Civil society involvement and social acceptability of marine energy projects

Best practices of the marine energy sector

Marine Energy in Far Peripheral
and Island Communities

experiences from mature offshore wind farms and other relevant marine projects have transferable best practices.

This is not a step by step guide and it is to be complemented by another document including a toolbox and associated methodology.

1 Preliminary note

The best practice guidelines result from a need expressed by public and private partners of the MERiFIC project (Marine Energy in Far Peripheral and Island Communities - http://www.merific.eu/).

This document is based largely on the experiences of developers; the lessons learned will be complemented by additional documents to be developed by MERiFIC, particularly other deliverables within WP6.

This document stands as a state-of-the-art compilation of practices about social acceptance of marine energy projects and other relevant projects (off-shore wind, marine related processes, and innovative onshore energy projects).

Danish offshore farm Horns Rev 2. Source: Nass&Wind ï 2010.

2 Introduction & objectives

In the context of a proactive European energy policy which has pushed forward the agenda on sustainability, competitiveness and security of supply for a decade (Ecorys et al, 2012) marine renewable energy has been identified as a potentially important contributor. This drive has been strengthened by key EU legislation and policy starting with the 'Renewable Energy Sources Directive' (EC, 2001 and 2009) which require that, by the year 2020, 20% of total energy consumption in the EU comes from renewable sources (up from 8.5% in 2008).

More recently, the Europe 2020 Strategy and its Resource Efficiency flagship initiative (COM, 2011) has come into being, aimed at leading the EU towards an economy that respects resource constraints and planetary boundaries by 2050. Finally, their translation for the marine sector was developed in the Blue Growth policy which identified marine energy as a key emerging area (Ecorys et al, 2012).

Various technologies make up marine energies ranging from offshore wind turbines to tidal range and current up to experimental technologies such as pressure (retarded) osmosis[1] or Ocean thermal energy conversion[2]. However, , this guide will focus specifically on the intermediate technologies harnessing wave, tidal and current energy through fully or semi-submerged devices; offshore wind is also included as it is the only marine-based systems developed to industrial scale..

Box 1 presents a definition of these main technologies and Table 1 the current and future likely development of offshore wind energy in the EU.

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BOX 1. Focus on marine energies (according to Ecorys et al, 2012)

Tidal energy covers tidal range and tidal current energy. Tidal range is the only technology with long-term proven viability, but we consider the environmental implications of any new schemes to be prohibitive, at least in the European seas. Tidal current has proven to be technically feasible but costs are still too high to compete with other (renewable) energy sources. It is at the threshold of introduction;

Wave energy is still facing R&D challenges to be overcome before commercialisation comes into view. Technologies are not yet proven. Research is looking to cut down installation and operating costs. Several pioneering players have built up a prominent position over the past 10-15 years, while new entrants are arriving today indicating the segment is entering the market phase.

For more information:
http://www.aquaret.com/

[1] This technology harnesses the energy of a movement of water from low salinity content which permeates through a membrane into pressurized, high salinity water by depressurizing the permeate through a hydroturbine (Achili et al., 2009).

[2] This option is based on the thermodynamic potential between warmer upper waters and colder deeper waters (Ecorys et al, 2012)

Table 1. Projected electricity generation from offshore wind energy (GWh).

0	151	3984	6200
1456	2485	4920	5322
0	271	8004	31771
n.a.	n.a.	n.a.	563
n.a.	116	814	1742
n.a.	n.a.	n.a.	672
0	0	300	7753
0	0	8000	18000
0	0	453	2000
n.a.	n.a.	n.a.	391
n.a.	0	0	216
0	803	4147	19036
0	0	0	1500
0	0	60	180
0	n.a.	n.a.	2500
62	208	354	500
403	4630	18820	44120
1921	8664	49856	142466

Source: Adapted from Beurskens, Hekkenberg and Vethman (2011).

Marine energy technologies involve a great deal of research and development effort. The present level of development is comparable with the level of wind energy in of the 1980s (EC SETIS, 2011). As such they represent the smallest amount of EU renewables in 2010 with only about 0.5 TWh (EC, 2012). In terms of potential, Europe has an advantage amongst the Atlantic Arc countries (France, Ireland, Portugal, Spain, and the United Kingdom). Their energy potential is expected to multiply tenfold (Beurskens et al., 2011) and is detailed in Table2 with projection to the years 2015 and 2020

Table 2. Projected electricity generation from specifically marine renewable energies, (excluding offshore wind) (GWh).

535	500	789	1150
0	0	0	230
0	0	1	5
0	1	75	437
0	0	0	220
n.a.	0	0	3950
535	501	865	6506

Source: Adapted from Beurskens, Hekkenberg and Vethman (2011).

Marine renewable energy represents a range of technologies; each of these requires high levels of investment. This investment mainly supports offshore wind energy or technologies that are at the cutting edge and require support for R&D and demonstration. That said, smaller projects with lower investment needs can also emerge, particularly in the case of island and peripheral communities.

A major issue relating to deployment is the ability of developers to work with communities and stakeholders to both demonstrate the value of marine resources and ensure the benefits are shared by all.

Given the statutory obligations placing burdens on them, it is challenging for developers to examine the potential environmental impacts of installations and to varying degrees to place information into the public domain to reassure stakeholders that plans will be developed with due consideration to local concerns and needs.

How this is achieved is not outlined in European law, despite the Marine Strategy Framework Directive (MSFD ï EC, 2000) highlights the need to address local stakeholder concerns (Simas et al., 2012). Instead national governments must work out their own strategies to overcome the barriers to deployment and drive forward growth in the use of the different technologies.

An example of this pending issue is the way current French law accounts for the development of marine renewable energies (See Box 2) with a clear framework for environmental aspects and a preliminary understanding of marine areas conflicting uses..

Recent development experiences[3] of consenting processes suggest these were considered adequate by developers (Simas et al. 2012). In turn, stakeholders at similar sites highlighted that they were informed early in the process. However, the type of information was not necessarily adapted and the stakeholders involved could be seen as too restricted to representative bodies either voluntarily or because other groups faced material difficulties in participating. In general, satisfaction would depend on whether their views would be reflected in the final decisions about the project (Simas et al. 2012; SOWFIA, 2012).

The minimal legal duties required of developers do not necessarily provide genuine involvement and input into determining the scale and nature of new technologies affecting the stakeholdersô local areas. To support the response to the question of what is best practice in working with local communities, the MERiFIC project has developed this reference guide on current best practice from ongoing marine energy projects.

The guide looks at how developers and stakeholders build relationships that achieve the most benefits for all parties, whilst not undermining the fundamental reasons for development .Social acceptability and marine energy

[3] AMETS (Ireland), EMEC (Scotland), Bimep (Spain), Lysekil (Sweden), Ocean Plug (Portugal), SEM-REV (France) and Wave Hub (United Kingdom).

BOX 2. Focus: National legal framework/French Law

French law with regards to the development of marine renewable energy is currently under construction, This is also true for the consideration of social acceptance and civil society participation which is currently managed through authorisation procedures. It is necessary to look at how these notions are taken into account when lacking special dedicated legal instruments. Currently, it is mostly the Environmental Law that guarantees Public Information and Participation regulating projects with some sort of environmental impact. The following legal instruments are used as references:

- -Participation principle ; Right of access to Information and public association
- -Public inquiry : principles and how it implies to MRE
- -Public decisions with environmental impacts.
- -French Decree n° 2012-219 , February 16th 2012 regarding the « stratégie nationale pour la mer et le littoral et aux documents stratégiques de façade ».

The Charter of Environment and the Law guarantees access to information related to the environment and public participation in every public decision-making process, which has an impact on environment; maritime territories included. In turn, an administrative judge makes sure that Information and participation principles are respected notably at public meetings, public debates and Steering Committees composed of actors and representatives users. Notably The recently modified single public inquiry process (Decree December 29th 2011, in force since June 1st 2012) allows the public to participate through consultation and cooperation with stakeholders concerned by an activity or development project at sea,.

Finally, the Marine Strategy Framework Directive (MSFD-2008/56/CE (EC, 2008),) is transposed in France through the National Strategy for the Sea and Seaboard; and the implementation of the Integrated Management of the Sea and the Seaboard, promotes public consultation and cooperation at the maritime facade scale.

Although social acceptance and civil society participation is promoted through these processes favouring consultation, information and participation, the final decision-making power to grant an development authorization and an exploitation is a prerogative of central government which remains the only authority in this matter. Local level control is seen by many as more adapted to successful projects since local public authorities are more legitimate. However, these local

3 Social acceptability and marine energies : scope of the guide

This guide is designed for marine energy development in a European context. Whilst lessons can be drawn from other geographical areas and other energy sectors, caution needs to be applied to the degree of their transferability.

Social acceptability and marine energy: What is at stake?

Social acceptability suggests a degree of tolerance rather than necessarily willingness or contentment. The term does not necessarily reflect approval. The guide presents a few European examples that reinforce the key message of this report ï the needs and objectives of developers are best met by working with stakeholders and building trust, adopting collaborative rather than adversarial positions. The concept of social acceptance

captures a sense of the wide variety of ways in which society (public, communities, cultural and political groups, government bodies, etc.) responds to new developments (Stephenson and Ioannou, 2010).

To more precisely locate the focus of the work, it is useful to refer to the conceptual three le(e)-8(l)5(s 1)7(o)-8(r)7k dimeos 175(o)13(f)-25( )-8(a)13c(ce)13(p)-8(t)-8(a)13noc, amely aceptaca C52(o)-8(m)7(m)7(u)13noitceptc

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71%, against almost 5%) and very different from nuclear or coal with only 20 to 26% in favour. Despite dating back to 2006-2007, these opinion surveys provide the relative appreciation of the EU public towards most renewable technologies, as in Figure 2 below.

Please note that more recent opinion exercises have been conducted at project level and as such are presented in the relevant dimension "community level acceptance" below.

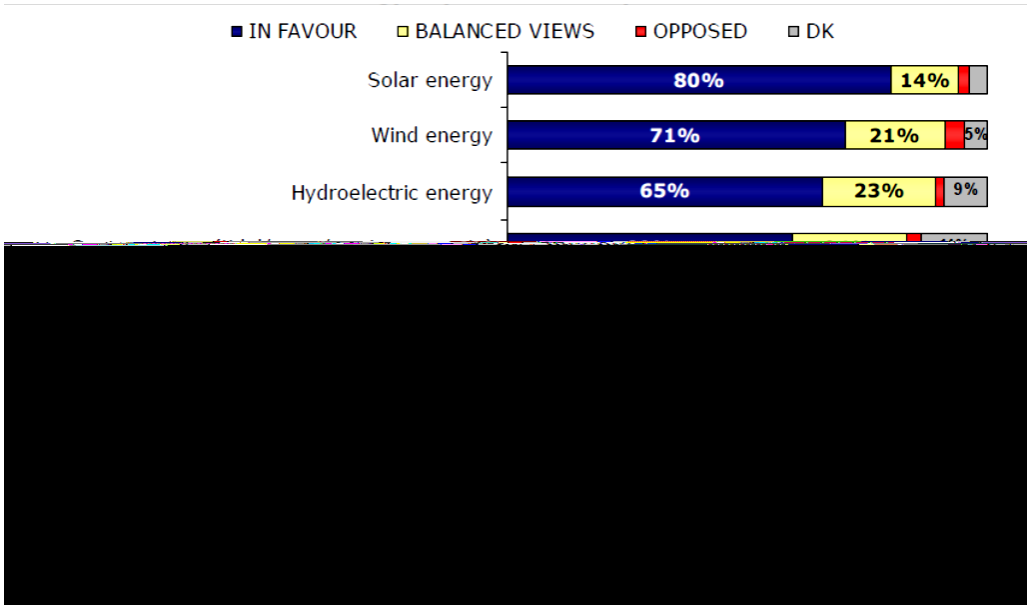


Figure 2. Views of EU citizens (EU25) on energy sources development in their country. Source: reproduced from EC (2007

Market acceptance can be associated with the concept of market penetration as it reflects adoption. In this sense, marine energy technologies have not reached maturity, and still have to climb up the penetration curve. Figure 3 illustrates the projected levels of maturity of different existing marine energies. The actual development and intake of the technologies is probably going to take longer than suggested by the diagram; however it provides an illustration of their relative position. The established position of fixed offshore wind is clear with respect to its floating counterpart or the submerged technologies.

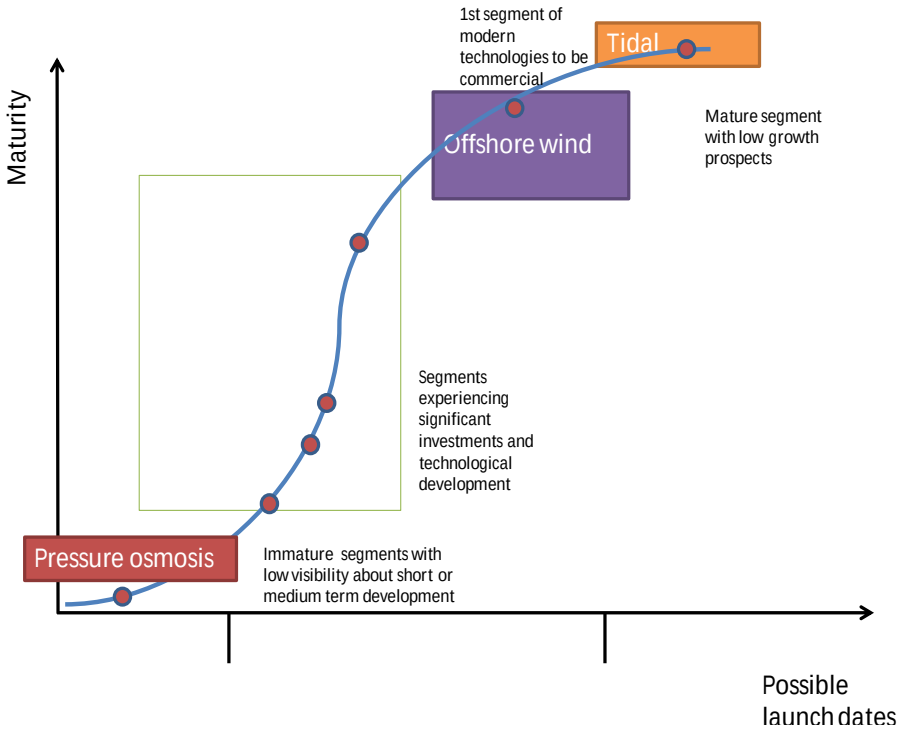


Figure 3. Projected maturity level of the 7 types of ocean energy, of which 5 are the focus of this guide on marine energies. Source: Adapted and translated from Indicta (2011)

This guide focuses on **community level acceptance.** Attention is given to the project level without de-linking it from the overall context as the three dimensions do not evolve independently. For example going back to the EU survey (EC, 2007), UK and French citizens expressed views close to the EU25 average of 60% (59% and 66%, respectively in favour) for marine or ocean energies. In contrast, in Denmark, public acceptance was up to 88% for marine energies and up to 93% for wind energy sources. The underlying factors influencing these national differences are highlighted here as they may help explain some differences between each countryôs level of community acceptance. More specifically recent surveys of stakeholders in EU experimental and test sites[5] suggest that local actors generally support marine energy (Simas et al. 2012).

It is in **community level acceptance** that issues related to NIMBYism (Not-in-my-

BOX3. Visual and seascape impacts.

The visual impact of wave and tidal facilities is recognised as being significantly lower than for wind turbines. There are however, visual impacts and even if out of sight, it doesn't mean out of mind (Bailey et al. 2011).

It might be expectedly tht marine renenwable energy facilities underwater or offshore would, in common with offshore wind turbines, pose fewer concerns for local communities, though not necessarily for interest groups – such as fishing associations or wildlife campaigners,.Offshore though is far more problematic for developers. Offshore construction costs are higher; maintenance grid connections and so on are all more complicated and thus more expensive than for onshore facilities. It is thus one of the aims of good stakeholder management to avoid costly facilities being sited offshore or too far away.

[5] Bimep (northern Spain), Lysekil in Sweden (Uppsala University), Ocean Plug (Portugal) and Wave Hub (United Kingdom).

back-yard) are expected to arise[6]. Social acceptance at a public level may co-exist with local/community level resistance (Wüstenhagen et al., 2007). That said, negative perceptions at both levels can co-exist, with differences in landscape effects explaining the variations for onshore wind farms in the case of the Netherlands (Wolsink, 2007 in Wüstenhagen et al., 2007).

For local acceptance of marine renewable energy projects ñlandscapeò (or seascape) is a key concept. Attachment to landscape identity should be understood as a critical variable of social acceptance (Firestone et al., 2009). This is a particularly important factor for offshore wind but less so for other types of partially or completely submerged marine energy systems. In contrast, the marine environment is particularly concerned by the potential conflict of uses, far more that terrestrial environments, even if it is not always spared. Indeed, the concept of private ownership of a marine area does not exist in the same way. Different sea area users coexist, at different times and at different depths (surface, intermediate waters, seabed).

Nevertheless, and although NIMBYism is present in many project experiences, NIMBYism is seen as a ñ*deficient conceptual basis from which to explain a lack of acceptance […] to energy technologies"* (Devine-Wright, 2009). In other words, dismissing a lack of acceptance due to NIMBYISM does not explain why local communities were not accepting of a development. As a ócatch-allôexplanation NIMBYISM is thus of limited conceptual value. Recent studies have been critical of such concepts, as evidence is inconclusive or because local communities favour such developments due to the expected diversification of economic activity on offer (Wolsink, 2007b ; Devine-Wright, 2009; Bailey et al., 2011). Exclusion of a set of actors during the decision making-process leads to misunderstanding, rejection, court appeals, and acts of sabotage or loss of trust that can be conflated with NIMBYism. Therefore more care is needed to understand the underlying factors determining local acceptance (or resistance as Devine-Wright points out (2009).

These factors can be divided as follows

i) concerns and the

ii) potential benefits foreseen by stakeholders.

Table 3 below briefly presents a synthesis of the issues that go beyond simply linking the closeness of location to possible rejection of the project as embodied in the simplest NIMBYism concept.

[6] As noted by Pécaud (2012), the feeling and level of appropriation of a land(sea) scape can vary producing various degrees of NIMBYism ; BANANA (Built Absolutely Nothing Anywhere Near Anything) ;LULU (Locally Unpopular Land Use) ; PITBY (Put in in their Back Yard) ; NOPE (Not on Planet Earth) ; NIABY (Not in Anybody's Back Yard) ; NIMFOS (Not in My Field of Sight) ; NINA (Ni Ici Ni Ailleurs) ;PUMA (Peut-être Utile Mais Ailleurs...).

Table 3. Main concerns and potential benefits perceived by stakeholders

Concerns	Expected benefits
¶ Conflicts with existing coastal and sea usage, mainly for fisheries and water-based leisure activities (i.e. tourism, surf, sailing and boating, etc) ¶ Potential negative environmental effects at construction phase and operation ¶ Visual impacts, particularly so for offshore wind farms but less so for more specifically marine technologies	¶ Direct benefits to the local economy through the diversification of activities and creation of new jobs[7], ¶ Technological/industrial tourism linked to the introduction of innovative devices ¶ Marine life in general and fish stock in particular could benefit from the creation of no-take fishing zones ¶ Self-sufficiency in electricity for island and peripheral areas

Source: Bailey et al. (2011); Simas et al. (2012) and 10 interviews conducted for this guide

During the consenting process though, one must not only satisfy the legal requirements of development, but also establish less formalised consenting agreements with interest groups, such as wildlife conservationists or particular groups, such as fishing unions or leisure, or sailing associations.

Social acceptability as regards marine energy is based on:

i) fulfilling statutory requirements such as impact assessments and health and safety measures, and going beyond them;

ii) gaining trust and consent from interest groups;

iii) ensuring high levels of support from the local community.

Much of these relationships are interdependent and no amount of public support will ensure a development goes ahead if it is not able to meet safety requirements..

[7] Stakeholders may be overexpecting the local job creation potential because of its very skilled labour needs (Devine-Wright, 2009; West et al. 2009) and slower than expected speed of development (EDF-interview, 2012)

4 Methodology

4.1 Sources of information

The methodology followed a qualitative approach. Existing sources of information were examined by conducting:

- A literature review, particularly from studies on onshore wind farms and recent marine energy projects (i.e. SOWFIA);
- Ten in-depth semi-structured interviews with actors across a number of different European Member States operating in wind (onshore, offshore, island), wave, tidal stream and tidal energy as well as related marine areas management.

The focus of the project on peripheral and insular areas of the EU drove orientated the choice of cases. The interview guide used to orientate the exchange is presented for reference in annex, along with the list of contacts and related projects. This information is completed by the presentation of a report-sheet for each of the cases developed in the framework of this study.

4.2 Limits of this approach to identify best practice

The document faced several limitations in its development. The first limitation is directly related to the emergent nature of the subject. Marine energies, with the exception of offshore wind, are not mature and their market penetration is rather limited, reducing the number of potential operating cases that could be surveyed in the context of this study. Most marine energy examples that could be identified were in their early phases of development or being developed as pilot projects that emphasise the technological dimension of marine energies over others. As such, there is a question of the extent to which conclusions emerging from the specifically marine (submerged) technology tests can be extrapolated to larger commercial farms.

The second limitation is that although broader perspectives are accounted for from the literature, the guide is mainly illustrated by experiences from developers. Very limited direct contact was established with other stakeholders, and those contacted were from a few research centres and involved public authorities. This restriction is due to the limited resources dedicated to this component of the MERiFIC project. Additional contacts with a broader range of stakeholders are however planned within MERiFIC WP6 and the elements brought forward through these contacts will clearly complement this document[8].

Most developers contacted responded to the invitation for an interview on the topic of social acceptability. However, despite the efforts deployed, two project representatives contacted did not participate in interviews, their projects being only partially covered by the literature review[9]. The details of the contact list are presented in the annex.

[8] The current PhD project from Plymouth University could provide such material and the first results of this part of the project could be joined up at one of the two workshops scheduled for 2013

[9] The Wave Hub and the SAM-REV projects

5 Overview of stakeholder involvement experiences of marine energy and relevant marine space management projects.

The different experiences in stakeholder involvement are presented in a matrix summarising the main characteristics of the projects in terms of:

- The origins and central focus of the project;
- The platform(s) of communication and exchange;
- The generic type of strategies deployed to cover interested parties in planning and implementing following three important involvement paths, as summarised by Soerensen et al. (2003):
  - through information about ongoing development (*information*).
  - through involvement in the decision making process (*planning participation*)
  - through stakeholder engagement with financial involvement in the project (*financial participation*)[10].

The information strategy aims at (passively) informing stakeholders but avoids their participation and does not offer influence on the decision making. In turn, planning participation involves the local stakeholders early in the project with more or less possibilities to include their recommendation to the project and potentially providing a sense of ownership or at least not rejection. Finally, involving stakeholders through financial participation means their partial direct ownership of the installations, as shareholders, thereby sharing the potential economic risks and benefits but also making them informed advocates of the project.

It is important to note that each strategy does not exclude the other ones. Differences are expected to reflect the degree and extent to which they were implemented in a given project or site, and to what extent they were actually combined between each other according to the (local and participation) challenges faced. As an illustration, it is expected that providing information does not prevent, but rather supports, the need to involve stakeholders in decisions or engage them in the development of a financing strategy for a given renewable marine energy project.

The different sites investigated are located on the map in Figure 4 below, the main features of each site being summarised in the following summary table. For a full presentation of their experience, please refer to the report-sheet annex.

[10] This has to be distinguished from financial compensation addressed by existing or future legislation.

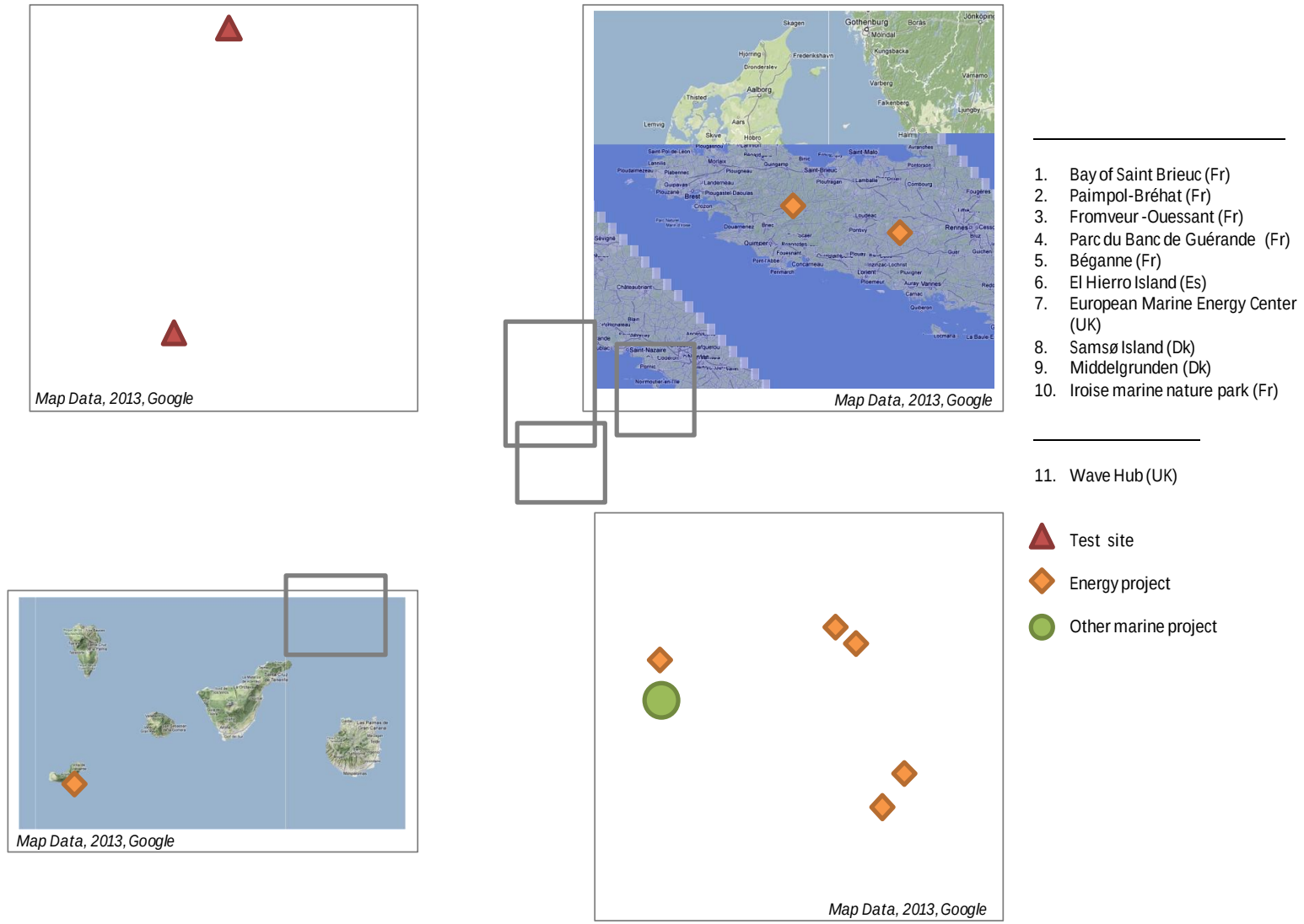


Figure 4. Location of projects and sites of interest contacted as part of the review for this guide, it also presents a site used as a reference in the bibliography. Source: Base Map of Europe (Wikipedia, 2012)

Table 4. Summary of marine energy project and relevant marine space management experiences in stakeholder involvement reviewed through interviews,

N°1		**Baie de Saint Brieuc, Brittany, France.**
Project focus		Identify propitious marine energy areas in Brittany.
Origin of the project		Top-down: Central government requested the local administration to identify suitable RME areas.
Level of acceptability		Relates to public acceptance and community acceptance.
Main platform for stakeholder involvement		Forum / Round table for stakeholders established for 20 years to support the development of future projects. This platform gathers both local and national public administrations, potential developers and it is currently completely open to any local stakeholders from civil society wishing to participate. Although agreed areas were defined by the forum, following the end of the process, central government, using its prerogative, expanded the actual area to be exploited to twice the agreed surface.
Strategies for promoting stakeholder participation	***Information***	Create a knowledge base about uses (fishing, sailing, military, etc.) common to all stakeholders. When such knowledge was not available, its gathering was supported (More detailed information about fisheries and the objective seascape visual effects -optical study-).
	Planning	No individual/sector consideration of uses was considered independently. All discussions were carried out in plenary during this phase of mapping the most promising areas of the coast line and contrast them with significant and marginal current uses by traditional stakeholders. Once a potential conflict is identified, the question whether it could be manageable was asked and if so under which conditions (i.e. some compensations, support to adapt to compatible fishing practices).
	Financial	No financial participation is expected.

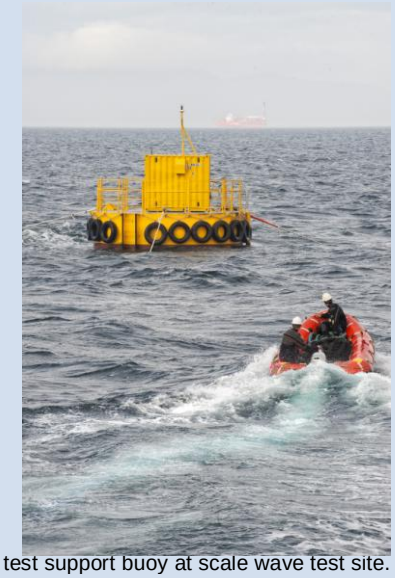
N°2		**Paimpol-Bréhat EDF**
Project focus		Underwater tidal current turbine pilot site. Hydro turbine. Source: EDF ï Valéry Wallace
Origin of the project		Top-down: This is a project developed by EDF which choose the test area mainly according to technical potential (although the specific site choice accounted for possible non-acceptance).
Level of acceptability		Community level acceptance.
Main platform for stakeholder involvement		A steering committee composed of local authorities, fishermen, other stakeholders. This platform is facilitated by the main developer through its regional office, lowering its operational costs. 10 meetings have been held since 2008.
Strategies for promoting stakeholder participation	***Information***	Regular press releases are issued by the developer. The developer also provided precise indication as what was the elbow room given. The type of technology, to be eventually adopted following the trial campaign, would not be negotiable and was decided beforehand. However, the laying of the cable connecting the installation to the grid was open to discussion.
	Planning	Participation in planning has had some implication, particularly with respect to the laying of the cable from the site to the grid. It is important to highlight that a pre-selection between two sites was conducted at the early stages (before the community level acceptance). The technically optimal site was dropped because of the need to deal with fishery uses of the area. The second-best site was chosen to allow for the project to go ahead and test its technological promises in an area with few potential conflicts. The project had support from the start in the area finally chosen. At this stage of the project participation is not following a completely defined protocol. Issues are submitted to the representatives of EDF during meetings. Responses and alternatives are then taken back to the stakeholders by EDF.
	Financial	No financial participation is expected but for subsidies from the State and the EU (7.2M of the 40M Euros).

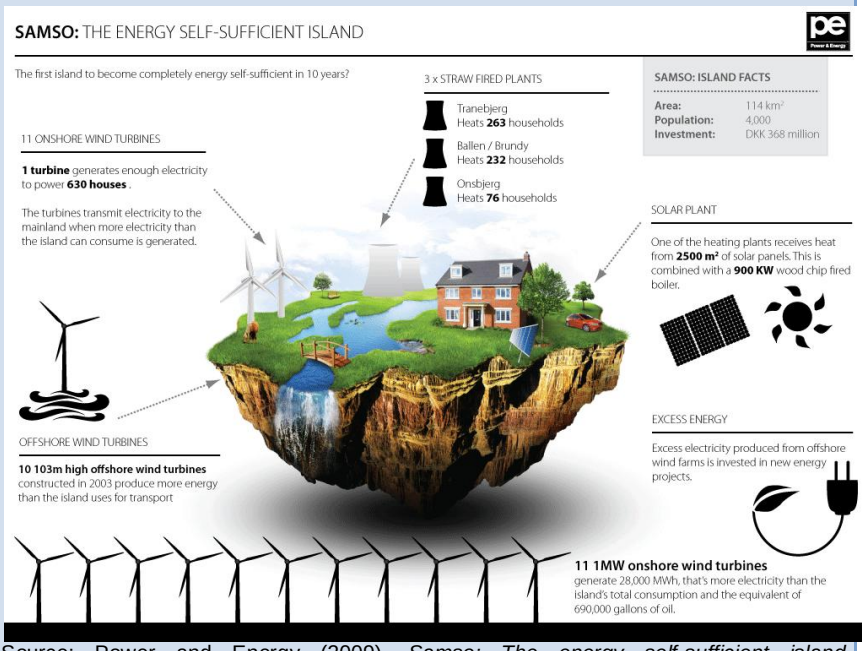
N°3		**Fromveur, Ouessant, Brittany, France**
Project focus		Underwater tidal current turbine commercial site. Area were the farm is to be submerged. Source Eole Generation
Origin of the project		Top-down: Fromveur is one of the areas with the main marine energy potential in France. Its unidirectional currents are very attractive to tidal current turbines. SABELLA, has developed detailed assessment of the areas with its test of a full scale D1 turbine. FUTURES ENERGIES GDF SUEZ has an agreement with SABELLA so to benefit from its expertise envisioning the commercial exploitation of this marine energy potential.
Level of acceptability		Community level acceptance.
Main platform for stakeholder involvement		No schedule of participatory activities has been drawn yet by FUTURES ENERGIES. However a structured website for the project is in the pipeline. The regional assembly on the sea and coastal areas of Brittany (*Conférence Régionale Mer et Littoral de Bretagne*) has gathered a working group to identify and map stakeholders, current barriers (uses, environmental issues, etc.) and the potential of Fromveur.
Strategies for promoting stakeholder participation	***Information***	Bilateral engagements are pursued at this stage, mainly with the fishery sector and the Marine Park of Iroise to identify the main issues to arise.
	Planning	FUTURES ENERGIES GDF SUEZ aims involve all users and stakeholders of this marine area to building the project, from the early ï pre-project stages, through the formulation of measures to reduce, eliminate, compensate and monitor impacts of the project on the environment and stakeholdersôactivities. Please note that the Marine Park, through its Council already gathers stakeholders of this area and is also responsible for the area. As such it could become the participation platform of the project.
	Financial	No local financial involvement is planned at this stage

N°4		**Banc de Guérande, Brittany, France.**
Project focus		80 offshore wind turbines. Measuring the speed of wind is essential for ongoing development wind farm sites Installation of LIDAR monitoring system on the airfield of Île d'Yeu in July 2012. Source: Nass &Wind Offshore ï 2012.
Origin of the project		Top-down: The project was launched following a national call for wind offshore projects.
Level of acceptability		Community level acceptance.
Main platform for stakeholder involvement		A statutory platform with "active" stakeholders, including local politicians with less contact with the public at large, generally represented by directly involved players. The developer was invited by politicians and local authorities of the region to "*hundreds*" of meetings and events and even by candidates during political gatherings during the local election campaigns. As such these could be seen as an additional type of platform.
Strategies for promoting stakeholder participation	***Information***	External sources of information are gathered and shared by specialised professionals. In specific cases, studies have been commissioned.
	Planning	This space is understood as the place where the project is presented and explained. As such in this project, this space is not the place for political negotiations. Such negotiations are understood to be the responsibility of politicians and competent authorities, not that of the project developer.
	Financial	No financial participation is scheduled.

N°5		**Citizen project in Béganne, Brittany, France.**
Project focus		First 100% citizen onshore wind farm in France Source: http://www.eolien-citoyen.fr/accueil-begawatts.html
Origin of the project		Bottom-up: The project was developed by a local association, slowly building up support for the project.
Level of acceptability		Community acceptance, and to a certain extent market acceptance
Main platform for stakeholder involvement		This experience is more about a network than a specific platform. There are several organisations that sprung from the core association: dozens of investors 'clubs, a company to collect financing from outside the area, a local steering committee that combine management and public participation.
Strategies for promoting stakeholder participation	***Information***	Using word of mouth since the beginning and establishing a local presence for the offices of the association the managing body, developed a sense of ownership, even to those that are not investing, The development of investor clubs have been crucial and disseminating the information.
	Planning	Although participation in planning is open, those investing through the company are less involved and aware that those involved in the investors' clubs. The model followed is not restricted to the development area and could therefore involve other geographical areas.
	Financial	The financial participation of local stakeholders defined this onshore wind project. This was achieved for the first phase of the project from design to authorisation thanks to the support from local founding members and clubs of private investors. It is important to note here that the project considers local authority investments as part of a "citizen's projects" and they are also shareholders through a public administration investment club (SAS Eilan). To prepare for the development of the site itself, a wider range of investors were invited too, well beyond the area that could host the project (e.g. *Energie Partagée Investissement*).

N°6		**El Hierro Island, Canary Islands, Spain.**
Project focus		Island onshore wind farm with energy storage capacity through an innovative pump and dam system. Source: Wind turbines, El Hierro island. Erik Streb
Origin of the project		Bottom-up: The project developed as a response to the energetic needs of the remote island and was a translation of its participatory sustainable development strategy.
Level of acceptability		Community and market acceptance.
Main platform for stakeholder involvement		A round table attached to the local authority of the island.
Strategies for promoting stakeholder participation	***Information***	For the last ten years the project has been publicised as part of the agreed sustainable development plan for the island. It is important to note that the island is notorious for rejecting infrastructure projects such as the Spanish military radar on a near-by archipelago. Facing too much opposition, the project was dropped. With this precedent it is reasonable to assume that the project has a good level of acceptance.
	Planning	Embedded in a local sustainable development strategy, resulting from several years of participatory development, planning of the project was participatory. Discussion mainly focused on the location of the site. The result was that it would not be build upon an existing test site but further away from a main urban centre as a result of the previous experience.
	Financial	Currently the project is owned at 70% by public authorities (still a citizen's project according to the definition of the Béganne project, please refer to the case N°5.) and the remainder is in the hands of ENDESA, the former Spanish state-run utility, now a private enterprise. A direct participation of citizen to the capital was considered, and although the decision was postponed, once direct benefits are proven, it could be revisited.

N°7		**EMEC – European Marine Energy Centre, Orkney, Scotland, United Kingdom.**
Project focus		Providing a test platform for both tidal and wave energy including transfer to the electricity grid (2 test sites and 14 full scale test berths).  Deployment of EMEC test support buoy at scale wave test site. Source: Mike Brookes-Roper, courtesy of EMEC.
Origin of the project		Top-down: Originally an EU and Government (Scottish Government) lead initiative.
Level of acceptability		All levels of acceptance are relevant in this case: Public, Market, and Community Acceptance
Main platform for stakeholder involvement		A specific stakeholder strategy is in place with the primary platform focused on the planning cycle and the dissemination of impact assessments.
Strategies for promoting stakeholder participation	***Information***	There are public meetings, a website, and a communications officer employed for liaison. Also, an advertising campaign and stakeholder analysis supported a strategic communications approach.
	Planning	Operating alongside the Scottish government ensured that the consents process could be a collaborative rather than conflictive experience. Despite many concerns, such as fishermen worried about the scale of the sites, this collaborative approach has enabled all proposals to get the necessary consents.
	Financial	No participation as shareholders was developed

N°8		**Samsø island, Denmark.**
Project focus		An offshore wind farm providing electricity and financial reward to the local community through a cooperative.  Source: Power and Energy (2009). *Samso: The energy self-sufficient island* http://www.ngpowereu.com/news/samso-energy-self-sufficient/
Origin of the project		Bottom-up: In 1997 the island set the target to become electricity self reliant by 2008 and choose to develop wind farms for that purpose.
Level of acceptability		All levels of acceptance are relevant in this case: Public, Market, and Community Acceptance.
Main platform for stakeholder involvement		The main platform was a community cooperative, supported and structured by industry and the local authority
Strategies for promoting stakeholder participation	***Information***	Information is shared through public meetings, website, communications officer employed for liaison ï with daily updates provided online.
	Planning	Excellent and early information was provided, going far beyond the minimal legal requirements in setting out proposals. For example, environmental impacts were required to be assessed but further social impact assessments were also carried out. There is also a capacity building group to assist the community in participating in technical aspects of planning.
	Financial	Full financial involvement - There is a mix of compulsory and voluntary benefits going into the local community. Energy and profit provision goes into the local community and local businesses are preferred. Danish statutory procedures provide for far more financial involvement from local communities than under Europe wide legislation.

N°9		**Middelgrunden, outside the Harbour of Copenhagen, Denmark.**
Project focus		Offshore wind farm community and private partnership Source: English Wikipedia, original upload 15 July 2004 by Leonard G.
Origin of the project		Bottom-up: The project was initially designed by a group of wind turbine enthusiasts who created a cooperative.
Level of acceptability		Community and market acceptance
Main platform for stakeholder involvement		The main platform was a community cooperative, supported and structured by industry and the local authority. The platform is structured around the recruitment of a local working group which manages the cooperative.
Strategies for promoting stakeholder participation	***Information***	Information is shared through public meetings, a website, a communications officer employed for liaison, however the single most important aspect was engendering ownership in the project through the recruitment of the working group.
	Planning	The development of the project was achieved via the establishment of a local working group which agreed and set a timetable for provisional, detailed and participatory planning steps.
	Financial	Financial ownership provided for significant and long standing community involvement in the financial planning of the site, as well as providing financial benefits and opportunities. Again, also supported by the Danish direction in statutory requirements.

N°10		**Iroise marine nature Park, Brittany, France.**
Project focus		Management of marine space, The mission of the park is both environmental preservation and economical development. Source: Yves Gladu/PNMI.
Origin of the project		Top-down: The creation of the park is a national initiative from central government.
Level of acceptability		Public and community level acceptance. It involves the higher level because at national level, the understanding of the role and functioning of this type of protected area is not widely shared among society.
Main platform for stakeholder involvement		To launch the park, several platforms were formed: working group for the aims of the park, one of the legal aspects, a group overseeing all working groups, the steering committee and the elected authorities. Currently, the park is managed by the Council of the Park. Council members are expected to communicate with their ñconstituentsò
Strategies for promoting stakeholder participation	***Information***	Following intense exchanges leading to the creation of the park. Now meetings are held three times a year accompanied by an irregularly produced newsletter. Although there is a communication strategy, the park does not have a dedicated communication officer to liaise with stakeholders.
	Planning	Local actors, through the Council of the Park have their say as they vote for the programme of activities although it is the Park director who allocates the budget, followed by a validation by the Council. The Council have to give its opinion in MRE planning in its area.
	Financial	No financial participation is expected.

6 Engaging stakeholders in the implementation of Renewable Marine Energy projects: Preliminary lessons

Engaging stakeholders in the development of renewable marine energy projects needs to take into account six key aspects that can include:

Start stakeholder engagement as early as possible
Ensure that relevant information is made accessible to all stakeholders
Develop a sound platform of exchange ï and do so in a timely fashion: Going beyond minimal requirements.
Illustrate as clearly as possible the potential impacts and benefits of the project and generate realistic expectations.
Create direct opportunities for local businesses by linking them to the project from inception to operation
Financial participation to renewable marine energy project: from stakeholder to shareholder

In terms of the role of project management and stakeholder involvement, the experiences shared during the interviews with developers were in line with the observations made in recent empirical studies and reviews[11] (Devine-Wright 2009; Simas et al., 2011, SOWFIA, 2012).

6.1 Starting stakeholder engagement as early as possible

The first aspect shared by all experiences across technologies, literature reviews and interviews, is the need to engage with the stakeholders at the earliest.

Clearly, the question of how early, is early enough is difficult to define in a general manner, though a valuable principle and a key issue often raised between project developers and stakeholders. According to stakeholders, a good indicator for defining ñearly enoughò (SOWFIA, 2012) can be given by a stakeholder engagement starting before critical decisions are taken (i.e. the selection of the location of renewable marine energy sites). Within the series of experiences reviewed, the case of the Baie de Saint Brieuc provides a clear example of engagement before any specific project is initiated. Following a request from central government, the regional administration (*Préfecture de Région)* engaged stakeholders upstream to identify potential development areas, after which recommendations were made to central government before calls to tenders were published. Although larger areas than recommended were finally offered, the process did influence the process and identified the more acceptable areas.

[11] Including offshore wind farms

That said, it is important to note that projects that have an external origin, in the way of having being conceived as a bottom-up initiative, could also be communicated and shared ñtoo earlyò, creating uncertainty and confusion among stakeholders. In these cases, developers need to do some choices (i.e. technological options) and develop basic messages beforehand so as to avoid confusion (Simas et al, 2012). An illustration is given by the ongoing tidal current turbine project in Paimpol-Bréhat. In the early regular contacts with stakeholders, EDF, the developer started by setting the issues where there was elbow room. The type of technology, to be eventually adopted following the trial campaign, would not be negotiable and was decided beforehand. However, the laying of the cable connecting the installation to the grid was open to discussion. Following stakeholder involvement, very practical and targeted answers can be provided to specific issues such as visual impact of the project. Two answers to this issue were developed by EMEC (UK) and the Prefecture of Brittany (France) and are presented in the Box below.

BOX4: Practical answers: dealing visual and seascape impacts. *(EMEC (UK) and the Prefecture of Brittany (France)):*

In Orkney, Scotland, EMEC working on wave technologies found that visual impact was not helped by meeting some safety requirements. For example, bright markings to ensure seafaring is safe, is intended to be highly visible. However, aesthetically, such high visibility marking may not be popular with nearby residents. EMEC have though been able to look for solutions though that reconcile these competing demands, looking for example at differential markings on seaward and land facing aspects of installations.

For offshore wind, the Prefecture of Brittany requested an optical study to evaluate the potential impact of the installation at given distances from the coast and observed from an average height. This provided clarity as to what to expect and if it could be considered acceptable. The study provided an additional element as from which distance from the coast, the offshore sighting was acceptable and it guided the choice of the area to be put forward for development.

6.2 Ensure that relevant information is made accessible to all stakeholders.

Involving local stakeholders to achieve social acceptability starts by sharing information. The first aim of information is to demonstrate that potential energy project developments will achieve the necessary health, safety and environmental standards. Doing so provides a minimum point of departure for effectively working with stakeholders.

Following this basic requirement, interviewees suggested that a key question to answer for each individual and sector was ó*What does this mean for me?*ô in the spirit of the concerns and potential benefits identified from the literature above[12]. To address this question it was important that accurate information was in the public domain and that community groups were well organised to facilitate good mutual communication. An appropriate sharing of information leads to the creation of a common understanding of the issues, particularly identifying the relative importance of the potentially conflicting uses of the marine space. Although this is shared by all relevant projects, it is worth highlighting that creating a common understanding was the main tool used by the Prefecture of Brittany to identify the

[12] See section 3.1 Social acceptability and marine energy: What is at stake?

most adequate development areas in the Baie de Saint Brieuc, well before any specific development.

In addition to public notices, working well with the media (local or national) was seen as important, particularly in ómyth-bustingô factual inaccuracies with the potential to damage relationships rapidly or send debates off-track. Even for successful processes such as Middelgrunden, the role played by journalists able to identify and celebrate minority views was perceived as crucial. Developer co-operation with the media also lessened feelings of isolation, whereby fewer people could suggest that they had not heard of the development proposal and thus had not been able to actively participate.

Both the literature and the experiences reviewed within the interviews suggested committing plenty of time to the process, and where appropriate being able to respond to local views by changing the plans accordingly. The commitment of developers can be reflected by the appointment of dedicated liaisons officer(s).

While engaged in efforts to enhance participation and ultimately reach acceptance, if not outright support, the developer generates expectations for the stakeholders about what the project will deliver. Overall, marine related energies are still emerging as technologies and they are not mature processes but for offshore wind energy[13]. This characteristic makes them more vulnerable to underestimating R&D and investment costs in general because of the difficulty in coping with the lack of a structured supply chain in both the construction of the generators and the services required for their installation and maintenance at sea. When dealing with less mature technologies, information may emerge in a piecemeal way throughout the life of the project and not in necessarily predictable ways (Bailey et al, 2011). In short, results through actual impacts and benefits will be unfolding, sometimes with surprises. This, associated with the fact that information has many other, less controllable, sources, increases the importance that information holds for marine energy technologies.

6.3 Develop a sound platform of exchange – and do so in a timely fashion: Going beyond minimal requirements.

Having a stable, inclusive and established platform or forum where developers and stakeholders can exchange is an operational requirement to facilitate an inclusive project. Although part of this platform is generally compulsory, there is room for initiative and the extent to which this is developed will depend on the vision of the developer. An example can be provided when comparing two cases contacted which both share commercial objectives. One of the French examples insists that participation spaces are not places for ñ*political negotiation*ò which operate in other spheres; whereas the experiences in Denmark seem more open to a larger definition of negotiation, independently of their regulatory framework.

From an operational perspective, the platforms may be permanent or temporary (i.e. a specific phase of the project). One-off opportunities are also used, such as local political rallies during local elections where the project is presented to feed the agenda of discussion by all candidates (case of the Banc de Guérande).

[13] Please refer to diagram of Figure 3. Maturity level of the 7 types of ocean energy, of which 5 are the focus of this guide on marine energies.

Participation to such forums, however is constrained by a series of factors that need to be accounted for, as reminded by Simas et al. (2012). A first element is that stakeholders are not faced with processes that could be seen as too agenda driven. Moreover, independently of the agenda, appropriate engagement and consultation methods are needed favouring interactive communication. These sessions could be facilitated by ñtrusted local representativesò(Simas etal. 2012) and co-organised with local champions.

In addition, the simple logistics of the meetings associated to the communication channels are to be considered with care such as the timing and location (i.e. avoiding inviting fishermen when they are usually at sea).

BOX5: Social acceptability and offshore windfarms, (*Samsø island and Middelgrunden*, Denmark)

Denmark has long experience with however its social acceptability issues are not comparable with those of coastal communities in France or the UK.

However, Danish legal requirements do mean that developers tend to work more closely with the municipalities (who are likely to be part owners or investors) and provide a greater share of the profits and energy output to local communities. They also provide more information on financial and technical planning to communities than elsewhere in Europe. Although this aspect is difficult to replicate, given its historical roots pre-dating wind farms, it shows an effective way of involving local stakeholders in energy projects appropriate to the prevailing social and regulatory framework in the locality.

Given the opportunities of participation offered to civil society in Denmark relative to other European countries, we might expect involving civil society to be a more straightforward process there than elsewhere in Europe. To an extent, the data from the EU survey of citizen perception (EC, 2007) of wind energy also reinforces the image of more openness to this type of technologies and to marine energy. However, whilst the scale of difficulties encountered were less telling; those we interviewed who had spent many years working on the specifics of civil society in Denmark presented a view which suggests that the scale of the problems may be less intensely felt, but that the characteristics of the challenges faced were largely comparable.

Not surprisingly, visual impact, noise pollution, and the financial and/or other benefits likely to be felt by a community were key to reach acceptability. Impacts on house prices locally were a concern, and the lessons learned focused on three areas – information sharing and organisation, participation, decision making, timing, future impacts.

6.4 Clearly illustrating the local benefits of a renewable marine energy project and generate realistic expectations

Although this aspect is partially covered by information exchange, it deserves emphasis as it goes beyond information. Economic impact assessments are a useful tool in establishing common ground between developers and local stakeholders, but procurement strategies that are sensitive to local skills and service provision appear to be best practice, notably when used in combination with a stakeholder engagement plan, as evident for the EMEC project (Orkney, Scotland).

The ways in which benefits are communicated are an important part of the process. Since most of the technologies are not mature, stakeholders may have unrealistic expectations

(West et al., 2009 in Bailey et al., 2011), in the same way they may have too low expectations about benefits if not properly communicated.

Moreover, a developer may overestimate the local benefits to push their case either directly (Simas et al. 2012) or indirectly by potentially not communicating enough about the risks of failure or low outputs of the technologies tested. The implication of the experimental nature of some of the projects is not clearly communicated making expectation management also an issue to be achieved through participatory channels. This could be seen as the other side of the acceptance coin, which requires effective communication throughout.

In addition to the potential creation of a local supply chain and jobs, in the case of island and peripheral areas, these projects offer the prospect of lower energy costs and, at times energy self-reliance and security. These aspects are very important to highlight to differentiate them from other cases where local energy dependency is less of an issue[14]. As such this element can provide a fundamental reason for acceptance and even appropriation of the project. In fact, both examples reviewed here (Samsø and El Hierro islands) were developed as bottom-up projects, in contrast to most other initiatives and therefore offer another meaning of acceptance[15].

6.5 Local businesses contributing to the development and operation of a project

EMECôs efforts to **promote local businesses** are also a commonality in Denmark and for the French Citizen onshore experience (Béganne). Both Danish sites contacted had involved local businesses within their respective procurement strategies. EMEC, on Orkney, had local fishermen who were beginning to diversify their activities by providing transport, maintenance and other professional services.

It is worth noting that despite the novelty of much of the activities of EMEC, the success of their stakeholder engagement plan, supported by a stakeholder mapping exercise has ensured that each activity they have sought consent for has been improved.

Across each of the different marine energy mediums ï wind, wave and tidal - some common approaches to best practice have emerged from the examples explored to date.

In Denmark, the windfarms of MiddelGrunden and Samsø have significant local buy-in, both from the communities living nearby and from the municipalities. Local businesses are benefitting directly too. Economic impact assessments, supported by local economic contribution plans make a huge difference in addressing the stand out public interest question ï ó*what's in this for me?*ô In Orkney, despite a communication strategy, these benefits were less evident though over time benefits to the local fishing community through transport contracts have meant that installations are not just minimising their negative impacts on fishing, but enhancing local business activities and skills. Nevertheless, the benefits to the community are more direct in the cases of El Hierro and Samø. These are energy generation commercial operations that benefit directly benefit the community, which is to be distinguished from test sites such as EMEC.

[14] This should be clearly distinguished from national level energy dependency which influenced the level of acceptability at public level but not necessarily at community level.

[15] Additional emerging experiences in Brittany which are to be studied in later phases of the MERIFIC project.

6.6 Local financial participation to renewable marine energy project: from stakeholder to shareholder

This is an option that has been institutionalised in Denmark, mainly through cooperatives. This is not the case for the marine UK and French examples explored, more focused on large private utilities. The financial model has many advantages, yet and as already pointed out by Soerensen et al. (2003), the large investment required for marine energy projects limits its applicability and even more so at this stage of development when the technology is not mature.

Such issues of scale are not limited to offshore installation as demonstrated by the French experience of the Béganne (4 turbines of 2MW each) citizen project. This project was able to rise local finding for its design phase and now requires which requires external investors to construct the site. After having created a network of local investors through investment clubs, the project is facing some restrictive legislation (i.e. Financial Market regulator) as how to advertise the needs of the project to external players. That said the experience is instructive in exemplifying how to mobilise a community through networks and the creation of investment clubs or groups from the local communities. Pilot actions looking to emulate this approach are programmed by MERIFiC project (i.e. île de Sein) by the Technopôle Brest-Iroise,

The Spanish case of El Hierro Island offers opportunities for limited participation without having to carry the bulk of the financial burden given the involvement of municipal authorities which could also qualify as ñcitizenò financial participation.