

IRENES
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UNIVERSITATEA DIN
BUCUREȘTI
— VIRTUTE ET SAPIENTIA —



MINISTERUL INVESTIȚIILOR ȘI PROIECTELOR EUROPENE
DIRECȚIA GENERALĂ PROGRAME EUROPENE INFRASTRUCTURĂ MARE

The central graphic is a 3D isometric illustration of a landscape. It features a river flowing through a valley with green hills, a farm with a tractor, a village with houses, and a wind farm. The landscape is surrounded by ten circular icons connected by a network of white lines. The icons represent: a recycling symbol, a lightbulb, a fish, a snowflake with a thermometer, a snowflake, a paper roll, a smiley face, an apple, a wind turbine, and a snowflake with a thermometer.

IRENES Action Plan ROMANIA

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Executive Summary

Ministry of Investments and European Projects and University of Bucharest, as partners within the Interreg Europe project IRENES, are aiming to identify gaps and barriers within current ERDF and energy policy instruments in relation to the Renewable Energy Sources and Ecosystem Services, including also social, , and governance concerns.

A State of the Art Analysis of renewables sources in Romania was finalized with the support of relevant national institutions and project partners. The operational programs financing renewables and biodiversity was subject of a SWOT analyse in order to understand the challenges facing natural capital (ecosystem services) in relation to renewables projects (see for e.g ¹). The correct application of the ecosystem services concepts will allow a better understanding of the important consequences of developing small and large infrastructure projects without considering the real impact upon the environment (beyond the existing legal frame).

It is important to notice that any project has an environmental impact upon natural capital and applying ES framework is in fact a mean to preserve on long term our way of life and ensure the sustainability of the socio-ecological systems. The renewable energy projects could have a strong impact upon the natural capital if they are developed in areas were multiple and complex ecosystem services are provided by the landscape. Recognising the impacts is just one of the first steps towards understanding the complex interactions and also possible responses that will minimise the effect on natural capital.

The policy instrument analysed within the project has all relevant calls for proposals closed and there is no longer possible to modify its evaluation measures but we have used the analysis of this policy instrument to draw conclusions and develop the present action plan in view of future Operational Programs.

An action plan was co-constructed with relevant stakeholders (RES business, environmental protection agencies etc) in order to set up a Recommendation Paper which will be submitted to the relevant institutions involved in funding projects within the renewable energy sector. We took into consideration the great opportunity given by the study visits as enabling transfer instrument of good practices among partner regions, as useful examples and stating points for discussions at national level.

¹ The Ministry of Waters and Forests has before the European Court of Justice the case 2015/4036 regarding the incorrect application of the Water Framework Directive 2000/60 / EC, art.4 paragraph 3 of the TEU (Principle of loyal cooperation) and of the Habitats Directive 92/43 / CEE, in the process of authorization of micro hydropower plants in Romania

Introduction

Ministry of Investments and European Projects and University of Bucharest, as partners within the Interreg Europe project IRENES (Integrating RENEwable energy and Ecosystem Services in environmental and energy policies) are working in Romania to find gaps and barriers within current ERDF and energy policy instruments in relation to the Renewable Energy Sources and Ecosystem Services, including, social and governance concerns.

In the first part of the project, partners launched in each area the State-of-the Art (SOTA) analysis on Renewable Energy Sources (RES), using a shared methodology, identifying the regional and national regulatory framework, on one side, and the renewable energy potential and ecosystem service potential, on the other side. On the basis of the resulting data, specific constraints map were then built by the technical partners and with the involvement of stakeholders (in a co-construction effort), to help decision makers in assessing the different possible scenarios to exploit the RES, accordingly to the constraints and the ecosystem services trade-off. The outcomes were step by step discussed with relevant stakeholders (i.e., business associations and clusters' representatives, regional agencies and) to understand different perspectives.

A deep SWOT analysis was also performed to point out both the positive aspects of the current policy instrument (SDOP document and the related material), and the weaknesses and threats and to finding opportunities to improve the document. IRENES' methodology was based on current concepts of Ecosystem Services (ES). In particular, the overall analysis focused on the understanding and adoption of the multiple aspects of ES and RES by the policy instrument's documents.

The study visits, were useful in providing examples and inputs to the discussion, bringing new ideas and allowing the transfer of the good practice emerged among different international partners at national but also the local level.

The following action plan provides details on how the lessons learnt from the cooperation and the analytical phase will be exploited in Romania in order to improve the policy instruments and area developments tackled. It specifies the nature of the actions to be implemented, their timeframe, the players involved and the costs and funding sources.

Ministry of Investments and European Projects and University of Bucharest have worked together with the stakeholders in the co-construction of the Action Plan with their specific expertise and network and they will continue to provide support in the following phase.

Phase 2 of IRENES will start at the same time with the new Operational Programs that are about to be launched and with the National Recovery and Resilience Plan that is expected to enter into action. In the coming years Romania will face many challenges in the field of sustainability and green transition and the coming Action Plan will contribute in providing the needed support for different Regions in harmonising the goals settled at national level to the ones at regional level, in an integrated and structured mode and across domains (environment, energy production, governance and social impact).

Part I – General information

Project: Irenes

Partner organisation(s) concerned: Ministry of European Project and Investment and University of Bucharest

Country: Romania

NUTS2 region: Romania

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The Action Plan aims to impact:

Investment for Growth and Jobs programme

European Territorial Cooperation programme

Other regional development policy instrument

Name of the policy instrument addressed: **Sustainable Development Operational Program²**

Part II – Policy context

The Action Plan aims to introduce / extend the concept of ES to the potential beneficiaries that apply for EU funds on renewables and biodiversity sectors (reducing the risk and the potential negative impacts of the renewable energy development on natural capital)

² This program is currently under negotiation with the Commission

Background

The main policy document which was analysed in the phase 1 of IRENES was the Large Infrastructure Operational Program (LIOP) 2014-2020 which is addressing both energy issues and biodiversity ones. The SWOT analysis had among the aims to identify if the concept of ecosystem services is mentioned within the Policy instrument (either direct mentioning or just the concept of dependence of energy sources of some of the ecosystem characteristics (ES concepts). The analysis revealed that the LIOP did not mention ES and did not identify a proper way to interlink RES and ES within it.



Pictures from the stakeholders' meetings

Currently all calls for application within LIOP are closed for project proposals under renewables and biodiversity but we have used the analysis of this policy instrument to draw conclusions and develop the present action plan in view of the future Operational Programs.

Country profile

Romania, as an EU Member State, has an obligation to comply with the European Community environmental and energy efficiency standards set out in the specific directives and to contribute to the achievement of European strategic objectives and policies in terms of sustainable development. The Europe 2020 strategy sets three major 20/20/20 targets for energy, with new targets being promoted in the context of the October 2014 European Council Conclusions on both the share of renewable energy in renewable consumption of 27% and the 27% energy efficiency target by 2030. Romania's targets for reducing GHG emissions and improving energy efficiency by 2020 amount to the EU average of 20% while for renewable energies, the target has been set at 24.3%, with significant potential to meet the EU's 2030 target earlier.

Reducing greenhouse gas emissions by 2020 requires substantial contributions to all economic sectors and regulating GHG emission sources, which is regulated in National Strategy for Climate Change for the period 2013-2020 (NSCC). In this respect, the authorities shall support the participation of economic operators in the GHG emissions trading scheme and the adoption of sectoral policies and measures to ensure compliance with Decision No 17/2002/EC. Regarding energy production, the overall objective of the Romanian Energy

Sector Strategy 2007-2020 updated in 2011 is to ensure the medium and long-term energy needs at the lowest price, suitable for a competitive economy and a lifestyle compatible with European standards, in quality, safe in supply, respecting the principle of sustainable development and promotion of renewable energy production.

In the field of renewable energy, Romania has set higher targets than the EU-wide target set by the Europe 2020 strategy, i.e. to reach a 24% share of renewable energy in primary gross energy consumption by 2020. In 2013, this indicator reached 22.9%.

This high level of energy provided by renewable sources is determined by significant capacities installed for wind and solar energy production, but less in terms of biomass/biogas and geothermal energy production, relative to the structure proposed by the National Action Plan for Renewable Energy (PNAER).

Current Situation

The National Energy Regulatory Authority grants licences for energy production from renewable sources. Based on the data provided by NERA, Table 1 shows the installed power for different electricity sources on 30/08/2020³. We have to mention that this is the status of production based on granted licences and not the list of producers, as currently NERA is undertaking a process of analysing which of the licenced operators are still operating and bring in energy to the national energy system.

Table 1. Installed power in electricity capacities

Hydropower	6643,09
Non-renewable Sources	9422,42
Wind power	3023,16
Sun power	1392,46
Biomass	106,90
Biogas	20,45
Geothermal	0,05

³ Source NERA - <https://www.anre.ro/ro/energie-electrica/rapoarte/puterea-instalata-in-capacitatiile-de-productie-energie-electrica>

According with The National Renewable Energy Action Plan (NREAP)⁴ Romania applies the mechanism “Joint Implementation”, as host country starting with 2000. At the moment of NREAP elaboration, out of the 16 investment projects of “Joint Implementation” programme (JI) undergoing different stages of development, 6 projects aimed at promoting renewable energies. These projects were the following:

- “Rumegus 2000” – based on the sawdust use technology as energy source within the central heating system of 5 cities which was developed based on the cooperation with Denmark;
- Modernisation of 4 hydro-aggregates within “Portile de Fier II” Hydropower System – a project developed in cooperation with Netherlands;
- Modernisation of 3 hydro-aggregates within “Portile de Fier I” Hydropower System - a project developed in cooperation with Netherlands;
- “Use of geothermal energy within the central heating system of Oradea – area 2 and Beius ”, a project developed in cooperation with Denmark;
- Recovery of biogas from the waste landfills of Focsani and Târgu-Mures ;
- Use of biomass for energy production in Neamt County.

National overall target for the share of energy from renewable sources in gross final consumption of energy in 2020 and indicative trajectory Annex 1 to Directive 2009/28/EC indicates that for Romania the target for 2020 is 24%.

The situation looks good if we compare with the needed targets for Romania (24 % of the country comes from renewable sources in the gross final energy consumption figure 1) but if we compare the growth rate (Figure 2) across different countries (especially the countries involved in the IRENES project: Germany, Estonia, Italy, United Kingdom) we could notice that Romania has the lower growth rate. Based on this we could argue that Romania increased the share from almost 17 % to 24 % over 15 years (7%); UK started on the other hand with a very low values 1 % and increased at 12%.

⁴ Source: National Renewable Energy Action Plan (NREAP) available at: <https://ec.europa.eu/energy/node/71>

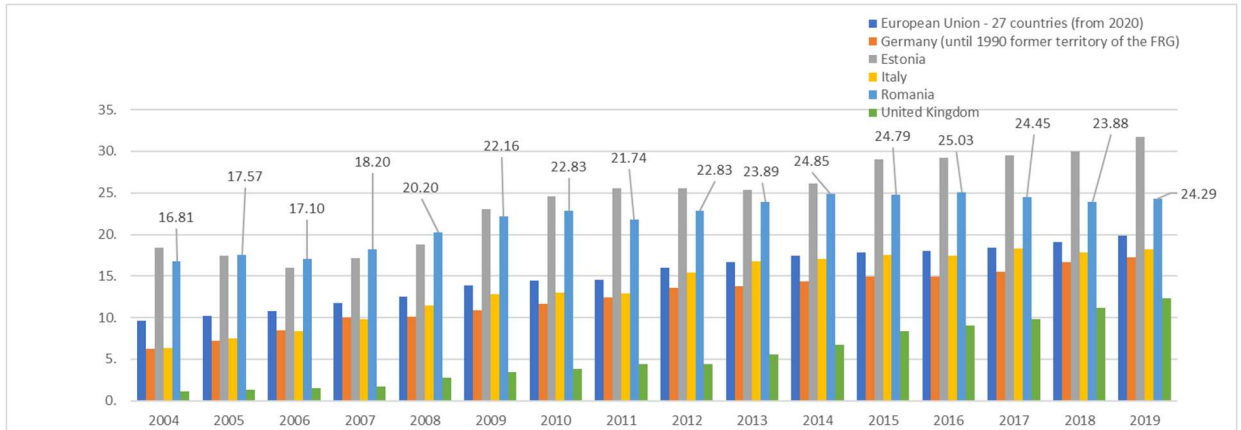


Figure 1. The share of renewable sources in the gross final energy consumption

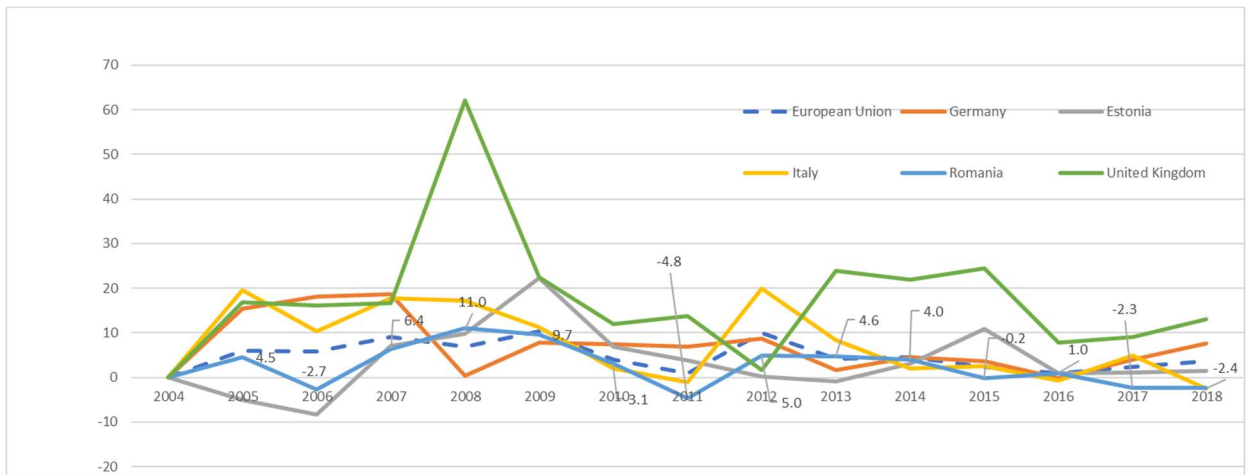


Figure 2. The growth rate of renewable sources in the gross final energy consumption (yearly data)

Under Article 2 of Directive 2009/28/EC, “gross final energy consumption” refers to:

- Final consumption of energy in sectors of end-user consumption (industry, transport, households, etc);
- Consumption of electricity and thermal energy in the production of electricity;
- Electricity and thermal energy lost in the distribution and transport system.

ENERGY TYPE	SOLAR	WIND	MARINE	HYDROPOWER	GEO THERMAL	BIOENERGY
Energy source	Sun	Wind	Waves and tides	Water	Earth	Waste and biomass
Technologies	Photovoltaics	Turbines	Dams and tidal barrages	Hydro plants and dams	Geothermal and heat pumps	Biomass combustion, biogas plants, biofuels
Applications	Electricity, Heating and Cooling	Electricity	Electricity	Electricity	Electricity, Heating and Cooling	Electricity, Heating and Cooling, Transport

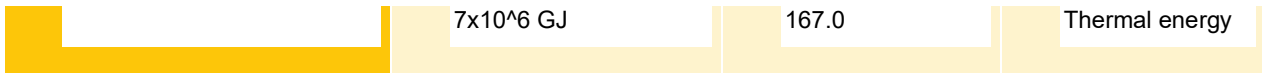
Table 2. Renewable energy sources, technologies and applications. Source: adapted from ECA, 2018

Based on National Renewable Energy Action Plan (2010) the theoretical annual energy potential for different type of renewable energy sources in Romania are summarized in Table 3. The potential was estimated by a National Energy Research Institute (ICEMENERG) taking into consideration the natural local conditions and the resources availability.

Table 3. Energy potential of renewable energy sources in Romania

	60x10 ⁶ GJ	1,433.0	Thermal energy
	1,200 GWh	103.2	Electrical energy
	23,000 GWh	1,978.0	Electrical energy
	40,000 GWh	3440.0	Electrical energy
	6,000 GWh	516.0	Electrical energy
	318x10 ⁶ GJ	7,597.0	Thermal energy

⁵ Kilotons oil equivalent



However, the usable potential of these energy source is much lower, due to technological limitations, low economic efficiency and environmental restrictions.

The general objectives of the Strategy for the exploitation of renewable sources of energy were as follows:

- integration of renewable energy sources into the structure of the national energy system;
- reduction of technical-functional and psychological-social barriers within the process of using renewable energy sources, together with the identification of cost elements and economic efficiency;
- promotion of private investments and creation of conditions necessary to facilitate access of foreign capital on the renewable energy sources market;
- guarantee of independent energy consumption for the national economy;
- guarantee, as applicable, of energy supply for isolated communities by using the local renewable sources potential;
- provision of necessary conditions for the participation of Romania in the “Green Certificates” European market for renewable energy sources.

The analysis of each RES (solar, wind, hydro, biomass and geothermal) highlights specific targets as it is shown in figure 3.

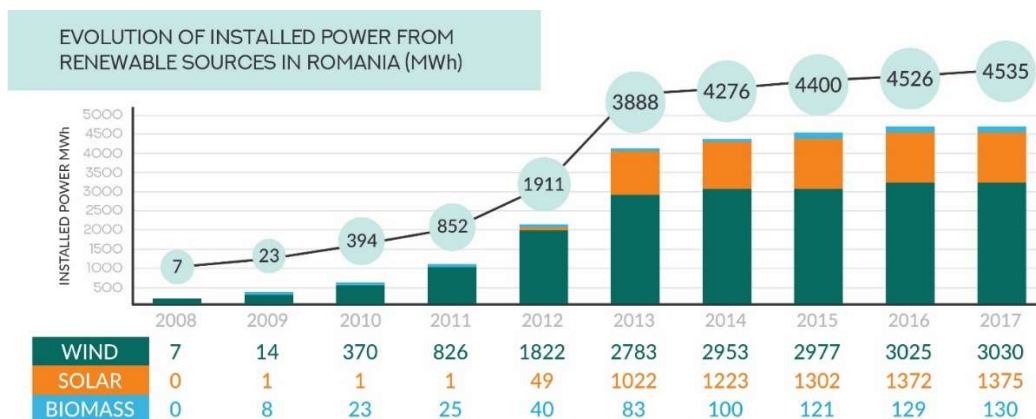


Figure 3. Dynamics of installed power in Romania. ⁶

According to the National Energy Strategy 2007-2020, the main medium and long-term options should be targeted towards the following main directions:

- transfer of unconventional technologies from companies that have a tradition and experience, with rules on implementation, attestation and certification in accordance with international standards in force;
- drafting and implementation of the appropriate legal, institutional and organisational framework;
- developing relationships with the private and public sector for the financing, management and exploitation under efficient conditions of modern energy technologies;
- identification of financing sources for sustaining and developing applications for the use of renewable energy sources;
- stimulating the establishment of joint-venture companies specialised in the use of renewable energy sources;
- drafting of research-development programmes aiming at accelerating the integration process of renewable energy sources into the national energy system.

The strategy established specific medium and long-term objectives as follows:

⁶ Source www.investmentreports.co

- for the period 2003-2010: commissioning of new units with a total installed capacity of approximately 441.5 MW (electric energy), namely 3,274.64 thousand toe (thermal energy);
- for the period 2011 – 2015: installation with a total capacity of 789.0 MW (electric energy), namely 3,527.7 thousand toe (thermal energy).

Regarding the energy production obtained from renewable sources, the National Strategy established the following objectives:

- for 2010: 19.65 TWh (electric energy) and 3,274.64 thousand toe (thermal energy);
- for 2015: 23,37 TWh (electric energy) and 3,527.7 thousand toe (thermal energy).

The Strategy established as targets shares of renewable energy sources within the production of electric energy of approximately 30.0% in 2010, respectively 30.4% in 2015.

These targets have been subsequently changed upwards, the present values being of 33% for 2010, 35% for 2015 and 38% for 2020.

Certain values presented were subsequently reassessed. In most cases, reassessments aimed at the increase of the quantity level of set objectives in accordance with general objectives at EU level and the commitments undertaken by Romania during the accession negotiations.

Status of renewable energy production

Based on registered existing licences it can be stated that on December 30th 2019 there were 1637 energy producers using RES amounting to an installed power of 12038.01 MW. Out of them 821 producers have capacities exceeding 1 MW and amounting to 11678.64 MW. 816 energy producers have capacities below 1 MW and their total installed capacity amounts to 359.37 Mw.

On September 21st 2020 the total energy production was of 6502 MW.

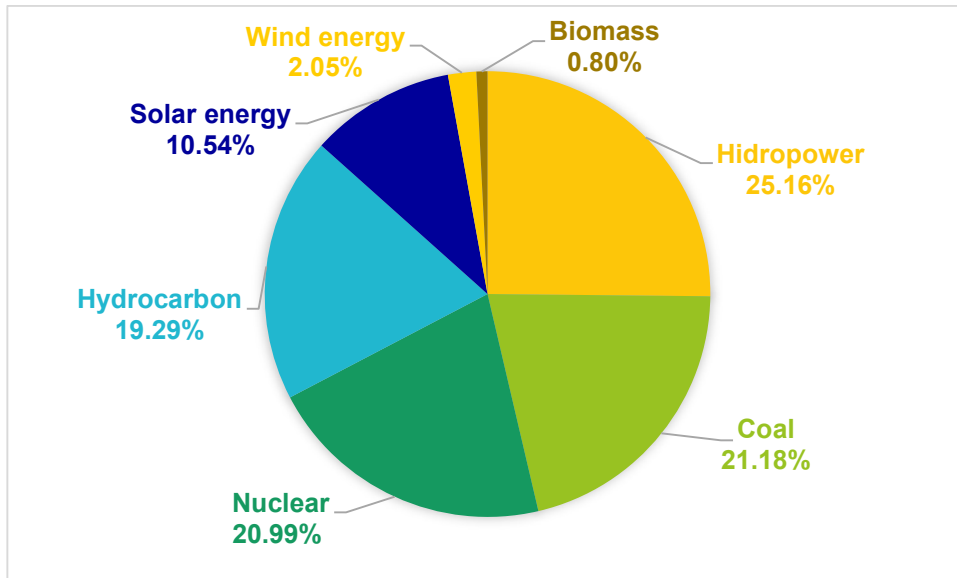


Figure 4. Electric energy production by sources (daily data) -21st September 2020. (Source <https://www.transelectrica.ro/web/tel>)

As it is shown in figures 5 and 6 in a general analysis it does not identify a pattern for development of renewable energy facilities in certain areas. Also, the installed electric power is not correlated with the number of renewable energy facilities

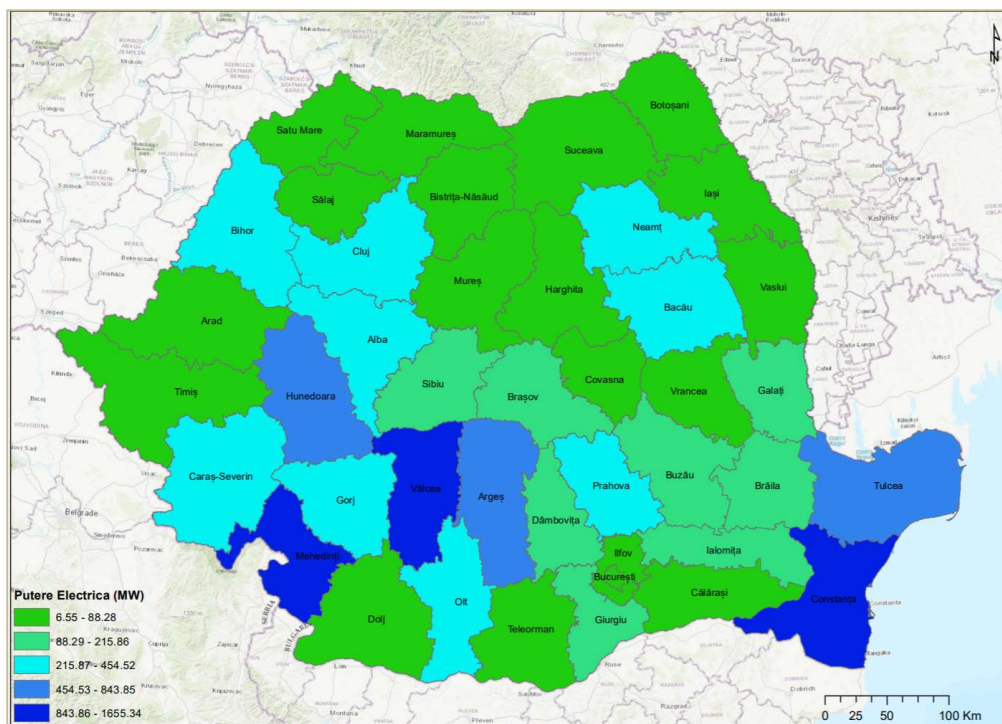


Figure 5. Distribution of electric power production per counties. (own representation based on data from <https://www.transelectrica.ro/web/tel>)

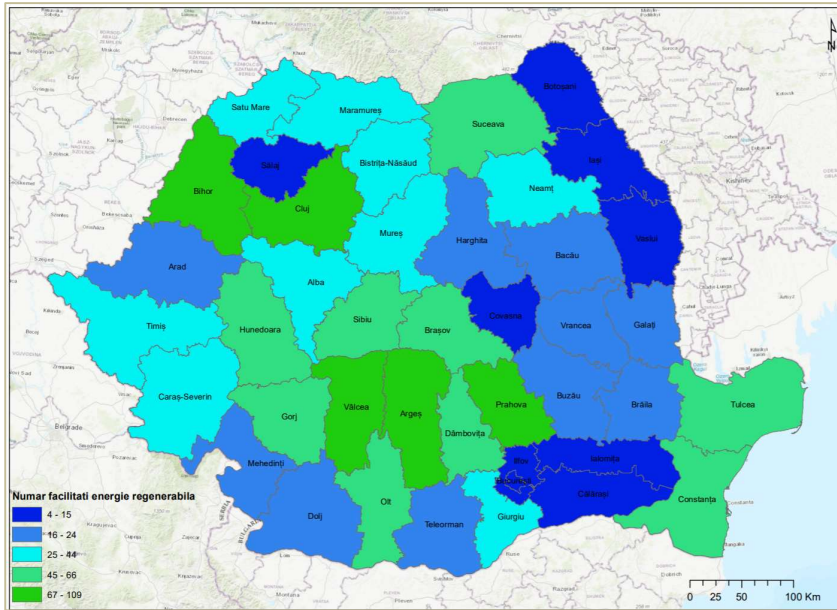


Figure 6. Total number of facilities for renewable energy production per counties (own representation based on data from <https://www.transelectrica.ro/web/tel>)

Distribution of renewable energy obtained from different sources at national level is presented in figure 7 below. Thus, the wind energy is the main renewable type in eastern part of Romania and the solar energy is mainly obtained in the plain area, respectively west and south Romania. In the mountain area (Carpathians) the dominant renewable energy is hydropower.

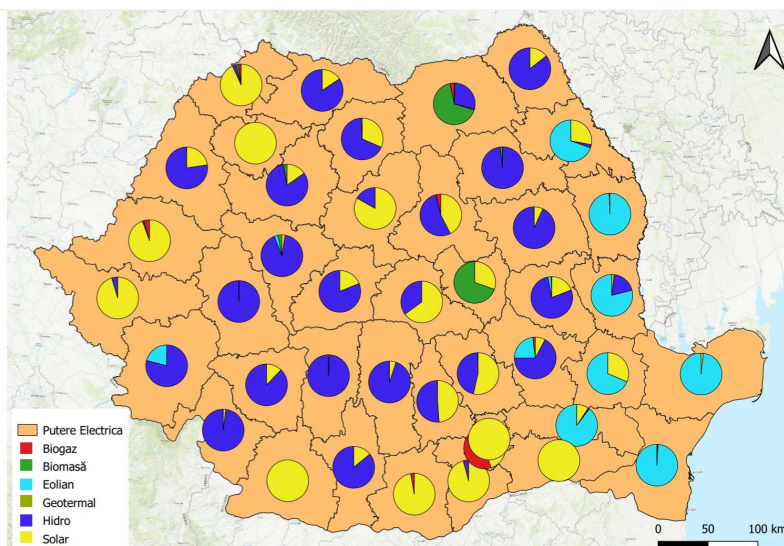


Figure 7. Types of renewable energy per counties.

The distribution of the facilities number follows the same shape as the amount of electric power generated as it is shown in figure 8.

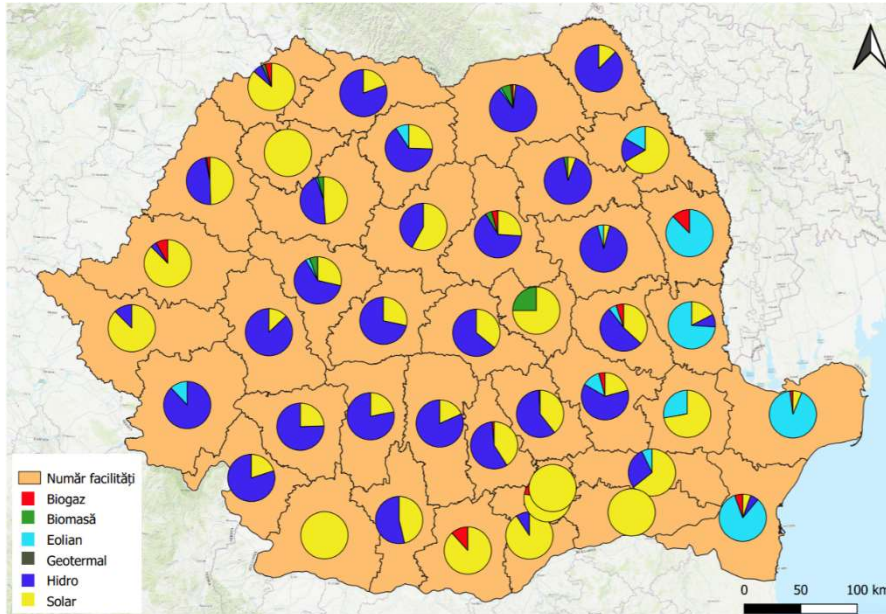


Figure 8. Number of facilities for renewable energy per counties

Concluding we can say that in the analyzed documents we identify a series of aspects that need to be taken into consideration when the recommendation paper will be drafted. Among the most important ones are: the need for spatial representation of ES and RES, lack of policy documents (although Romania has implemented MAES, but no policy took into consideration the need to consider the ES in their framework), lack of criteria for considering ES into different policy frameworks with strong negative impact on the financial programs that will be implemented in the next period.

Part III – Details of the actions envisaged

ACTION: Recommendation paper on RES and ES - RP

1. Relevance to the project

The Irenea stakeholders group comprising relevant governmental institutions (Ministry of Investments and European Projects, Ministry of Energy, Ministry of Environment, Ministry of Agriculture, Ministry of Development, National Energy Regulation Agency, National Environmental Agency, Environmental Fund Administration, University of Bucharest, NGOs, professional associations) will be involved in finalising the

Action Plan. Throughout its development and implementation, the plan is aiming to develop a Recommendation Paper (RP) to be included in the OP calls Applicant Guidelines. In this respect the Recommendation Paper will be visible on the MIEP website <https://mfe.gov.ro>. It is intended that the RP becomes an integral part of the Applicant Guidelines that will be approved in view of first OP calls before the end of 07/2023.

The policy aim of this action is to address the identified weaknesses by **introduction of additional guidelines and criteria related to ecosystem services for selecting the new projects in the framework of the target the policy instrument (if the case). These additional recommendations and criteria for potential Applicants will encourage applications valorising the ecosystem services, through giving them additional points and prioritising their evaluation track.**

2. Nature of the action

The two partners (Ministry of Investments and European Projects and Bucharest University- Research Centre in Systems Ecology and Sustainability) will work closely with stakeholder group through regular meetings and closer contact with the relevant institutional partners that are involved in, selecting, contracting and implementing projects, in order to draft the Recommendation Paper (RP) for consideration of further funding of RES.

The RP will include the main outputs of the present project, in the narrative part, such as good practice and knowledge transfer that conducted to the recommendation included in the final form of the document.

During the IRENES project implementation, a range of the GPs were collected and in this respect we can mention the Wind Energy and Peatland Rewetting presented by German partners as being most especially relevant. This GP exemplifies the concept of ecosystem services synergies linked to wind energy development through the restoration of a degraded wetland in a wind farm. The GP brings to our attention two of the processes developing in Romania: (1) The continuous development of renewables and (2) the large share of affected sites currently needing restoration. Exposure obtained from contacts with UK, German and Italian partners as well as good examples of public authority solutions in Estonia, broadened our views and made us eager to involve in larger degree public authorities. Muhu's municipality project in Estonia is a perfect case of local authority that meets the needs of its inhabitants and take positive steps towards a greener future

The RP will comprise the following sections:

- executive summary
- where - background - which will include the current legal status of ES in Romania in relation with renewables
- Who - practical issues – case studies presenting few RES success projects and how they coped with ES,

- What– Improving the way renewables tackle the ES and what criteria would be considered a must when financing renewables
- how - additional criteria to be included in the Applicant Guidelines, criteria which will bring bonus points for the project proposal evaluation.
- when - a suggested timeframe for a successful implementation of the proposed activities

3. Stakeholders involved

Ministry of Investments and European Projects, Ministry of energy, Ministry of Environment, Ministry of Agriculture, Ministry Development, National Energy Regulation Agency, National Environmental Agency, Environmental Fund Administration, University of Bucharest, Regional Development Agencies, NGOs, professional association within renewables and environmental sector, local and regional public institutions, private entities involved in renewables.

4. Timeframe

Step 1 – Stakeholders meeting - September – December 2022

The governmental institutions involved in funding renewables projects with EU funds will analyse the current status of RES and ES within past operational programs setting up a set of proposals to be included into the RP, in order to have it submitted to the top management of those institutions and aiming to a better way to appraise future project proposals taking into consideration the linkage between renewable projects and ecosystem services.

The draft Recommendation Paper proposing new additional criteria for evaluating the project proposals under the SDOP OP Calls will be drafted by 31.12.2022

The University of Bucharest will develop a mobile app that will provide a tool for the assessment of the impact of green investment on other ES in different areas, including in protected areas aiming at changing the perspective of different users and decision makers on the needs of integrated analysis. The app will provide an instrument to support decision makers and business to assess the impact of RES on ES. Taking into consideration this mobile app, project fiches will be drawn: mapping the geographical location of minimum 3 projects to be implemented, presenting the RES and ecosystem services, undertaking a brief comparison of economic and environmental benefits for the project using the ES. The results will be integrated into the recommendation paper.

Step 2 – Recommendation Paper discussed with the PI Managing Authority and finalised – January – April 2023

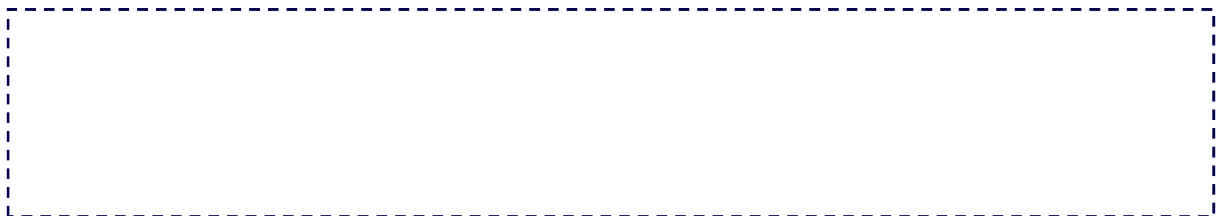
The Irenea team with support from stakeholders will discuss the proposed Recommendation paper with the PI managing Authority and the related stakeholders. The collected inputs will be included in the RP, and its final version with the additional evaluation criteria will be finalised by April 2023. . At least two extended stakeholder's meetings will be organized (physical or online format) in order to introduce / extend the concept

of ES to the potential beneficiaries and collect as much as possible external inputs from relevant stakeholders (potential beneficiaries, organisation which are, were or will be interested in implementing renewables investments). The Recommendation Paper incorporating all applicable comments / inputs from the extended stakeholder group will be submitted to the Ministry of Investments and European Projects, Ministry of energy, Ministry of Environment, Ministry of Agriculture, Ministry Development, National Energy Regulation Agency, National Environmental Agency, Environmental Fund Administration in order to incorporate and consider all views and the OP priorities of taking into consideration for future decisions related to investment project within renewables sector.

Step 3 - Inclusion of the Recommendation paper in the SDOP official OP Applicant guidelines documentation – May - June 2023

The Recommendation paper will be included in the OP Calls' Applicants guidelines definition in view of the OP approval and the related calls for proposal planning.

A set of specific criteria will be set up in order to award bonus points to projects that incorporate ecosystem analysis when assessing the investment decision (if the case). Recommendation Paper will be published on the MIEP website <https://mfe.gov.ro> in order to be visible to all parts involved in the EU project development process. As currently, there is no legal framework to support the enforcement of ecosystem service analysis, as a must when deciding upon a renewable investment, MIPE will closely follow the legislation developments at European level to proceed towards the specific changes which could be included within the eligibility criteria in future selection and evaluation documents.



5. Costs

Step 1 - 500 EURO for covering the running cost for stakeholder meeting and eventual meetings to be organized within that period.

Step 2 - 2500 EURO for covering the running cost for regular stakeholder meetings and minimum 2 extended stakeholder's meetings to be organized

Step 3 – is estimated to be implemented with no costs

6. Funding sources

Local: Own resources (staff) provided by the local stakeholders involved.

Regional: Funding for the phase II IRENES project provided by own resources of Ministry of Investments and European Projects, and own resources of the other governmental stakeholders involved.

7. Expected results

It is expected that the Recommendation Paper will have the following impact:

- raise awareness for stakeholders and governmental top management level
- increase the understanding of the potential beneficiaries that apply for EU funds on use of ES and the implication for natural capital sustainable development.
- further opportunities for renewables funding that will take into consideration a better way to improve the decisions process when facing with such projects in relation with ES
- set up a basis for better decision-making process / through assignment of the OP grants - when choosing where to invest when renewables are concerned.
- An online platform that allows the consultation and navigation of IRENES maps and provides guidance on how to implement the energy spatial planning in harmonization with ES. It is intended that this will be used by many stakeholders and will act as a platform for increasing the awareness of the political actors, citizens and investors.

On the same time, it is expected that a higher degree of awareness on ecosystem services will be established within the institutions / organisations involved within the process of funding renewable projects.