional development (see Figure 8). The first phase is the one of generating self-understanding, to pass first resolutions to extend RES and to get a mission statement for their development towards RES. In the second, conceptual phase the regions often pass the decision for a 100%-Resolution, do some kind of RES potential analysis and 100%-RES-scenarios. In the third phase, new regional governance structures have to be established, new business models are set up and questions about the future energy system (storage, networks, sites, property etc.) are made to design the future arrangement of the region. The fourth phase can be mentioned as a transformation phase where the regions are looking for and getting to solutions for urban-rural-cooperation, the management of the energy system and to sustainability priorities e. g. in the field of mobility or lifestyle. In Germany many of the “100 %-Renewable-Energy-Regions” can be located between phase 2 and 3 – some even between phase 3 and 4. But many regions focusing on RES, especially in countries having no specific support for a national energy transition, are still in their developing stage between phase 1 and 2. It is desirable that a “100 % RES Community” has at least reached the second phase.

A “100 % RES Community” should know about their potentials, constraints and success factors, irrespective of its development phase. In other words, it **should have a plan** how to move along the way towards 100 % RES – and in the optimal case get started by a **bottom-up-process**. The **line of action** for a “100 % RES community” could therefore be:

1. Get the will to change to RES
2. Get to know about their Status-Quo, audit of their current demand, identification of the RES potentials in the territory, developing a scenario for 100 % RES

3. Get to know about their individual tasks, planning of projects, developing of a good business plan for financing and implementation, production of local RES, assessment of environmental impacts and socio-economic feasibility (action plan)
4. Perfect the sustainability aspects in the region e. g. of social processes, social welfare and acceptance.

In this context it has to be considered that a complex process like the transition to 100 % RES might not occur in this straight line, different phases can as well overlap each other.

Due to the complex social and energy-economic relations as well as the high capital intensity of measures (e. g. of renovations and infrastructure plans) regional actors must bring a long breath with the energy turnaround. Therefore a high degree of continuity in this process within a region is an advantage.

1.4. Basic Conditions for “100 % RES Communities”

Despite the comprehensive description of 100 % RES Communities for the four different dimensions (spatial, thematic, normative and temporal dimension) there are a few basic conditions that will not be measured by criteria but are requirements for regions or communities to be able even to get the “100 % RES Community” status.

These are the following principles:

- A 100 % RES Community is a geographic area that could be a region, a county or a group of congregated entities
- A 100 % RES Community has a spatial layout that allows a 100 % RES supply for the territory that is able to cover the actual and future energy demands
- A 100 % RES Community has less than 150 inh./km² or it has proved by a detailed potential study that the region is able to reach 100 % RES on its territory
- A 100 % RES Community adopts a mix of technologies
- A 100 % RES Community tackles Energy Efficiency and the reduction of the energy consumption
- A 100 % RES Community has a significant degree of continuity in the process towards 100 % RES

2. Criteria for “100 % RES Communities”

To apply the different aspects of the definition of “100 % RES Communities” to existing regions, counties or groups of congregated entities of the participating countries, criteria have to be found that enable the identification of these communities.

2.1. The four Levels of Assessment

As shown by the definition, different aspects of spatial relevance (spatial dimension), contents (thematic dimension), actual amounts of RES (normative dimension) and the stage of development towards 100 % RES (temporal dimension) are relevant for the specification of a “100 % RES Community”.

As many communities still remain in the starting phase of the process towards 100 % RES, it is not sufficient to focus only on their status quo and the quantity of RES. As well the intended objects of a community have to be taken into account, expressing the will of the actors in the community to increase the amount of RES up to 100 %. In addition, the ongoing activities within the “100 % RES Community” are significant. Therefore these aspects are taken into account and assigned to four categories of criteria characterizing aspects of specific features positively related to 100 % RES.

2.1.1. The Level of Objectives

Within the level of objectives the target horizon of a community, its quality and effects are taken into consideration. Therefore, it is important how the objectives of the community were developed, recorded and anchored in the community. Ideally, the objectives refer to electricity, heating, mobility and energy savings at the same time. At least they should focus on one of these sectors. This aspect will be considered by six criteria: “100 % Res objective”, “Level of RES objectives”, “Timeline of RES objectives”, “Quality of the objectives”, “Binding effect of the objectives” and “Energy savings objective”.

2.1.2. The Level of Methodology

In the level of methodology the done measurements and ongoing activities within the community are taken into account. As the initial evaluation is a basic need (and moreover a basic requirement as per the Covenant of Mayors approach) when starting a strategy on energy it is important to verify the point where a community stands. For further implementation of and information about measures as well local engagement and resources are indispensable. These aspects will be considered by eight criteria: “Initial evaluation”, “Potential analysis”, “Human resources and skills”, “Exemplarity of the local authority”, “Existing (R)SEAP”, “Public relation and consultation”, “Local stakeholders engagement”, “Financial Resources” and “Local authority engagement”.

2.1.3. The Level of Execution

The level of execution describes the state of the development of a region on the way to a 100 % energy supply from RES. Therefore the reached intermediate targets are focused. For this purpose the different technologies for the electricity, heating and mobility sector as well as energy savings are considered.

As far as possible, the level of execution should be measured by quantitative indicators. Nevertheless, due to the partly bad data availability (e. g. in the heating or mobility sector) qualitative aspects must in some cases be consulted additionally.

The 13 criteria used are the “Capacity of photovoltaic per inhabitant“, “Capacity of solar heat per inhabitant“, “Capacity of geothermal energy per inhabitant“, “Capacity of wind power per inhabitant“, “Capacity of hydro power per inhabitant“, “Capacity of biogas plants per inhabitant“, “Capacity of biomass plants per inhabitant“, “Capacity of biofuel plants per inhabitant“, “Capacity of heat pumps per inhabitant“, “Existence of district heating system with cogeneration“, “Capacity of biomass and geothermal cogeneration“, “Amount/Share of clean fuelled vehicles” and “Energy savings during the last 5 years”.

2.1.4. The Level of Specific Approach

The level of specific approach focuses on the previous, current and planned activities and qualitative aspects on the way to a sustainable energy system from regional EE. On this occasion, it is a matter of looking at the realization of the regional objectives. As the ways of single communities towards a sustainable energy system diverge very much due to the different conditions within the communities, aspects which are relevant for a conversion of the energy supply are considered. This level therefore illustrates the application of energy policy instruments like planning and development aspects. Furthermore, the regional decision to use the available potentials in a sustainable and accepted way plays a significant role. In addition basic principles for reaching these conditions are included.

These aspects will be considered by the eleven criteria “Financial participation of local actors“, “Economic development“, “Territorial and urban land planning“, “Energy networks planning and management“, “Sustainable use of bio-resources“, “Environmental sustainability“, “Alternatives to

mobility”, “Alternative mobility“, “Territorial cohesion”, “Social cohesion“ and “Knowledge improvement/development.

2.2. The Assessment Procedure

The assessment procedure is based on a 114-point system which encloses 38 criteria (this will still change due to the amount of criteria and the amount of points we give for each criterion). These 38 criteria are summarized into four groups: objectives, methodology, execution and specific approach. For every criterion a maximum of three points is awarded. By the possibility to award no point (e. g., if no information is given), four assessment steps can be defined: „no information/information not available/regional conditions not sufficient“, „attempts available“, „good implementation“ and „exemplary implementation“. There is no direct weighting of the single criteria. Rather the points are added and provide a score from which the status of “100 % RES Community” is derived. But a weighting occurs by the number of the criteria that are used for the assessment of a level. In this case the “level of execution” is given the greatest weight with 18 single criteria. This seems reasonable as this level is the one that leads to measurable results concerning the energy transition. To pull a border between “100 % RES Communities” and “Non 100 % RES communities“, an approximate value is defined: 50 points are needed to get the status of a “100 % RES Community”. The decision on the status should be made by a jury.

2.3. Criteria, Indicators and Point System

Nr.	Criterion	Indicators	Examples for given points
Objectives			
1	100 % RES objective	- 100 % RES objective existent in the electricity, heat and/or mobility sector	- No objective = 0 - RES objective in electricity sector = 1 - RES objective in electricity and heat sector = 2 - Objective for all sectors = 3
2	Level of RES objectives	- Declaration of the objective 100 % RES as a symbolic breakthrough - Promote both the level of the objective	
3	Timeline of RES objectives	- Timeline of ambition and review - Promote the timeline and milestones of planned achievement - "The sooner the better" - "The more structured evolution the better"	- No specific timeframe = 0 - 100 % RES until 2050 = 1 - 100 % RES until 2040 or earlier = 2 - Separated objectives for electricity, heat and mobility sector = 1 added point - Monitoring milestones = 1 added point
4	Quality of the objectives	- Critical reflection on the objectives (uses considered, perimeter analyzed...)	- Unfunded declaration of objective = 1 - Intermediate objectives = 2 - terminated/measurable objectives based on potential study = 3
5	Binding effect of the objectives	- Aim for 100 % RES with local government decision - Unanimity of the decision - Commitment towards organizations at higher level (region, country, Europe): signature of Covenant of Mayors...	- 100 % RES objective is used without official decision = 1 - 100 % RES objective by an institution, organization etc. or tight decision in the local government = 2 - 100 % RES resolution made unanimous by county council = 3
6	Energy savings objective	- Energy savings efforts	
Methodology			
7	Initial evaluation	- Energy consumption - GHG emissions - RES production - Etc.	- Rough evaluation (acceptable at the start) = 1 - Based on ad hoc samples that can be constantly checked during the implementation of the policy, use of regional database = 2 - Exact calculation of the emissions local baseline, more detailed evaluations = 3
8	Potential analysis	- RES production - Energy savings	- Rough potential analysis at the start with the view to initiate the first concrete projects = 1 - Further and more detailed evaluations then (as further steps) = 2 - Use of GIS, CO ₂ calculating tools etc. = 3
9	Human resources and skills	- Energy manager - Public energy advisor - SEAP animator - Own resources or shared at the territorial level (local authority, energy agency, etc.)	- External experts mainly involved, elected persons, short term perspective = 1 - External experts mainly involved, elected persons, long term perspective = 2 - Permanent staff, external experts considered on a long-term contract basis = 3
10	Exemplarity of the local authority	- Public buildings equipped with RES or energetically renovated - Use of direct competences to encourage RES and EE (programs, planning, support, etc.) - Model projects like street lightening, energy saving devices etc.	
11	Existing (R)SEAP	- SEAP developed and being implemented	- No existing SEAP = 0 - Joint (R)SEAP = 1 - Single (R)SEAP = 2 - (R)SEAP in evaluation, further development and implementation = 3
12	Public relation and consultation	- Amount of public events, fairs, round tables etc. focusing 100 % RES - Good PR about RES and EE - Existence of citizens committees, local associations etc. - Level of conflict among the local population about energy topics	
13	Local stakeholders engagement	- Local actors (citizens, companies, farmers, institutions, NGOs etc.) involved in the energy strategy (local networks, clubs, charters...) - - Actors managing concrete actions and projects that concur to a successful energy strategy	
14	Financial Resources	- Specific budget for SEAP actions - Mapping out of existing national finance sources - Engineering capacity to access external (regional, national, EU...) funds	
Execution			
15	Capacity of photovoltaic per inhabitant	- Above national average - Collection of quantitative RES data with the aim to estimate the energy autonomy rate - Number of points in this section will be automatically calculated from the RES league rankings (based on the energy autonomy rate)	
16	Capacity of solar heat per inhabitant	- Above national average	
17	Capacity of geothermal energy per inhabitant	- Above national average	
18	Capacity of wind power per inhabitant	- Above national average	
19	Capacity of hydro power per inhabitant	- Above national average	
20	Capacity of biogas plants per inhabitant	- Above national average	
21	Capacity of biomass plants per inhabitant	- Above national average	
22	Capacity of biofuel plants per inhabitant	- Above national average	
23	Capacity of heat pumps per inhabitant	- Above national average	
24	Existence of district heating	- Above national average	- Non-RES district heating systems with cogeneration = 1

	system with cogeneration		<ul style="list-style-type: none"> - RES district heating systems with cogeneration = 2 - RES district heating systems with cogeneration including a high efficiency = 3
25	Capacity of biomass and geothermal cogeneration	<ul style="list-style-type: none"> - Above national average 	
26	Amount/Share of clean fuelled vehicles	<ul style="list-style-type: none"> - E-mobility vehicles - Other sustainable fuels: liquefied renewable gas or biomass, rape seed oil etc. - Number of green-fuel gas stations - Number of green public transport vehicles 	
27	Energy savings during the last 5 years	<ul style="list-style-type: none"> - Based on the measured reduction compared to the reduction objective - Energy certificates (CEE) - Sample analysis - Energy certificates of private buildings 	
Specific Approach			
28	Financial participation of local actors	<ul style="list-style-type: none"> - Ownership – share at least – of projects by local actors (citizens, companies, farmers, institutions, NGOs etc.) - Local financing of local projects ("local loop") - Access to RES for citizen (make promotion actions, give local RES subsidies, facilitate citizen cooperative etc.) - Question is "local/not local" with considering "private/public" (encourage local and public investment) 	<ul style="list-style-type: none"> - Private bodies like companies and associations = 1 - Public bodies (region, county or municipality plus regional active planning consortium) involved = 2 - Shared ownership of citizens should = 3
29	Economic development	<ul style="list-style-type: none"> - Strategy for the creation of value through sustainable energy projects and the development of expertise - Business incubator or area dedicated to sustainable energy - Impact on employment, economic relapsed on local businesses, Skill development etc. - Positive consequences for jobs and local added value 	
30	Territorial and urban land planning	<ul style="list-style-type: none"> - Limited use of unbuilt land (versus urban sprawl, solar plants etc.) - Existing regulations giving priority to sustainable energy - Existing territorial land planning documents including measures favorable to sustainable energy 	
31	Energy networks planning and management	<ul style="list-style-type: none"> - Smart grid implementation - Territorial approach of energy networks development (coordination of the development of different energy networks: electricity, gas, heat) - Coordinated development of networks in relation with RES development and energy saving measures - Local management/optimization of networks/grids 	
32	Sustainable use of bio-resources	<ul style="list-style-type: none"> - Existing sustainable management plans and practices for forests, hedges and agricultural lands - Low competition with the production of food and material - Amount of agricultural land that is used for RES 	
33	Environmental sustainability	<ul style="list-style-type: none"> - Objective of climate neutrality - Low transportation distance for biomass: 50-70 km - Due consideration of avifauna for wind turbines - Hydro sustainability by capacity - Environmental impacts 	
34	Alternatives to mobility	<ul style="list-style-type: none"> - Decrease the need for constrained mobility (video conference, relocalisation of services and shops etc.) - Local distribution systems (food etc.) 	
35	Alternative mobility	<ul style="list-style-type: none"> - Local mobility plan, intermodal mobility, mobility info point, mobility agency, car sharing etc. - Development of soft modes (presence of cycle or pedestrian paths, connection between work places, shops and housing, presence of public transport etc.) 	
36	Territorial cohesion	<ul style="list-style-type: none"> - Relations with surrounding territories - Rural-urban solidarity - Articulation with actions at other levels - % of local authorities engaged within the territory - Shared SEAP - Focus is made on the internal <u>and</u> the external aspects 	<ul style="list-style-type: none"> - This criterion takes into account the link between the territory with its external surrounding, whereas the initial criteria is more linked to the internal environment of the territory
37	Social cohesion	<ul style="list-style-type: none"> - Fight against fuel poverty and vulnerability - Consideration of social consequences of energy costs in buildings and for transport 	
38	Knowledge improvement/development	<ul style="list-style-type: none"> - Outstanding pilot projects like virtual power plant, smart grids, wood gasification etc. - Active participation in national or international research and development projects - Training centers and educational programs 	