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## PLANNING AND ENGAGEMENT ARENAS FOR RENEWABLE ENERGY LANDSCAPES

PEARLS series - 2019/2



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PEARLS aims to strengthen people's commitment to safe, clean and efficient energy as actors in spatial planning and social innovation in renewable energy landscapes (REL), bringing the vision and experience of Mediterranean countries to the rest of Europe.

This project will take a step towards changing the way REL are addressed, providing key support for the pan-European energy challenge.

Cover: Card by Oriol Jonloch. Courtesy of the artist.



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## Table of contents

PEARLS Project	4
Research questions	5
Semantic Map	6
WP1 - PEARLS Interaction Platform	7
WP2 - Sustainable Implementation of REL. Policies and Practices Analysis	9
WP3 - Social Behaviours towards Renewable Energies	12
WP4 - Spatial Planning and Analysis	15
WP5 - Social Innovation and Public Engagement Progress Report	19

**PEARLS - Planning and Engagement Arenas for Renewable Energy Landscapes** is a project funded by the European Union's Horizon 2020 Research and Innovation Staff Exchange under the Marie Skłodowska-Curie Actions.

PEARLS aims to strengthen people's commitment to safe, clean and efficient energy as actors in spatial planning and social innovation in renewable energy landscapes (REL).

REL are recognised as spaces where the use of renewable power sources transforms people's relationships with energy and their perception of the landscapes. While the economic and social benefits of an extensive use of renewable energy is widely recognised, the construction of renewable energy plants requires appropriate planning and design competences and the activation of new social processes.

PEARLS intends to be a key actor in the spatial planning and social innovation arena for REL, playing an active role in reinforcing the population's commitment to secure, clean and efficient energy by bringing the vision and the experience of Mediterranean countries to the rest of Europe. Through secondments, staff exchange and collaborative research, the project will investigate how to enforce renewable energy best practice to contribute to help address the Energy Challenge in an innovative way.

The project partnership is composed of members from five universities and nine non-academic beneficiaries (companies, private consultancies, cooperatives and business associations) who hold expertise and experience in renewable energy, energy policy, REL, spatial planning and social innovation. Representatives of Portugal, Spain, Italy, Greece and Israel are involved.

The project is coordinated by the University of Seville (Spain).

web: <http://pearlsproject.org>

The booklet contents refer to the information included in the First program report of October 2019, presented during the midterm meeting in Malaga (Spain) organised by Claner (Andalusian Cluster of Renewable Energies and Energy Efficiency) and the University of Seville as Coordinator.

It contains general information about the progress made between 1<sup>st</sup> July 2018 and 15<sup>th</sup> October 2019.

The ambitious purpose of PEARLS to stimulate a change in scientific knowledge related to the nature of Renewable energy landscapes, their social implications and connected planning problems, requires to precisely focus the research questions and to elaborate an appropriate methodology to face them. In short, the project aims at answering the following **research questions**.

**What** are the policies and strategies for effective, efficient and sustainable REL implementation in partner countries?

**Who** are participating in this process?

**Where** are REL located and why?

**How** do the public accept REL implementation in light of their energy behaviour and aspirations?

**What** values shape the implementation of spatial planning tools for the development of renewable energy, e.g. economic, social, cultural?

**What** are the significant dilemmas expressed in public participation, e.g. sustainability issues, conflicts, employment opportunities?

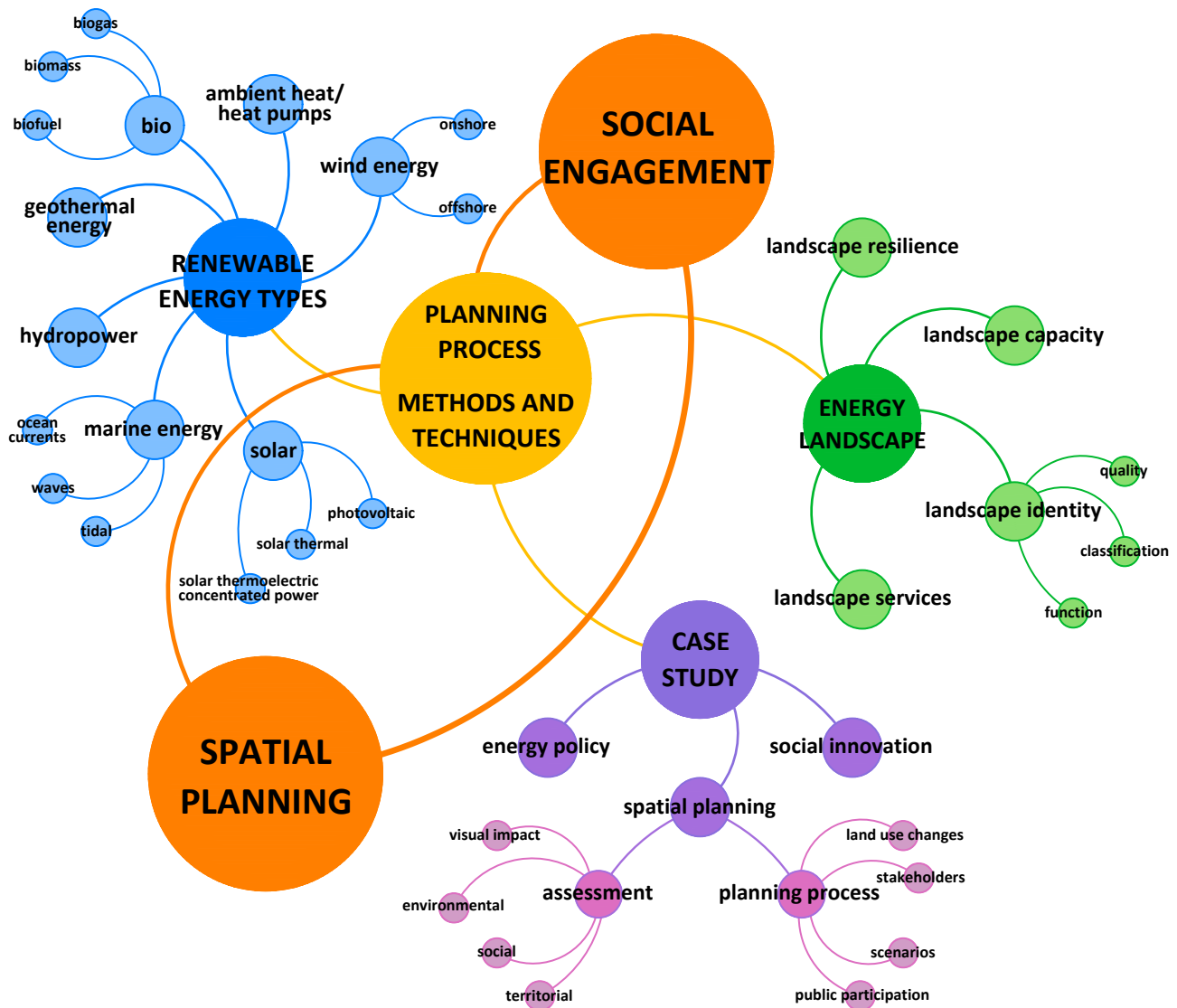
**What** networks and practices are developing social innovation tools? What are their best practices?

**What** innovations are taking place to promote and support extended renewable energy landscapes?

**What** is the best way to export the applied knowledge expertise on REL in Southern European countries and Israel?

The **Semantic map** helps to read and resume the project main concepts by means of their graphical representation as well as the relationships between them.

The overall structure and organization of the Pearls project is visually represented in its complexity: starting from the two main pillars of the project, Spatial Planning and Social Engagement in the renewable energy systems field, strictly interconnected; pointing out the research methods that develop through the analysis of Planning processes and related Methods and Techniques; highlighting the main outputs that refer to Renewable energy types, Energy landscape and national Case studies on energy policy, social innovation, spatial planning.



**Work Package 1 - Interaction Platform** aims at strengthening the external communication during the execution of the PEARLS Project, disseminating mission, progress and results of the project, making use of different tools. The most relevant one regards the application and development of virtual Project communication and dissemination instruments via the Project website. The project website is operational, open to the public and used by the beneficiaries; the project has been presented in several conferences, public meetings, papers in Journals. The website helps partial PEARLS results to be optimally positioned in a range of formats (documents, articles, news, media statements, interviews, videos, etc.). Other means of communications are used such as press releases, written media of different types, oral communications, interactive social networks (i.e. Twitter) and video channels.

The Project results are disseminated to the scientific and R&I community through publications, conferences, technological outputs and EC-H2020 channels. One of the main goal is to share expertise arising from research results with potential users from an international and multi-sectoral audience by providing targeted information to multiple audiences via two-way exchange channels.



**PEARLS Interaction Platform**  
Work Package 1  
Co-Leaded by USE and UNITN

#### PARTICIPANTS



#### FOCUS

The main goal of this Work Package is to strengthen external communication during the execution of the PEARLS project and optimal dissemination of the results. A task shared with WP 1 PROJECT MANAGEMENT is the application and development of virtual project communication and dissemination instruments via a website. The website will help partial PEARLS results to be optimally positioned in a range of formats (documents, articles, news, media statements, interviews, videos, etc.). Secondly, mechanisms will be developed to guarantee external communication of results via the *Canal con Ciencia* video channel, in which UNIT and US have expertise. Social networks (Twitter, Facebook, Pinterest) will enable return mechanisms with the media and the public in general. Lastly, this WP ends with the organisation of an International Multisectoral Plenary Forum in a non EU Mediterranean country. This platform will produce a Leading Platform being set up on REL.

One of the main output of WP1 is the **Online Atlas**, the website section conceived as an iterative and participatory tool for the PEARLS members, which collects case studies of Renewable Energy Landscapes in the Mediterranean countries. The purpose is to provide an overview of Renewable Energy Landscapes through the regional diversity of participant countries.

The Atlas is accessible as an online platform in the PEARLS project website (<https://pearlsproject.org/online-atlas/>) and it offers a clear distribution and easy to navigate tool to visualize case studies.

The case studies were chosen on the basis of specific characteristics and for their relevance on the Country in which they are located. They are described through a template including not only general information on the type, characteristics and power of the Renewable Energy Source, but also by the type of land in which they are installed, the spatial planning procedures undertaken and the figures involved in the planning, maintaining and monitoring processes. To use the Online Atlas, it is possible to navigate through the map and click on a specific reference study.

To facilitate a quick search for information, it is possible to filter the search by parameters that are considered important when analysing REL from a spatial planning and social engagement perspective, namely:

- Typology of Renewable Energy Landscape (urban, agricultural, natural, marine, desert and/or countryside);
- Power Plant Technology (photovoltaic, thermosolar energy, wind onshore, wind-offshore, hydro energy, thermal energy and/or mixed)
- Figures involved in the planning, managing and monitoring procedures (international energy companies, national/local energy companies, investments funds, companies/firm consortium, cooperatives, citizen groups and/or non-profit organizations);
- Spatial planning procedures undertaken (Environmental Preservation and Planning, Landscape Preservation and Planning, Cultural or Heritage Preservation and Planning, Urban Planning, Environmental Impact Assessment);
- Topography of the landscape (Valley, Plain, Plateau, Hill, Mountain, Coastline, Off-shore).



**Work Package 2** analyses the sustainable implementation of policies and practices on renewable energy landscapes (REL).

### **Aims**

To facilitate a better understanding of legal frameworks and daily practice in the implementation of REL. Legal frameworks included in WP2 are energy policy, land use planning and landscape practice regulations. These themes/topics are addressed through the exchange of staff among participating organisations; regular contacts between academics and non-academics; the writing of research reports and interviews with experts in the area of renewable energy landscape planning and implementation; and the training of researchers and technical staff. Exchanges allow us to go beyond the literature review in which these legal frameworks are usually set and go into territorial, landscape, cultural and natural differences in greater depth.

Four countries are involved in this WP to optimise this liaison: Portugal, Spain, Greece and Israel. Thirteen beneficiaries are involved in all.

### **Methodological frameworks**

The comparative territorial analysis principle underlies and structures this task, its construction process and related activities. This is essential for recognising the complementarity/counterbalance between the different study areas and utilising each of these to build pan-territorial expertise within a transnational approach. The case studies will be made available in the On-line Atlas on the PEARLS website as progress is made in project tasks.

The PEARLS project investigates whether, and how, the transition to a low carbon economy is taking place in the great variety of REL focus areas in relation to energy behaviour, spatial planning and population engagement. Two Work Packages, numbers 2 and 4, compare related policies and practices in depth. The purpose of the first of these is to gain a better understanding of legal frameworks (energy policy, land use planning and landscape practice regulations) and daily practice in REL implementation.

#### ***Task 1: Current legislation and how it is implemented***

It is pertinent to enquire whether access to policy and spatial planning measures at the International level and within the national schemes and structures is dominated by companies or by the population. To this end, WP2 beneficiaries are currently working on specific Research Reports on renewable energy legislation and on each participant country's own particular context. Spatial planning is analysed to identify the countries' structures and how they address public participation. Their tools must reinforce structure and enhance renewable energy implementation by providing participation and engagement among different actors and communities and catering for different scales.

#### ***Task 2: People's perceptions of REL***

Attitudes to REL are found to be highly variable, dynamic and sometimes even contradictory. This can be explained in part by the lack of integrated discussion

and reflective discourse within broad, scientific policy and public responses, but also in part by the need to raise public participation in countries in southern Europe and Israel. The aim is to prepare a document on Best Practices for increasing public participation to achieve this. PEARLS will demonstrate how and why REL are a fresh new expression of local traditions towards energy behaviour and cultural landscapes.

## Research Question 1

*What are the policies and strategies for effective, efficient and sustainable REL implementation in partner countries.*

### Method

- Search for and saving of REL related agreements, legislation and recommendations at local, State, European and international level. (i.e., United Nations, International Energy Agency).
- Drafting of an up-to-date report containing all legal aspects included in the previously selected legislation.
- Search for and saving of administrative planning documents.

## Research Questions 2 & 3

*Who are participating in this process? Where are REL located and why? How does the public accept REL implementation in light of people's energy behaviour and aspirations?*

### Method

- Research-informed toolkits for Best Practices to raise public participation in spatial planning and renewable energy implementation processes.

## Research Question 4

*What values shape the implementation of spatial planning tools for renewable energy development e.g., economic, social, cultural?*

### Method

- Research Seminar for PhD students on 'Renewable Energy Landscapes and Spatial Planning: A Transnational Mediterranean Overview' at the International Doctoral Programme, University of Seville.

Policy and spatial planning analysis will be based on a consolidated framework of international agreements on planning and renewable energies and EU & Associated Countries reports and will be theorised through arguments as to the spatial consequences of renewable energy implementation and landscape management. For this, WP2 will engage with the growing body of literature on the sustainable implementation of REL policies and practices. Participating countries and beneficiaries will collect information relating to their own national contexts and study cases. Particular attention will be paid to key questions such as policies and strategies needed for effective, efficient and sustainable REL implementation; location and siting reasons; actors in this process; and last but not least, cultural values shaping the implementation of spatial planning tools. The aim is to contribute to energy policy-making that is more open to society, geographical differences and sustainable renewable energy landscapes.

<b>RESEARCH REPORT (RR) COMMON BLUEPRINT</b>	
<b>1. Situation of Renewable Energy in each country and/or region</b>	1.1. RE policy/legal framework 1.2. REL planning tools 1.3. Revealing different territorial, economic and administrative circumstances
<b>2. Data on Renewable Energy</b>	2.1. Installed capacity 2.2. Energy produced 2.3. Occupied area/surface 2.4. RE mapping / REL mapping
<b>3. Focus Areas / Case Studies</b>	3.1. REL planning tools 3.2. Revealing different territorial, economic and administrative circumstances 3.3. Data on Renewable Energy 3.3.1. Installed capacity 3.3.2. Energy produced 3.3.3. Occupied area/surface 3.3.4. RE/REL mapping
<b>4. Environmental Impact Assessment and EI Statement Analysis on Case Studies</b>	4.1. Regulatory framework 4.2. EIA and SIA tools and procedures 4.3. Negotiation 4.4. Social Impact Assessment

The main aim of **Work Package 3** is to deepen in the behaviour of the population for the energy challenge. To attain this challenge, it is necessary to investigate the behaviours of the consumers of energy in their daily life together with the commitment of the consumer and the social innovation on the renewable energies in the WP5. The main actions of this WP aimed to identify the barriers to the change of energy behaviours through the society and the space that confront the people that advance to technologies more sustainable for the development of landscapes of renewable energy. It will establish a representative frame of landscapes of renewable energy to select focal groups in each country/region participant. Within this WP, multisectoral discussions will be produced on which actions taken by the political authorities and the producers of energy could improve and establish relations more affordable between the consumers and the landscapes of renewable energy.

### **Aims**

1. To identify different key groups and their patterns of behaviour with the energy and their perception of the landscape
2. To determine the barriers and the factors that prevent the commitment of the key groups with the renewable energies and the energy efficiency
3. To examine the strategy of the energy consumers in different regions/states members
4. To increase the consciousness of the key groups and the participation of the authorities, organisations and different parts interested with the renewable energy and the energy efficiency

### **Methodological frameworks**

In parallel with the task 1 CS in WP5, information will be collected on the behaviour of the energy consumers. In the first place, the segmentation of the market (MS) will identify different target groups to analyse their energy behaviours. Second, a map of key actors (K) will be elaborated taking into account the notable information collected about each target group through direct surveys. The information will be processed and analysed to create a group of key indicators that will help to determine the barriers and the factors that prevent the commitment of the target groups with the renewable energies and the energy efficiency.

## Research Questions

RQ1: *What is the current state of the energy market in the partner countries and how does it affect the relationship of the population with renewable energies and their perception of the landscape?*

RQ2: *How can a classification of key actors can be made in this regard?*

## Methods

- Review of literature (books and articles) and studies of market and new normative in this regard.
- Creation of database of key actor companies and notable entities that take part in the management of the renewable energies and in the application of the methods of current energy consumption.

## Research Questions

RQ1: *What are the work and governance spaces where the renewable energies change the relationship of the population with the energy and its perception of the landscape?*

RQ2: *How can a classification of Best Practices in this regard can be made?*

## Methodology

Literature review (books and articles) concerning the implication of the different public and private bodies in the process of installation of the renewable energies and contribute to the change of the relation of the population with the energy and its perception of the landscape. Identification of best practices of information and public engagement (e.g. participatory web platforms, questionnaires, open public meetings).

- Definition of the Case Studies based on the characteristics (country of hosting organisations, length of secondments) of WP3 secondments.
- Definition of criteria for each Case Study.
- Identification of actors for each Case Study.
- Interviews and reports of each Case Study.
- Deliverables: Report of Best Practices.

### Research Questions

RQ1: *Which typologies of commitment statements currently exist?*

### Methodology

Literature review (models, examples) Identification of models or examples made in other countries.

### Commitment of Adhesion/Statement

To attain changes in the consumption of energy, it is very important to have the participation of all the interested parties, included the authorities (to national, international, regional and local level), as well as different organisations, associations, companies, etc. The energy and the energy efficiency commitments will be developed from the conclusions of the essay/inform of best practices on the energy behaviour. The partners of different regions and countries (particularly those involved in the WP2) have to look for the maximum adhesion/support of the local, regional or national authorities and other parts interested.

The reinforcement of spatial planning strategies for siting Renewable Energy Sources is the focus of **Work Package 4**.

### Aims

This work area aims at promoting relevant knowledge exchange and skills improvement between academic and non-academic organizations. It focuses on the enhancement of existing RES spatial planning approaches by developing and delivering integrated and advanced methodologies/tools, which are applicable to different Renewable Energy (RE) projects and relevant Renewable Energy Landscapes (REL), different spatial planning scales, different countries and for a variety of siting criteria, while at the same time they reinforce the public participation and engagement during the decision-making process.

### Methodological frameworks

Using a bottom-up approach, and in close collaboration with WP2, WP3 and WP5, a versatile online geographic information system (Web-GIS platform) for appropriately selected Case Studies will be developed capable of:

1. Assessing the effects (e.g. landscape effects) of existing RE projects.
2. Identifying potential sitting locations for new RE projects.

For achieving item No. (1), which will be implemented for small-scale Case Studies, the Web-GIS platform will be capable of:

- including thematic maps representing landscape effects;
- enabling the efficient public participation in the assessment of landscape effects.

For achieving item No. (2) the Web-GIS platform will be capable of:

- including thematic maps of siting criteria representing technical, economic, legal, environmental, landscape-related and social factors;
- identifying potential areas for RE projects' implementation considering a variety of exclusion criteria representing technical, economic, legal, environmental, landscape-related and social constraints;
- enabling the efficient public participation in the assessment of the potential areas.

### **Task 1: Best Current Practices (BCP) on REL spatial planning/analysis and decision-making methods**

This task aims at critical knowledge transfer on BCP utilized so far on spatial planning and relevant decision-making processes of RE projects and relevant REL by addressing two research questions.

### Research Questions

RQ1. *What are the existing BCP on RE projects/spatial planning/analysis and decision making methods/tools in Europe and more particularly in the Mediterranean countries?*

RQ2. *How public participation is incorporated in the planning process of RE projects?*

### Methodology

For achieving all the above, an extended relevant literature review has been implemented and key aspects of several, best identified, representative investigations for different types of RE sources (e.g. onshore and offshore wind energy, solar energy, bioenergy ocean energy, etc.) were analyzed. Moreover, the connection of the participatory planning with the sustainable development and the main tools of the public engagement were highlighted. For each investigation, key points of the applied spatial planning and the decision-making methodology along with the relevant applied tools (e.g. GIS) were identified. Focus was also given on:

- the spatial planning scale;
- the specific geographical area of implementation;
- the spatial database management (e.g. remote sensor input) in cases where the necessary information was available;
- the tools employed for social engagement. Finally, existing gaps and drawbacks of the investigated methodologies, especially regarding public participation in the spatial decision-making process, were highlighted.

### **Task 2: Advanced Methodologies in Sustainable Energy Planning (SEP)**

This task focuses on the enhancement of existing energy planning methodologies in terms of:

- siting criteria selection (based on the output of Task 1) and inclusion of policy aspects (based on WP2 output);
- public engagement reinforcement (based on the output of WP3 and WP5) towards the development of integrated and advanced methodologies in SEP.

Spatial planning/decision making stages, where the public is anticipated to be most involved and public involvement best practices will be identified (taking also into account the output of Task 1). Moreover, an online geographic information system (Web-GIS platform), which sets the basis for the registration of geographical project data and the emergence of the information derived from all relevant data, will be designed and implemented.

The *developed Web-GIS platform* will be *capable of*:

- *assessing the effects* (e.g. landscape effects) of *existing RE projects*;
- *identifying potential sitting locations* for *new RE projects*.



For achieving *item No. (1)*, which will be implemented for small-scale Case Studies, the Web-GIS platform will be capable of:

- *including thematic maps representing landscape effects;*
- *enabling the efficient public participation on the assessment of landscape effects.*

For achieving *item No. (2)*, the Web-GIS platform will be capable of:

- *including thematic maps of siting criteria representing technical, economic, legal, environmental, landscape-related and social factors;*
- *identifying potential areas for RE project implementation considering a variety of exclusion criteria representing technical, economic, legal, environmental, landscape-related and social constraints (overlay of thematic maps and application of buffers);*
- *enabling the efficient public participation on the assessment of the potential areas.*

The *general requirements* (e.g. data types, incorporation of buffers to quantify the various constraints, components/modules) of the Web-GIS platform will be defined considering mainly the *scale of spatial planning (national, regional, local)* as well as the *Case Studies* (defined in Task 3), for which the Web-GIS platform will be applied (*bottom-up approach*), while *enhanced methodologies/modules* will be developed focusing on the integration/combination of the crowdsourcing concept within spatial planning tools (i.e. GIS). The lead partner for the development of the Web-GIS platform will be GSH, while all partners involved in this Task will contribute to the definition of the general requirements of the Web-GIS platform.

For addressing the above, the following *methodology* consisting of 5 Sub-Tasks has been *defined during the reference period* to be implemented mainly through networking and secondments:

- *Definition of the required general capabilities of the Web-GIS platform based on the Case Studies* (defined in WP4 Task 3), for which the Web-GIS platform will be applied (*bottom-up approach*).
- *Definition of data types/structure* required in the Web-GIS platform based on the *Case Studies* (defined in WP4 Task 3), for which the Web-GIS will be applied (*bottom-up approach*).
- *Definition of the modules of the Web-GIS platform* that should be integrated in the platform for supporting public participation. *Standardization* of the rules for *crowdsourcing use* in the platform.
- *Definition of the architecture of the Web-GIS platform.*
- *Development of the Web-GIS platform.* The Web-GIS will be developed according to Service Oriented Architecture (SOA), which will provide possibility of publishing, finding and distribution for each data type. Moreover, Administrators from the participating organizations will be able to capture, consolidate and cataloging geospatial and other data to be accessible to other users and the public through a local network or the Internet. The Web-GIS capabilities will offer a friendly environment to extract the information needed easily and quickly and to intervene where necessary in order to identify and make the necessary corrections in the study areas. The system will offer WMS, and also WPS WFS & WFS-T, according to the project needs. Figure 1 below shows indicatively the Web-GIS interface as developed so far.

### **Task 3: Web-GIS platform - Application of the methodologies/modules to specific Case Studies via the Web-GIS platform.**

This task focuses on the application of the Web-GIS platform on specific Case Studies. With the aim of demonstrating the versatility/efficiency of the developed Web-GIS platform irrespectively of geographical, spatial and/or social factors, Case Studies with different characteristics will be defined (e.g., different country, different critical planning parameters, such as the spatial planning scale (national, regional or local); different renewable energy source exploitation). The required spatial data will be collected, appropriately digitized, if necessary, and will be uploaded in the Web-GIS platform. For existing RE projects, by overlaying thematic maps, mapping and classification of landscape effects will be achieved. On the other hand, for new RE projects, by applying specific constraints (according to relevant exclusion criteria) in the Web-GIS platform, exclusion zones will be determined along with the areas eligible for RE projects' realization. Finally, the Web-GIS along with the methodologies/modules on enhancing public participation will be applied to specific public target groups for the sustainable planning of various renewable energy technologies in WP4 participant countries.

For achieving all the above, the following *methodology* consisting of eight Sub-Tasks has been defined during the reference period to be implemented:

- Definition of the Case Studies: Based on the characteristics (country of hosting organization, duration of secondments) of WP4 secondments and aiming at demonstrating the versatility/efficiency of the developed Web-GIS platform irrespectively of geographical, spatial and/or social factors the Case Studies included in Table 1 have been proposed. It is emphasized that the main characteristics of the Case Studies may be modified based on data availability and will be finalized during the relevant secondments' implementation. Considering the current implementation status of WP4 secondments, this has been already done for the Case Study C3a, while the main characteristics of the Case Study CS1 are currently under definition.
- Definition of landscape effects' criteria (existing RE projects) and siting or spatial planning criteria (new RE projects) for each Case Study.
- Definition, collection and digitization of data required for the Web-GIS for each Case Study.
- Creation of thematic maps in the Web-GIS platform for each Case Study.
- Existing RE projects: Landscape effects' quantification for predefined scenarios for each relevant Case Study. New RE projects: Spatial planning constraints quantification and creation of buffers in the Web-GIS platform for each relevant Case Study.
- Existing RE projects: Landscape effects' mapping for each relevant Case Study. New RE projects: Identification of exclusion zones along with areas potential for RE projects' installation for each relevant Case Study.
- Application of the crowdsourcing techniques of the Web-GIS platform for each Case Study.
- Highlights of main findings and potential commonalities on landscape effects and spatial planning of RES.

Social Innovation and public engagement is a work area addressed by **Work Package 5**.

### Aims

It aims to reinforce the social dimension in renewable energy development, by promoting knowledge exchanges between business and CSO involved in RE planning and implementation and academic institutions that carry out research on social issues concerning energy. It aims to explore how resources from social research can be used to enhance the involvement of communities, to tap into local knowledge to create innovative solutions, to defuse potential causes for conflict around landscapes and cultural values. It has a strong training dimension, providing researchers and technicians from business and civil society organisations with information on cutting edge methodological tools for social research and participatory engagement emanated from academia. Nevertheless, secondments of academic social researchers in business and CSO will also raise their awareness of the needs, interests and specialised knowledge of non-academic partners, extremely fruitful for future collaborations. Finally, this WP has also a strong dissemination component, evident both in scientific outputs (article, report) and actions aimed at communities (exhibition) and the general public, as well as seminar that will include all WP participants.

Main objectives are:

- To identify and replicate social innovations in the field of renewable energies in the consortium countries.
- To appraise innovative practices in public engagement in renewable energies.
- To strengthen the cultural dimension of renewable energy development processes.
- To promote training and dissemination of methodologies for public engagement.

WP5 partners include four academic organizations, namely ICS (WP leader), U. Sevilla, AUTH, and Ben-Gurion U., and five non-academic organizations, namely Coopernico, Enercoutim, CLANER, TERRITORIA, and Geosystem Hellas.

### Methodological Framework

WP5 is divided into three tasks: case studies of social innovation and entrepreneurship in the energy sector; landscape and cultural analysis; and training in social analysis and participatory methods.

#### ***Task 5.1 Case studies (CS) of social innovation and entrepreneurship in the energy sector***

This task consists of the identification of relevant cases of social innovation regarding renewable energy (novel sustainable solutions to problems such as community opposition, landscape impacts, underdeveloped RE generation potential) through document analysis and interviews with stakeholders. A common template will be designed for data collection in order to derive comparable information and best practices jointly with WP2 to WP4. A scientific paper on case studies of social innovation and entrepreneurship in the energy sector will be published.

## Research Questions

RQ1. *What networks and practices are developing social innovation tools? What are their best practices?*

RQ2. *What social innovations exist to promote and support extended renewable energy landscapes?*

## Methodology

- Literature review - Definition of “social innovation” in the context of RE (cooperatives, microgrids, community energy).
- Policy review - Analysis of legislation and policy documents for assessing framework for social innovation in RE (cooperatives, microgrids, community energy).
- Documents and web analysis - Identification of social innovations in the partner countries (type, location, main actors), creation of an analytical grid, selection of case studies.
- Interviews with cooperative representatives - analysis of actors, networks, practices, connection to the policy and legal framework (barriers and incentives).
- Interviews with promoters, authorities and residents of energy communities - analysis of actors, networks, practices, connection to the policy and legal framework (barriers and incentives), citizen participation.
- Identification of best practices.

### ***Task 5.2 Landscape and cultural analysis (LCA).***

This task focuses on using the methodologies and outputs resulting from WP4 in order to assess the effects and impacts on the landscape that have the facilities implemented by citizen energy communities identified in the WP5 case studies. The researchers will apply the methodologies devised by WP4 methodology in existing and, especially, in prospected locations. The aim is to evaluate, and anticipate in the case of new projects, the existing and potential conflicts raised by RE facilities, and to propose either alternative locations or landscape impact mitigation measures.

### ***Task 5.3 Training (T) in social analysis and participatory methods***

This task comprises the organisation of a methodological course on social analysis and participatory methods aimed at researchers and technicians from business and civil society organisations. It includes a final integration seminar with all participants in the WP, which will take place at ICSUL. The deliverable is a methodological course on social analysis and participatory methods for the business and CSO sectors, to be accomplished by Month 42 (January 2022).

## Research Questions

RQ4. *What values shape the implementation of spatial planning tools for renewable energy development e.g., economic, social, cultural?*

RQ5. *What are the significant dilemmas voiced in public participation e.g., sustainability issues, conflicts, employment opportunities?*

## Methodology

- Run a methodological test.
- Select, at least, one case study out of the energy communities identified during the course of WP5, which can be analysed from the point of view of its effect on the landscape.
- Using the Web-GIS platform and methodology based on WP4 output, to assess the landscape effects of RE facilities implemented by energy communities (existing RE projects and new RE projects).
- Participation involving citizen energy communities (members of community and local administrations).
- Proposal of alternative locations and/or measures for landscape mitigation.
- Return of the study to the energy community and local administration.



# PEARRLS

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