



W E S E

WAVE ENERGY
IN SOUTHERN EUROPE

DELIVERABLE 4.2

Review of consenting processes for wave energy in Spain and Portugal focusing on risk-based approach and Adaptive Management



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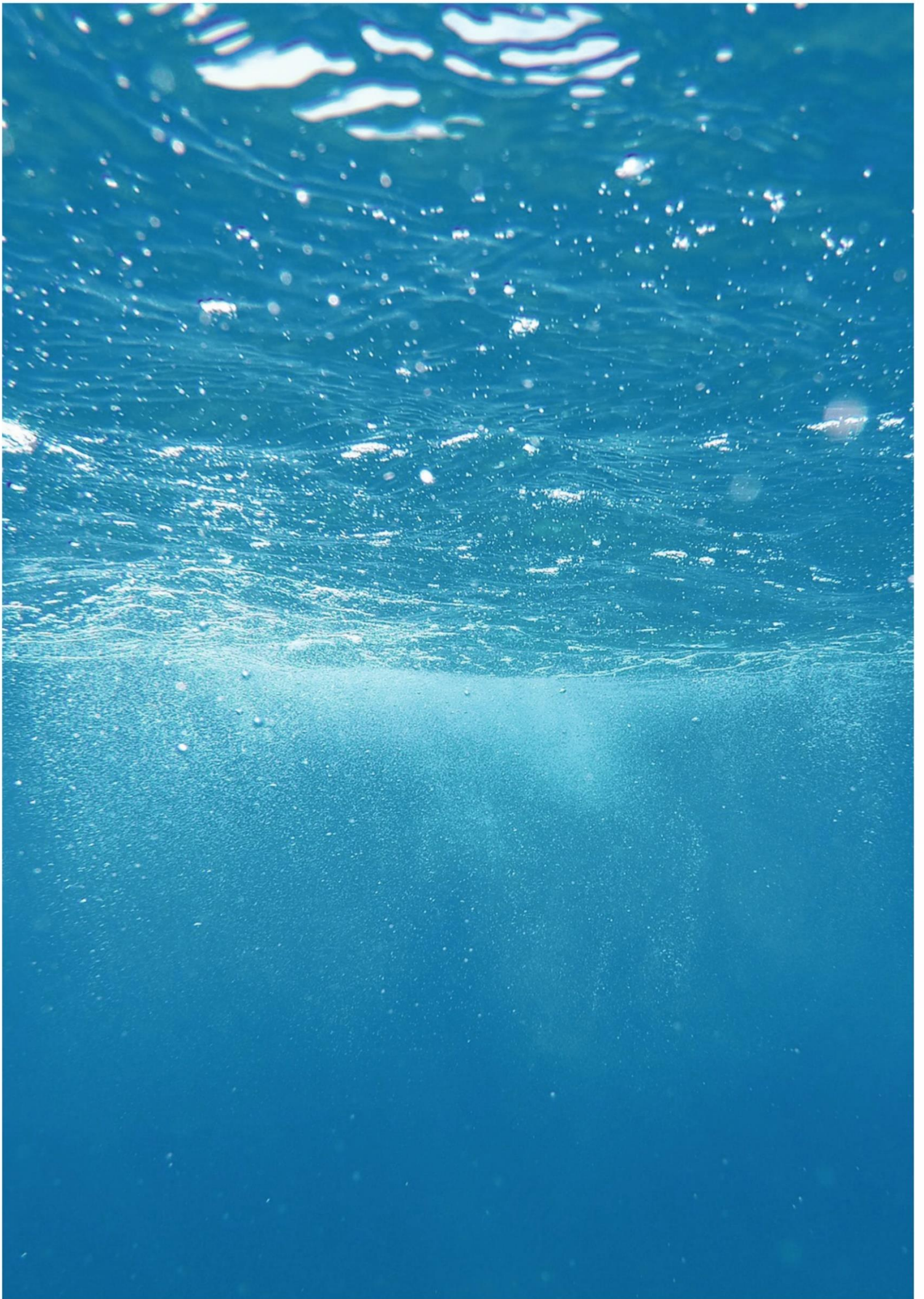


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WP 4

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PROJECT COORDINATOR
AZTI

TASK LEADER
Juan Bald

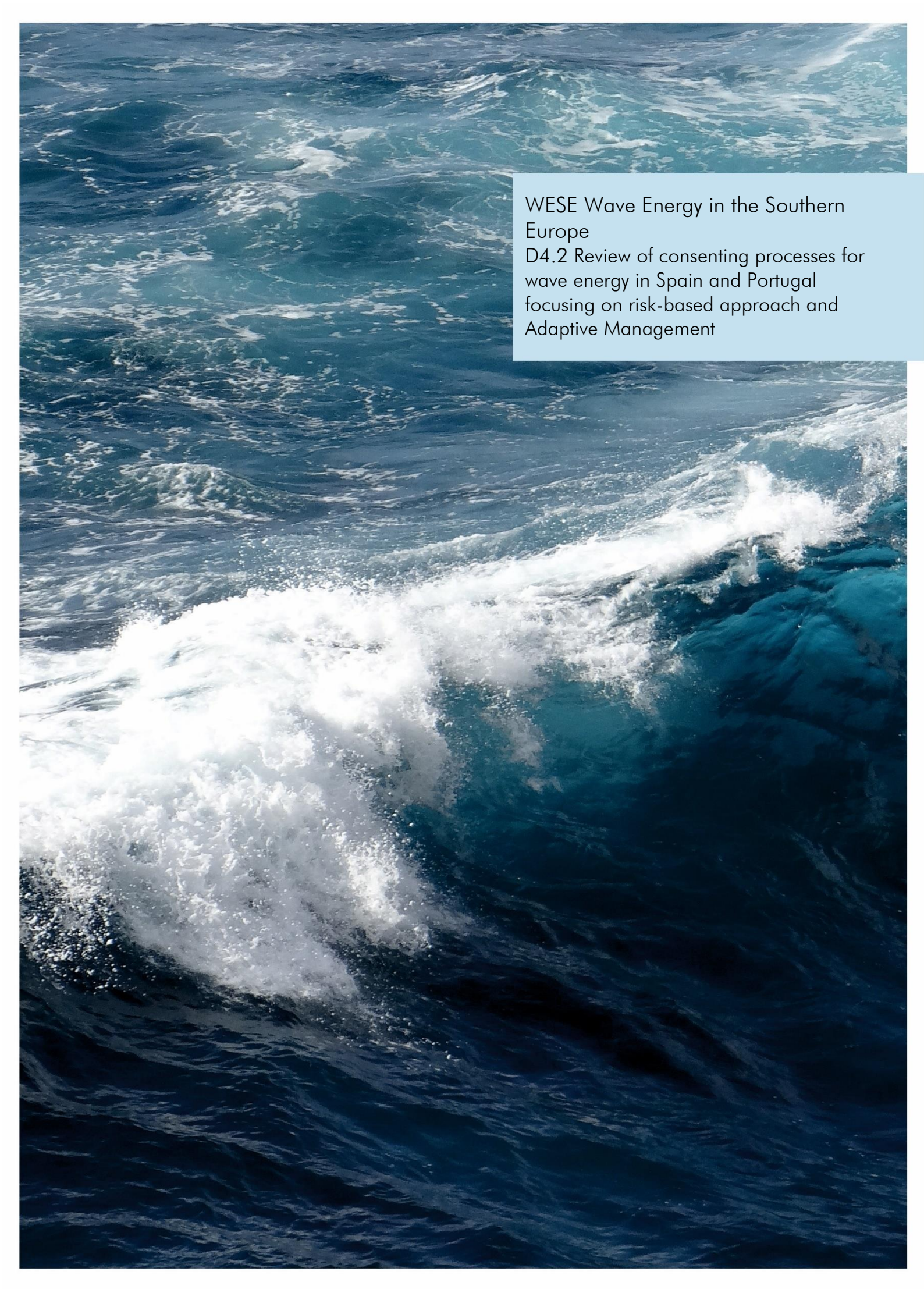
AUTHORS
Juan Bald - AZTI
Maria Apolonia - WAVEC

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An aerial photograph of the ocean showing a large, white, turbulent wake in the lower-left quadrant, likely from a ship. The rest of the image is filled with deep blue and teal waves with white foam. A light blue rectangular box is overlaid on the upper right portion of the image, containing white text.

WESE Wave Energy in the Southern
Europe
D4.2 Review of consenting processes for
wave energy in Spain and Portugal
focusing on risk-based approach and
Adaptive Management

CONTENTS

1.	WESE PROJECT SYNOPSIS	4
2.	EXECUTIVE SUMMARY	6
3.	INTRODUCTION	7
4.	OBJECTIVES	10
5.	CONSENTING PROCESS IN PORTUGAL	11
5.1	LICENSING PRIVATE OCCUPATION OF MARINE SPACE & USE OF WATER	13
5.1.1	Licensing the private use of marine space.....	13
5.1.2	Licensing use of water resources.....	15
5.2	LICENSING POWER GENERATION ACTIVITY	15
5.2.1	Licensing procedure in the regular tariff scheme.....	16
5.2.2	Licensing procedure in the Feed-In Tariff (FIT) scheme	16
5.3	LICENSING ACCESSORY FACILITIES ONSHORE	17
5.4	ENVIRONMENTAL IMPACT ASSESSMENT (EIA).....	18
5.4.1	Environmental Impact Assessment Procedure	18
5.4.1.1	Project design phase	20
5.4.1.2	Detailed project design phase.....	21
5.4.1.3	Post-assessment stage	21
5.4.2	Environmental Appraisal procedure (EA).....	21
5.4.3	SEA Procedure	22
6.	CONSENTING PROCESS IN SPAIN	24
6.1	LICENSING POWER GENERATION ACTIVITY	27
6.1.1	Request for Administrative Authorisation (AA).....	27
6.1.2	Approval of the Execution Project	28
6.2	LICENSING FOR PRIVATE OCCUPATION OF MARINE SPACE.....	29
6.2.1	The Maritime-Terrestrial Public Domain (MTPD).....	29
6.2.2	Previous conditions for the licensing of occupation of MTPD	30
6.2.3	Administrative titles.....	32
6.2.4	Effects of the titles	33
6.3	ENVIRONMENTAL IMPACT ASSESSMENT (EIA).....	33
6.3.1	Strategic Environmental Assessment (SEA).....	35
6.3.1.1	Ordinary procedure of SEA.....	35
6.3.1.2	Simplified procedure of SEA.....	37
6.3.2	EIA of projects	38
6.3.2.1	Ordinary procedure of EIA.....	38
6.3.2.2	Simplified procedure of EIA	42
6.4	COMPATIBILITY WITH THE STRATEGIES FOR MARINE ENVIRONMENT PROTECTION.....	44
6.5	AUTHORITIES INVOLVED	44
7.	RISK-BASED APPROACH – GENERAL CONSIDERATIONS	46
8.	REFERENCES	51

List of Figures

Figure 5.1 - EIA screening phase.....	19
Figure 5.2 - EIA phases. Dashed lines: optional process steps.....	20
Figure 7.1 - Risk retirement pathway (taken from (Copping et al., 2020)). Starting from the left, the project must be described (stressors or pressures, orange circle), followed by identifying the presence of animals and habitats that may be at risk receptors, purple circle). Five stage gates follow that allow retirement of risk at each stage. The dotted lines and arrows above the pathway indicate the application of datasets from previously consented marine renewable energy (MRE) projects and research studies that inform each step in the process and create feedback loops (data transferability).	50

List of Tables

Table 5.1 – Characteristics of the licensing process.	12
Table 5.2 - Differences between EIA and EA.....	22

List of Acronyms

AA	Administrative Authorisation
AP	Allocation Plan
BSPMNMS	Bases of Spatial Planning and Management of the National Maritime Space (BSPMNMS)
CCRD	Commission of Coordination and Regional Development
CMR	Council Minister Resolution
CRDPD	Compliance Report of the Detailed Project Design
DECDPD	Decision on the Environmental Compliance of the Detailed Project Design
DGEG	Directorate-general of Energy and Geology
DGEPM	Directorate General for Energy Policy and Mining
DGEQA	Directorate General for Environmental Quality and Assessment (DGEQA)
DGMN	Directorate General of the Merchant Navy
DGNRSMS	Directorate-general of Natural Resources, Safety and Maritime Services
DGSC	Directorate General for Sustainability of the Coast
DGSCS	Directorate General for Sustainability of the Coast and the Sea
DL	Decree-Law
DSP	Detailed Spatial Plan
EA	Environmental Appraisal
EA	Exploitation Authorisation
EAD	Environmental Appraisal Statement
EC	European Commission
EFP	Environmental Follow-up Plan
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Portuguese Agency
FIT	Feed-In Tariff scheme
GCCOS	General Council on Coast and Ocean Sustainability
GDQE	General Directorate for Quality and Environmental Assessment
HRA	Hydrographic Region Administration
ICNF	Institute for the Conservation of Nature and Forests
LMI	Land Management Instruments
LSCNB	Legal System for the Conservation of Nature and Biodiversity
LSEIA	Legal System of the Environmental Impact Assessment
LSEIA	Legal System of the Environmental Impact Assessment
LSHC	Legal System for the Habitats Conservation
LSNER	Legal System of the National Ecological Reserve
LSUPB	Legal System of Urban Planning and Building
METDC	Ministry for Ecological Transition and Demographic Challenge
MMP	Municipal Master Plan
MRE	Marine Renewable Energy
MSP	Marine Spatial Planning
MTPD	Public Maritime Domain on Land
NAR	National Agricultural Reserve
NEDG	National Electricity Distribution Grid
NEN	National Electric Network
NER	National Ecological Reserve
NMA	National Maritime Authority
NMS	National Maritime Space
NPIEC	National Plan Integrated Energy and Climate Plan 2021-2030
NSDAC	National system of designated areas for conservation
PA	Port Authority
PEA	Project Execution Approval
PEG	Public Electricity Grid
RD	Royal Decree

REA	Report on the Environmental Appraisal
RES	Renewable Energy Source
SAC	Special Area of Conservation
SEA	Strategic Environmental Impact Assessment
SP	Situation Plan; <i>Plano de Situação (PS)</i> ;
SPA	Special Protection Area
SR	Scoping Report (of the Environmental Impact Assessment)
TPSU	Title for the Private Spatial Use for the EMN
TUWR	Title for the Use of Water Resources
UP	Urban Plan

1. WESE project synopsis

The Atlantic seaboard offers a vast marine renewable energy (MRE) resource which is still far from being exploited. These resources include offshore wind, wave and tidal. This industrial activity holds considerable potential for enhancing the diversity of energy sources, reducing greenhouse gas emissions and stimulating and diversifying the economies of coastal communities. Therefore, the ocean energy development is one of the main pillars of the EU Blue Growth strategy. While the technological development of devices is growing fast, their potential environmental effects are not well-known. In a new industry like MRE, and Wave Energy (WE) in particular, there may be interactions between devices and marine organisms or habitats that regulators or stakeholders perceive as risky. In many instances, this perception of risk is due to the high degree of uncertainty that results from a paucity of data collected in the ocean. However, the possibility of real risk to marine organisms or habitats cannot be ignored; the lack of data continues to confound our ability to differentiate between real and perceived risks. Due to the present and future demand for marine resources and space, human activities in the marine environment are expected to increase, which will produce higher pressures on marine ecosystems; as well as competition and conflicts among marine users. This context still continues to present challenges to permitting/consenting of commercial-scale development. Time-consuming procedures linked to uncertainty about project environmental impacts, the need to consult with numerous stakeholders and potential conflicts with other marine users appear to be the main obstacles to consenting WE projects. These are considered as non-technological barriers that could hinder the future development of WE in EU and Spain and Portugal in particular were, for instance, consenting approaches remain fragmented and sequential. Consequently, and in accordance with the Ocean Energy Strategic Roadmap published in November 2016¹, the main aim of the project consists on overcoming these non-technological barriers through the following specific objectives:

- Development of environmental monitoring around wave energy converters (WECs) operating at sea, to analyse, share and improve the knowledge of the positive and negative environmental pressures and impacts of these technologies and consequently a better knowledge of real risks.
- The resulting data collection will be used to apply and improve existing modelling tools and contribute to the overall understanding of potential cumulative pressures and impacts of larger scale, and future, wave energy deployments.

- Development of efficient guidance for planning and consenting procedures in Spain and Portugal for WE projects, to better inform decision-makers and managers on environmental real risks and reduce environmental consenting uncertainty of ocean WE introducing the Risk Based Approach suggested by the RiCORE, a Horizon 2020 project, which underline the difficulties for developers with an existing fragmented and sequential consenting approaches in these countries;
- Development and implementation of innovative maritime spatial planning (MSP) Decision Support Tools (DSTs) for Portugal and Spain for site selection of WE projects. The final objective of such tools will be the identification and selection of suitable areas for WE development, as well as to support decision makers and developers during the licensing process. These DSTs will consider previous findings (both environmental and legal, found in RiCORE) and the new knowledge acquired in WESE in order to support the development of the risk-based approach mentioned in iii);
- Development of a Data Sharing Platform that will serve data providers, developers and regulators. This includes the partners of the project. WESE Data Platform will be made of a number of ICT services in order to have: (i) a single web access point to relevant data (either produced within the project or by others); (ii) Generation of OGC compliant requests to access data via command line (advanced users); (iii) a dedicated cloud server to store frequently used data or data that may not fit in existing Data Portals; (iv) synchronized biological data and environmental parameters in order to feed models automatically.

2. Executive summary

In a new industry such as MRE, there may be interactions between devices and marine animals or habitats that regulators or stakeholders perceive as risky. In many instances, this perception of risk is due to the high degree of uncertainty that results from a paucity of data collected in the ocean. Because of this uncertainty, regulators continue to perceive MRE interactions to be of high risk and may take a precautionary approach during the consenting process of MRE devices and systems, requesting extensive pre and post-installation data to determine the significance and potential adverse environmental effects.

Consequently, this uncertainty about the potential environmental effects of MRE devices is one of the non-technological barrier to the progress of the marine renewable energy (MRE) industry that has been identified in the framework of the consenting procedures by the MRE industry sector, scientific community, etc.

One attempt to overcome this barrier is to integrate a risk-based approach as an element of Adaptive Management (AM) to these consenting procedures.

Thus, the aim of the present deliverable is to generate the necessary knowledge base to further evaluate the extent to which a risk-based approach can be incorporated in the current consenting procedures of wave energy projects in the particular case of Spain and Portugal that will be undertaken under Task 4.3 of the WESE project. For this purpose, two main tasks have been undertaken in the present deliverable:

- a) A review of the consenting processes of MRE projects in Spain and Portugal.
- b) An introduction to the general considerations of a risk-based approach and AM.

3. Introduction

Consenting is still generally regarded as a non-technological barrier to the progress of the marine renewable energy (MRE) industry, caused by the complexity of consenting processes and the lack of dedicated legal frameworks (Simas *et al.*, 2015). Some of the main barriers associated to these consenting procedures are the following:

- According to O'Hagan (2016), a **large number of authorities** are involved in the consenting of MRE projects, reflecting the sea use, environmental, electricity and other aspects of such deployments. It is not always clear to a developer who is responsible for a specific consent or how differing authorities interact with each other. This can act as a barrier to development as it may take some time for a developer to become clear on who should be involved, at what stage and for what purpose. Where multiple authorities are involved it is not clear to developers how often or closely, they communicate with each other. Different consenting authorities may operate in different maritime jurisdictional zones. Some countries stated that as they had no ocean energy deployments in their waters as yet, no consenting process could be described or said to apply. This would suggest that anyone proposing a project in such a country may face an unclear development path.
- In the majority of countries, **numerous consents** are still required for an MRE deployment. It is probably unrealistic to suggest one integrated licence/consent for an ocean energy project but, to assist in streamlining the functioning of the consenting process, it should be possible to have a single point of contact for consenting. In terms of best practice it would appear that the province of Nova Scotia and the United Kingdom system are the most streamlined, operating a 'one window' or 'one-stop-shop' approach to administration of consents as suggested by O'Hagan (2016) and Le Lièvre and O'Hagan (2015).
- With respect to **Environmental Impact Assessment (EIA)**, there is widespread variation across the world on whether an EIA is always requested or if the need is decided on a case by case basis. An absolute requirement to conduct an EIA may also present a barrier to ocean energy development. As stated by Copping (2018), regulators are faced with significant uncertainty about the potential environmental effects of MRE devices on the quality of the environments they are charged to protect. Because of this uncertainty, regulators continue to perceive MRE interactions to be of high risk and may take a precautionary approach, requesting extensive pre and post-installation data to determine the significance and potential adverse effects of interactions of marine animals and habitats with all parts of MRE

devices and systems. As industries progress, data collected and lessons learned from earlier projects are used to predict the likely effects of development, indicate levels of risk, and design necessary mitigations. The MRE industry has not yet accumulated a sufficient track record to easily license (permit or consent) projects by relying largely on past project performance (Copping, 2018).

- The **Strategic Environmental Assessment (SEA)** is an under-utilised approach for assessing the potential impacts of development at a strategic level. A SEA would identify the likely significant environmental effects of implementing plans to develop marine/ocean renewables and could lead to certain environmental aspects being addressed at a more strategic level, rather than falling to the developer. A SEA can also highlight the parameters or features that may need to be monitored subsequent to implementation of a plan or development including site level mitigation measures, which is also useful to developers (O'Hagan, 2016).
- **Consultation** is a legal requirement and intrinsic part of the consenting process. One possible barrier in relation to consultation is the fact that, when part of the SEA or EIA process, the focus of consultation tends to be on environmental effects of device deployment. Whilst many consultees and the public are interested in this information more and more frequently they would like information on the benefits of the project to their locality and community, the openings in relation to employment and, in some cases, the opportunity to invest. Developers should be prepared for these types of socio-economic questions as far as possible and be able to highlight the benefits of their project to the receiving community as well as on the receiving environment.
- As a developing sector currently involving small to medium enterprises primarily, it would be useful to provide those trying to operationalise a project with as much **guidance and advice** as possible in relation to getting their device in the water. For many it may be the first time to deploy a device at sea and consenting can appear daunting. Regulators and those involved in the administration of consents may be very familiar with the system in which they work and know who to contact when and in relation to what. A developer will not know this information unless they have access to it either via a website or a specific point of contact. Developers state that they often cannot access such basic information and so their time may be spent inefficiently trying to find contact details or other relevant information.

In line with O'Hagan (2016), one attempt to overcome the barriers associated to the uncertainty about the potential environmental effects of MRE devices is to integrate a

risk-based approach as an element of Adaptive Management (AM) to the consenting procedures at different levels:

- a) from the identification of pre-consented areas through a Maritime Spatial Planning approach and the development of the MRE industry in response strategic actions associated to national specific plans and targets;
- b) to the consenting procedures of a specific project (Environmental Impact Assessment (EIA), licensing of occupation of marine space, licensing of power generation activity, etc).

This report presents a review on the current licensing process of wave energy in Portugal and Spain. Furthermore, a comparison was carried out between both Member States' consenting systems from a legal and consenting administration point of view. Lastly, the extent to which a risk-based approach is already being incorporated in both countries' existing regulatory frameworks has been analysed.

4. Objectives

Due to the different governance systems that operate in the EU, consenting systems vary across Member States both in terms of their legal basis and how consenting is administered (fragmented or integrated). Furthermore, and given the novelty of the wave energy sector together with the uncertainty of its impacts on the marine environment and the lack of fit for purpose legal procedures, the use of a risk-based approach by the regulators and decision makers has been identified as a way to overcome the main barriers associated to the uncertainty about the potential environmental effects of MRE devices that could hinder the consenting processes of MRE developments in different levels, (from the identification of pre-consented areas through a Maritime Spatial Planning approach and the development of the MRE industry in response strategic actions associated to national specific plans and targets, to the consenting procedures of a specific project).

Consequently, the objective of the present work is to generate the necessary knowledge base to further evaluate the extent to which a risk-based approach can be incorporated in the current consenting procedures of wave energy projects in the particular case of Spain and Portugal that will be undertaken under Task 4.3 of the WESE project.

For this purpose, the following operational objectives have been identified:

- c) Review of the consenting processes of MRE projects in Spain and Portugal.
- d) Introduction of the general considerations of a risk-based approach.

The findings of the present work will be shared with the stakeholders of different groups (developers, regulators, environmental impact assessment practitioners) identified in the Task 4.1 (Deliverable 4.1) in Spain and Portugal and will be the basis for the discussion to be held in the meetings and workshops that will be undertaken in each country in the framework of Task 4.3, to gather stakeholders' engagement, experience, opinion and vision about the adoption of a risk-based approach and the implementation of an adaptive management in the consenting processes of MRE developments.

5. Consenting process in Portugal

One of the most relevant regulations in the consenting process of Portugal is the recently updated Decree Law 76/2019, which sets the legal regime applicable to the exercise of electricity production, transport, distribution and marketing activities and the organization of electricity markets. The Directorate-General of Natural Resources, Safety and Maritime Services (DGNRSMS) is the entity responsible for several aspects regarding the private use of the National Maritime Space (NMS). The Directorate-General of Energy and Geology (DGEG) is the entity responsible for the licensing process of electric projects including marine renewable energy (MRE).

For projects with a power capacity up to 10 MW, DGEG is the authority in charge of licensing electricity production linking with other authorities for specific permits: the DGNRSMS for the Title for the Private Spatial Use for the NMS (TPSU), Commission of Coordination and Regional Development (CCRD) or Environmental Portuguese Agency (EPA) for the environmental license and local city hall for onshore facilities (Table 5.1).

A description of the consenting process for MRE projects in Portugal is described in this chapter considering the following 4 components:

- i) Private use of marine space,
- ii) Energy production,
- iii) Accessory facilities onshore and
- iv) Environmental Impact Assessment (EIA)

A developer can apply for all licenses at the same time, however, the procedure to obtain each of these licenses is sequential and there are legally prescribed time frames for each step of the procedure.

Table 5.1 – Characteristics of the licensing process.

Parameter	Relevant applicable laws	Licensing Authority	Name of document
Private use marine space	DL 38/2015 (amended by DL 139/2015) – transposes Directive 2014/89/EU and develops Act 17/2014 which sets forth the LBOGEM	DGNRSMS	TPSU
Water Resources Use	DL 226-A/2007 (amended by Act 44/2012) DL 108/2010 (amended by DL 136/2013)	EPA	TUWR
Energy Production	DL 172/2006 (6th amendment through DL 215-B/2012 and 11 th amendment through DL 76/2019) Ordinance 243/2013 (amended by Ordinance 133/2015)	DGEG – power capacity up to 10 MW Secretary of State of Energy – power capacity higher than 10 MW	License on power production and grid connection
Accessory facilities onshore	DL 555/99 (amended by DL 136/2014) - RJUE	Local planning authority	Planning Permission
EIA	DL 151-B/2013 (amended by DL 152-B/2017) – transposes Directive 2014/52/EU	EPA – location in sensitive area DGEG – project not located in sensitive area) CCDR – EA	EIA/EA

5.1 Licensing private occupation of marine space & use of water

5.1.1 Licensing the private use of marine space

The EU directive establishing a framework for the MSP (Directive 2014/89/EU) was transposed into national law in DL 38/2015 (amended by the DL 139/2015)¹, placing Portugal among the first European Member States to fulfil such requirement. This regulation applies to all NMS, from the baselines until the extended continental shelf (beyond 200 nm).

The MSP system consists of a set of instruments developed under two complementary action levels:

1. Strategic instruments of the planning and management policy, from which the National Strategy for the Ocean stands out and,
2. MSP instruments Situation Plan (SP) and Allocation Plan (AP).

The private use of the NMS is assigned through a “private use title” or TPSU, issued by DGNRSMS. The procedure to obtain the TPSU will depend on the designation of the use in the area where the project is to be installed, which is established in the SP. The SP is one of the two main MSP instruments, which is expected to set the baseline for national MSP. It is under the responsibility of DGNRSMS and identifies current and potential uses and resources as well as relevant areas for, among other, biodiversity and ecosystem services and overlapping terrestrial plans/programs that require an integrated planning.

If the area to be used by the project is already designated for renewable energy production, the application for obtaining TPSU is carried out directly by DGNRSMS. If the selected area to be used by the project is not designated for MRE production activity, the developer may propose the amendment of its designation by submitting an AP, which is the second main MSP instrument and proceeds with the allocation of areas or volumes of the NMS to uses/activities not identified in the SP. Once approved by Council Minister’s Resolution (CMR), the AP is integrated into the SP which is automatically amended. This approval constitutes the needed condition to issue TPSU.

¹ This regulation develops Act 17/2014.

When conflict of uses arises between two uses in the same area or volume of the NMS for which the AP is being developed, the responsible public authority analyses two preference criteria in order to determine the prevailing use².

After integration of the AP in the SP, the application for the TPSU³ request may start. The TPSU solely allows the holder to use the maritime space for the proposed activities and has the following types of legal permits:

- a) Concession: long term use (continuously over 12 months with a maximum duration of 50 years);
- b) License: temporary use (intermittent or seasonal use over less than 12 months for a maximum duration of 12 years);
- c) Authorization: scientific and non-commercial research and/or pilot projects related to new technologies (maximum duration of 10 years). Authorizations are exempt from prior approval of the AP.

The same pre-application form must be submitted in all three cases comprising the project location and site specificities related to other maritime uses, water depth, wave climate, water circulation pattern, weather data, emergency plans and land infrastructure.

A period of 20 working days for consultation with statutory entities takes place after the application for the TPSU is complete. DGNRSMS has 30 days to issue a favourable decision on the application or reject it. If the decision is favourable, a consultation period of at least 15 working days to allow other stakeholders to have the opportunity to apply for the same maritime space.

A preliminary baseline for the SP has been developed under the MSP, which has therefore established the situation reference for the MSP in the continent subdivision. DGNRSMS is responsible for the coordination of the MSP. In 2019, the MSP was approved establishing the licensing regime for private use of the maritime space including MRE.

² Article 27 of DL 38/2015 Criteria: a) greater social and economic benefit to be determined a number of sub criteria; and b) maximum coexistence of uses (only applicable if the first criteria produces equal results or it is not applicable).

³ Article 58 of DL 38/2015 – includes elements to be included in the TUPEM application.

5.1.2 Licensing use of water resources

The system of water resources use is the system applicable to the use of water resources and their titles. It is regulated by DL 226-A/2007 (amended by Act 44/2012). It sets forth, among others, the issue of the Title for the Use of Water Resources (TUWR) for coastal and transitional areas. DGEG coordinates the application process for MRE projects and the competent authority for licensing the private use of water resources is EPA which issues TUWR of all infrastructures located within 50 meters from the maximum high sea level of the limit of the beach. EPA has five decentralised departments corresponding to the hydrographic regions established under the national law. The applicant must submit the application to the HRA department that covers the administrative area where the project is to be located. EPA has a period of 20 working days to issue an advice regarding the impact of the project on the good environmental conditions of coastal and transitional waters.

Regarding MRE projects, the type of TUWR (license or concession) depends on the length of the project deployment and on its installed capacity. A license is required for devices deployed for less than one year and concession is required for period equal or higher than one year. A license is required for an installed capacity below 25 MW and a concession is required for an installed capacity equal or higher than this value.

5.2 Licensing power generation activity

Electricity production is regulated by DL 215-A/2012 and 215-B/2012. The electricity production by Renewable Energy Source projects (FER) is called "Special Production" regime and follows specific licensing procedures that varies according to the tariff scheme, which can be:

- (i) regular tariff scheme or
- (ii) Feed-In Tariff (FIT) scheme.

The licensing procedures are described in this chapter for both tariff schemes. A license for MRE power production encompasses:

- (i) a production license and
- (ii) an operation license.

The Secretary of State of Energy (SEE) is the issuing authority of production licenses for power plants with installed capacity higher than 10 MW. For project with a maximum capacity lower than 10 MW, the issuing authority is DGEG.

In both tariff schemes, the issuance of a production license requires a favourable or conditionally favourable Environmental Impact Statement (EIS) and, when required under the Legal System of the Environmental Impact Assessment (LSEIA), a favourable or conditionally favourable Decision on the Environmental Compliance of the Detailed Project Design (DECDPD) or a favourable or conditionally favourable EAS (see Section 5.4).

5.2.1 Licensing procedure in the regular tariff scheme

Under the **regular tariff scheme**, the licensing of the production activity depends only on obtaining the production license and the respective operation license. The application for the **production license**⁴ shall be submitted in the first 15 days of each quarter of year: 1 to 15 of January, May or September.

Once consultation procedure with other authorities is complete (usually 30 working days), DGEG must issue a decision within 30 working days. The duration of the production license is subject to the time limit laid down in the respective TPSU (see Section 5.1.1). The holder must complete the installation works of the power plant and start its operation within two years, although this limit can be changed by the Secretariat of State of Energy upon request if needed. As a guarantee, the holder must provide a deposit which is returned if the power plant starts its operation before the agreed upon deadline.

Once the production license has been approved, the process proceeds to the application to request the respective **operation license**⁵ which requires an inspection by DGEG to the facilities for a validation of the required conditions. The operation license defines the conditions to which the operation of a power plant is subject to and, once approved, it integrates the production license. DGEG has a period of 20 working days to issue a decision from the receipt of the survey report of the examination of the facility carried out by the same authority.

5.2.2 Licensing procedure in the Feed-In Tariff (FIT) scheme

The **FIT scheme** of licensing is regulated under the Ordinance 243/2013⁶. It starts with a request to obtain a reservation for power injection into the Public Electrical Grid

⁴ Article 33-J of DL 215-B/2012: includes elements to be included in the production license application to be submitted to the licensing authority.

⁵ Article 20-B of DL 215-B/2012 – elements to submit as part of the application for granting of an operation license in regular tariff scheme.

⁶ Ordinance 243/2013 (amended by Ordinance 133/2015) – establishes the license on reservation and power injection into the public grid and the licensing of the energy production activity under the FIT scheme.

(PEG). The application to production and operation licenses depend on this granting, whose procedure is managed by the grid operator (EDP Distribuição). This step runs under a competitive bid procedure of public initiative or any other competitive procedure that ensures equality and transparency criteria to the candidates' selection. The project is subject to an assessment of compliance with the objectives and priorities of the energy policy as well as several other general criteria⁷.

Once granted, the holder of the grid reception point in the PEG proceeds to the application for **production license**⁸. After the consultation period - of 30 working days for the grid operator and of 10 working days for other entities - DGEG has 30 working days to issue a decision of granting the production license. The production license has a duration corresponding to the period established in the respective TPSU (see section 5.1.1).

5.3 Licensing accessory facilities onshore

The licensing of facilities to be installed onshore such as electrical installations (e.g., substations and power transmission lines) or other interventions (e.g., buildings and access paths), a municipal license is required under the Legal System of Urban Planning and Building (LSUPB)⁹. This procedure is coordinated by the city hall where the facilities are to be installed.

Municipalities approve municipal regulations that must be considered in the prior checking of urban development operations. Construction works promoted by concessionaries of public services are exempt from prior checking regarding the object of concession, which is the case of a power transmission line built by EDP Distribuição and the NER. The municipality may proceed to consultation with external authorities which have 20 working days for comments prior to final decision on the request.

This type of operations is conditioned by the provisions of the following Land Management Instruments (LMI): municipal (or inter-municipal) Master Plan (MMP), Urban Plan (UP) and Detailed Spatial Plan (DSP). In addition, there are other potential constraints related to the existence of designated conservation where the project is to be installed (detailed in Section 5.4).

⁷ Article 33-F of DL 215-B/2012 – general criteria under the procedure for application of a grid reception point.

⁸ Article 16 of Ordinance 243/2013 – elements to be included in the production license application

⁹ DL 555/99 (republished in an annex to DL 136/2014 – establishes RJUE.

Finally, according to the LSUPB, urban development operations may be refused if there are proves of a negative effect on “archaeological, historical, cultural or landscape, natural or built heritage” or “scenic beauty”.

5.4 Environmental Impact Assessment (EIA)

The EIA Directive¹⁰ has been amended by the Directive 2014/52/EU, which was transposed to the Portuguese EIA legal system (LSEIA¹¹) through DL 152-B/2017. This amendment aims at improving the environmental assessment of projects through procedure simplification, improvement of project efficiency and increase in assessment demand. The new EIA Directive establishes the obligation to include “the expected effects resulting from the project’s vulnerability to the risk of serious accidents and/or disasters that are relevant to the project in question”. In addition, it includes the establishment of mitigation measures as well as monitoring programmes.

If an MRE project is listed under Annex II of LSEIA, a full Environmental Impact Assessment (EIA) is required. MRE projects not covered by the LSEIA are submitted to a case-by-case analysis, referred to as “prior appraisal and decision on EIA submission”. Within this second case, if the project is located within areas belonging to NER, Natura 2000 Network sites or Protected Areas, an Environmental Appraisal procedure (EA) is required. If the project is not subject to an EIA or EA, the developer may proceed in the licensing procedure. However, a favourable advice on the project installation on the proposed location is still required from the regional authority (CCRD) to license the project.

5.4.1 Environmental Impact Assessment Procedure

In Portugal, the EIA procedure starts with a **screening phase** (Figure 5.1) to decide whether the project is subject to an EIA. If an MRE project is listed under Annex II of LSEIA, a full EIA is required, and EPA is the licensing authority. MRE projects not covered by the LSEIA i.e. with a capacity below 50 MW (or below 20 MW when located in sensitive areas) or wind farm projects with less than 20 wind turbines (or less than 10 wind turbines when located in sensitive areas) are submitted to a case-by-case analysis, referred to as “prior appraisal and decision on EIA submission”.

¹⁰ Directive 2011/92/EU (amended by Directive 2014/52/EU)

¹¹ DL 151-B/2013 (amended by DL 152-B/2017) – establishes the Legal System of the Environmental Impact Assessment (LSEIA).

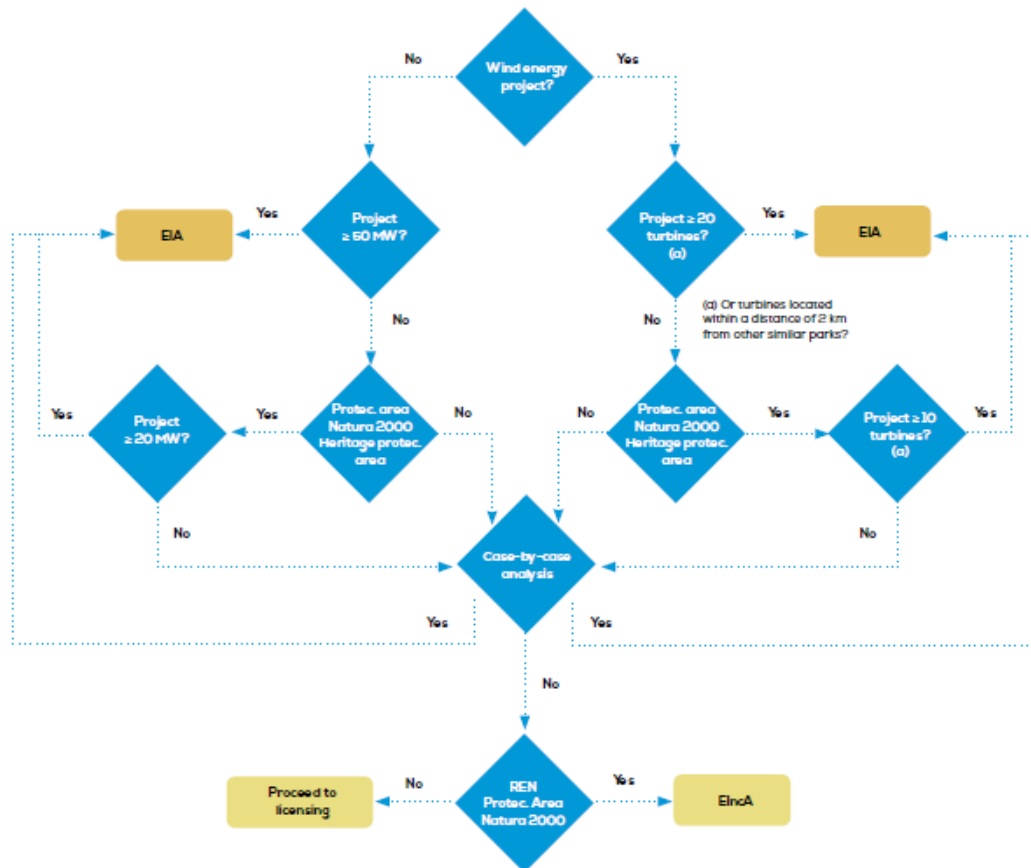


Figure 5.1 - EIA screening phase.

The **scoping phase** is a preliminary and optional phase of the EIA procedure to identify, analyse and select the significant environmental aspects that may be affected by a project and on which the EIA should focus. This phase is based on a document designated as Scoping Report (SR) submitted by the applicant to the EIA authority includes a statutory consultation to the authorities with relevant technical skills and competences to the assessment of the project under the licensing procedure. In some cases, it may also be subject to public consultation. Although considered one of the most important stages of the EIA procedure in several countries, this phase has been poorly applied in Portugal.

Following these initial stages, the **EIA procedure stage** considers the following environmental factors: population, human health, biodiversity, land, soil, water, air, landscape, climate including climate change, material assets and cultural heritage including architectural and archaeological heritage. The structure of the EIA procedure will differ depending on the phase during which the EIA is being carried out (Figure 5.2):

- (i) during project design phase or;

(ii) during detailed project design phase.

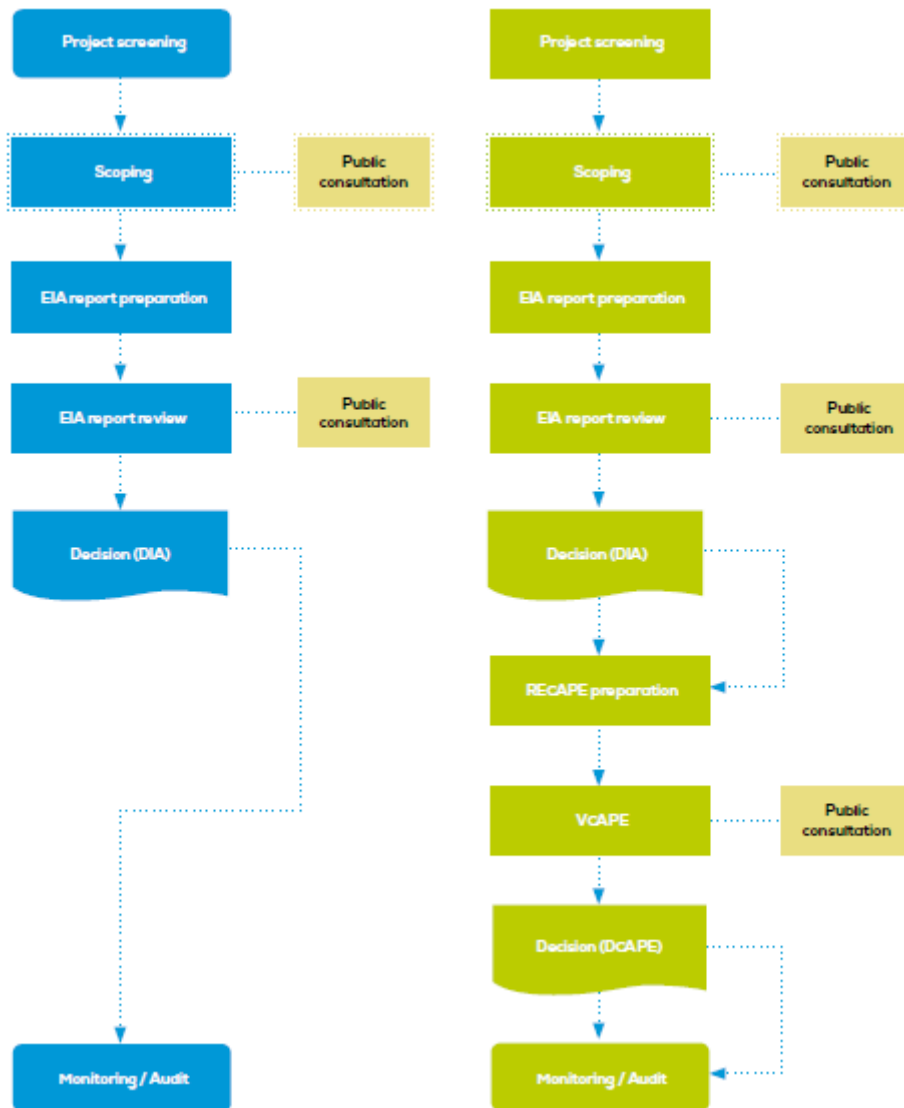


Figure 5.2 - EIA phases. Dashed lines: optional process steps.

5.4.1.1 Project design phase

When carried out during project design phase, it is not expected that mitigation measures and monitoring plans are to be described in detail. The EIA report is prepared and reviewed after which a verification of compliance and the technical assessment of the EIA is carried out by the EIA authority and a technical advice is issued. This phase also includes a period of public consultation. The EIA procedure stage ends with the issuance of a favourable, conditional or non-favourable EIS.

An **environmental compliance checking of the project design** is then carried out, under which the applicant must submit to the licensing authority a document designated as

Environmental Compliance Report of the Detailed Project Design (CRDPD). An additional period of public consultation is opened, followed by the last step of the environmental compliance checking of the detailed project design, the issuance of the Decision on the Environmental Compliance of the Detailed Project Design (DECDPD).

5.4.1.2 Detailed project design phase

During **detailed project design phase**, the EIA procedure is similar to the one carried out during project design phase. The main difference lays on the fact that, in this case, there is no need to carry out an environmental compliance checking of the detailed project design.

5.4.1.3 Post-assessment stage

The issuance of the EIS or DECDPD is followed by a **post-assessment phase**:

- Environmental monitoring to be carried out by the applicant including periodic report to be sent to the EIA authority;
- Visits of the EIA authority to the project site;
- Audits, to be conducted by the applicant.

5.4.2 Environmental Appraisal procedure (EA)

As per the recent amendment of DL 215-B/2012 through DL 76/2019¹², the EA procedure will undergo some changes. The revoked article stated that MRE projects not covered in the LSEIA and to be located within areas belonging to NER, Natura 2000 Network sites or Protected Areas, are subject to an EA procedure. The added articles state that MRE projects not covered in the RJAIA and to be located within Natura 2000 Network are subject to an EA procedure.

The Natura 2000¹³ results from the application of the Birds and Habitats Directives and constitutes the main instrument for the conservation of nature in the European Union. It also applies to the marine environment and consists of Special Protection Areas (SPA) and Special Areas of Conservation (SAC). As mentioned above, MRE projects (including accessory facilities) to be located in a Natura 2000 site are automatically subject to an EA. If a project is proved to adversely affect a priority

¹² Revokes Article 33-R and adds Articles 10-A to 10-C.

¹³ DL 140/99 (amended by DL 49/2005 and DL 156-A/2013) – transposes the Birds and Habitats Directives and establishes the legal system for the conservation of habitats (LSHC).

habitat or a priority species, the decision to proceed may only be invoked for the following reasons (in the cases referred to, compensatory measures shall be adopted):

- a) Public health or safety;
- b) Beneficial consequences for the environment;
- c) Other imperative reasons of public interest, upon prior advice from the European Commission.

The EA covers accessory facilities. The EA procedure is similar to the EIA procedure, as shown in Table 5.2. The Environmental Appraisal Statement (EAS) follows the application of the Report on the Environmental Appraisal (REA) and the Environmental Follow up Plan (EFP).

Table 5.2 - Differences between EIA and EA.

Aspect	EIA	EA
Scoping	Possible	Not foreseen
EIA/EA authority	EPA	CCRD
Designation study + elements to be delivered	EIA + project documents	REA + project documents + EFP
Authority responsible for environmental compliance checking and technical advice justifying the DIA or DIncA	Assessment Committee	CCRD, with participation of other authorities
EIA Decision	EIS	EAS
Public consultation on EIA/EIncA report	Yes	Yes

5.4.3 SEA Procedure

Within the context of MRE licensing procedures, the application of the Strategic Environmental Assessment (SEA) Directive (2001/42/EC) is closely linked with the programmes and plans envisaged in the MSFD and MSP Directives, which have to be prepared and implemented by the MS. SEA¹⁴ procedure can improve the quality of the respective plans and programmes and facilitate the implementation of future projects. Furthermore, it allows integrating environmental considerations into the preparation and adoption of plans and programmes, which are likely to have significant environmental effects.

¹⁴ SEA of plans and programmes: DL 232/2007

In Portugal, a SEA is mandatory for the Situation Plan (SP)¹⁵. According to DL 38/2015, the Allocation Plan (AP) is considered a project and thus subject to an EIA (and should consider the SEA prepared for the SP). The preparation of an AP for an MRE initiative can be of public or private and is approved by Resolution of Council of Ministers (RCM), with final version submitted by the DGNRSMS.

In general terms, the SEA is a process based on three main components (technical, procedure and communication) and develops over three phases:

- 1) Critical factors for the decision and context for the SEA – identify the object of evaluation, the critical factors for the decision and the objectives of the SEA; establish the appropriate stakeholder forum and communication and engagement strategy, and the integration between processes, including the identification of decision windows;
- 2) Analysis and evaluation – use possible future scenarios and consider options and alternatives to achieve the proposed objectives, analyse the main trends linked to critical factors for decision, evaluate and compare options to allow choices, including the assessment of opportunities and risks, propose planning, monitoring, management and evaluation guidelines;
- 3) Follow-up – develop a follow-up program (planning, monitoring, management and evaluation guidelines) and the institutional arrangements necessary for good governance.

¹⁵ The Environmental Report subject to public consultation is available at www.psoem.pt.

6. Consenting process in Spain

The framework for energy and climate policy in Spain is determined by the European Union (EU), which in turn responds to the requirements of the Paris Agreement¹⁶ reached in 2015 to provide an international and coordinated response to the challenge of the climate crisis. The EU ratified the Paris Agreement in October 2016¹⁷, which allowed it to come into force in November of that year. Spain did the same in 2017, thus establishing a renewed commitment to energy and climate change policies.

In this context, the European Commission presented in 2016 the so-called "winter package" ("Clean Energy for all Europeans", COM (2016) 860 final)¹⁸ which has been developed through various regulations and directives. These include revisions and legislative proposals on energy efficiency, renewable energies, electricity market design, security of supply and governance rules for the Energy Union.

In addition, on 28 November 2018 the European Commission updated its long-term strategic vision ("A Clean Planet for All" COM (2018) 773 final)¹⁹ to ensure that the European Union achieves a prosperous, modern, competitive and climate-neutral economy by 2050.

In order to achieve these objectives in a coordinated way among all EU Member States, the "winter package" contains a governance regulation. It sets out the planning procedure for meeting the objectives and targets, ensuring the consistency, comparability and transparency of the information submitted to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.

In particular, the EU requires each Member State to draw up a National Plan Integrated Energy and Climate Plan 2021-2030 (NPIEC). In the case of Spain, this NPIEC 2021-2030 is under development. The text of the NPIEC 2021-2030 was sent to the European Commission on 31 March 2020 and at the time of writing of this report is included in the public consultation phase of the Strategic Environmental Assessment (SEA) under the ordinary procedure (see section **iError! No se encuentra el origen de la referencia.**).

On the other hand, the *Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning* aims

¹⁶ <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

¹⁷ <https://unfccc.int/process/the-paris-agreement/status-of-ratification>

¹⁸ <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/clean-energy-all-europeans-package>

¹⁹ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0773&from=EN>

(Art. 1) to promote the sustainable growth of maritime economies, the sustainable development of marine spaces and the sustainable use of marine resources.

The main obligation of the Directive is to establish maritime management plans (Art. 8) determining the spatial and temporal distribution of the corresponding existing and future activities, among others, energy production from renewable sources such as marine renewable energy projects and wave energy in particular.

In Spain the Directive 2014/89/EU has been transposed through *Royal Decree 363/2017 of 8 April, which establishes a framework for maritime spatial planning*²⁰. This regulation aims to promote the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources. The RD 363/2017 decree establishes that in Spain a Maritime Spatial Planning (MSP) plan will be drawn up for each of the five Spanish marine districts (MD) established in *Law 41/2010, on the protection of the marine environment*, i.e. the North Atlantic MD, the South Atlantic MD, the Strait and Alboran MD, the Levantine/Balearic MD and the Canary Islands MD.

The *Royal Decree 363/2017* establishes the procedure for drawing up MSP plans and determines the timetable for carrying out this work. It assigns the Directorate General for Sustainability of the Coast (DGSC) the task of coordinating this process and notifying the management plans to the European Commission.

The *Directive 2008/56/EC, or the Marine Strategy Framework Directive (MSFD)*, which aims to achieve or maintain good environmental status in the marine environment by the year 2020, was transposed into Spanish law through *Law 41/2010, on the protection of the marine environment*.

The RD 363/2017 was issued in application of the provisions of article 4.2 of *Law 41/2010*, which establishes that the Government may approve guidelines common to all marine strategies in order to guarantee the coherence of their objectives, in aspects such as the planning of activities that are carried out or may affect the marine environment.

In conclusion, the process of developing MSP plans should be expected to make use of all the information generated by the marine strategies, and it should also be ensured that the MSP plans apply an ecosystem approach, by which the achievement of good environmental status in the marine environment is ensured and not compromised.

²⁰ <https://www.boe.es/buscar/act.php?id=BOE-A-2017-3950>

Currently, a first draft of the MSP plans, together with the Initial Strategic Document, is being subject to the start of the ordinary Strategic Environmental Assessment (SEA) process.

Among other activities, the MSP plan takes into account the expected development of MRE according to the National Integrated Energy and Climate Plan 2021-2030 (NIECP)²¹ also under development and subject of the ordinary Strategic Environmental Assessment (SEA) process as stated before (see section **Error! No se encuentra el origen de la referencia.**).

The NPIEC 2021-2030, together with the *Royal Decree 363/2017*, both under development, represents the general framework under which the MRE industry will develop. In Spain no dedicated consenting process exists for MRE technologies and consequently the future development of this industry is based on three main legal instruments:

- a) Royal Decree 1028/2007 establishes the administrative procedure for processing applications for electricity generating facilities in territorial waters.
- b) Law 2/2013, of 29 May, for protection and sustainable use of coasts. This law amends the previous Coastal Law of 1988. It provides the legal framework for occupation of the territorial sea, as well as governing issues affecting the fishing sector and safety conditions for maritime navigation. Management and surveillance competences relating to the Public Maritime Domain on Land (MTPD), which includes the territorial sea, rest with the General Council on Coast and Ocean Sustainability (GCCOS) which forms part of the Ministry for Ecological Transition and Demographic Challenge (METDC). Coastal Demarcation Departments are their representatives in each coastal province and Autonomous Community. Therefore, the development of electric power projects in the territorial sea must comply with the legal requirements governing the administrative process for granting titles to territorial occupation (prior to and during project development) and associated arrangements e.g. deadlines, transfers and expiry.
- c) Law 21/2013, December 9th, on Environmental Impact Assessment (EIA).

²¹ <https://www.idae.es/informacion-y-publicaciones/plan-nacional-integrado-de-energia-y-clima-pniec-2021-2030>

- d) Royal Decree 79/2019 of 22 February regulating the compatibility report and establishing the criteria for compatibility with marine strategies. This RD develops the consenting procedure of compatibility reports to be issued by the Ministry for Ecological Transition and Demographic Challenge (METDC) regarding "the compatibility of the activity or spill with the corresponding marine strategy in accordance with the criteria to be established by regulation", required by article 3.3 of Law 41/2010, of 29 December, on the protection of the marine environment.

6.1 Licensing power generation activity

Royal Decree (RD) 1028/2007 establishes the administrative procedure for processing applications for electricity generating facilities in territorial waters.

In spite that RD 1028/2007 focuses on marine wind energy, it also contemplates in article 32 the authorisation of other electricity generation technologies of a renewable marine nature located in the territorial sea, but it only foresees a simplified procedure which is regulated by a subsidiary character in accordance with *Royal Decree (RD) 1955/2000, 1 December 2000, regulating the activities of transport, distribution, commercialization, supply and authorization procedures for electrical power plants*²², without establishing a minimum power limitation.

RD 1955/2000 also provides that construction, extension, modification and exploitation of all electric installations listed (in article 111) require the following administrative procedures and sanctions to be followed:

- Request for Administrative Authorisation (AA): refers to the project's draft of the installation as a technical document.
- Project Execution Approval (PEA): refers to the commissioning of the specific project and allows the applicant to start construction.
- Exploitation Authorisation (EA): allows the installations, once the project is installed, to be powered up and proceed to commercial exploitation.

6.1.1 Request for Administrative Authorisation (AA)

The request for Administrative Authorisation (AA) refers to the project's draft of the installation as a technical document. Such request must be addressed to the Directorate General for Energy Policy and Mining (DGEPM), and might also be

²² <https://www.boe.es/buscar/act.php?id=BOE-A-2000-24019>

forwarded to the Department or Division of Industry and Energy of the Government Delegations or Sub-Delegations of the province where the installation requesting this administrative authorization is located for the construction, extension, modification and exploitation of electric installations to be produced, transported and distributed.

Likewise, these requests may be addressed to the entities mentioned in article 38.4 of *Law 30/1992, 26 November, on Rules governing general government institutions and Common Administrative Procedure*²³.

The authorization procedure is determined by the DGEPM. According to RD 1955/2000, the resolution and notification shall occur “within three months from receipt of the request for administrative authorization” (art. 128.1).

The request for AA can be submitted together with the application of an Environmental Impact Assessment (EIA) process according to *Law 21/2013, December 9th, on Environmental Impact Assessment*. For the approval of the AA, the Environmental Impact Statement (EIS) of the Directorate General for Environmental Quality and Assessment (DGEQA) of the Ministry for Ecological Transition and Demographic Challenge (METDC) is needed.

With these two elements, the process for the occupation of the Maritime-Terrestrial Public Domain (MTPD) according to the *Law 2/2013, of 29 May, for protection and sustainable use of coasts* will be initiated. The Directorate-General for the Coast and Sea (GDCS) will determine the occupation of the MTPD considering the EIS and conditions stated in the authorization of the procedure by the DGEPM.

6.1.2 Approval of the Execution Project

The Approval of the Execution Project (AEP) refers to the specific project of commissioning and allows the applicant to start building up. The applicant of the authorization will submit to the division or, if applicable, the Department of Industry and Energy (DIE) in the Government Delegations or Sub-delegations of the province where the installation will be developed, a request addressed to the DGEMP, as required in article 70 of *Law 30/1992, of 26 November 1992, on Rules governing general government institutions and Common Administrative Procedure* (see previous section), together with the execution project based on the relevant specific Technical Regulations. Divisions, or if applicable, DIE in the Government Delegations or Sub-delegations of the provinces where the installation will be located and developed, will be responsible for processing the request for approval of the execution project and

²³ <https://www.boe.es/buscar/act.php?id=BOE-A-1992-26318>

shall resolve and grant the consent within three months. The competent administration may consult other affected institutions, entities or companies devoted to public service or general interest services in charge of goods and rights in the area so that they can set relevant technical conditions within twenty days.

6.2 Licensing for private occupation of marine space

The licensing procedure for the occupation of the Maritime-Terrestrial Public Domain (MTPD) was first regulated by the **Coast Law, 28 July 1988**. This Law was amended in 2013 by the **Law 2/2013, of 29 May, for protection and sustainable use of coasts**. It provides the legal framework for occupation of the territorial sea, as well as governing issues affecting the fishing sector and safety conditions for maritime navigation. Management and surveillance competences relating to MTPD, rest with the General Council on Coast and Ocean Sustainability (GCCOS) which forms part of the Ministry for the Ecological Transition and Demographic Challenge (METDC). Coastal Demarcation Departments are their representatives in each coastal province and Autonomous Community. Therefore, the development of electric power projects in the territorial sea must comply with the legal requirements governing the administrative process for granting titles to territorial occupation (prior to and during project development) and associated arrangements e.g. deadlines, transfers and expiry.

Therefore, the development of projects on electric power in the territorial sea must comply with the legal requirements regulating the conditions to process administrative titles granting a certain territory's occupation (both previous and during the project's development) and the dispositions in terms of deadlines, transference and extinction.

6.2.1 The Maritime-Terrestrial Public Domain (MTPD)

The following are goods of the MTPD:

- a) The shores of the sea and the estuaries, which includes:
 - a. The maritime-terrestrial area or space between the maximum low-tide line and the limit up to which the waves reach during the greatest known storm periods of time, or when it exceeds this limit, that of the maximum high-tide line. This area also extends along the river banks to the site where the effect of the tides is felt.

This area includes marshes, lagoons, swamps and, in general, those parts of low lands that are flooded as a result of the ebb and flow of the tides, the waves or the filtration of sea water. However, those lands that are

artificially flooded and controlled as a result of works or installations carried out for this purpose will not become part of the maritime-terrestrial public domain, provided that before the flooding they were not in the public domain.

- b. Beaches or deposit areas of materials such as sand, gravel and pebbles, including escarpments, berms and dunes, the latter shall be included to the extent necessary to ensure the stability of the beach and the defence of the coast.
- b) The territorial sea and inland waters, with their bed and subsoil, defined and regulated by their specific legislation.
- c) The natural resources of the economic zone and the continental shelf defined and regulated by their specific legislation.

6.2.2 Previous conditions for the licensing of occupation of MTPD

The MTPD can only be occupied for those activities or facilities that, by their nature, cannot be located elsewhere. The administrative title varies according to the time of stay or to whether fixed or removable works or installations are required. Thus, authorization is required for the public goods occupation of dismountable facilities or with movable property with a term of less than one year. The rest requires an administrative concession.

For the licensing of the title the following documentation is required:

- a) Accreditation of the applicant
- b) A basic or construction project.
- c) When the use of the MTPD is not carried out by the administration, an economic-financial study will be presented. This study will develop the foreseen evolution of the exploitation of the project, considering different alternatives of amortization period with the relation and estimated revenues, with tariffs to be paid by the public and, if it is the case, decomposition of its constitutive factors as a base for future revisions; expenses, including project and construction costs and fees and taxes to be paid, conservation costs and energy, personnel and other consumption costs necessary for operation, and, when corrective measures are envisaged, those arising from the monitoring plan to verify the effectiveness of such measures and the net profitability.

- d) A provisional deposit of 2% of the budget for the physical execution of the project must be lodged, rising to 5% in the final budget once the certificate has been obtained. The deposits are irrevocable and automatically executed by resolution of the competent body. The deposit will be returned after one year from the date of the act of recognition of the works in which it is proven that they have been carried out in accordance with the approved project.

The basic project, written by a competent technician, must contain:

- a) The characteristics of the installations and works.
- b) The extent of the MTPD to be occupied or used.
- c) Memory with the express statement of compliance with the Coast Law and the general and specific rules issued for its development and implementation. The provisions of the project must be compatible with the current urban planning and must be included in the project.
- d) Basic criteria of the project, the programme for carrying out the work and, where appropriate, the waste-water disposal system
- e) Plans, with representation of the boundary, of the area to be occupied and its easements.
- f) Photographic information of the area.
- g) Budget for the work.

Once the title has been obtained, and before starting the work, the construction project will be formulated, without prejudice to the fact that it may be presented initially as a replacement for the basic one.

It is important to emphasize that the project must provide for the adaptation of the works to the environment in which it is located and the influence or not of these on the coast. This is done through a basic study of the dynamics of the corresponding coastal physiographic unit, which must contain the following aspects (article 92 of RD 1471/1989):

- a) Study of the transport capacity of the coast.
- b) Sedimentary balance and evolution of the coastline, both previous and foreseeable.
- c) Maritime climate, including statistics on waves and directional and scalar storms.

- d) Bathymetry until areas of the bottom that are not modified, and form of balance, in plan and profile, of the section of coast affected,
- e) The geological nature of the seabed.
- f) Conditions of the underwater biosphere.
- g) Available aggregate resources and their suitability for the provision of dredging or sand transfer.
- h) Plan for monitoring planned actions.
- i) Proposal for minimising, where appropriate, the impact of the works and possible corrective and compensatory measures.

6.2.3 Administrative titles

The administrative title varies depending on time permanence, work requirements and/or fixed or removable installations: (i) authorizations and (ii) concessions.

- **Authorizations:** an authorization procedure starts when the application, together with credentials identifying the applicant and representative person, as well as previously related documentation, is presented in the Coast Service Peripheral. Once the project is examined, after paying the applicable fees, field confrontation will follow, aimed at determining its suitability and feasibility. A project's report will be submitted to Guildhalls, where the object of authorization may be developed, and to the Autonomous Community, the competent entity in navigation issues in case the works or installation may imply a risk on maritime safety, and any other entities that may be involved. Authorizations with analogous criteria are granted by the Coast Service Peripheral.
- **Concessions:** regarding concessions (which is the case of WTE projects), the Project must be submitted for public information for a time period of twenty days, simultaneously to the report to official entities. In case consent is granted, the applicant will comply with the conditions set thereby. In case of agreement, the Ministry of Rural, Marine and Natural Environment will discretionally determine if the concession is finally granted.

Application deadlines of the files are set to be four months for authorizations and eight months for concessions.

6.2.4 Effects of the titles

The authorizations have a maximum term of 4 years.

Concessions have a maximum term of 75 years.

6.3 Environmental Impact Assessment (EIA)

The incorporation of European regulations in Spain was carried out by means of *Royal Legislative Decree 1302/1986, of 28th June, on Environmental Impact Assessment*, whose implementing regulations were approved in 1988 by Royal Decree 1131/1988.

After a minor modification in Annex I operated by *Law 54/1997 of 27 November 1997 on the electricity sector*, the first significant modification of Royal Legislative Decree 1302/1986 was carried out with *Law 6/2001 of 8 May*, previously with *Royal Decree-Law 9/2000 of 6 October*, which transposed Council Directive 97/11/EC of 3 March 1997 and corrected certain deficiencies in the transposition of Council Directive 85/337/EEC of 27 June 1985, which had been denounced by the European Commission. In 2003, *Law 62/2003 of 30 December 2003 on fiscal, administrative and social order measures* amended Royal Legislative Decree 1302/1986 in four of its provisions.

In 2006, two significant modifications were made to the aforementioned Royal Legislative Decree. Thus, *Law 9/2006, of 28 April, on the assessment of the effects of certain plans and programmes on the environment* introduced important changes to comply with the Community requirements of the aforementioned directives, as well as to clarify and streamline the environmental impact assessment procedure.

On the other hand, *Law 27/2006, of 18 July, which regulates the rights of access to information, public participation and access to justice in environmental matters*, allowed the adaptation of the basic regulations on environmental impact assessment to *Directive 2003/35/EC of the European Parliament and the Council, of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC*.

This amendment brought about the real and effective recognition, throughout the EIA procedure, of the right of public participation as provided for in the United Nations Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, done at Aarhus, Denmark, on 25 June 1998.

The number and significance of the amendments made revealed the need to adopt a recast text which, in the interests of the principle of legal certainty, would regularise, clarify and harmonise the existing provisions on environmental impact assessment of projects. This text was approved by means of *Royal Legislative Decree 1/2008, of 11 January, which approved the revised text of the Law on the Evaluation of the Environmental Impact of Projects (RDL 1/2008)*.

This recast is limited to the evaluation of the environmental impact of projects and does not include the environmental evaluation of plans and programmes regulated by *Law 9/2006, of 28 April, on the evaluation of the effects of certain plans and programmes on the environment*.

The need to adapt the environmental impact assessment within a precise and determined time frame made it necessary to make some regulatory adjustments to the rewritten text of the Law on the assessment of the environmental impact of projects approved by RDL 1/2008, of 11 January. Thus, Law 6/2010, of 24 March, presents the necessary modifications to establish this temporary framework.

In general, these regulations establish, on the one hand, the administrative procedure for the EIA and, on the other, the set of projects that must be submitted to this procedure.

Finally, in 2013, the *Law 21/2013, of 9 December, of environmental assessment* unified two provisions in a single regulation: the *Law 9/2006, of 28 April, on the evaluation of the effects of certain plans and programmes on the environment*, that is, the Strategic Environmental Assessment (SEA) and the *Royal Legislative Decree 1/2008, of 11 January, approving the revised text of the Law on the evaluation of the environmental impact of projects and subsequent modifications to the aforementioned revised text*. This law establishes the environmental impact assessment procedures for plans and programmes, i.e. the so-called Strategic Environmental Assessment (SEA) and the environmental impact assessment (EIA) of projects. For both procedures, two processing routes have been established: ordinary and simplified which will be explained later.

According to Law 21/2013, of 9 December, all projects devoted to the production of energy on the marine environment are subject to environmental evaluation through a simplified EIA process.

In the case of plan and programmes, in 2020, the Directorate General for the Coast and Sea (DGCS) of the Ministry for Ecological Transition and the Demographic Challenge (METDC) began to draw up plans for maritime spatial planning, in

accordance with Royal Decree 636/2017 of 8 April, which establishes a framework for maritime spatial planning which will be subject to the ordinary SEA procedure. Among other activities, all projects devoted to the production of energy on the marine environment that will contribute to the objectives established in the National Integrated Energy and Climate Plan, 2021- 2030 are subject of this maritime spatial planification.

6.3.1 Strategic Environmental Assessment (SEA)

Chapter I of the Title II of the Law 21/2013 contains the provisions relating to SEA, regulating the ordinary and simplified procedures.

6.3.1.1 Ordinary procedure of SEA

The ordinary SEA procedure will contain the following steps:

- a) **Application to the initiation of the ordinary SEA procedure:** the developer shall submit to the substantive body, together with the documentation required by the sectoral legislation, a request to initiate the ordinary SEA, accompanied by the draft plan or programme and an initial strategic document (ISD) containing at least the following information:
 - i. The objectives of the planning.
 - ii. The scope and content of the proposed plan or programme and its alternatives reasonable, technically and environmentally feasible.
 - iii. The predictable development of the plan or programme.
 - iv. The potential environmental impacts taking into account the climate change.
 - v. Foreseeable impacts on sectoral and territorial plans concurrent.

Once the substantive body checks that all the documentation sent by the developer is correct, it will send the request for initiation and the documents that must accompany it to the environmental body. Within twenty working days from the receipt of the request to initiate the ordinary SEA, the environmental body may resolve its inadmissibility.

- b) The environmental body shall submit the draft plan or programme and the ISD for consultation by the public administrations concerned and interested persons, who shall give their opinion within forty-five working days of receipt.

The environmental body will have a maximum period of three months, counting from the reception of the request to start the ordinary SEA, accompanied by the draft plan or programme and an initial strategic document, to carry out the foreseen consultations and to elaborate a document of **scope of the strategic environmental study (SES)**.

Once the responses to the consultations have been received, the environmental body will prepare and send to the promoter and the substantive body the document on the **scope of the SES**, together with the responses received to the consultations made.

- c) **Preparation of SES:** taking into account the scoping document, the developer shall prepare the SES, which shall identify, describe and evaluate the likely significant environmental effects of implementing the plan or programme, as well as reasonable alternatives that are technically and environmentally feasible, taking into account the objectives and geographical scope of the plan or programme.

The developer will prepare the initial version of the plan or programme taking into account the SES and will submit both documents to the substantive body.

- d) The substantive body will submit both documents to **public information**. Simultaneously with the public information process, the substantive body will submit the initial version of the plan or programme, accompanied by the SES, for **consultation with the public administrations concerned and interested persons** which shall have at least forty-five working days from the submission of the initial version of the plan or programme, accompanied by the SES, to issue such reports and claims as they deem appropriate.

Taking into account the claims made in the public information and consultation procedures, including, where appropriate, transboundary consultations, the developer shall, if necessary, modify the SES and prepare the final proposal for the plan or programme.

The maximum term for the elaboration of the SES and for the realization of the public information and the foreseen consultations will be fifteen months from the notification to the promoter of the document of scope.

- e) Technical analysis of the dossier: the substantive body shall forward to the environmental body the complete strategic environmental assessment dossier, consisting of:

- i. The final proposal for the plan or programme.
- ii. The strategic environmental study.
- iii. The result of the public information and consultations, including if necessary cross-border consultations as well as their consideration.
- iv. A summary document in which the developer describes the integration into the final proposal of the plan or programme of the environmental aspects, the SES and its appropriateness to the scope document, the outcome of the consultations and how they have been taken into account.

The environmental body will carry out a technical analysis of the dossier, and an analysis of the significant environmental impacts of implementing the plan or programme, which will take into account climate change.

- f) **Strategic environmental statement (SESt):** once the technical analysis of the dossier has been completed, the environmental body will formulate the SESt within four months of receiving the complete file, which may be extended for a further two months for justified reasons duly justified and communicated to the developer and the substantive body.

For the technical analysis of the file and the formulation of the strategic environmental statement (SESt), the environmental body will have a period of four months, extendable by two more months.

6.3.1.2 *Simplified procedure of SEA*

The ordinary SEA procedure will contain the following steps:

- a) **Application to the initiation of the simplified SEA procedure:** the developer shall submit the substantive body, together with the documentation required by sectoral legislation, a request to start the simplified SEA, together with a draft of the plan or programme and a strategic environmental document (EED). Within twenty working days from the receipt of the request to initiate the simplified SEA, the environmental body may resolve its inadmissibility or not.
- b) **Consultations with the public administrations concerned and interested persons:** the environmental body shall consult the public administrations concerned and interested persons, making available to them the EED and the draft plan or programme. They will have a maximum of forty-five working days from the receipt of the request for a report for making any comment or amendment.

- c) **Strategic Environmental Report (SER):** the environmental body, taking into account the outcome of the consultations carried shall decide by issuing the strategic environmental report (SER) within four months of receiving the request to initiate and the documents that must accompany it. The resolution may determine:
- a. The plan or programme should be subject to regular strategic environmental assessment because of the potential for significant environmental effects.
 - b. The plan or programme has no significant impact on the environment, in the terms set out in the strategic environmental report.

6.3.2 EIA of projects

Chapter II of the Title II of the Law 21/2013 regulates the evaluation of environmental impact of projects with a greater degree of detail than the previous law did, providing greater legal security. It may be, like the strategic one, **ordinary** or **simplified**.

6.3.2.1 Ordinary procedure of EIA

Section 1 regulates the ordinary procedure of environmental impact assessment, which applies to the projects listed in Annex I, including some new features in view of the experience acquired and the problems diagnosed.

The procedure itself is initiated when the substantive body²⁴ sends to the environmental body²⁵ the complete dossier, which includes:

- a) the project,
- b) the EIS and;
- c) the result of the public information and consultations with the public administrations concerned and interested persons.

However, prior to the procedure, a series of formalities must be carried out, some of which are obligatory and others optional.

The first of these preliminary procedures is to determine the **scope of the EIS** which, as a novelty in this law, will be voluntary for the developer, as provided for in Directive

²⁴ That body of the state, regional or local public administration competent to authorise or approve projects to be submitted to environmental impact assessment

²⁵ That body of the state or regional public administration competent to assess the environmental impact of projects.

2011/92/EU of the European Parliament and Council of 13 December. Thus, the developer may request, in accordance with Article 34, that the environmental body draw up the document containing the scope of the environmental impact study. The maximum period for its preparation is three months.

To this end, the developer shall submit to the substantive body a request for determination of the scope of the environmental impact study, accompanied by the initial project document, which shall contain at least the following information:

- a) The definition, characteristics and location of the project
- b) The main alternatives being considered and an analysis of the potentials impacts of each of them.
- c) A territorial and environmental diagnosis affected by the project.

Once the substantive body has formally verified the adequacy of the documentation submitted, it will send it, within ten working days, to the environmental body for the preparation of the document with the scope of the environmental impact study.

For the elaboration of the document of scope of the environmental impact study, the environmental body will **consult the affected public administrations and interested persons**. The public administrations concerned and the interested persons consulted must give their opinion within a maximum period of thirty working days from the receipt of the documentation. The law establishes, for the first time, that the report of the body with jurisdiction over the environment of the Autonomous Community, the report of the basin body, the report on cultural heritage and, if appropriate, the report on the maritime-terrestrial public domain (MTPD) will be mandatory.

Once the responses to the consultations have been received, the environmental body will prepare and send the document on the scope of the environmental impact study to the promoter and the substantive body, together with the responses received to the consultations made within a period of 3 months.

The public information and consultation procedures will be valid for one year from their completion. Once this period has elapsed without the ordinary environmental impact assessment having been initiated, the substantive body shall declare the expiry of the aforementioned procedures.

After the previous actions above mentioned, the evaluation of ordinary environmental impact will be developed through the following procedures:

- 1) Application to the initiation of the EIA process.

- 2) Technical analysis of the environmental impact dossier.
- 3) Environmental impact statement (EIS)

Once the above procedures have been completed the **application to the initiation of the EIA process can be started**. This application is based on the preparation of the environmental impact study (EIS) and the implementation of a public information process and a consultation procedure with the public administrations concerned and interested persons.

The developer shall **prepare the environmental impact study (EIS)** containing at least the following information:

- a) General description of the project and forecasts over time of the use of the land and other natural resources. Estimates of the types and quantities of waste discharged and resulting material or energy emissions.
- b) A statement of the main alternatives studied, including the zero alternative, or no project, and a justification of the main reasons for the solution adopted, taking account of the environmental effects
- c) Assessment and, where appropriate, quantification of the foreseeable direct or indirect, cumulative and synergistic effects of the project on people, human health, flora, fauna, biodiversity, geodiversity, soil, subsoil, air, water, climatic factors, climate change, landscape, physical assets, including cultural heritage, and the interaction between all those factors, during the execution, operation and, where appropriate, demolition or abandonment phases of the project. Where the project is likely to have a direct or indirect impact on Natura 2000 sites, a specific section shall be included for the assessment of the impact on the site, taking into account the objectives of conservation of the site.
- d) Measures to prevent, correct and, where necessary, offset adverse effects on the environment.
- e) Environmental monitoring programme.
- f) Summary of the study and conclusions in easily understandable terms.

Then the promoter will present the project and the EIS to the substantive body, which shall submit them to **public information** for a period of not less than thirty days.

In parallel to the public information process, the substantive body will **consult the public administrations concerned and the persons interested**. They will have a maximum

period of thirty working days from the receipt of the notification to issue the reports and make any allegations they deem relevant. The following reports should be requested by the substantive body on a mandatory basis:

- a) The report of the body with responsibility for the environment in the autonomous community in which the project is located.
- b) The cultural heritage report, where appropriate.
- c) The report of the body with competence in matters of public water, where applicable.
- d) The maritime-terrestrial public domain report, where appropriate.

Within a maximum period of thirty working days from the completion of the public information and consultation procedures with the public administrations concerned and interested persons, the substantive body shall send the reports and allegations received to the developer for consideration in the drafting, where appropriate, of the new version of the project and in the EIS.

Then, as stated before, the procedure itself is initiated when the promoter send to the sustantive body, together with the documentation required by the sectoral legislation, a request to start the ordinary environmental impact assessment procedure, accompanied by the following documentation which shall constitute the minimum content of the environmental impact assessment dossier:

- a) the project,
- b) the EIS and;
- c) the result of the public information and consultations with the public administrations concerned and interested persons.

Once the due verifications have been made, the substantive body will send the request for initiation and the documents that must accompany it to the environmental body.

Within twenty working days from the receipt of the request to initiate the ordinary environmental impact assessment, the environmental body may decide that the dossier is inadmissible.

Then the environmental body will carry out a **technical analysis of the environmental impact dossier**, evaluating the environmental effects of the project, in particular, how the result of the public information process, the consultations with the affected public administrations and the interested parties and, if applicable, the result of the

transboundary consultations have been taken into account. Climate change will also be taken into consideration.

If during the technical analysis of the environmental impact dossier the environmental body considers that the public information or consultations have not been carried out in accordance with the provisions of this law, it shall require the substantive body to correct the environmental impact file within three months.

Once the dossier has been admitted and after its technical analysis, the procedure ends with the resolution by which the **environmental impact statement (EIS)** is formulated, which will determine whether or not the project should be carried out for environmental purposes and, if so, the environmental conditions under which it can be developed, the measures to correct the negative environmental effects and, if appropriate, the compensatory measures for the aforementioned negative environmental effects. The EIS shall be of the nature of a mandatory and authoritative report and shall determine whether or not, for environmental purposes, the implementation of the project and, where appropriate, the conditions under which it may be carried out, the remedial measures and compensatory measures.

6.3.2.2 *Simplified procedure of EIA*

Section 2 of Chapter II regulates the simplified environmental impact assessment procedure, to which the projects included in the Annex II and those that are not included in Annex I or Annex II if they can directly or indirectly affect Natura 2000 sites should be submitted.

The procedure starts with the **request to start the simplified environmental impact assessment procedure** that the developer shall present to the substantive body together with an **environmental document** with the following content:

- a) The reasons for the application of the simplified environmental impact assessment procedure.
- b) The definition, characteristics and location of the project.
- c) A statement of the main alternatives studied and a justification of the main reasons for the solution adopted, taking into account the environmental effects.
- d) An assessment of the foreseeable direct or indirect, cumulative and synergistic effects of the project on the population, human health, flora, fauna, biodiversity, soil, air, water, climatic factors, climate change, landscape, material assets, including cultural heritage, and the interaction between all those factors, during

the execution, operation and, where appropriate, demolition or abandonment phases of the project

- e) Where the project is likely to have a direct or indirect impact on Natura 2000 sites, a specific section shall be included for the assessment of the impact on the site, taking into account the objectives of conservation of the site.
- f) Measures to prevent, reduce, compensate and, as far as possible, correct any significant negative environmental impact of the implementation of the project.
- g) The way to carry out the monitoring that guarantees the fulfilment of the indications and protective and corrective measures contained in the environmental document.

Once it has been verified that all the documentation is correct, the substantive body will send the request for initiation and the documents that must accompany it to the environmental body. Within twenty days from the receipt of the request to initiate the simplified environmental impact assessment procedure, the environmental body may resolve its inadmissibility.

A key step in this procedure, as in the others, is **public consultation**, which must be carried out with the administrations concerned, and as a novelty, the persons concerned must also be consulted. Thus, the environmental body will consult the affected public administrations and interested persons, making available to them the environmental document of the aforementioned project. They must take a decision no later than 30 days after receipt of the request for a report.

The environmental body will formulate the **environmental impact report** within three months of receiving the request to initiate and the documents that must accompany and the result of the consultations carried out. This environmental impact report may determine that:

- a) The project has significant effects on the environment and consequently must be evaluated through an ordinary environmental impact assessment procedure.
- b) The project does not have significant effects on the environment, in terms set out in the environmental impact report.

It should be noted that the law expressly indicates, for the first time, that if the simplified procedure concludes with the need to submit the project to ordinary procedure, the actions carried out will be kept, so that it will not be necessary to carry out new consultations if the developer decides to ask the administration to determine the scope and content of the environmental impact study.

6.4 Compatibility with the strategies for marine environment protection

The *Royal Decree 79/2019 of 22 February regulating the compatibility report and establishing the criteria for compatibility with marine strategies* develops the consenting procedure of the compatibility reports to be issued by the Ministry for the Ecological Transition and Demographic Challenge (METDC) regarding "the compatibility of the activity or spill with the corresponding marine strategy in accordance with the criteria to be established by regulation", required by article 3.3 of *Law 41/2010, of 29 December, on the protection of the marine environment*.

Annex I of *Royal Decree 79/2019* defines the actions that must have a report on compatibility with the marine strategies, including, in section M "Renewable energies at sea". In addition, the indicative list of environmental objectives of the Marine Strategies to be considered in the compatibility analysis of actions is set out in ANNEX II.

The content of the compatibility report is defined in the section 2.c of the article 5 of the *Royal Decree 79/2019*. This is the following:

1. Report justifying the compliance of the action with the compatibility criteria.
2. Report on the project's contribution to the achievement of environmental objectives.
3. Specific analysis in relation to the protected values present in these areas and a justification that the action is compatible with the conservation of these values.

6.5 Authorities involved

The distribution of competences between the State and the Autonomous Communities arises, in essence, from the Spanish Constitution (specifically from articles 148 and 149) and the Statutes of Autonomy of the latter. Thus, the specific distribution of powers in the Spanish electricity sector has been specified by *Law 54/1997, of 27 November, on the Electricity Sector*.

As established in article 113 of *RD 1955/2000*, the competences over electricity production, transmission and distribution facilities are held by the General State Administration and shall be exercised by the **Directorate General for Energy Policy and Mines (DGEPM)** of the current Ministry for the Ecological Transition and Demographic Challenge (METDC), without prejudice to those expressly attributed to the Council of Ministers.

The processing of the authorisation, specifically the declaration of public utility and approval of the project for the execution of electrical installations will be carried out by the areas or, where appropriate, the Industry and Energy Departments of the Government Delegations or Sub-delegations of the provinces where the installation is located.

In addition to the competences set out in RD 1955/2000, in relation to electricity generation facilities, and in accordance with the provisions of article 3 of RD 1028/2007, it is the responsibility of the Ministry for the Ecological Transition and Demographic Challenge (METDC), through the **Directorate General for Energy Policy and Mines (DGEPM)**, as the substantive body, to grant administrative authorisation for the construction, extension, modification and closure of facilities.

On the other hand, it is the responsibility of the Ministry for the Ecological Transition and Demographic Challenge (METDC), through the **Directorate General for Sustainability of the Coast and the Sea (DGSCS)**, to grant the authorizations and concessions for the occupation of the maritime-terrestrial public domain (MTPD) required for the installation of a marine electricity generation park. In addition, the Ministry for the Ecological Transition and Demographic Challenge (METDC), through the **Directorate General for Environmental Quality and Assessment (DGEQA)**, will act as the environmental body in the environmental assessments carried out in application of RD 1028/2007.

When the activities required to carry out electricity generation installations in the territorial sea affect maritime safety, navigation and human life at sea, the Ministry of Transport, Mobility and Urban Agenda, through the **Directorate General of the Merchant Navy (DGMN)**, will be responsible for authorising such activities.

In the case of occupation of the public port domain, the competent **Port Authority (PA)** will grant the corresponding authorisation or concession, in accordance with the provisions of the applicable sectorial legislation.

Regional governments can participate in the process depending on their competences. In particular, regional governments (there are 17 in Spain) are the decision-making bodies when the site is in internal waters (i.e. sea areas lying between two capes).

7. Risk-based approach – general considerations

According to Le Lievre *et al.* (2016), a risk-based approach to consenting is an element of Adaptive Management (AM): a structured process that enables learning by doing and adaptation based on lessons learned. The goal of AM is to reduce scientific uncertainty and associated consequences in terms of likelihood and magnitude of potential impact. Consequently, AM does not presuppose that improved decisions related to MRE and wildlife conflicts will equate to less or more environmental risk, rather only that reduced uncertainties will lead to improved decision-making. It requires decision makers to manage the risk of unacceptable impacts occurring, whilst allowing changes in the environment to be monitored, aiming at reducing scientific uncertainty and adapting future management on the basis of actual data derived from the monitoring program.

The AM process can be broken down into a few steps:

- a) identify the fields where environmental management decisions need to be made;
- b) make decisions based on the best available information;
- c) monitor the impacts of these decisions;
- d) adjust decisions based on monitoring results;
- e) repeat the monitoring and adjustment process.

AM can be applied at several different scales, including at the project scale, where an AM approach is used to address scientific uncertainty and help inform future management decisions (e.g., implementation of mitigation measures) of an individual project, and at the planning scale, using data and outcomes from individual and multiple projects to inform future regulations and development and management decisions. The data collected may be similar for assessing scientific uncertainty and informing management decisions at both scales, but the spatial and temporal extent of monitoring data collection and the analyses of the data at the two scales may differ (Hanna *et al.*, 2016).

According to Hanna *et al.* (2016), several key components distinguish AM from other decision-making processes:

- a) A Question-Driven Approach: AM seeks to address scientific uncertainty and improve understanding of an environmental system using a question-driven, hypothesis-based approach. Stakeholder engagement should play a role throughout the AM process to generate initial research questions, review

monitoring results, observe outcomes of management decisions, and ensure all affected individuals and organizations support AM objectives.

- b) **Adaptability:** the AM process relies on maintaining a certain level of adaptability (flexibility) to ensure informed management decisions can be made in the face of uncertainty; as new information is gathered, management decisions may be amended to better accommodate the environmental system and the goals set forth by the AM process. Because of the inherent natural variability of environmental systems and the inevitable measurement errors when measuring environmental interactions, uncertainty is a key attribute that must be accommodated by natural resource management.
- c) **An Iterative Process:** AM should be thought of as an iterative cycle or feedback loop of monitoring, evaluation, and management adjustments that focuses on learning about the impacts of management. As information and data are gathered over time, management approaches and decisions can be adapted to better accommodate the ecological process or system being managed, thereby leading to better understanding of the targeted ecological system and improved management decisions.

An example of a risk-based policy is the Survey, Deploy & Monitor (SDM) methodology applied by Marine Scotland to wave and tidal energy projects studied under RICORe project. It is based upon 3 factors: (i) the environmental sensitivity of the proposed development location; (ii) the scale of the proposed development and; (iii) the device or technology classification. According to Bald *et al.* (2015) the focus of this policy is on the extent of site characterisation surveys and device testing that is appropriate to inform the consenting process, in relation to the perceived relative environmental risk posed by the development:

- a) Proposals assessed as high risk or uncertainty a minimum of 2 years site characterisation data would be necessary to support an application.
- b) Proposals assessed as medium risk or uncertainty require an approach intermediate to that of High and Low risk schemes. The initial presumption would be that 2 years of site characterisation data would be required. However, if Marine Scotland considers after one year that the environmental risk is less than anticipated, or that the data gathered to date have been adequate to inform both the EIA and Habitats Regulation Assessment (HRA) processes, then they would be prepared to discuss relaxation of the requirements for further site characterisation, on receptor-specific or hazard-specific bases.

- c) Proposals assessed as low risk or uncertainty a 1 year of site characterisation data (or equivalent) to inform an EIA, HRA (if this is required) and licence application is required.

This approach has proved most successful when adequate baseline data exist (Wright, 2014). Reduced data presentation or collection requirements, in relation to lower risk proposals, should facilitate earlier consenting decisions and more rapid build out of overall low risk projects. According to O'Hagan (2016), it can reduce the time taken to obtain consent in less sensitive locations where projects are of lower risk. A tailored monitoring plan will help reduce environmental uncertainty by gathering information on how marine renewable energy devices actually interact with the environment. These findings can then be utilised by the consenting authority when dealing with future project applications.

Other recent approach is that developed by Ocean Energy Systems (OES) OES-Environmental task (the task formerly known as Annex IV) under the concept of "risk retirement" developed by Copping et al. (2016; 2020) and Copping (2018) which is also inspired on the concepts of AM and risk-based approach above described.

According to these authors, risk can be defined as the likelihood of an adverse outcome from an action and can be evaluated by the probability of the occurrence of an event, as well as its resulting consequence (Copping *et al.*, 2015). In a new industry like MRE, there may be interactions between devices and marine animals or habitats that regulators or stakeholders perceive as risky. In many instances, this perception of risk is due to the high degree of uncertainty that results from a paucity of data collected in the ocean. However, the possibility of real risk to marine animals or habitats cannot be discounted; the lack of data continues to confound our ability to differentiate between real and perceived risks. Perceived risks to the marine environment from MRE devices can be examined based on the level of uncertainty associated with the specific interaction of concern. These perceived risks can be classified into three categories according to Copping et al. (2016):

- low-risk interactions that have been discounted or retired from ongoing monitoring; these risks could also include those that are well understood but might potentially be significant.
- interactions that have a high level of uncertainty associated with the risk they may pose to the marine environment, and require further monitoring and perhaps an AM approach prior to scaling up to arrays to determine this level of risk; and

- interactions that are known to be related to high levels of risk to the marine environment, and that will require mitigation through improved siting, improved design or operation of the devices, and perhaps an AM approach, prior to scaling up to arrays. In certain jurisdictions that require mitigation, standard environmental mitigation and management measures can be used to mitigate the effects.

According to Copping et al. (2016; 2020), in order to move forward with a viable industry, these risks need to be understood and managed. Those interactions that are not causing harm to the marine environment need to be “retired,” and the focus of research and monitoring studies needs to be directed toward higher priority interactions. Eventually all interactions should be retired or mitigated through a range of actions including avoidance and minimization. The risk retirement process helps determine which interactions of MRE devices and the marine environment are low risk and may be “retired”, and which may need further data collection or mitigation applied to reduce the risks to an acceptable level. Sufficient data are needed for risk retirement; transferring data and information from consented/permitted (hereafter, consented) projects can assist regulators in their determinations and inform developers and other stakeholders of what level of data collection might be expected. If data from baseline assessments and post-installation monitoring programs are collected consistently, the results can be evaluated and applied to increase understanding of the environmental effects, supporting more efficient consenting processes and reducing scientific uncertainty.

The steps in the risk retirement process are the following (Figure 7.1):

1. Determine if a likely/plausible risk exists for a particular project;
2. Determine whether sufficient data exists to demonstrate the significance of the risk;
3. Collect additional data to determine whether the risk is significant;
4. Apply existing mitigation measures to determine whether the risk can be mitigated (if so, the risk can be retired); and
5. Test novel mitigation measures to determine whether the risk can be mitigated (if so, the risk can be retired).

If none of the steps can determine the risk to be insignificant, the project will need to be redesigned or perhaps abandoned. Between and among the steps in the risk

retirement process there is a need to examine available data and mitigation measures in order to provide feedback among steps.

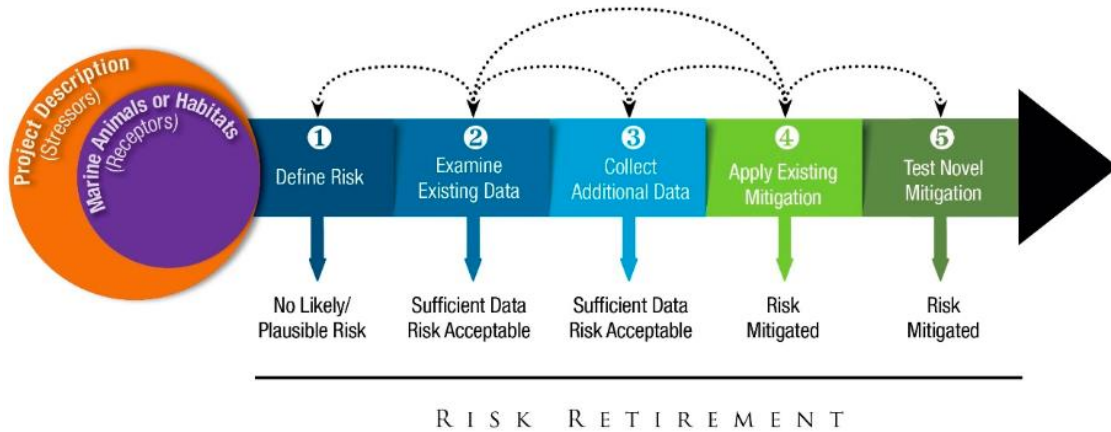


Figure 7.1 - Risk retirement pathway (taken from (Copping et al., 2020)). Starting from the left, the project must be described (stressors or pressures, orange circle), followed by identifying the presence of animals and habitats that may be at risk receptors, purple circle). Five stage gates follow that allow retirement of risk at each stage. The dotted lines and arrows above the pathway indicate the application of datasets from previously consented marine renewable energy (MRE) projects and research studies that inform each step in the process and create feedback loops (data transferability).

Inherent in the process of risk retirement is the availability of sufficient data and information to support a common understanding of the potential environmental risks from MRE devices (Copping et al., 2020). This process, called data transferability, focus on ensuring that datasets from consented MRE projects are readily available and catalogued so that a project subject to consenting and licensing permission can be compared to an already consented project in terms of the stressor/receptor interactions, the size and technologies involved in the projects, and the methodologies used to collect data.

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