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EXPRESS

Marche Region

Community Wind Energy and Bioenergy

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EXPRESS Project Partner Meeting
Kilkenny, November 22nd 2023

**REGIONE
MARCHÉ**



EXPRESS 2023–2027

The EXPRESS project aims to decrease the regions' dependency on energy imports and fossil energy and to increase their energy self-sufficiency and share of renewable energy by improving regional policies.

www.interregeurope.eu/EXPRESS



TOTAL
1.9 MEUR



What kind of organization we are:

Marche Region (Regional Government)

Marche is an autonomous Region within the unity of the Italian Republic and within the European Union. Its own functions and competences are exercised in respect of the Constitution and according to the norms of the Regional Statute.



Marche Region is situated in the middle of the eastern side of the Italian peninsula. It is faced on the Adriatic Sea off the coast of the Balkans with which it has historically maintained strong contacts and recently an intense territorial cooperation.



MARCHE REGION



Residents (n):
1.489.789



Total area (km2):
9.401



Per capita GDP at market price (€):
26.179



December 2021, approved the
Regional Strategy of Sustainable
Development

227 Municipalities and 5 Provinces



Marche Region



Who are we?

- > The Energy resources, Waste Management and quarries and mines Sector of Marche Region is in charge of the regional system of energy management and planning (Regional Managing Authority).
- > It manages local and international projects on climate change and energy, on renewable energy and energy efficiency. It approves the financing calls, defines the evaluation and priority criteria of the projects, defines the indicators for monitoring the impact of the implemented actions.
- > It set up own "Regional Environmental Energy Management Plan" (2016) that includes the "Regional energy strategy to 2020".

Our objectives in EXPRESS project

- > The promotion of renewable energy in self-consumption, the financial support for the energy efficiency of production processes and buildings, with attention to public buildings, are a major priority.
- > Marche Region aims to reach the objective that it has set itself in terms of energy self-sufficiency to reverse the trend of the energy deficit to pursuit the EU objectives of renewable sources.
- > And to increase the share of renewable energy on final consumption to 40%, focusing on self-consumption of renewable energy, supporting the development of renewable energy communities and technological innovation.

Overseeing the interests of

PEOPLE
1,500,000
inhabitants



MUNICIPALITIES
made up of 239
municipalities



ORGANIZATIONS



ENTERPRISES



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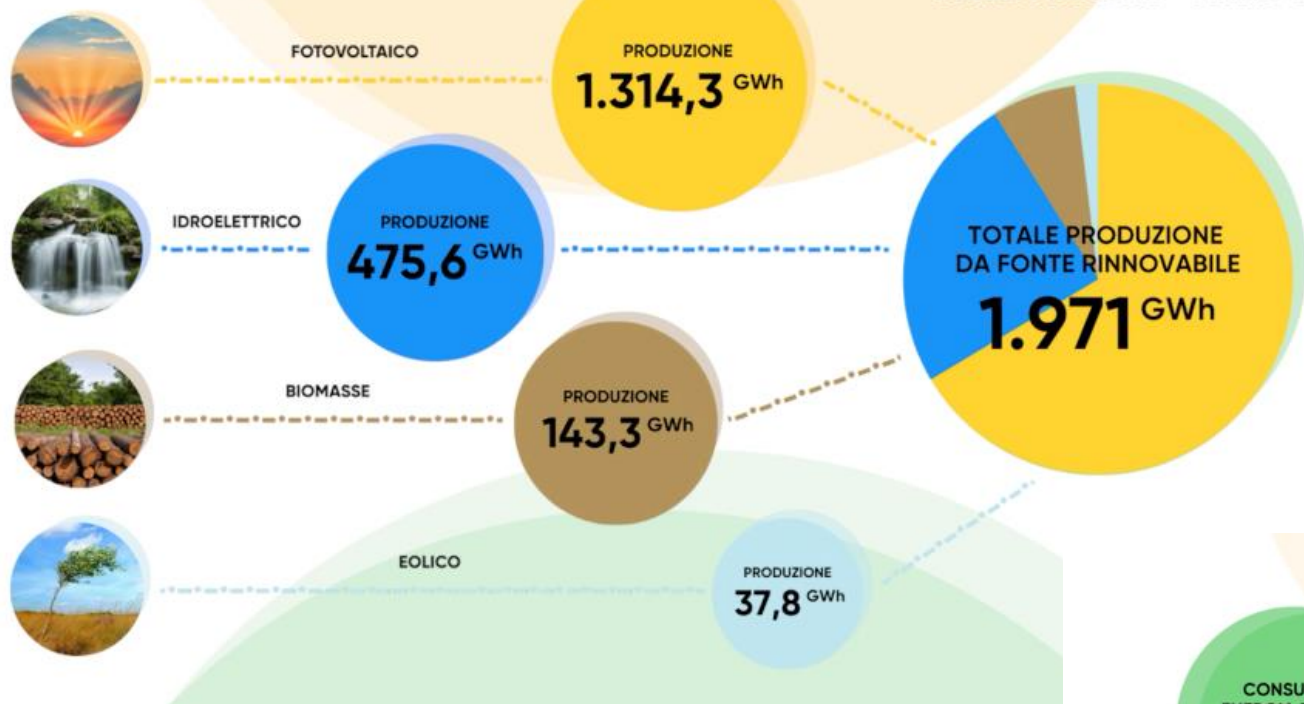
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THE POLICY INSTRUMENT(S)

- The **PEAR, Regional Environmental Energy Plan**, is the regional environmental energy management program in which the Marche Region has identified the strategies to pursue energy transition.
- The new PEAR will affect the next Regional Operational Program **POR-FESR 2021/2027**, and the resulting results of the action will be incorporated in this political instrument to launch more targeted calls aimed at promoting "sustainable districts".
- Marche Region (Regional Law n. 250 of 08/03/2021) has promoted the **REGIONAL STRATEGY OF SUSTAINABLE DEVELOPMENT (SRSvS)** in which the possibility of designing a low carbon district through the application of a sustainable certification protocol.
- **Marche Region is finalizing the process for a law proposal** that governs the planning and interventions of the Region and local authorities in the field of energy, in accordance with Article 30 of Legislative Decree 31 March 1998, n. 112, article 117 of the Constitution, European and national legislation on energy and climate change in order to facilitate the transition to low-carbon urban districts.

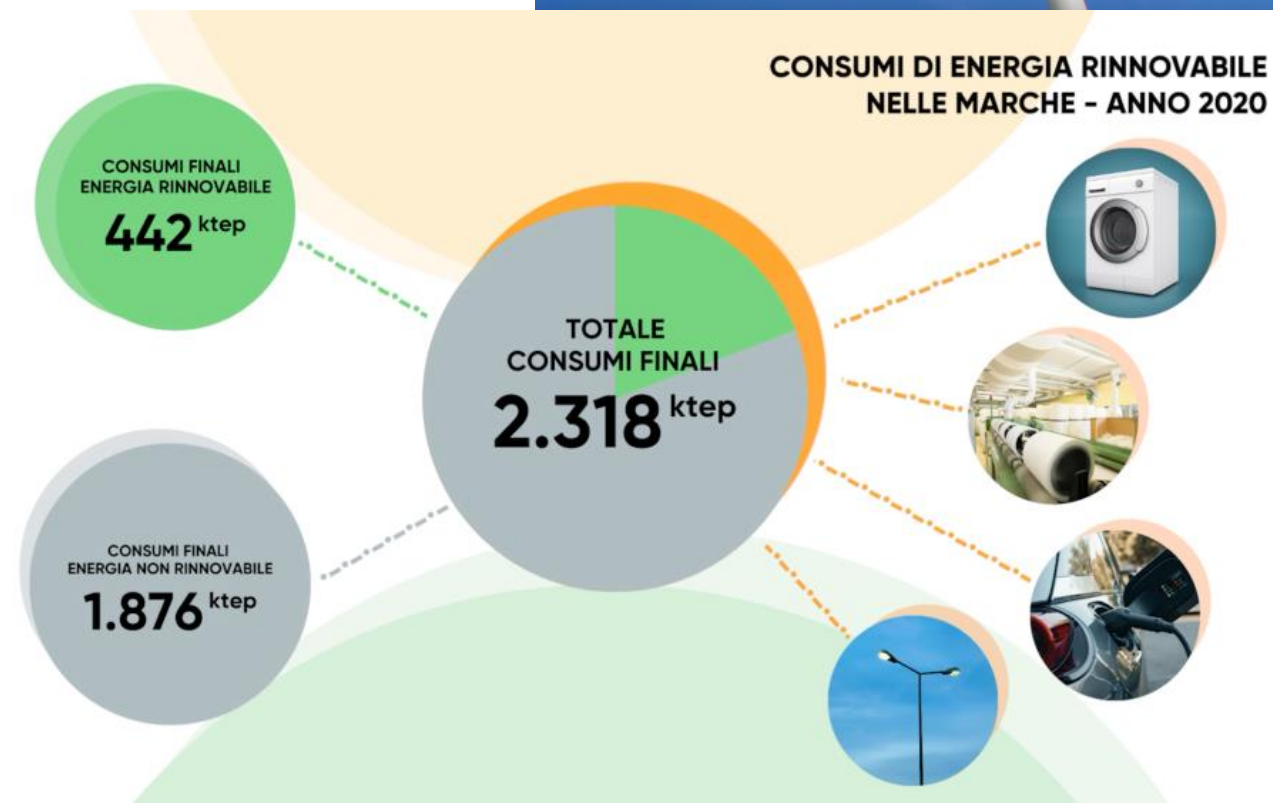
PRODUZIONE DI ENERGIA RINNOVABILE NELLE MARCHE - ANNO 2021



INFORMATI SU
REGIONE.MARCHE.IT/REGIONE-UTILE/ENERGIA/COMUNITA-ENERGETICHE

OGGI SONO 33.570 GLI IMPIANTI DA FONTI RINNOVABILI DISTRIBUITI IN TUTTI I COMUNI DELLA REGIONE MARCHE

CONSUMI DI ENERGIA RINNOVABILE NELLE MARCHE - ANNO 2020



SOSTENERE IL RISPARMIO ENERGETICO NELLE IMPRESE E NELL'EDILIZIA PUBBLICA E PRIVATA

PRODURRE PIU' ENERGIA RINNOVABILE

AUMENTARE IL CONSUMO COLLETTIVO DI ENERGIA RINNOVABILE

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THE MARCHE REGION PARTNER IN THE EU PROJECT "**EXPRESS**" - **European regions promoting energy self-sufficiency from renewable sources** - ID 01C0136, funded by the Interreg Europe Program

The Marche Region participates as a partner in the project Express - European Regions Promoting Energy Self-sufficiency from Renewable Sources, funded by the INTERREG Europe Program, through the Sector - Energy Sources, Waste, Quarries and Mines because of the specific competencies given to it in the field of energy sources and sustainable construction.

The overall goal of the EXPRESS project is **to decrease the regions' dependence on energy imports and fossil energy and to increase energy self-sufficiency and the share of renewable energy by improving regional policies to better consider the new operating environment of the energy sector and to enable a rapid transition to locally produced renewable energy for heating, electricity, and transportation.** It is important that the momentum toward increasing renewable energy self-sufficiency is reflected in regional policy instruments to enable timely investments in the coming years. The project seeks to achieve its goals through interregional information sharing and mutual learning. Local stakeholders, particularly policymakers, regional public authorities, energy companies and energy cooperatives are at the center of the project, as they have the means to use this momentum to accelerate the energy transition to increase the share of locally produced renewable energy in the regions.

The Regional Energy and Climate Plan (PREC 2030) of Marche Region

In course of drafting with the support of Marche Polytechnic University.

General objectives:

- **accelerate the decarbonization pathway**, considering 2030 as an intermediate step toward deep decarbonization by 2050, putting citizens and businesses (particularly small and medium-sized ones) at the center, so that they are protagonists and beneficiaries of the energy transformation;
- **encourage the evolution of the energy system**, particularly in the electricity sector, from a centralized to a distributed arrangement based mainly on renewable sources;
- **promote energy efficiency in all sectors** as a means of protecting the environment, improving energy security and reducing energy expenditures for households and businesses;
- **Promote electrification of consumption**, particularly in the civil sector and transport, as a means of also improving air and environmental quality;
- **Support the evolution of the energy system with research and innovation activities** that, in line with European guidelines and the needs of deep decarbonization, develop suitable solutions to promote sustainability, security, continuity and affordability of supply;
- **adopt targets and measures that reduce the potential negative impacts of energy transformation on other equally relevant objectives**, such as air quality and water bodies, limiting land consumption and landscape protection;
- **energy self-sufficiency**.

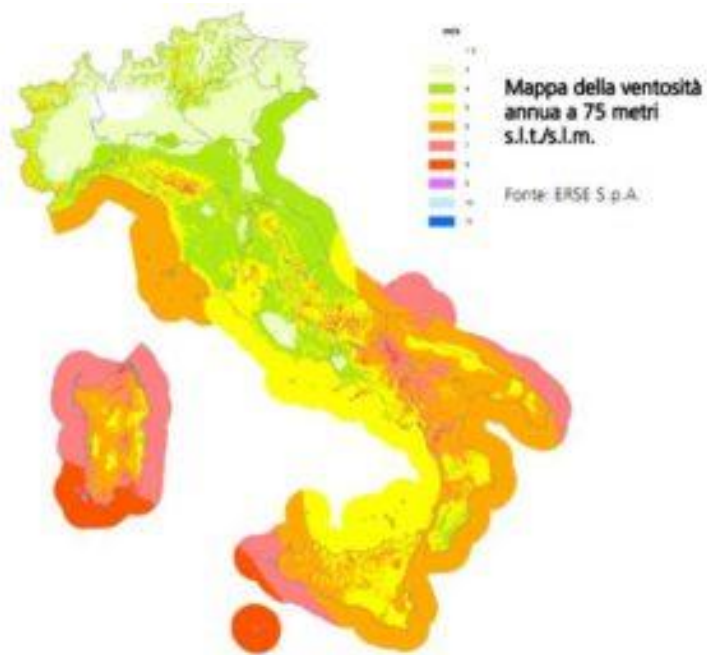
the Plan should contain:

- evolution of the European, national and regional economic, energy and regulatory environment;
- summary of the regional energy balance;
- analysis of renewable energy development potential and identification of suitable areas;
- scenarios and targets to 2030 and 2050;
- strategies and tools related to the development of renewable energy sources, energy efficiency and savings, technological innovation in all sectors (industry, transport, civil, agriculture, etc.), for the development of new energy sources and biofuels - hydrogen strategy;
- strategies and tools for energy self-sufficiency;
- networks and distributed generation.

Community Wind Energy

Wind energy in the Marche
Region's contribution to
PREC 2030 policies.





Regione	N. Impianti	Potenza (MW)
Piemonte	18	18.8
Valle d'Aosta	5	2.6
Lombardia	12	0.1
Trentino A.A.	10	0.4
Veneto	14	13.4
Friuli V.G.	5	
Liguria	38	118.9
Emilia R.	72	45
Toscana	117	143.2
Umbria	24	3
Marche	50	19.5
Lazio	75	75.1
Abruzzo	43	268.3
Molise	85	405.6
Campania	635	1873.2
Puglia	1327	3000.3
Basilicata	1454	1467.8
Calabria	433	1181.1
Sicilia	899	2126.6
Sardegna	612	1095.7
ITALIA	5928	11858.4

Wind power plants in ITALY at the end of 2022 (Source: TERNA)

Azienda	Comune	PR	Quota (m slm)	Potenza (MW)	N. Turbine
ENEL	Fiastra	MC	1345	16	8
SER	Frontone	PS	1400	8	4
CMC	Pieve Torina	MC	1200	34	17
Sorgenia	Montecavallo	MC	1400	14	7
Sorgenia	Sefro	MC	1200	5.1	6
Sorgenia	Fiuminata	MC	1200	10.2	12
Gamesa	Serravalle	MC	1100	14	7
Gamesa	Serravalle	MC	1200	14	7
TRE	M. Torrini	PS	750	24	12
TRE	Cagli	PS	600	24	12
TRE	M.Picchio	PS	750	24	12
Bluenergy	Apecchio	PS	750	18	9
Bluenergy	Gagliole	MC	1000	4	2
R&B	Serrapetrona	MC	800	8	4
Garbino eolica	Pergola	PS	550	20	10
EDENS	Gagliole	MC	1000	18	9
COER	Fiuminata	MC	850	2.4	3
Inergia	Visso	MC	1100	18	9
Abaco	Apecchio	PS	1150	10	5
				285.7	155

Installed electrical power of the two plants authorized by the Marche Region equal to 18 MWe for a total of 9 turbines.

Also present are 48 other micro wind turbines authorized by local authorities for an installed electrical power of 1.5 MweTotal: 19.5 MWe resulting in savings of 7.4 ktoe/year when considering a full operation of the machines

Wind projects submitted after approval of Marche Region PEAR

To date only the Serrapetrona and Apecchio plants built and operating!The others unauthorized mainly because of landscape impact issues.

The Regional Environmental Energy Plan, approved by DGR Marche Region n.175 of 16/02/2005, integrated a whole series of technical and environmental suggestions for the inclusion of wind power plants in the Marche region and highlighted the need to define:

- The areas NOT SUITABLE for the installation of wind power plants (DGR n.829 of 23/07/2007)
- The areas SUITABLE for wind power plants (DGR n.366 of 3/04/2006).



The identification of Eligible Areas does not preclude the design process for wind farms outside these areas.

Otherwise, within the Eligible Areas, the design and authorization path becomes easier thanks to previous in-depth studies carried out on a local and regional scale.

To date, the identification of Eligible Areas includes the construction of a 40 MWe wind farm in the public interest but which has never materialized.

FORBIDDEN AREAS to wind installations:

- National and Regional parks;
- Nature reserves;
- Floristic areas (LR n.52/74 and subsequent amendments);
- Sensitive areas (areas of particular floristic-vegetational value of PEAR);
- Archeological sites, as identified by LR16/94 and DACR n.206 of 3/06/98 "Regional Plan of intervention on the archaeological system of the Marche region," with a safety strip of 150 meters from the boundaries of the site;
- Areas classified as high hydrogeological hazard (E4 and R4) under the Hydrogeological Structure Plan;
- An area of at least 500 meters from the limit of urban building areas, as defined by the urban planning instrument in force;
- Wooded areas as defined by Art.2 paragraph-1 letter-e of LR n.6/2005 "Regional Forestry Law";
- The SPA areas (Special Protection Areas - Natura 2000 Network);

In addition, special attention should be given to areas with landscape constraints dictated by Art.136 of Legislative Decree 42/04 and those identified on the basis of Law 1497/39.



The CRITICAL AREAS are:

SIC Areas;

Important Bird and Biodiversity Area
(IBA) areas;

Areas near caves; Mountain passes;

Bird of prey nesting and hunting areas;

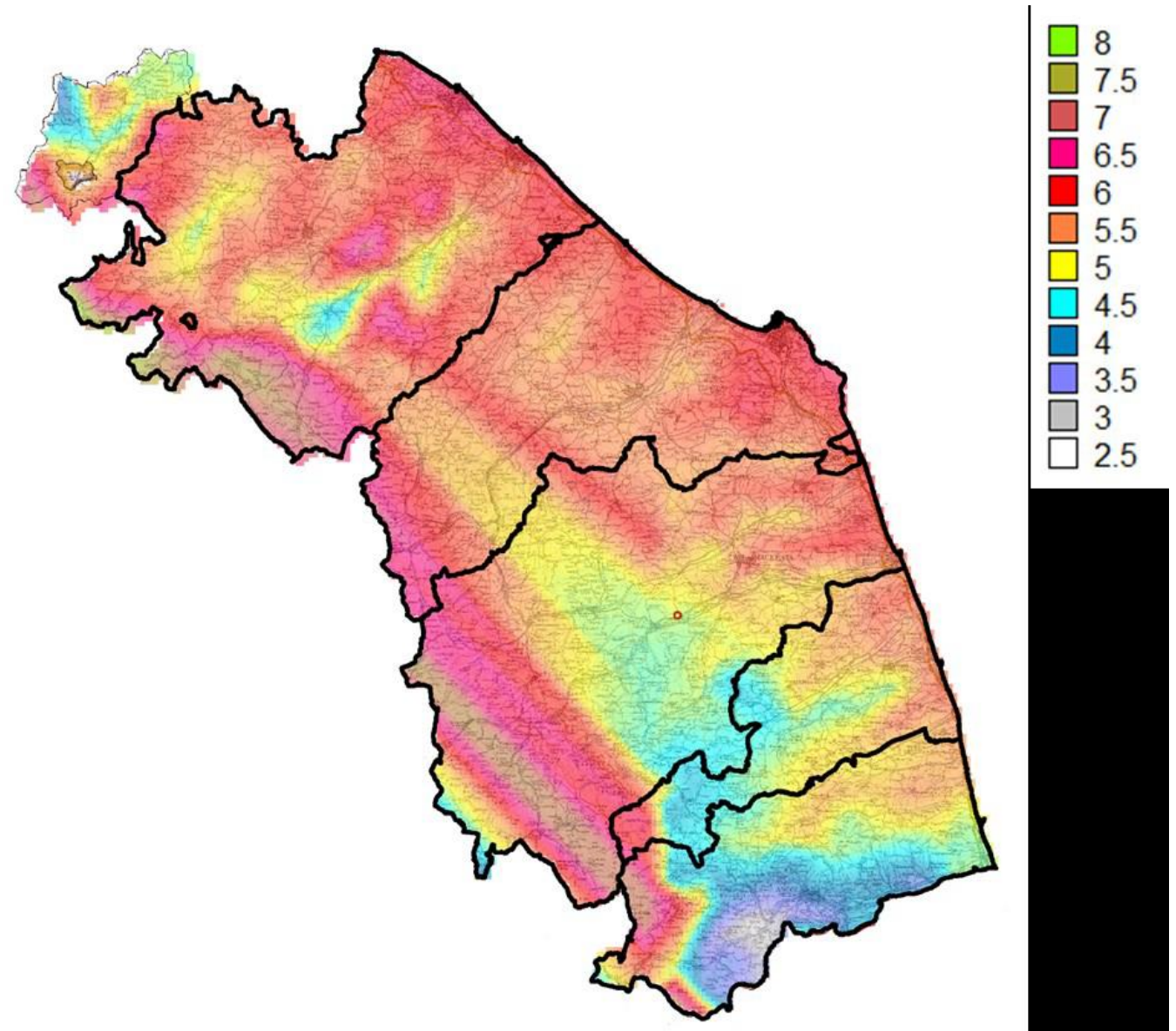
Major axes of migratory routes;

Important corridors for avifauna.



The map was created through the use of a predictive numerical model.

The choice was dictated by the good results that the numerical model showed during the IPA-POWERED European Project, in which the Marche Region was a partner, and during which it was possible to compare numerical results with experimental data from certified meteorological towers up to 100 meters high.



Map of annual average wind speed at 90 meters above the ground (P.O.W.E.R.E.D. Project).

FINAL CONSIDERATIONS

As is evident, for all these reasons, wind power in the Marche has not had a major deployment. It would be interesting to produce a new document of good practices for the inclusion of wind farms in the Marche territory (to supplement the eligible areas), thus removing the requirements themselves from the power to absolutely condition the authorization release.

To date, in the Marche Region 3 procedures are underway for the authorization of no. 3 wind farms of the electric power respectively equal to 60 + 36 + 34 MWe for a total of 130 MWe.

Currently, the environmental impact assessment is underway at the competent Ministry.

OFF-SHORE WIND ENERGY



The exploitation of marine wind resources is an extremely interesting topic because it allows the construction of large-scale installations with generally more modest environmental impact problems than those that arise in high-altitude installations.

Generally speaking, the reasons that might push toward Off-Shore wind installations are:

the sea surface has low surface roughness, this results in a vertical wind speed profile that is more uniform than that normally found on land. This allows the use of turbines with lower support towers (about 0.75 times the rotor diameter);

less air turbulence, resulting in less mechanical stress to the turbine blades; a higher wind stability than onshore;

higher wind speed compared to the coast, at the same altitude.

Conversely, the costs of grid connection, as well as those of installation and transportation, make Off-Shore plants certainly more expensive than those placed on land.

Community Bioenergy

Biogas and biomass plants authorized by the
Marche Region

- 1 Woodchip biomass plant; the plant will produce 200 kW of electricity
- 6 Plant from landfill biogas Installed electrical capacity of 5.3 kWe
- 12 Biogas plants from various food matrices: by-products, straw, mowing, agricultural material, livestock manure, etc. Installed electric power equal to 10.3 kWe
- Total installed electric power 15.8 kWe corresponding to about 23.7 ktoe/year saved



BIOMETHANE Plants



1 Biomethane plant from livestock slurry and vegetal biomass from conversion of a previous 1MWe biogas plant. Produces about 2.8 million Sm³/year of methane fed into the grid.

Existing biogas plants will be mainly converted to biomethane (GSE incentives)

7 Licensed biomethane plants from FORSU of which only one is built and in operation. If all built they will produce about 27.6 million Sm³/year of methane fed into the grid or transported on tanker trucks corresponding to about 24.6 ktoe/year saved

Forsu (organic fraction municipal solid waste) requirement: 322,500.00 t/year

When fully operational, the plants would allow for full utilization of regional FORSU production; in fact, as of 2021, FORSU production amounts to approximately 226,859.00 t/y



By focusing on biomethane, the goals of climate change mitigation can be combined with those of energy security, optimizing waste management, increasing renewable energy production, and industrial innovation (biomethane plants fall under "net-zero technologies" and "strategic net-zero technologies" under the proposed Net Zero Industrial Act) which prioritizes precisely clean technologies.

STRATEGIC OBJECTIVE 2 A GREENER EUROPE – MAPO DGR 203/2023

SPECIFIC OBJECTIVE	Azione	DOTAZIONE
1 - Promoting energy efficiency	2.1.1 Reduction of energy consumption of enterprises including installation of renewable energy production systems for self-consumption, giving priority to high-efficiency technologies	24.500.000,00 €
	2.1.2 Promotion of eco-efficiency and reduction of primary energy consumption in public buildings and facilities	20.000.000,00 €
	2.1.3 Adoption of technological solutions to reduce energy consumption of public lighting networks	5.000.000,00 €
	TOTAL	49.500.000,00 €
- Promote renewable energy in accordance with the Renewable Energy Directive	2.2.1.1 Incentivizing projects that contribute to the Clean Energy Package: Installation of photovoltaic systems on publicly owned parking lots	3.000.000,00 €
	2.2.1.2 - Incentivizing projects that contribute to the achievement of the Clean Energy Package: Renewable energy plants	6.000.000,00 €
	TOTAL	9.000.000,00 €
TOTAL		58.500.000,00 €