POWERED
green energy in Adriatic sea

Abruzzo Region - Directorate for Bureau Affairs, Legislative and EC Policies, External Affairs
www.regione.abruzzo.it

Department for Energy Efficiency and Renewable Energy Sources, Energy Sector, Ministry of Economy of Montenegro
www.minekon.gov.me/en/ministry

Veneto Agricoltura, regional agency for agriculture, forestry and agri-food sectors
www.venetoagricoltura.org

Province of Ravenna
www.provincia.ra.it

Marche Region Environment and Landscape Department
www.ambiente.regione.marche.it

Molise Region - Programming Department
http://www.regione.molise.it

Apulia Region - Mediterranean Department
www.regione.puglia.it

Marche Polytechnic University
www.univpm.it

CETMA Consortium - Engineering, Design and Materials Center
www.cetma.it

Micoperi Marine contractors srl
www.micoperi.it

Italian Ministry for Environment and Land and Sea
www.minambiente.it

Ministry of Economy, Trade and Energy, Republic of Albania
www.mete.gov.al

Municipality of Komiza
www.komiza.hr

www.powered-ipa.it | info@powered-ipa.it

This publication has been produced with the financial assistance of the EU IPA Adriatic Cross-Border Programme. The contents of this publication are the sole responsibility of the POWERED Project and can under no circumstances be regarded as reflecting the position of the EU IPA Adriatic Cross-Border Autohorities

Definition of the procedures for the presentation and approval of off-shore wind project in the Adriatic Sea

P.O.W.E.R.E.D. - Project of Off-shore Wind Energy: Research, Experimentation, Development

POWERED
green energy in Adriatic sea

Let's grow up together
Adriatic IPA
Cross Border Cooperation 2007-2013

The project is co-funded by th European Union, Instrument for Pre Accession Assistance

Authors

Francesca Laschiazza, Iris Flacco, Renato Ricci

Data provided by the following Powered partners:

Abruzzo Region

Iris Flacco - Department of Public Works, Territorial Government and Environmental Policies

Francesca Laschiazza - Task Force of Environmental Authority c/o Department of Public Works, Territorial Government and Environmental Policies

Chiara Miocchi - Task Force of Environmental Authority c/o Department of Public Works, territorial government and Environmental Policies

Enrico Forcucci - Department of Public Works, Territorial Government and Environmental Policies

Marche Polytechnic University

Renato Ricci – Department of Industrial Engineering and Mathematical Sciences

Antonio Pusceddu – Department of Life and Environmental Sciences

Antonio Dell'Anno – Department of Life and Environmental Sciences

Ministry of Economy, Trade and Energy, Republic of Albania

Artan Leskoviku - National Agency of Natural Resources

Ministry of Economy of Montenegro

Dunja Bulajic - Department for Energy Efficiency and Renewable Energy Sources, Energy Sector

Table of contents

	Glossary	5
	Preface	6
1.	THE POWERED PROJECT	7
1.1.	Introduction	7
1.2.	What is Powered?	8
1.3.	Purpose of Guidance	10
2.	COMPARATIVE ASSESSMENT FRAMEWORK	12
2.1.	Methodological framework	12
2.2.	Comparative SWOT assessment	15
2.2.1.	Planning procedure	15
2.2.2.	Licensing and permitting arrangements	18
2.2.3.	State of art	21
3.	CASE STUDY	22
3.1.	Albania	22
3.2.	Italy	28
3.3.	Montenegro	35
4.	CONCLUSION AND SUGGESTIONS	39

GLOSSARY

EIA: Environmental impact assessment

ETS: Emission Trading Scheme

EUSAIR: EU Strategy for the Adriatic and Ionian Region

EWEA: European Wind Energy Association

MSP: Maritime spatial planning

OWE: Off shore wind energy

RES: Renewable energy source

SEA: Strategic environmental assessment

SWOT: Strengths, weaknesses, opportunities and threats

WP: Work package

PREFACE

The European Commission has adopted a macro-regional strategy named **EU Strategy for the Adriatic and Ionian Region (EUSAIR)** which has been endorsed by the European Council in 2014. The Strategy was jointly developed by the Commission, together with the Adriatic-Ionian Region countries and stakeholders, in order to address common challenges together. The Strategy aims at creating synergies and fostering coordination among all territories in the Adriatic-Ionian Region revolving around the opportunities of the maritime economy - 'blue growth', land-sea transport and energy connectivity, protecting the marine environment and promoting sustainable tourism – sectors that are bound to play a crucial role in creating jobs and boosting economic growth in the region[1].

In this context, the European Parliament and the Council issued DIRECTIVE 2014/89/EU (MSP) of 23 July 2014 establishing a framework for maritime spatial planning, which requires Member States having access to the sea to establish maritime spatial plans as soon as possible, and at the latest by 31 March 2021, in order to analyse and organize human activities in marine areas within its competence and in order to achieve ecological, economic and social objectives, taking into account land-sea interactions, having due regard to the peculiarities of the marine regions, relevant existing and future activities and uses and their impacts on the environment, as well as to natural resources.

Through their maritime spatial plans, Member States shall aim to contribute to the sustainable development of energy sectors at sea, of maritime transport, and of the fisheries and aquaculture sectors, and to the preservation, protection and improvement of the environment, including resilience to climate change impacts. In addition, Member States may pursue other objectives such as the promotion of sustainable tourism and the sustainable extraction of raw materials [2].

While each EU country will be free to plan its own maritime activities, local, regional and national planning in shared seas would be made more compatible through a set of minimum common requirements. The benefits of maritime spatial planning are:

- **Reduce conflicts** between sectors and create synergies between different activities;
- **Encourage investment** – by instilling predictability, transparency and clearer rules. This will help boost the development of renewable energy sources and grids, establish Marine Protected Areas, and facilitate investment in oil and gas;
- **Increase coordination** – between administrations in each country, through the use of a single instrument to balance the development of a range of maritime activities. This will be

simpler and cheaper;

- **Increase cross-border cooperation** – between EU countries, on cables, pipelines, shipping lanes, wind installations, etc;
- **Protect the environment** – through early identification of impact and opportunities for multiple use of space[3] .

The application of an ecosystem-based approach will contribute to promoting the sustainable development and growth of the maritime and coastal economies and the sustainable use of marine and coastal resources. Maritime spatial planning will contribute to the effective management of marine activities and the sustainable use of marine and coastal resources by creating a framework for consistent, transparent, sustainable and evidence-based decision-making. Member States remain responsible and competent for designing and determining, within their marine waters, the format and content of such plans, including institutional arrangements and, where applicable, any apportionment of maritime space to different activities and uses respectively. In doing so, Member States shall take into account land-sea interactions; environmental, economic and social aspects, as well as safety aspects; ensure trans-boundary cooperation between Member States and promote cooperation with third countries.

The environmental assessment is highlighted as an important tool for integrating environmental considerations into the preparation and adoption of plans and programmes also in the **SEA Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment[4]** . Where maritime spatial plans are likely to have significant effects on the environment, they are subject to Directive 2001/42/EC. Where maritime spatial plans include Natura 2000 sites, such an environmental assessment can be combined with the requirements of Article 6 of Directive 92/43/EEC, to avoid duplica

1

THE POWERED PROJECT

1.1. Introduction

The European Union has committed to a legally binding target **to meet 20% of its energy consumption through renewable energy by 2020.** To achieve this, there is an expectation that 34% of electricity will need to be generated by renewables. In the longer term, the Commission proposes a new reduction target for domestic GHG emissions of 40% compared to 1990, to be shared between the ETS and non-ETS sector, as the centre piece of the EU's energy and climate policy for 2030 . Between renewables, Europe's offshore wind potential is enormous and able to meet Europe's demand seven times over, as estimated by the **European Environment Agency's (EEA)**, with increasingly large-scale sites identified as suitable for offshore development and benefiting from a favorable wind

resource. Offshore wind is therefore expected to play a significant role in meeting the EU targets .

In 2011 the **European Wind Energy Association (EWEA)** published scenarios for offshore wind energy deployment in Europe, expecting 40 GW of installed offshore wind energy capacity by 2020. Offshore wind deployment in Europe is currently lagging behind the National Renewable Energy Action Plans (NREAPs) targets by an average of 14%. As of 30 June 2015, cumulatively, there are 3072 offshore wind turbines with a combined capacity of 10393.6 MW fully grid connected in European waters.

MSP is key to enhancing offshore wind development. It provides stability and clarity for the investors and can bring down the costs of wind energy through an optimum integration of the wind farms into the marine environment. EWEA strongly supports the development of an integrated and coordinated Maritime Spatial Planning policy across Europe .

The P.O.W.E.R.E.D. Project (Project of Offshore Wind Energy: Research, Experimentation, Development), building on the European Directives, strategies and initiatives, aims at being an assessment tool of the offshore wind energy bringing together all the available assessment and management tools and methods on the issue, even in a comparative way, to draw up the Guidelines of the Regions on the Adriatic to manage in a coordinated and uniform way the realization of off-shore wind parks in the Adriatic Sea.

1.2. What is POWERED

POWERED Project (Project of Offshore Wind Energy: Research, Experimentation, Development) has been co-funded within the **IPA Crossborder 2007-2013 Programme**, priority 2 (Natural and Cultural Resources and Risk Prevention), measure 2.3 (Energy saving and renewable energy resources). With a total initial budget of EUR 3.631.469,03, it lasts months, from March 2011 to November 2015.

POWERED aims at **defining a set of strategies and shared methods for the development of the off-shore wind energy in all the Countries overlooking the Adriatic Sea.** Such an "energetic choice" is winning because of the following reasons:

1. it allows a rapid increase of installations thanks to the reduction of the problems related to the landscape impact that are frequently the main obstacles to the creation of wind parks in high density population territories or in areas with high historical or landscape value;
2. it reduces the problems related to the transport of the wind turbines of big size especially in Countries like Italy where the problem of connection between the main and the suburban roads is important because of the small dimension of the roadway;
3. it increases the importance of the industrial ports that overlooks the Adriatic Sea which could assume a decisive role in the development process, becoming a marshaling but also productive areas of the technological components.

The **main project's outputs** are:

1. ***guidelines*** for the installation of off-shore wind parks in the Adriatic Sea which are compatible with the planning and conservation policy shared among the project partners;
2. ***studies*** for the development of sea basins for the energetic technology into object. This refer to: the identification of the characteristics of the electric submarine connection network that will enormously facilitate the exchange of energy power between the involved countries; the study of the wind resources on the Adriatic Basin which will has been developed through numerical process and validated through testing method.
3. ***validation of the studies*** performed through the installation of a network of coastal and marine anemometer weather stations positioned on solid ground all over the partner's regions, which will be fully running and supporting the weather forecast services.

The **Lead Partner** of the project is **Regione Abruzzo,** Directorate for Bureau Affairs, Legislative and EC Policies, External Affairs, meanwhile the **partners are 12**: Department for Energy Efficiency and Renewable Energy Sources, Energy Sector, Ministry of Economy of Montenegro; Veneto Agricoltura, regional agency for agriculture, forestry and agri-food sectors; Province of Ravenna; Marche Region – Environment and Landscape Department; Molise Region – Programming Department; Apulia Region – Mediterranean Department; Marche Polytechnic University; CETMA Consortium – Engineering, Design and Materials Center; Micoperi marine contractors srl; Italian Ministry for Environment and Land and Sea; Ministry of Economy, Trade and Energy, Republic of Albania; Municipality of Komiza.

The project boasts also the support of the following **private sponsors**: E.R.A. (Energie Rinnovabili Albania) sh.p.k; Alma Mater Studiorum – Università di Bologna, Dipartimento di Ingegneria Energetica, Nucleare e del Controllo Ambientale (DIENCA); WPD Italia Offshore s.r.l.; SIMAM s.p.a. Servizi Industriali Manageriali ambientali; Api Nova Energia; Tozzi Nord s.r.l.

The **beneficiaries and stakeholders** of the project are mainly decision makers and private investors.

The project is made up of **6 Work Packages** (WPs):

1. WP1 – Management and coordination (leaded by Abruzzo Region, project coordinator); WP2 – Communication and dissemination (leaded by the Province of Ravenna);
2. WP3 – Technological, normative, of energetic and environmental policy state of the art (leaded by CETMA Consortium – Engineering, Design and Materials Centre);
3. WP4 – Numerical and experimental evaluation of wind energy resources in the Adriatic basin (leaded by Marche Polytechnic University);
4. WP5 – Analysis and experimental evaluation of environmental, infra-structural, energetic and technological issues (leaded by the Municipality of Komiza);
5. WP6 – Definition of Guidelines for the realization of off-shore wind parks in the Adriatic Sea (leaded by Abruzzo Region).

1.3. Purpose of Guidance

The present Guidelines, which have been realized within WP6 - Definition of Guidelines for the realization of off-shore wind parks in the Adriatic Sea - of P.O.W.E.R.E.D., are a collection of the project results as well as a handbook of good practices and reccomendations.

They aim at assisting developers, consultants, decision makers, local actors, experts or any other interested parties in the definition of the procedures for the presentation and approval of an off-shore wind farm in the Adriatic Sea as they provide technical, scientific, mathematical,environmental,normative information as well as examples of good practices in the field of environmental designing. Moreover, their objective is to identify clear and shared procedures of authorization that allow the operators of the energetic sector to make the off-shore wind project operative in short time.

The guidance has been built upon three main aspects:

Normative – European wind energy plans and national and regional rules on the wind energy have been analized during the WP3; an integration of the normative analysis is here reported by discussion of the procedures for the presentation and approval of off-shore wind projects in the Adriatic Sea.

Energetic and infrastructural – The wind energy potential in the Adriatic Sea has been studied in the WP4 where the two commonly used approaches, numerical and experimental, are joined in order to perform a new methodology of analysis. The WP4 consists of three main activities:

1. A numerical hindcasting analysis in order to evaluate wind potential during the 2008-2012 period, Fig.6.1 as example;
2. A new wind meteorological mast network, based on 8 lattice towers equipped with cup anemometers, wind vanes and thermometers, on shore mounted, Fig.6.2
3. A new forecasting mathematical model that includes the previous network to carry out the short time forecasting in the Adriatic basin.

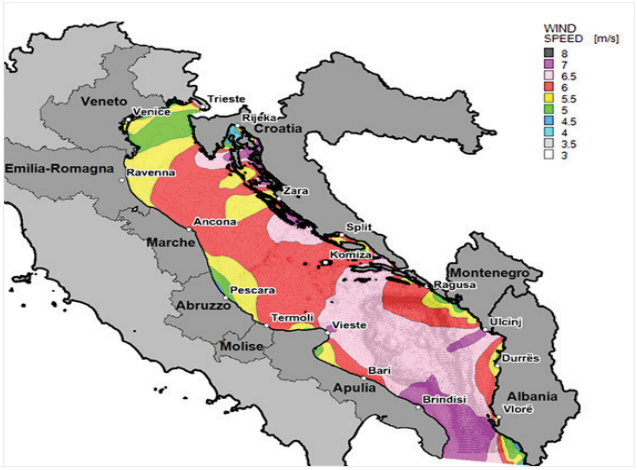

Fig.6.1 - POWERED Adriatic Wind Map (2010) at 90 m above ground level

The WP4 activities are able to perform the wind assessment and the wind farm energy production for future offshore installations. The maintenance of the meteorological mast is guaranteed until to the next five years and the data are saved daily in devoted hardware hosted at the Università Politecnica delle Marche; it is possible so for the stakeholders to better evaluate the offshore wind farm financial risks.

Fig.6.2 - POWERED Meteorological network

The infracstructural aspects of the offshore wind energy have been discussed in the WP3 where the compatibility of the Adriatic Ports with the wind energy technology is also presented. The Fig.6.3 shows the topics investigated by the WP3.1, where the Technological state of art has been studied.

Environmental – the critical and suitable area for the off-shore wind installation have been identified along with the good practices for the environmental designing for the investors supporting.

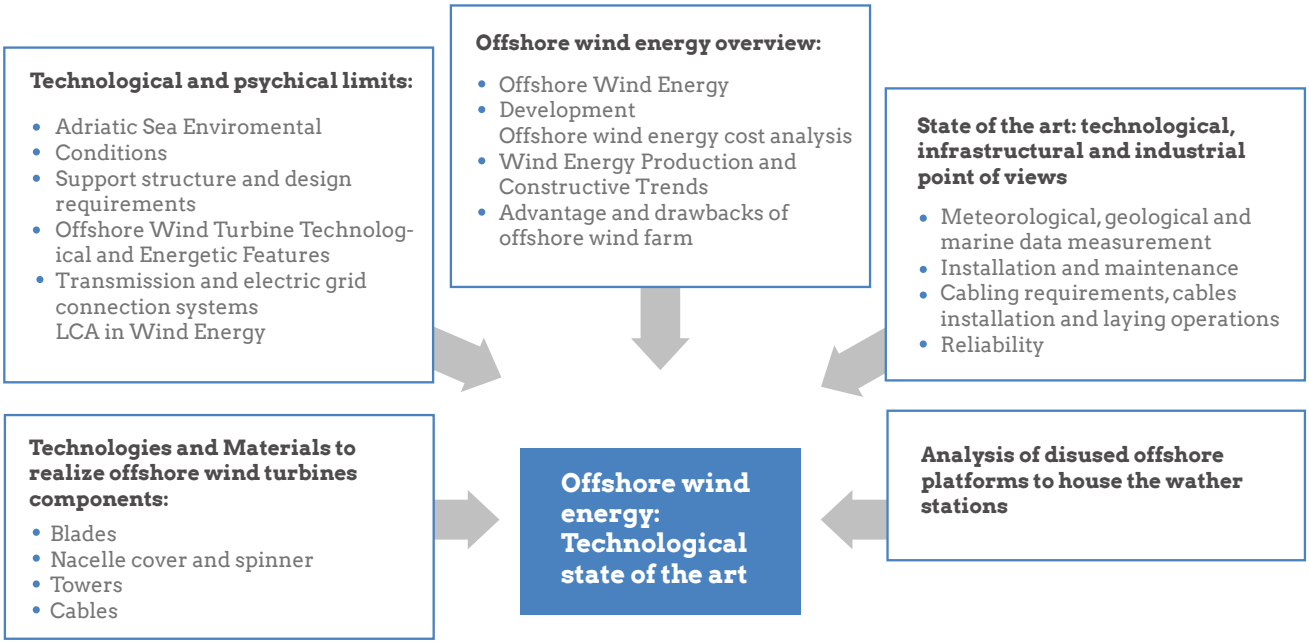

Fig.6.3 – POWERED Offshore wind energy technological state of the art: topics investigated

The WP5 collects the greatest amount of information on the (environmental) effects of the installation of a putative offshore wind farm in the Adriatic Sea. After collecting and reporting all the obtained data the objective is to weight this information and map it, to have a spatial weighted analysis on which to identify the environmental constrains associated with the energetic basins identified by WP4.

The final objective of WP5 is thus to elaborate a semi-quantitative and qualitative analysis of the constraining environmental and infrastructural conditions and their location in the Adriatic space, in order to give each constrain a weight to be assigned and to create a spatial conflict analysis for each area and constrain, WP5 – Cap.5, Fig.6.4.

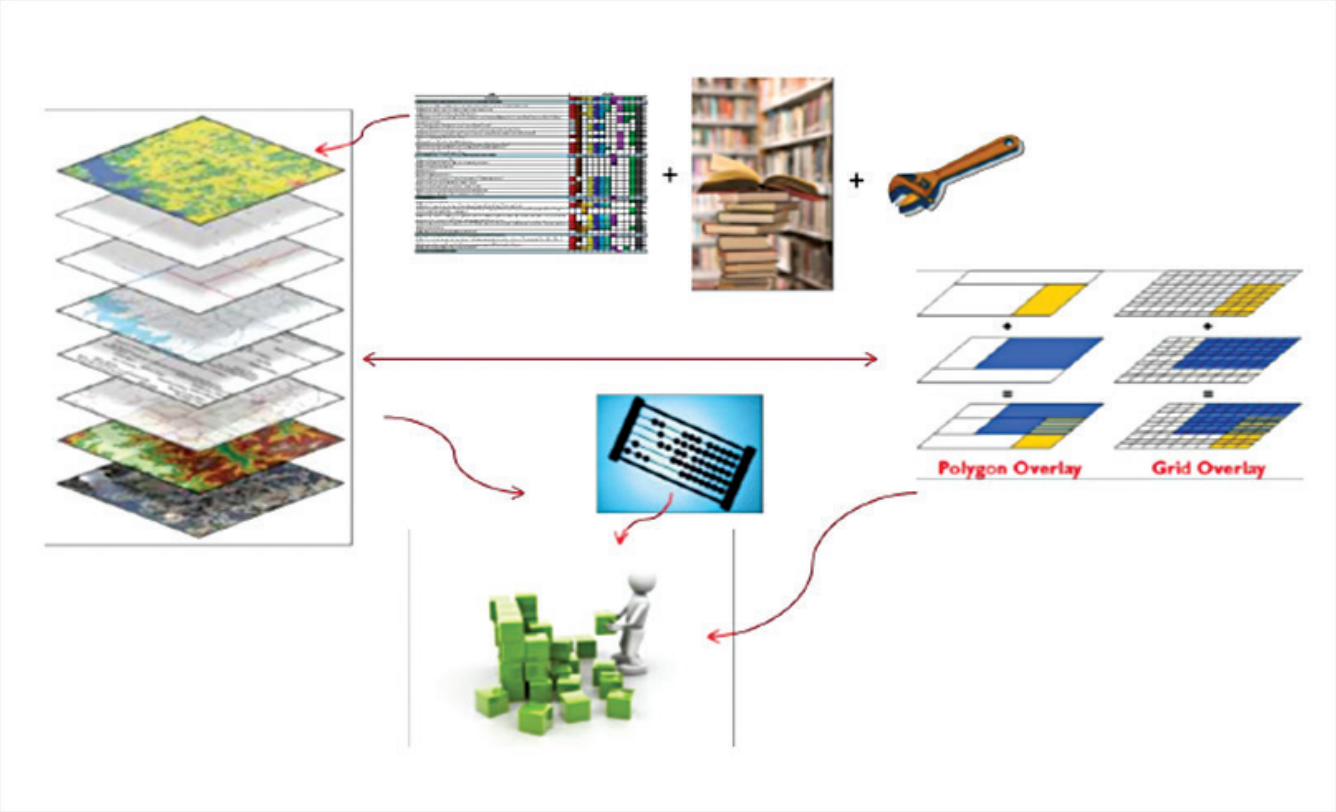

Fig.6.4 - Workflow for environmental constrains for WP5

The condensed map provided in the WP5 report should not be interpreted rigorously as a tool to locate areas where offshore wind farms could be established.

2

COMPARATIVE ASSESSMENT FRAMEWORK

2.1. Methodological framework

This paper attempts to provide a comparative overview on legal, institutional and procedural perspectives of off-shore wind farms in Powered project partners and in 5 European countries as follows:

1. Albania (Powered partner)
2. Italy (Powered partner)
3. Montenegro (Powered partner)
4. Belgium
5. Denmark
6. France
7. Germany
8. UK

The selection of the above five European countries "non-Powered partner" has been conducted on a set of criterions allowing to information to be gathered on the most advanced planning and licensing procedures framework for off shore wind farm in EU. Based on their National Renewable Energy Action Plans, out of the 27 EU member states, the selected countries have project offshore

wind power capacities of more than 1 GW by 2020. The used criterions are split into different categories to reflect different elements of offshore wind farm development as follows:

1. experience
2. offshore wind power capacities
3. installed capacity
4. legal framework
5. support financial scheme

In addition, on December 2010, a Memorandum of Understanding was entered into by ten countries (Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands, Norway, Sweden and the UK) the EU Commission, ACER (Agency for the Cooperation of Energy Regulators), ENTSO-E (European Network of Transmission System Operators for Electricity) and national regulatory authorities in order to implement North Seas Countries' Offshore Grid Initiative. One of its objectives is identify and tackle barriers to offshore grid development, in particular as regards technical, regulatory, market, planning and authorisation issues.

The objective of this paper is to evaluate and compare the currently set-up procedures, identifying gaps and critical issues affecting the implementation of offshore wind farm. In order to perform comparative assessment through evaluation of legal, institutional and procedural framework, the methodological research has been structured on the following steps:

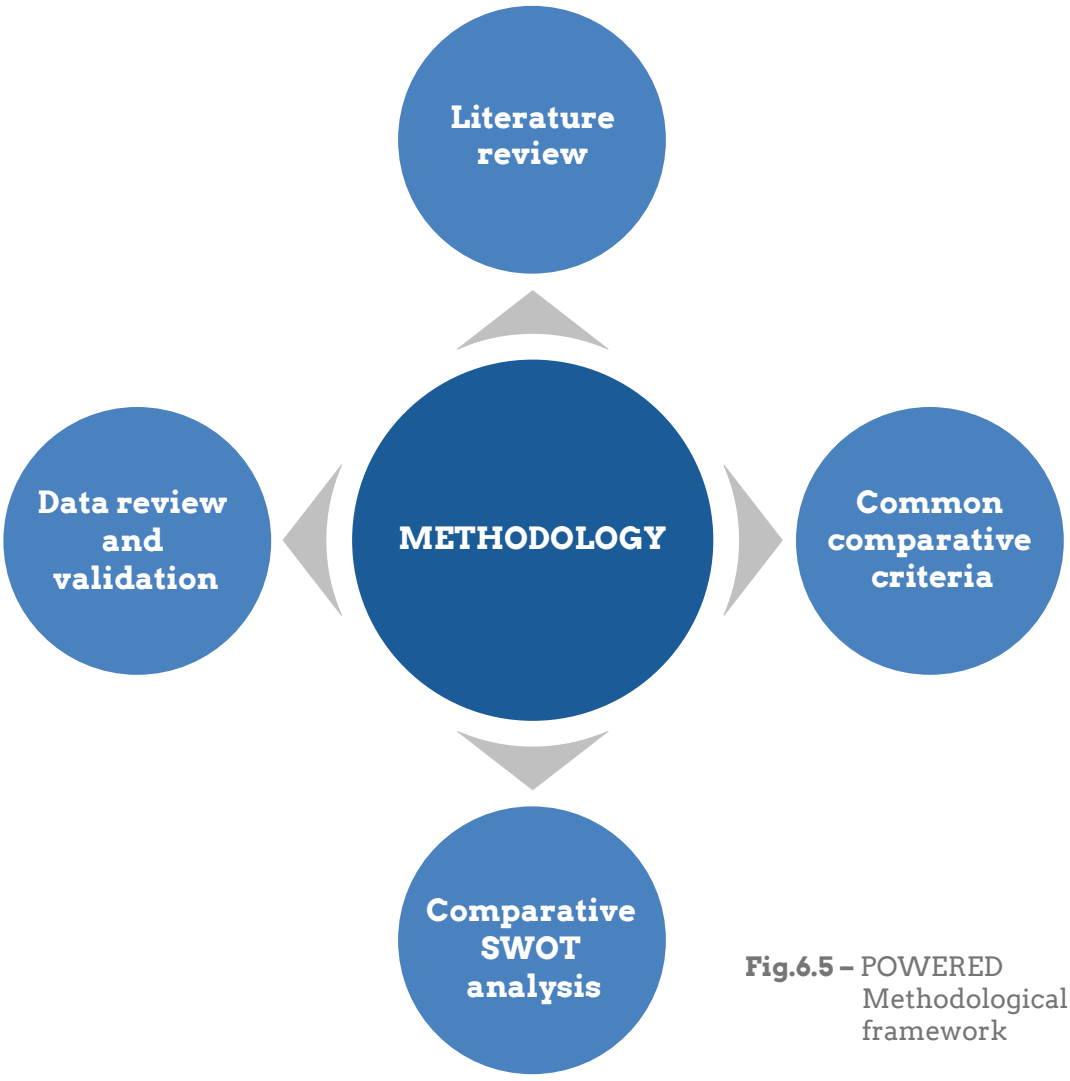

Fig.6.5 – POWERED Methodological framework

1. Literature review: is useful to determine the state of the art. It also supports the selection of appropriate theories to make foundation for the research. The research has started by an extensive search in web site and scientific international journals (such as Energy Policy). The criteria for the selection of useful articles have been based on filtering by topics and their combinations (Offshore wind power, Comparison, power authorities, Regulatory issues, wind energy policies, Challenges for policy intervention). In addition, also a time-criterion has been adopted, selecting: articles/documents published in the last five years. The data have been transposed into 3 thematic sections, with sub sections (Fig.6.6).

2. Developing common comparative criteria: provides a tool for comparing data coming out form literature review. They are expressed by short sentences/ questions and may be classified into two groups:

- organization criteria related to planning framework, procedure (permits and licenses (input factors);
- process effectiveness criteria (outcome factors).

3. Comparative SWOT assessment of off-shore wind energy system through a comparative examination of the status, application and structure of existing systems based on country-specific legal, institutional and procedural frameworks. It is worth noting that not all countries were benchmarked in all sectors.

4. Data review and validation: is an important step in data scan process. Some off-shore energy public and private representatives of the above 8 selected Countries have been contacted to check and update the data collected from literature review. Deepest gratitude to all those who have directly and indirectly guided in writing this assignment, special thanks to Danish Energy Agency (part of the Danish Ministry of Climate, Energy and Building), German Federal Maritime and Hydrographic Agency, German State Labour Inspectorate Oldenburg (Staatliches Gewerbeaufsichtsamt Oldenburg).

Deepest gratitude to all those who have directly and indirectly guided in writing this assignment, special thanks to Danish Energy Agency (part of the Danish Ministry of Climate, Energy and Building), German Federal Maritime and Hydrographic Agency, German State Labour Inspectorate Oldenburg (Staatliches Gewerbeaufsichtsamt Oldenburg).

1. PLANNING PROCEDURE

1.1 MSP Directive (Dir 2014/89/EU)
1.2 Zoning for off-shore wind development (plan)
1.3 SEA Directive (Dir 2001/42/CE) applied to off-shore wind zoning
1.4 Planning Authority responsible for off-shore wind zoning
1.5 Site concession models
1.6 Award criteria

2. LICENSING AND PERMITTING ARRANGEMENTS

2.1 Regulatory procedure (one stop-shop or individual permission procedure) art. 13 res directive
2.2 EIA procedure (authority responsable, when, financed by state or investor)
2.3 Maritime domain license (authority responsable and when)
2.4 Permits for Grid connection (authority responsable, when, free or investor financed) Art 16 res directive
2.5 Financial support system (fixed feed-in tariffs or agreed fixed tariff)

3. STATE OF ART

3.1 Approved off-shore wind capacity
3.2 Installed offshore wind capacity

Fig.6.6: POWERED Thematic sections and subsections analysed

2.2. Comparative SWOT assessment

The comparative assessment is based on the following approach:

- a box with reference to RES and MSP Directives requirements, when applicable;
- a table summaries the comparison among POWERED partners and non-partners, based on the criteria;
- common comparative criteria;
- reference thematic sections and subsections indicated in the brackets according to their number (e.g. 2.1);
- a discussion of the analysed sections and subsections.

2.2.1 Planning procedure

Table 1 summarizes planning procedure, as of November 2014, making reference to the following questions:

1.1. Is the MSP Directive (Dir 2014/89/EU) in force in the national legislation framework?
1.2. There is any zoning for offshore wind development (plan)?
1.3. Is the SEA procedure (Dir 2001/42/CE) applied to zoning for offshore wind development?
1.4. There is a Planning Authority for zoning for offshore wind farm?
1.5. What are the site concession models?

BOX 1: Art. 8 of MSP Directive requires that "Member States shall set up maritime spatial plans which identify possible activities and uses and interests. They may include installations and infrastructures for the production of energy from renewable sources".
environmental assessment
Art. 3 of SEA Directive requires that an "Environmental Report shall be carried out for all plans and programmes which are prepared for energy and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC".

1.6. What are the award criteria for site concession?

Based on the available information, no one of studied countries has transposed the **MSP Directive (Dir 2014/89/EU)** into national legislation system. But different approaches could be indentify in **selection** areas for OWE.

From one side, in Powered Partners sea uses are managed in a fragmented way by different administration levels and through sectoral policies. They use only "open door" procedure to identify site for OWE: applicants may at any time seek authorisation to establish installations for OWE.

From the other side, in non-Powered Partners Maritime Spatial Planning process is already in place. Indeed, in their framework system, there is a direct governmental involvement in spatial planning by defining zoning for OWE. The above involment can has positive impact on off-shore installation, by avoiding conflict and coordinating sea multiple-uses. In addition, the application of strategic environmental assessment process to MSP and consequently to offshore wind energy zoning, as required by **SEA Directive 2001/42/CE** can mitigate likely impacts and reduce potential conflict. Indeed the SEA Directive requires consultations with environmental authorities and public concerned, improving transparency, public trust and confidence in decision-making. Thanks to the identification of the best zones for OWE in accordance with important environmental constraints, the strategic environmental assessment process can avoid many potential conflicts, and thus precludes opposition to projects implementation. The results of consultation process could help to better define tender conditions concerning requirements and terms for the wind farms' locations and design, the nature of the studies and analyses that the EIA reports must contain and regarding the construction, operation, etc., of the offshore wind parks[9]. It should be noted that the above process (OWE planning and strategic environmental assessment) have to be flexible and tailor-made to the context in which their are applied. Strict determining technological framework and site condition could lead to adopt an outdated approch.

In Germany, in the Exclusive Economic Zone, priority areas for offshore wind have been designated in 2009 as an integral part of the maritime spatial plan, an Strategic Environmental Assessment has been carried out for

the whole maritime spatial plan. For the 12 nm Zone, the consent procedure is as follows: after completion of the regional planning process the approval procedure for the windfarm, based on the Federal Imission Control Act (BImSchG), comes next. The Immission Control Permit is subject to the conditions of 13 BImSchG "concentration effect" , ie it includes certain other public decisions (eg building permits due to the Building Code (BauGB) or approvals required due to the Federal Waterways Act (WaStrG). Environmentally relevant provisions of the approval procedure are listed in the 9th. Federal Immission Control Ordinance (BImSchV). Depending on the expected environmental impacts of the constructions the approval procedure includes an Environmental Impact Assessment (EIA).

Responsible for issuing the Immission Control Permit within the Zone of 12 nautical miles of the coast of Lower Saxony is the competent national authority (Staatliches Gewerbeaufsichtsamt Oldenburg). It has the sole right to decide. The existing territorial plan in the offshore area of the 12 nm zone with the designated areas for wind power was already completed when the SEA Directive has been implemented into national legislation with the Gesetz über die Strategische Umweltprüfung (SUPG). From then the SEA procedure theoretically will apply to zoning for offshore wind development.

About **award criteria**, the criteria "first come, first served" seems working not very well, lacking of transparency and clearness. Also the price award criterion has some disadvantage. Indeed, this method leads the commissioning party to select the least expensive tender for settlement price of the electricity, irrespective of whether other tenders will be able to deliver a better project in environmental-socio-economic respect, because they offer a more attractive timeline or matters that ease the state assignment about grid connection[10]. It could be more appropriate to select the tender winner by using quantitative and qualitative criteria (that means beauty contest) in order to implement a more efficient and environmentally responsible OWE project.

Table 1: planning procedure						
Country	**Status of MSP Directive transposition**	**Defined zoning (plan) for offshore wind parks**	**SEA applied to zoning**	**Planning Authority**	**Site concession models**	**Award criteria**
Question	**Q 1.1**	**Q 1.2**	**Q 1.3**	**Q 1.4**	**Q 1.5**	**Q 1.6**
Albania (PP)	**NO**	**NO**	**NO**	**NO**	**C**	**F**
Italy (PP)	**NO**	**NO**	**NO**	**NO**	**O**	**F**
Montenegro (PP)	**NO**	**NO**	**NO**	**NP**	**T**	**C**
Belgium	**NO**	**YES**	**C**	**NP**	**O**	**C**
Denmark	**NO**	**YES**	**C**	**NP**	**T,O**	**L**
France	**NO**	**YES**	**YES**	**NP**	**T**	**B**
Germany	**NO**	**YES**	**YES**	**NP**	**O**	**F**
UK	**NO**	**YES**	**YES**	**NP**	**T**	**P, B**
Common comparative criteria	**FT**= fully transposed (i.e legal requirement are in place) **PT=** partially transposed **NO**= no transposed **C**= under definition	**C**= under definition	**C**= under definition	**NP=** national planning authority **LP**= local planning authority **NO**= no planning authority **C**= under definition	**T=** tender for pre-specified sites **O=** open door procedure **C**= under definition	**NO**: no award criteria **L**= lowest offered settlement price **F**= first come first served **P**= project by project **B**= beauty contest **C**= regime under definition

2.2.2 Licensing and permitting arrangements

Table 2 summarizes licensing and permitting arrangements, as of November 2014, making reference to the following questions, quoted in Figure 6.6:

2.1 Which is the consentig framework ?

2.2 How many permits/licenses are required?

2.3 There are EIA OWE guideline at national level?

2.4 Is the grid connection free or not?

2.5 Which is the financial support system?

Generally speaking, several **types of licenses/permits** are required to establish an offshore wind farm project. In addition, permitting procedures are managed by multiple state and local agencies. Consequently it is a complex and lengthy process, during the course of which the approval agencies deal with different laws and regulations related to different fields (sea and shipping, nature conservation and environmental legislation as well as technological law). In non Powered Countries, specially Denmark, the consenting procedure is administrated by one national agency, in a streamlined **one stop-shop procedure**. Indeed, the above national agency handles the consent procedure and has

BOX 2: Art 13 of RES Directive requires that "administrative procedures are streamlined and expedited at the appropriate administrative level".
Art 16 of RES Directive requires that "Member States shall also take appropriate steps to accelerate authorisation procedures for grid infrastructure and to coordinate approval of grid infrastructure with administrative and planning procedures".

the authority to award all licenses and permits, for which it consults the other involved departments[11] .

About **grid** arrangement connection, under the tendering process only in Denmark the connection is financed by the grid operator, Energinet.dk, including the establishment of a step-up transformer. If the open door route has been taken, however, responsibility lies with the developer to provide the connection to the nearest defined onshore connection point. And projects following the "open door principle" must offer 20% ownership to the local population, in accordance with the rules for onshore wind. Although both methods have been utilised by developers in Denmark, no major commercial off-shore wind farm further away from the coast was developed through the open door route due to insufficient financial incentives[12]. In the other assessed countries, proponent has to bear expenses for grid connection. In some case (Italy) the proponent is required to anticipate a significant amount to reserve the grid capacity. In that case it could be better to define a transmission tariff. Consequently, the upfront costs will be lowered and the financial risk for the developer diminished[13]. Moving in that direction, a central approach for offshore grid can offer scale and coordination advantage, cutting the cost of connecting offshore wind farms to the land rather than using individual connections to shore. As standed on EU position paper, the absence of integrated, strategic planning implies a risk that individual projects are not, evaluated using consistent standards, that resources are wasted on developing similar ad-hoc solutions for similar problems several times in different contexts ("reinventing the wheel"), that the wind resources are not exploited in an optimal way (e.g. in the right order) and that assessments of potential cumulative effects becomes more difficult[14] .

Consequently, if many different connections are designed piecemeal, early decisions may affect the costs of the schemes that are connected later – and those may well be the larger, more expensive, projects. Second, a monopoly developer for grid connection will be under less pressure to keep costs down than a group of competing companies. The first concern suggests that there should be an overall development plan taking account of the interactions between projects, and with the existing onshore grid. This would have to be prepared by, or in close collaboration with, the onshore transmission operator. The second concern might suggest that a single onshore operator should not automatically be allowed to develop the individual connections that the development plan requires. One obvious way of organising this would simply be to allow each wind farm's developer to be responsible for connecting their station to shore, following the overall development plan, just as they are responsible for building the station itself. The developer has a strong financial incentive in obtaining a cost-effective connection – high costs or low availability will directly affect its profits from the station[15]. In future, the regulator will run tenders to appoint the Offshore Transmission Owner (OFTO) which will build, own and operate the connection assets for each wind development zone[16].

In this regard, however, it must be pointed out that one of the environmentally most critical phases of offshore

wind farm operativity is the installation phase[17] , which, among the other actions, include also the electric connection of the wind parks with land. This operation (and more specifically during the deployment of cables on the seafloor) could indeed interfere severely with the structure and functioning of delicate and vulnerable ecosystems like seagrass meadows, coralligenous habitats and sandbanks. Moreover, it can be predicted that the presence of multiple landward connections along a spatially limited coastline would imply a higher number of local environmental impacts; at larger spatial scales, these multiple connections would result in the occurrence of undesirable consequences, because of the synergistic effects of environmental disturbance generated by multiple cables that land in multiple locations. It is, indeed, now recognised that many of the present undesirable changes of the integrity of marine ecosystems are actually the result of effects produced by multiple stressors, which, often acting synergistically, can determine impacts, whose consequences are much higher than those determined by each single factor separately[18]. It is a matter of fact, therefore, that the use of marine stations that connect multiple wind farms offshore with a single hub on land could concentrate the impacts in single marine area and on one (or only a few) point on land, thus llimiting to a great extent the multiplicative negative effects of multiple connections.

For **financial support system**, OWE developers receive a so-called operating aid, i.e. remuneration for each MWh of electricity produced. There is an obligation to directly sell the produced renewable electricity to markets in GC [19] and FiP support scheme. There is no such direct marketing obligation in a FiT scheme. Apart from that, the financial support schemes vary widely. One substantial difference is related on when the support is granted. In Italy, based on open door procedure, there is a reverse auction system only to grant incentive for a certain amout of electricity. An application to participate in the reverse auction can only be submitted if, at the time of submission, authorisation for construction and operation of the plant has already been issued and the estimate for interconnection of the plant to the power grid has been accepted[20] . The emphasis is only on the developer who must complete the required procedures before the application for reverse auction. For OWE long implementation development, considering the high investment costs, solid mechanisms preventing stop in investment should be developed under the reverse auction system for open door procedure, by introducing a scoring system including, not only the lowest proposed price, but also additional aspects such as job creation or environmental impact (beauty contest). In addition, because all costs increase significantly with distance from shore and water depth, the tender documents should pay attention to geographic location. Indeed, as quoted in an opinion presented to the German Parliament in May 2014, the players in the offshore industry pointed out that, prior to the introduction of invitation-to-tender models as of 2017 to determine the subsidy level, there must be careful and scientifically-based investigations. These investigations should concern whether invitations to tender can actually achieve

reductions in costs in comparison to the status quo and whether the thus far successful expansion of renewable energies can be continued[21].

Under FiT schemes, a major difference between these schemes is the way in which the contract base price is determined. From one side, viewed in relation to an open door model where the project developers find and propose suitable sites and achieve concessions on a first come, first served basis, a uniform fixed tariff has the advantage of encouraging the investors to find the sites that are most cost efficient with respect to capital and operating expenses viewed in relation to the production potential[22]. From the other side, the difficulty in setting a feed-in tariff is that if the level is too high, developers will make excessive profits, whereas if it is too low, little or no development will take place. When a technology is well developed, it is relatively easy to identify the appropriate level of the tariff, and to adjust it to encourage or discourage further investment. When the technology is relatively new, however, this information may not be available.

The European Commission (2008), drawing on work by Ragwitz et al (2007), has assessed the effectiveness (in promoting increases in renewable generation) and efficiency (in terms of avoiding excessive developer profitability) of renewable support schemes across the EU, concluding that "*well-adapted feed in tariff regimes are generally the most efficient and effective support schemes for promoting renewable electricity*".

Table 2: Licensing and permitting arrangements

Country	**Consenting framework**	**N. of licenses/permits required**	**EIA on OWE guidelines**	**Grid connection**	**Financial support system**
Question	**Q 2.1**	**Q 2.2**	**Q 2.3**	**Q 2.4**	**Q 2.5**
Albania (PP)	**C**	**C**	**C**	**C**	**C**
Italy (PP)	**OSS**	**M**	**NO**	**DBE**	**A**
Montenegro (PP)	**C**	**M**	**NO**	**DBE**	**FiT**
Belgium	**OSS**	**M**	**NO**	**DBE, F**	**GC**
Denmark	**OSS**	**3**	**YES**	**DBE, F**	**A, FiT**
France	**OSS**	**3**	**NO**	**DBE**	**FiT**
Germany	**OSS**	**M**	**YES**	**F** till 2015, **DBE**	**FiT** till 2015
UK	**OSS**	**M**	**YES**	**DBE**	**GC**, moving to **FiP**
Common comparative criteria	**OSS**=one stop-shop **IP**=individual permission procedure **C**= regime under definition	**3=** 3 licenses/permits required **M=** many **C=** regime under definition	**C**= under definition	**F=** financed by transmission system operator (TSO) **DBE**= developer bears expenses **C**= under definition	**FiT**= fixed feed-in tariffs (uniform tariff) **A**= agreed fixed feed in tariff by tender **GC**= green certificates **FiP**= feed-in premium **C**= under definition

2.2.3 State of art

Table 3 summarizes state of art, making reference to the following questions:

3.1 Approved off-shore wind capacity
3.2 Installed offshore wind capacity

Table 3: State of art (end of 2013)		
Country	**Approved off-shore wind capacity**	**Installed offshore wind capacity**
Question	**Q 3.1**	**Q 3.3.**
Albania (PP)	**N**	**N**
Italy (PP)	**Y**	**N**
Montenegro (PP)	**N**	**N**
Belgium	**Y**	**Y**
Denmark	**Y**	**Y**
France	**Y**	**N**
Germany	**Y**	**Y**
UK	**Y**	**Y**
Common comparative criteria	**Y**= off-shore wind capacity has been approved **N**= not yet approved individual permission procedure **?**= need to be clarified	**Y**= off-shore wind capacity has been installed **N**= not yet installed **?**= need to be clarified

Based on information updated on end of 2012, in Powered partners, no offshore wind plants are installed nor are there any plants under construction. As a consequence of these, there could be some problems to meet target for renewable energy generation. Project suffer delays at every stage due to regime under definition or/and unclear process. As identified in the literature, the markets in the UK and Germany comprise the most profitable offshore wind development areas in the financial attractiveness ranking. The Belgium, and Denmark scenarios fill the middle ranks of the assessment in the corresponding order[23].

Consequelntly, it is evident that national regulation has a strong influence on shaping the European offshore wind market landscape.

3

CASE STUDY

3.1 Albania[24]

3.1.1. Legislative framework

The main legislative instruments are:

1. Law on Renewable Energy Sources No. 138/2013 from 2 May 2013, which was published in the Official Gazette No. 83 on 20 May 2013, the RES Law shows how strong government support is for SWH systems. It also further aligns Albanian legislation with EU legal standards, being completely in line with EU Directive 2009/28/CE.

2. Law no.9072, date 22.05.2003 "On power sector" as amended establishes the main principles for the development of the power sector, including RES power plants and transmission and distribution networks. This law also contains the requirements and criteria for granting a license to carry out an activity in power sector. Actually, the Government is under process of developing a new power sector law with the goal to reflect the EU Electricity Directive.

3. Council of Ministers Decree (COM) no.1701, date 12.12.2008 "On approval of regulation on procedures of granting authorizations for new power generation capacities that are not subject of concession" establishing of procedures and documents necessary for application, evaluation and granting of an authorization for construction of a new power generation capacity, which is not subject of concession.

4. Energy Regulatory Entity (ERE)'s decision no.108, date 9.09.2008 "On approval of regulation for licensing procedures and granting, modification and/or revocation of a license" as amended.

5. Law no.9663, date 18.12.2006 "On concessions" as amended establishes the legal framework for all concessions.. The purpose of this law is to create a favorable framework for promoting and facilitating the implementation of concessionaire projects, enhancing transparency, fairness, efficiency, long-term sustainability in development of infrastructure and public service projects including the concessions for construction of hydropower plants.

6. COM Decree no.27, date 19.01.2007 "On approval of regulation for evaluation and granting of concessions" as amended establishes the detailed procedures and criteria for evaluating and granting a concession applicable for hydropower plants.

7. Law no.8093, date 21.03.1996 "On water resources" as amended, which establishes the legal framework for the use water resources of the country including the use for electricity production.

8. ERE's decision no.123, date 24.10.2008, "On approval of Transmission Operation Code" as amended, which defines the planning and connecting procedures for the development of the transmission system.

9. ERE's decision no.100, date 26.08.2008, "On approval of Distribution Operation Code" as amended, which defines the planning and connecting procedures for the development of the distribution system.

10. ERE's decision no.9, date 21.02.2007, "On rules and procedures for certification of electricity generation from RES", which establishes specific rules and procedures for granting the guarantees of origin and green certificates for electricity produced from RES.

11. Law no.8734, date 1.2.2001 "On guarantee of operation safety of electrical appliances and installations".

12. COM Decree no. 646, date 12.12.2002 "On approval of standards and technical conditions of design and implementation in the fields of industry and electricity, which take the status of mandatory technical rules"

Specific environment legislation are:

1. Law no. 8934, date 05.09.2002 "On environment protection" to be replaced

by two new laws, law no.10431, date 14.07.2011 "On environment protection" and law no.10448, date 14.07.2011 "On environment permits" starting from January 2013, which were recently approved. This law stipulates that any construction of energy facility is subject of an environment permit issued by the Ministry of Environment, Forests and Water Management or by the respective Regional Environment Agencies.

2. Law no.8990, date 23.01.2003 "On environment impact assessment" which, starting from February 2013, shall be repealed by the new law no.10440, date 07.07.2011 that was recently approved. According to this law prior to the approval of any construction permit for generation, transmission or distribution facilities a process of environment impact assessment (EIA) has to be carried out.

3. Decree of COM no. 24, date 22.01.2004 "On environmental inspectorate";

4. Decree of COM no. 103, date 31.3.2002 "On environment monitoring in the Republic of Albania";

5. Law no. 8906, date 6.06.2002 "On protected areas";

6. Law no. 8905, date 6.06.2002 "On protection of marine environment from pollution and damage";

7. Law no. 7875, date 23.11.1994 "On protection of wild fauna and hunting activities";

8. Law no. 7623 date 13.10.1992 "On forests and the forest service police";

9. Law no. 8672, date 26.10.2000 "On ratification of the Convention of Aarhus on access to information, public participation in decision-making and access to justice in environmental matters";

10. Decree of COM no. 16, date 4.01.2012 "On the right of public to have environmental information";

11. Law no. 9334, date 16.12.2004 "On adhering of the Republic of Albania to Kyoto Protocol of the Framework Convention of the United Nations on Climate Changes";

12. Decree of COM no. 1553, date 26.11.2008 "On establishment of the Designated National Authority for implementation and realization of the commitments under Kyoto Protocol".

3.1.2 Licensing and permitting arrangements

The licensing and permitting arrangements are regulated by the following legisltation framework:

1. Law no.10081, date 23.02.2009 "On licenses, authorizations and permits in the Republic of Albania", which establishes an one-stop shop for all licenses, authorizations and permits issued to physical or juridical persons for carrying out an activity with public interest or use of a public good.

2. Law no.10137, date 11.05.2009 "On some amendments to legislation in force regarding licenses, authorizations and permits in the Republic of Albania", which reflects the modifications in the existing legislations of specific areas affected by the law no.10081, date 23.02.2009.

3. COM Decree no.538, date 26.05.2009 "On licenses and permits that are treated by the National Licensing Centre and on some other by-legal adjustments".

4. COM Decree no. 529, date 15.08.2007 "On the approval of criteria and procedures of application and approval of construction permits for commercial interconnection lines" establishes the criteria for approval a power interconnection line through private financing.
5. Law no.9595, date 27.06.2006 "On central technical inspectorate", which established the central technical inspectorate with competences in electric equipment, equipment operating under pressure and oil by-products market.

3.1.3. Legal and administrative issues

The ongoing legislative system actually discourages and confuses potential investors due to the following problems:

1. Law no. 10119, date 23.04.2009 "On territorial planning" as amended is the main piece of legislation governing the planning of the territory in Albania, whose purpose is to establish the general principles, rules and procedures, including the responsibilities and competencies of central and local government institutions in territorial planning. In addition to the municipalities and territorial planning institutions established by the Law on Territorial Planning, there are number of national institutions with responsibility for maintaining spatial information and plans pertinent to territorial planning, including:

a) the Council of Ministers;

b) the National Territorial Council;

c) the National Territorial Planning Agency;

d) every Ministry and every other central public body which, under the effective legislation, has territorial planning duties and responsibilities, or any other body subor¬dinate to the former or to the Council of Ministers that has been delegated or sub-delegated specific tasks and responsibilities regarding territorial planning and environmental control."

2. COM Decree no.1190, date 13.11.2009 "On organization and functioning of the National Agency of Territorial Planning"

3. COM Decree no.68 date 15.2.2001"On approval of standards and technical conditions of designing and implementation of construction works.

4. Law no. 8561, date 22.12.1999 "On expropriations and taking for temporary use of private property for a public interest", which establishes the criteria and procedures for expropriation of the private property for any project that has a public interest such as the construction of any energy facility, including power generation, transmission and distribution, biofuel production facilities etc.

5. Law no. 8652, date 31.07.2000 "On organization and functioning of local authorities" as amended, which governs the organization and functioning of the local authorities including the specific responsibilities they have on the spatial regulation.

Responsible body/(ies) for dissemination of information at national / regional / local levels are as follows:

Ministry of Energy and Industry (MEI) has overall responsible over the energy sector. MEI is the responsible institution for developing the energy policy and medium and long-term

strategies for the energy sector. MEI has also responsibilities on evaluating and reviewing the requests for concession rights for construction of hydropower plants and for authorizations for other types of RES power generation technologies such as wind, biomass, photovoltaic etc.

Ministry's mission in energy sector is to promote a steady, sustainable economic development through:

a. Preparation and periodic revision and updating of the National Strategy of Energy;

b. Promotion of EE and RES including SHPPs;

c. Demand forecast for different energy sources;

d. Promotion of private investments, domestic or foreign ones, in energy sector creating an attractive legal climate for these investments;

e. Development of market reforms in the energy sector to achieve the national objectives for integration with EU and development of a regional electricity market;

f. Drafting the necessary legal framework;

g. Preparation of the energy public companies for privatization.

MEI has a number of subordinated institutions and agencies having specific responsibilities in specific areas such as:

systems. It also further aligns Albanian legislation with EU legal standards, being completely in line with EU Directive 2009/28/CE.

National Agency of Natural Resources, which scope is the development and supervision of the rational exploitation of natural resources based on Government policies, and the monitoring of their post-exploitation in the sectors of mining, hydrocarbons and hydropower.

National Licensing Centre is a public institution established according to the law with the mission to facilitate the procedures of licensing, authorizations and permits issued by public authorities. The NLC is designed to function as an one-stop shop for all licenses, authorizations and permits issued by public authorities.

Agency of Treatment of Concessions is a unit established according to the concession law to support the Contracting Authority for evaluation and negotiation of concessions in all areas subject of concession, including hydroenergy.

Central Technical Inspectorate is an institution with responsibilities to safeguard the security of the people from the goods put into market. This Inspectorate has competences of supervising the safety of electrical appliances and installations including the safety of power generation, transmission and distribution facilities.

Energy Regulatory Authority (ERE) is an independent public body responsible for regulation of the activities in electricity and natural gas sectors. ERE is the competent body for issuing licenses for carrying out activities of generation, transmission, distribution, supply and trade of electricity. It is responsible for approving the grid codes which provide connection with and access to the transmission and distribution networks to all power producers. ERE has also competences of approving the feed-in tariffs for all priority RES producers including the access transmission and

distribution tariffs.

Ministry of Public Works and Transportation has responsibilities for developing policies on spatial planning and issues licenses for designing, construction, supervision and testing of construction works. This Ministry also is responsible for issuing professional licenses for individuals engaged in designing, supervision and testing of construction works.

The National Territory Council (NTC) is the decision-making body responsible for enacting the national planning instruments, in line with the stipulations contained in the law. The NTC is established under the Council of Ministers, and the Prime Minister is the NTC's head. The National Territory Council (NTC) has the following competences:

h. decides on the approval, approval with amendment, adjourning or non-approval of the national territory planning instruments;

i. decides the approval of determination of national importance for a matter in territory planning;

j. assesses and approves compliance of the local instrument with the planning instruments in force;

k. encourages drafting of national and local territorial plans by the relevant planning authorities and ensures that they meet the technical and procedural standards stipulated by the law.

The National Territorial Planning Agency (NTPA) is a public institution subordinated to the Council of Ministers that has the following responsibilities:

a. supports horizontal coordination among national authorities in territorial planning, in order to harmonize address of the national importance issues belonging in various areas and sectors, by bringing the responsible authorities and stakeholders together and being present in the settlement of disputes among them;

b. supports vertical coordination between national planning authorities and local planning authorities in order to harmonize address of the issues of national and local importance in the area of territory planning, by bringing the responsible authorities and stakeholders together and being present in the settlement of disputes between the national and local authorities and the stakeholders;

c. drafts and propose, through the Prime Minister, sub-legal acts, which are related to the territory planning;

d. provides technical support to local government units on developing policies and acts, which are linked with urban planning and management, as well as development control;

e. develops national and local planning authorities' professional and technical skills through training and direct assistance;

f. conducts research and evaluations on developments in territory and, based on this, suggests to the Council of Ministers the improvement of the legal system regarding territory planning and development control instruments, or the need to undertake planning processes, or other necessary measures;

g. informs the public regarding planning processes, provide information and advice to planning authorities on the procedures and rules in territorial planning processes; h) draft and

publish methodological manuals on territorial planning, and designs and delivers training programs on drafting planning documents;

h. designs and distribute technical standards regarding the register setup and management;

i. provides support to planning authorities on the manner of registering and managing the data in it, in an independent manner, and advice to the planning authorities on their effective distribution to the stakeholders and on the advisory procedures;

j. support international cooperation in the area of territorial planning.

Ministry of Environment, (ME) has overall responsibilities regarding the protection of environment, forest, and climate change and water management. This Ministry is responsible for issuing environment permits required for any project having any environmental impact including the energy projects. ME licenses the persons for carrying out the environment impact assessment (EIA) according to specific procedures as approved by the Council of Ministers. On the other hand ME and the Regional Environment Agencies are also responsible for reviewing the impact assessment evaluations carried out by licensed persons for different projects.

ME is responsible for climate change related policies, and it serves as focal point for the Albanian Government under the UNCCC and Kyoto Protocol. ME also exercises the competences of the national designated authority for CDM projects under Kyoto Protocol in Albania.

3.1.4 Reccomandations for action

The proposals formulated to mitigate or resolve the legislative, procedural and technical problems are as follows:

1. The Albanian Government should continue to improve the framework conditions and investment climate for renewable energy development with the aim of promoting development, while ensuring best value for the electricity consumer.
2. The Albanian Government should ensure that the further development of the hydro resource is enabled by adequate investment in infrastructure.
3. Essentials are interconnection with neighbouring countries, suitable trading arrangements and provision for adequate power to cover periods of low hydro production.
4. The development of the wind resource needs to be carefully considered in the light of comparative cost, grid access and dispatch.

3.2 Italy

3.2.1. Legislative framework

The Italian Legislative Decree N° 387 of 29 December 2003 (Official Gazette N° 25 of 31 January 2004), which introduced the provisions of the European Directive 2001/77/EC into Italian legislation, defines the fundamental objectives for the Italian energy market. It sets specific measures for different energy sources (but not for wind power) for the authorisation processes and for information and communication

campaigns. Within this framework, the decree envisages the following:

- a minimum amount of renewable energy to be sent to the national power grid;
- the origin of the electricity produced by renewable sources for annual production of over 100 MWh must be guaranteed by specific "guarantees of origin";
- the authorisation process for renewable energy plants has been simplified: in particular, the Regional or autonomous provincial Government issues a single permit for the construction and operation of renewable energy plants within 180 days (subsequently shortened to 90 days by Legislative Decree Nº 28/11);
- renewable energy plant construction works are classified as "urgent and cannot be differed".

The Legislative Decree No 387/2003 represents the formal basis of the Ministerial Decree of 10 September 2010 (Official Gazette Nº 219 of 18 September 2010), outlining the guidelines for permission to construct renewable energy plants to be implemented on shore.

For offshore plants intended to produce energy from renewable sources, Law Nº 244 of 2007 established that the permit to construct and operate such plants would be issued by the Ministry of Transport (now Ministry of Infrastructures and Transport), once it had conferred with the Ministry of Economic Development and the Ministry for the Environment and Protection of Land and Sea, subject to the competent maritime authority granting the use of Public Maritime Domain.

3.2.2. Licensing and permitting arrangements

In its Circular Nº 40 of 2012, the Port Executive Board of the Ministry of Infrastructures and Transport aimed to give outlines for the procedures to authorise the construction and operation of offshore plants to produce electric power from renewable sources. It recognised the opportunity to issue strictly operative guidelines to standardise the administrative and procedural aspects of the procedures to issue the final single permit and to grant the use of state property. Today, however, there is as yet no knowledge of these guidelines.

The standardised procedure to obtain the issue of the permit to construct and operate an offshore wind plant from the Ministry of Infrastructures and Transport is subordinated to the prior acquisition of the concession to use Public Maritime Domain. According to the provisions of Art. 36 of the Italian Code of Navigation, this is to be obtained from the competent maritime authority (Harbour Office, Maritime Executive Board or Ministry of Infrastructures and Transport or Port Authority) and includes a verification that the project complies with the legislation in force on the subject of the environment.

Within this single authorisation procedure, there is also the state procedure to evaluate the EIA. This must, therefore, be conducted, pursuant to Arts. 6, 19 et seq. of the Italian Legislative Decree 152/2006 and subsequent amendments and supplements, in the presence of the Ministry for the Environment and for the Protection of the

Land and Sea, which then issues the final permit in accordance with the Ministry for Cultural Assets and Activities.

Of extreme importance is the relationship with GSE S.p.A. (an Energy Supplier, controlled by the Ministry of Economics and Finance) which envisages the preparation of a project for offshore electrical capacity. This must be included in the request for power connection, which will be analysed by TERNA to obtain the minimum technical requirements (MTR) to present to the Operator and to the Competent Authorities in order to request a permit for power connection for the plant. The MTR is effectively accepted by the investor, by making a down payment on the costs of the connection. The 3-year period in which to implement the project grid connection begins as of that date. The estimate for the connection is drawn up, pursuant to Arts. 6 and 21 of the Resolution of the Electricity and Gas Authority ARG/ELT 99/08, by the operator of the national grid distribution and explicitly and conclusively accepted by the proponent. It must be attached to the preliminary project accompanying the direct request to obtain the permit to construct and operate an offshore wind plant, together with the project drawings, subjected previously to the approval of the grid operator, needed to issue the permit for grid works to connect the plant to the electricity grid.

3.2.3. Financial mechanism

Only authorised plants have access to the system of "auctions", regulated by the Decree of the Ministry for Economic Development of 6 July 2012, which defines the system of incentives to produce non-photovoltaic electrical power (hydroelectric, geothermal, wind, biomasses, and biogas) from renewable sources. This decree is about to expire. A new decree will be issued very soon to regulate the system to access the incentives for the period 2015-2018. The decree introduces a fixed, non-automatic incentive system, using tariffs. Authorised plants will, in fact, access the incentive mechanisms given in the decree after competitive reverse auctions. To guarantee the true quality of the project, the companies proposing plant construction projects shall provide a temporary surety, when registering for the auction procedure, and a definitive surety, following the notification of a successful result at the auction. In particular, the participants and projects taking part in the auction procedures shall comply with the following minimum requisites:

1. **ownership of the authorisation** or concessionary permit, as well as the estimate for the connection drawn up by the grid operator and definitively accepted by the proponent. For offshore wind plants of any capacity and for plants with a capacity not exceeding 20 MW, the possession of an authorisation or concessionary permit is replaced by a positive opinion on their environmental compatibility.

2. **adequate financial and economic soundness** for the initiatives for which they are requesting access to incentive mechanisms, proven by one of the following: declaration by a bank or intermediary, authorised pursuant to the Italian Legislative Decree Nº 385 of 1 September 1993, which certifies the financial and economic capacity of the

participant as regards the extent of the intervention, taking into account the expected profit from the project and of the financial and economic capacity of the company group it belongs to, or, alternatively the commitment of same bank or intermediary authorised to finance the intervention;

3. **company registered capital** equal to at least 10% of the investment envisaged to implement the plant for which they are taking part in the auction, conventionally fixed according to Table I of Attachment 2 of the Decree of the Ministry of Economic Development of 6 July 2012 (i.e. 2,500,000 EUR/MW for plants with a capacity of >5000kW, 2,700,000 EUR/MW for plants with a capacity of 1<P≤5000kW);

4. **temporary surety**, during registration for the auction procedures, equal to 5% of the value of the project, calculated according to the following fixed parameters: 2,500,000 EUR/MW for plants with a capacity of >5000kW, 2,700,000 EUR/MW for plants with a capacity of 1<P≤5000kW,

5. **definitive surety,** following the notification of success at the auction, to guarantee the true quality of the project, equal to 10% of the value of the project, calculated according to the following fixed parameters: 2,500,000 EUR/MW for plants with a capacity of >5000kW, 2,700,000 EUR/MW for plants with a capacity of 1<P≤5000kW, to be provided in the form of a bank performance guarantee.

Ranking criteria are based on the "Dutch auction" method: l**owest tariff required per MWh produced**. Participants will be required to bid a % reduction versus the predefined starting price. The minimum bid is -2% the maximum bid -30%.The tariff will be given for the production for 25 years.

No floor value will be provided to unsuccessful initiatives, which will be directly excluded from the incentives and would be required to participate to the following round auctions

The only parameter for the project ranking is the bid. No other system or criteria of selection is considered. To this regard, the "**Italian content**" of the project is taken into serious consideration during the authorisation process.

3.2.4. Legal and administrative issues

The overall procedure to implement and start up offshore wind plants is, however, long and complex, so much so that, until today, no company in Italy has been able to win the auction to implement an offshore wind plant. Italian Transport Ministry are notified two formal authorizations dated June and Septermber 2013[25].

The Italian legislative system, which intended to rationalise and simplify the procedures to authorise the construction and operation of an offshore plant to produce electrical power from renewable sources, actually discourages and confuses potential investors due to the following problems:

1. **multiple authorities involved** which are often unable to coordinate and which give sectorial evaluations of the project under examination, often expressing contradictory, confusing, or at least inadequately motivated opinions. The latter determine deadlocks which, in turn, lead to an unacceptable situation

of uncertainty regarding the actual duration of the authorisation procedure they have begun.

2. the uncertainty of the procedural time schedule discourages potential investors, because it makes the financial analyses of the projects uncertain, including those which affect employment. It raises the costs of project design and development and does not allow effective marine logistics to be organised for the installation and concrete implementation of the offshore wind farm.

3. The procedure for **Environmental Impact Assessment,** mandatory for the single permit procedure, entails problems, since the contrast between the Ministry for the Environment and the Ministry for Cultural Assets (the former often expressing positive prescriptions on environmental impact and the latter always expressing negative prescriptions on the impacts on the landscape) creates a deadlock, which can only be overcome by an appeal to the Presidency of the Council of Ministers. In fact, the final E.I.A. Ministerial Decree shall be issued in agreement with MIBAC-MATTM [Ministry for Cultural Assets and Activities-Ministry for the Environment and for the Protection of the Land and Sea] and failing this, or in the event of incompatibility between the opinions of the two Ministries, the Council of Ministers exercises either the power of substitution or the power of harmonisation of opposing public interests. This lengthens procedural times, thus having a negative effect on the entire single permit procedure, to the detriment also of the economic viability of the project which, in the meantime, auction after auction, competes for lower and lower tariffs.

4. The reasons behind the negative opinions of MIBAC regard the significant and long-lasting defacement of the cultural identity and landscape of the Italian shoreline, an entirely protected landscape, and the introduction of wind turbine blades is seen as an intrusive, dissonant, anthropic element within the homogenous view of the panoramic picture.

5. The procedure to issue a state property concession by the competent maritime authority shows substantial differences, according to the type of Administrations involved in the Services Conference, and depending on the Authority in charge. This procedure should aim at providing an opinion on the compatibility of the offshore plant with the current uses of that part of the sea, for which the concession is requested (compatibility with sea routes, fishing activities and mariculture within the area of sea requested in concession). Instead, the impact on the landscape is also often included while landscape should be the subject of an appropriate evaluation within the E.I.A procedure. This leads to the duplication of assessments and negatively influences both time and result of the procedure to grant a Public Domain concession and, therefore, the entire single permit procedure.

6. The **relationship with GSE S.p.A.** (Energy Supplier, a company controlled by the Ministry of Economics and Finance) regarding the application to obtain the minimum technical requirements (MTR), to submit to the Energy Supplier and to the Competent Authorities to apply for a permit for power connection

for the plant, envisages the payment by the investor of a down payment on the very high costs of connection, and a time schedule (3 years) within which to implement the connection project, which is not in line with the schedule for the single permit procedure by the Ministry of Infrastructures and Transport to authorise the construction of the offshore plant.

7. On the **mechanisms of incentives** granted following participation in the competitive reverse auction, in order to guarantee the true quality of the project, the companies proposing plant construction projects are obliged to provide an extremely high, temporary surety on registering for the auction procedure and a very high definitive surety following the notification of their success at the auction. In fact considering that a bank guarantee equal to 5% of the value of the project reckoned at 2500 EUR/kW must be paid, and that the average size of an economically sustainable project is approximately 150MW (30-50 WTGs), each bank guarantee to participate in the auction is almost 20 million Euro. This unique situation in Europe is a deterrent for any company wishing to develop in Italy. The "true quality of the project" should be technically ascertained during the permit procedure (e.g. whether or not the company has conducted geognostic assessments with samples to ensure the compatibility of the seabed with an offshore wind installation) and not applied at that particular time by the presentation of a bank guarantee, which does demonstrates neither the technical competency of the company nor the true quality of the project. It is worth remembering at this point that the same mechanism (even though with values/Kw halved by 1250 EUR/kW) applied to onshore auctions has already proved to be ineffective, as it has enabled companies lacking financial soundness (but with the intention of selling the authorised project) to nevertheless take part in the auctions, providing insurance bank guarantees issued in other countries (e.g. in Romania where the costs are far lower, but the guarantee of enforcement is just as low). Many of these companies have offered the maximum discount to win the auction, with the sole intent of placing a project with tariffs on the market. Very probably with these tariffs and that wind, such project will not be bankable or implemented/constructed, to the extent that, so far, none of these projects have been constructed, with the sole result of preventing access to auction to those bankable projects which offer reasonable discounts;

8. Difficulties in **identifying suitable sites** to install wind farms;

9. Lack of **information in Environment Impact Assessment,** which requires additional work to provide data on the impacts on the view, light, sound and tourism, etc.;

10. The need to produce all the **preparatory studies** (study on current modification and consequences on the foreshore and on maritime traffic/fishing?);

11. **difficulty** to evaluate the **cumulative impacts** should the area of the project on s also be involved in impacts produced by other projects);

12. **The lack of on-site investigations** which are not part of the requirements (studies on the impact of offshore plants on flora, fauna and sedentary and

migratory bird life present in the marine ecosystems involved);

13. **Difficulty in sharing** the projects with the community involved;

14. **High costs** of implementation and high state incentives in favour of foreign, rather than Italian economies, incentives which could instead be used for transport, energy saving, research, thermal power from renewable sources, etc.

15. **The lack** or absence of a **cost-benefit** analysis;

16. The absence of a specific procedure to calculate the costs of the fees for the occupation of the stretch of water. In fact, set tariffs are applied for any type of occupation of Public Domain (e.g. beach establishment);

17. The stretch of water belongs to the Public Domain and all fees are appropriated by the Treasury and nothing is left directly to the local communities. This is one of the basic reasons why municipalities and local communities do not accept offshore wind projects and prefer to have an onshore project directly on their land.

3.2.5. Recommendation for action

The proposals formulated to mitigate or resolve the legislative, procedural and technical problems are as follows:

1. To fix a definite time for the conclusion of the permit procedures;

2. To move the payments envisaged for E.I.A. investigations and for MTR acceptance until after the (final) decisional stage of the single permit procedure, in order to speed up this procedure;

3. To reduce the high investigation costs for the E.I.A. process which are currently commensurate with the plant size and capacity, since it is not always true that a plant with a higher cost necessarily produces an equally high quantity of electricity, since the energy source (wind) is not always available;

4. To reduce the amounts of the sureties during the "auction" stage, as the "true quality of The project" should be ascertained during the permit procedure;

5. To obtain an assessment of the quality and feasibility of the project during the single procedure, with reference also to the possibility of using services provided by industries near the plant site;

6. To agree with TERNA on the maximum capacity of power connection possible for individual, suitable, local areas in order to prevent speculation and overlapping of several requests for a single area;

7. To create an applicable protocol in the procedure to grant a Public Domain concession so as to standardise this procedure throughout Italy. Furthermore, it would be appropriate to pay part of the Public Domain fee to the Local Authorities governing the territory adjacent to the stretch of water in the concession, in order to avoid conflict with the communities impacted by the installation of an offshore plant.

8. To identify the suitable areas to construct offshore wind plants early in the process by means of a state-wide Strategic Environmental Assessment either in the national plan, to be prepared pursuant to the MSP Directive (Dir 2014/89/EU), or in the strategic programme to exploit wind energy in the sea, or via a SEA in the State, Inter-

regional or Regional Strategic Plans for offshore wind farm settlements, or in Regional Landscape Plans, should they envisage special local criteria for offshore wind farms;

9. To simplify the authorisation system for offshore wind turbine projects, in case the considerations on the environmental and landscape impacts have already been assessed by SEA; by grouping together all the permits into the concession of the Public Maritime Domain, for the purpose of shortening the path taken by the project and providing public administrations and the citizens with the same guarantee.

10. To classify any disputes regarding the wind turbine projects at sea in context, so as to avoid illegal appeals and reduce the duration of the procedures;

11. To ensure that the fees the project will pay to occupy the stretch of sea is shared with the communities (municipalities actually affected by the project e.g. visual impact, connection cable ducts with Terna passing across);

12. Objective definition of the visual impact (e.g. calculation of minimum distances, specification of an objective landscape value to be assigned to the places used most) in order to obtain objective, comparable assessments.

3.3 Montenegro[26]

3.3.1 Legislative framework

In accordance with the undertaken obligations, Montenegro has been implementing reform in the energy sector, from the legal and regulatory, as well as from the institutional and organizational aspect. In fact, in 2010 the country adopted its Energy Law (O.J. of Montenegro, nr. 28/10), which introduced significant changes in the energy sector, especially regarding renewable energy sources. It defines energy related activities, the conditions for and method of carrying out energy activities, aiming to provide quality and efficient supply of energy to final consumers. The law was harmonized with Directive 2001/77/EC which was an obligation for Montenegro by the Energy Community Treaty. However, even though not obliged, Montenegro used this as an opportunity to promote use of renewable energy sources and implemented Directive 2009/28/EC in electricity and heating and cooling sectors.

3.3.2 Licensing and permitting arrangements[15]

Based on the Energy Law, Montenegro issued in 2010 the "Rulebook on criteria for issuing energy permits, content of a request and registry of energy permits" (O.J. of Montenegro nr. 49/10), which defines the criteria for and the process of issuing energy permits for construction and reconstruction of energy facilities.

The energy permit is a new concept introduced by the Energy Law: it makes possible for power plants using State owned resources and having installed capacity below 1 MW, as well as power plants that do not use public resources, to be directly authorized without long public tendering procedures. The permit is issued by the Ministry of Economy.

As at the moment, there is no off shore

wind parks, procedures for on shore wind farms are applied. Procedures for authorization consist in more phases:First is neccessary to obtain authorisation for measuring wind potential according to: "Rulebook on detailed criteria legal entity should meet in order to perform measuremenet and survey potential of renewable energy sources ("Official Gazette of Montenegro ", No. 28/11)". Authorisation has validity 24 months. Results of measuring of wind potential (duration up to 24 months) are delivered to Ministry of Economy and in base of them Ministry decide if to proceed with publishing tender for lease and construction of wind park.
The realization of wind farms and the procedure for their authorization was regulated in 2009 by the Decree on wind farms (O.J. of Montenegro nr. 27/10), which was based on the old Energy Law of 2003.

In details, Hydro Meteorological Institute of Montenegro for more than 20 years in a number of locations (weather stations) conducts systematic measurement of meteorological parameters for its own purposes, including the wind parameters. Data are measured at location points in urban areas (mostly cities) and lower parts and valleys. Numerous data obtained and analysed in this way are mainly intended for the needs of various analysis and studies carried out in the Hydro meteorological Institute.

Based on these data it is not possible, with greater precision, to specify all the micro locations with satisfying wind speed, but they can be used to approximately locate the area of search for locations with high-quality wind potential. Based on previous research and data from meteorological stations, potentially good locations for utilisation of wind energy are locations around Niksic, mountain passes above the sea and the coastal area.

Based on the results of the CETMA Study, Montenegro has issued four licenses for measuring the wind potential without exclusive rights to location during 2008-2009 for specific geographic areas in Montenegro. Two companies that have obtained licenses, submitted to the ministry in charge of energy in 2009 their measurements, analysis and potential technical solutions that are based on the license. Based on the results of measurements, the opinion of the competent ministry in charge of spatial planning and environment and the opinion of the transmission system operator, public tender were announced for two specific locations in December 2009 and investitors were chosen.

The price for electricity for these two windfarms was defined by the Rulebook on Methodology for calculation of purchaseprice/feed-intariffofelectricity produced from wind farms of 2010 (O.J. of Montenegro nr. 27/10). It defines the method of calculating purchase price of electricity generated from wind power plants, as determined on the basis of the actual costs including investment costs and costs of maintaining and operating wind power plants: the purchase price wss fixed for 12 years of 95.99 Eur/MWh, with yearly correction for inflation. This Rulebook and the Decree on wind farms were based on old Energy Law.

New Decree put mentioned Rulebook out of force and it's name is Decree on tariff system for determining the

incentive prices for electricity produced from renewable energy sources and high efficient cogeneration ("Official Gazette of Montenegro", No. 52/11 and 28/14) entered into force and for any new windfarm would be applicable.

Two locations for wind farms, for which contracts for lease and construction of wind farms were signed, and construction permits obtained are Mozura, estimated capacity 46 MW and annual generation of about 106 GWh and Krnovo with estimated installed capacity 72MW (annual production cca 165 GWh). In addition to these locations, already by 2020 and beyond, several more wind power plans is introduced without precisely defined location, so that the annual generation from new (in addition to already contracted ones) wind power by 2020 would be about 60 GWh (26 MW) and by 2030 approximately 165 GWh (72 MW).

In pursuance of the Energy Law, the Montenegrin Government enacted in 2011 also the Decree on acquiring the status and accomplishing entitlements of the privileged producers of electricity (O.J. of Montenegro nr. 37/11 and 28/14): this document defines the groups of renewable energy sources that could apply for acquiring the status of privileged producer and which are therefore entitled to incentive price. The decree regulates also the documentation needed to apply, rights of privileged producer and expiration of status. The same instrument includes also the Decree on Issuance, Transfer and Withdrawal of Guarantees of Origin, defining the main actors and procedures for issuance, transfer, cancellation and content of guarantees of origin. They are issued by Regulatory Energy Agency, and this body adopted in 2013 a regulation (Rules on content and manner of keeping Register of guarantees of origin) which closely define the functioning of Register of guarantees of origin.

Regarding the specific case of the installation of wind farms, there is currently no specific territorial prohibition for their construction. However, an ecological permit is required in Montenegro in order to receive a construction permit, based on the environmental impact assessment, which includes 12 month study of birds population.

3.3.3 Legal and administrative issues

An obvious barrier to the realisation of offshore wind is the absence of a legal route by which a facility is granted permission for construction. Where legislation is in place, it may not be ideally suited to a new technology such as offshore wind energy.

In accordance with the undertaken obligations, Montenegro has been implementing reform in the energy sector, from the legal and regulatory, as well as from the institutional and organizational aspect. For offshore wind energy there is still lot of things to do.

The problems relating to consenting issues are not all specific to offshore wind energy. The fact that the legislative frameworks and the established procedures are sometimes written with land and not offshore applications in mind is clearly a further complication. Stakeholders generally consider it as a significant barrier that laws or

regulations on the process and/or criteria for obtaining development consents and similar permits, licences or concessions are not clear or do not exist.

3.3.4 Recommendation for action

Looking back, it is important that wherever possible, offshore wind can draw on experiences both within and outside the wind energy industry, in order to avoid any repetition of earlier mistakes.

Looking forward, experiences in wind energy moving offshore will also to an extent set the scene for other marine renewables such as wave and tidal energies, and there will be shared lessons of mutual benefit. Some principles can be established which guide the approach to more detailed matters.

The benefits of information sharing are agreed. It is considered helpful to:

- Maintain and promote databases of readily-available information, and provision of abstract information in English.
- Provide support for internships for capacity building in government agencies
- Monitor and review progress

In an environment context, the precautionary principle advocates that where impacts are unknown, but potentially damaging, the decision on whether to proceed or not should be weighted in favour of protection of the environment – that is, to not risk irreversible damage. This is often quoted as a need to curb development where environmental impacts are unknown.

In the case of offshore wind, and other environmental technologies, environmental impacts will arise as a result of a decision to proceed and as a result of a decision not to proceed. There may be uncertain local impacts of a development, and certain impacts of a failure to mitigate global impacts of energy use. The precautionary principle in this case then is not to advocate no development in the face of uncertainty. Rather it is to ensure that responsible action is taken against climate change, and that development which is necessary as a result, is undertaken responsibly.

4

CONCLUSIONS AND SUGGESTIONS

On the basis of the studies described in this paper, some conclusions may be drawn regarding the development of offshore wind energy in the Adriatic Sea. In order to facilitate the development of the offshore renewable energy sector, here after some raccomandations:

- Draw up Marittime Spatial Planning (MSP) accorgin to Directive 2014/89/EU: it can provide OWE investors with more certainty by identifying areas where offshore wind parks may or may not be feasible environmentally/technically / industrially /socially /grid capacity in the future;
- In addition to open-door procedure, develop a centralized offshore wind spatial planning procedure, with a centralized tender process;
- Identify a national authority responsible for off shore wind energy planning at national level;
- Select the tender winner by beauty contest criteria through competition.
- Improve/set up MSP framework also across border to address human activities impacts from a joint perspective in order to establish common objectives, compatible uses, and mitigation meaures as well as emerging OWE technologies appropriate for largescale deep-water developments;
- Apply SEA Directive to MSP to best identify sea uses in accordance with important environmental constraints. SEA has to be carried out before areas will be made available for OWE before tendering of pre-selected sites;
- Streamline consenting procedure by establishing "One stop shop" framework and procedures in proportion to the project scale;
- Indentify a one-stop national authority responsible for coordination of several administrative procedures;
- Define a transmission tariff for grid connection. Consequently, the upfront costs will be lowered and the financial risk for the developer diminished . In addition, a central approach for an offshore grid can offer scale and coordination advantage, cutting the cost of connecting offshore wind farms to the land rather than using individual connections to shore. Indeed, the opportunity to share transmission assets is one thing that keeps down the cost of the onshore grid;
- Draft clear guidelines for consents procedures and on relationship with European environmental legislation;
- Increase cooperation among Countries. It would give the wind generator the option of exporting its power in different countries wherever the market price is higher. When the wind farm is not generating (or not generating as much as the cable's capacity) power can be transmitted from one country to the other. The ability to move electricity from countries with a surplus to those with a shortage will become increasingly important as the levels of intermittent renewable generation increase[28];

- Define a transparent and well defined financial support scheme. One possibility could be a feed-in tariff (FiT) defined by tender. This requires the OWE develpoers to bid for the right to develop the project. The permission, not only financial support, should be assigned to the most competitive bid determined by a scoring system including, not only the lowest proposed FiT, but also additional aspects such as job creation or environmental impact. Becuase all costs increase significantly with distance from shore and water depth, the tender documents should pay attention to geographic location.

In addition to the above raccomandations, given that each costal State has legislative power only on its territorial water (that means up to 12 nautical miles), there is a need to explore and set up procedural framework also for OWE outside the territorial water. The United Nations Convention on the Law of the Sea (UNCLOS), also called the Law of the Sea Convention or the Law of the Sea Treaty, gives a Costal State the right to designate Exclusive Economical Zone (EEZ) for water in which Costal State has "sovereign rights". An exclusive economic zone (EEZ) is a sea zone over which a state has special rights regarding the exploration and use of marine resources, including energy production from water and wind. The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. It is important to underline that not every single recommendation may be appropriate for each national planning and permitting authority and may therefore not be applicable in each country. Planning and permitting procedures may be differently structured in legislation and carried out in different ways. Nevertheless, it is recommended that each planning and permitting authority gives consideration to the guidelines during their planning and permitting procedures.

Note

1 http://www.adriatic-ionian.eu/
2 http://ec.europa.eu/maritimeaffairs/policy/
3 http://ec.europa.eu/maritimeaffairs/policy/maritime_spatial_planning
4 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042
5 http://ec.europa.eu/clima/policies/package/
6 http://www.eea.europa.eu/
7 http://www.ewea.org/policy-issues/offshore/
8 http://www.powered-ipa.it/the-powered-project/
9 Offshore Wind Power - Danish Experiences and Solutions Published by the Danish Energy Authority October 2005
10 Deloitte (2011). Analysis on the further-ing of competition in relation to the estab-lishment of large off-shore wind farms in Denmark. Summary. Denmark Ministry of Climate and Energy April 28th 2011
11 Danish Energy Authority website, http://www.ens.dk
12 Analysis on the fur-thering of competition in relation to the estab-lishment of large off-shore wind farms in Denmark. Background report 1: Analysis of framework conditions in key EU countries.Ministry of Climate and Energy April 28th 2011.
13 Offshore wind energy policies and their effects: Experiences in Denmark and the UK and prospects for the Netherlands E.H.M. Mast1, G.A.M. van Kuik, M.B. Zaaijer Wind Energy Research Group, DUWIND, TUDelft.
14 EU, DG Energy (2008)- New and Renewable Energy Sources, Energy Efficiency & Innovation Regulatory Policy & Promotion of Renewable Energy Sources EU Action to promote Offshore Wind Energy Report on the Public Consultation April–June 2008.
15 If the same company owns both generation and transmission, a fully independent transmission system operator must be appointed to ensure that the transmission system is not run in a way that might be anti-competitive.
16 Green R. and Vasilakos N. (2011). The Economics of Offshore Wind. Energy Policy 39 (2) 492-502.
17 Powered Workpackage 5 Final Report.
18 Micheli F., Halpern B.S., Walbridge S., Ciriaco S., Ferretti F., Fraschetti S., Lewison R., Nykjaer L, Rosenberg A.A. (2013) Cumulative human impacts on Mediterranean and Black Sea marine ecosystems: Assessing current pressures and opportunities. PLoS ONE 8(12) e79889
19 The interaction of supply and demand then determines the green certificate price.
20 Clifford Chance (20 July 2012). The new incentive system for wind farms, hydropowered plants, biomass and biogas plants. Moving away from Green Certificates towards feed-in tariffs and premia. Briefing note.
21 http://www.offshore-windenergie.net/en/politics/eeg-remuneration.
22 Deloitte (2011). Analysis on the further-ing of competition in relation to the estab-lishment of large off-shore wind farms in Denmark. Summary. Denmark Ministry of Climate and Energy April 28th 2011.
23 T. Prassler, J.Schaechtele.Comparison of the financial attractiveness among prospective offshore wind parks in selected European countries. EnergyPolicy 45 (2012)86–101. KPMG, 2010.Offshore Wind in Europe—2010 Market Report. Ernst & Young, 2011. Renewable Energy Country Attractiveness Index. Issue 30.
24 by Artran Leskoviku, Technical Coordinator Bll. "Vasil Shanto", Albania, 26 january 2015.
25 http://www.mit.gov.it/mit/site.php?p=cm&o=cl&f_metodo=rs&autoCompleteTextField=offshore&btnCerca=cerca
26 POWERED project - WP 3 - TASK 3.2, 3.3, 3.4 Regulatory, Environmental and Energy Policies State of the Art, reviewd and update by Montenegro on January 2015 & Dunja Bulajic, Montenegro Ministry of Economy, Energy Sector, 21 January 2015.
27 Offshore wind energy policies and their effects: Experiences in Denmark and the UK and prospects for the Netherlands E.H.M. Mast1, G.A.M. van Kuik, M.B. Zaaijer Wind Energy Research Group, DUWIND, TUDelft.
28 Green R. and Vasilakos N. (2011). The Economics of Offshore Wind. Energy Policy 39 (2) 492-502.