



MARINE RENEWABLE ENERGY

VANGUARD INITIATIVE

ADMA Energy



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Context

Energy Union

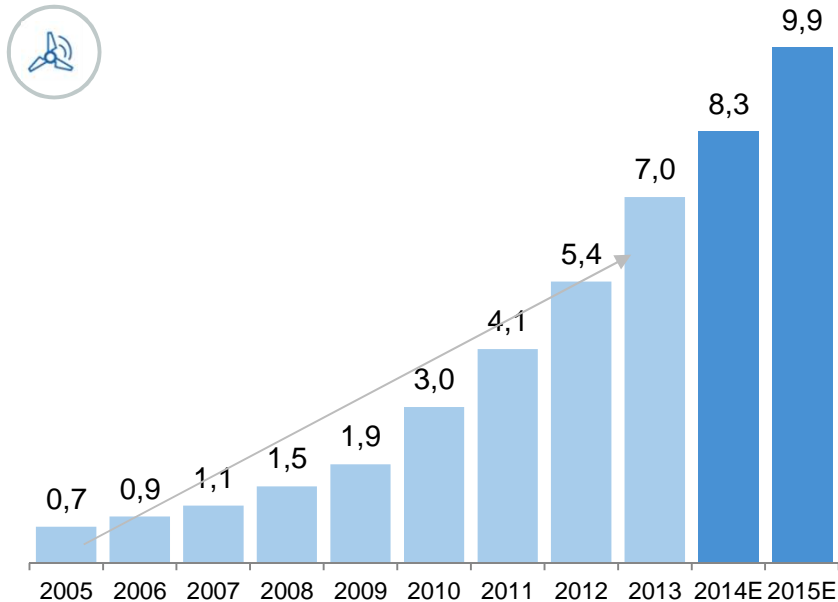
- Built on the ambition to achieve in a cost - effective way a **smarter, more flexible, more decentralised, more integrated, more sustainable, secure and competitive** ways of delivering energy to consumers.
- Innovation is required for producing, transporting and delivering energy to consumers that may support the **competitiveness of European industry**

Marine Renewable Energies

- Can make a significant contribution to Europe's energy mix and **carbon free society**
- Europe counts on a **strong business and technological fabric** operating in the energy and marine industry, alongside with **excellent marine resources** in terms of recoverable energy
- The complexity involved in the MRE sector leads to **higher costs of energy** generation than other methods of generating green electricity

Context

Evolution of accumulated capacity in offshore wind (GW, 2005-2015E)



Source: EWEA, Goldman Sachs, Carbon Tracker, European Ocean Energy Association,



Offshore wind

- Offshore wind has an average production cost of **150 €/MWh**, nonetheless, main stakeholders are suggesting that a competitive LCoE for 2020 should be at **100 €/MWh**.

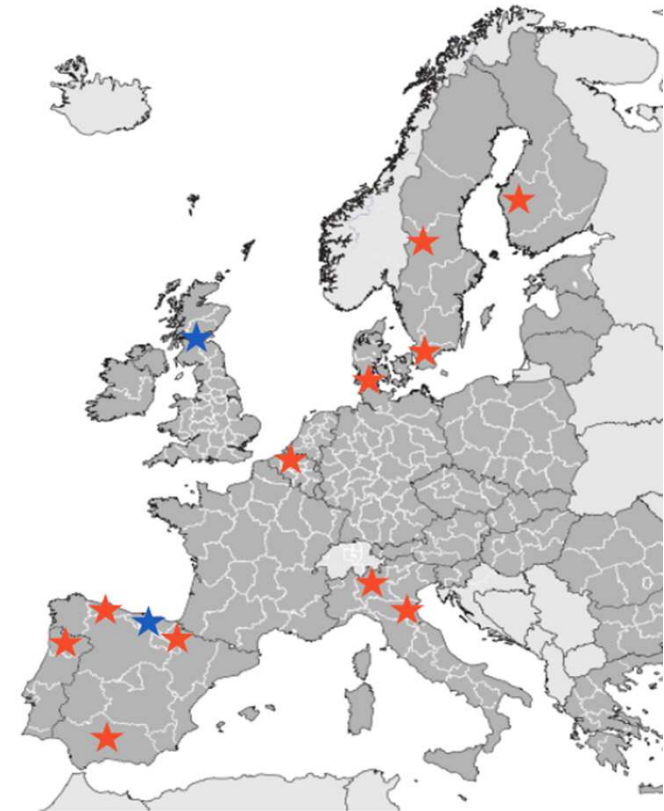


Ocean energy

- In Europe, the aspiration stated by the ocean energy sector is to install up to 100 GW. Ocean power has significant potential, but **related technologies require further improvement to drive down costs**
- Market experts and technology OEMs are suggesting that a competitive LCOE for 2020 should be at **around 130-150 €/Mwh for wave and tidal generation**.

Context

- **Advanced Manufacturing for Energy-Related Applications in Harsh Environments”** is a pilot initiative backed by the Vanguard Initiative for New Growth through Smart Specialisation.
- The pilot initiative seeks to make the EU the global leader in manufacturing robust high integrity components for **marine renewables and offshore energy applications**.
- The initiative is led by the Basque Country (ES) and Scotland (UK), and 11 other European regions take part: Navarra (ES), Lombardia (IT), Norte (PT), Flanders (BE), Asturias (ES), Dalarna (SE), Syddanmark (DK), Skåne (SE), Ostrobothnia (FI), Andalucía (ES) and Emilia-Romagna (IT).



Context

- The **ADMA Energy** Pilot relies on...
 - The strong engagement of a **network of Policy and Technical Experts across 13 European regions** and clear interest from the **EC**
 - An **inventory of around 120 organisations** across 23 regions
 - A database of around **300 pivotal companies**
 - **3 background studies** and an **industry survey** on industrial challenges and technology needs
 - A Workshop on **Industrial Challenges & Technology Roadmap** with over 130 participants (27 January 2016)
 - A **Vanguard Initiative Matchmaking event** and a **report on the main outcomes of the panel sessions** (26 February 2016)
 - A **Technology Roadmap report**

Context

**MAIN
INDUSTRIAL
CHALLENGE**

**TECHNOLOGY
CHALLENGES**

ADDED VALUE AT COMPETITIVE COST

**IMPACT IN INVESTMENT
COSTS**

**IMPACT IN OPERATING
COSTS**

**MANUFACTURING OF
LARGE COMPONENTS**

**SENSING,
INSTRUMENTATION AND
MONITORING**

**POWER TRANSFER AND
CONVERSION**

O&M OPTIMISATION

CORROSION IN WATER

TESTING AND DEMONSTRATION IN REAL ENVIRONMENT

Objectives and added value

- Facilitating to European companies the best partnerships in order to address and solve specific challenges at the technological level in the different markets and segments:
 - For **offshore wind energy** the challenges include increased water depths, more remote and distant site locations, corrosion of towers and foundations and larger size of components, with a resultant increase in logistical challenges for installation, operation and maintenance.
 - For **ocean energy** (wave and tidal), the current biggest challenge is the survivability of the marine devices.

Objectives and added value

- Help companies and R&D organisations to establish a **better understanding about the critical factors** to succeed and **develop a long-term vision** in close partnership with the relevant stakeholders.
- Reveal **visibility of the European industrial potential** and help companies to identify their technological needs.
- Help policy makers understand the needs of actors and thus be in a better position to **design effective policy responses**.

Methodology

- The critical challenges pointed out by the ADMA Energy value chain stakeholders can be summarised as follows:
 - **Few established and systematic relationships** exist between companies and organizations.
 - Access to a broad and competitive offer of **testing and demonstration infrastructures** available in Europe is complex.
 - **Access to key persons in big customers** (facility owners, EPC developers, OEMs) in order to fully understand their core needs and challenges is difficult and limited in time and subjects
 - The process of **searching well-matched partners** outside their home regions and discussing collaboration agreements is challenging for most companies
 - **Information deficiency** acts as a barrier to foster any kind of partnering opportunities.

Methodology

- As a consequence, the ADMA Energy Pilot proposes activities along three **Connecting** action lines:
 - **Connecting Facilities:** Develop an inter-regional open access platform for test & demonstration facilities.
 - **Connecting Customers:** Opening up supply chains and encouraging OEM-SMEs collaboration.
 - **Connecting Partners:** Inter-regional industrial consortia to develop added-value product/service proposals for global markets.

Methodology

Examples of connecting services

Connecting Facilities

- Mapping out test and demonstration requirements
- Priority access to test and demonstration assets and special pricing and/or funding
- Coordinated planning of test steps: lab testing, demo at operational scale, full scale validation and certification
- Technology assessment process
- European knowledge sharing portal: research, policy, standards, environment, resource data

Connecting Customers

- Collaborative workshops with key staff from customers (OEMs/EPCs/developers)
- Customers key information access: cost range and targets, specifications and quality standards, long-term challenges
- Demands for integrated systems and solutions
- "Regional ingoing missions" of customers visiting suppliers
- Access to key experts in specific industry or technology fields

Connecting Partners

- Definition of profiles and search of potential partners
- Organization of matchmaking and brokerage events (bilateral, multiregional)
- Business Model "gaps diagnosis"
- Definition of collaborative and demonstration project proposals
- Partnership agreements
- Coaching for open innovation methodology
- Expert services for IPR
- Access to funding

Resources

- The ADMA Energy Pilot financing 2015-2016
 - The strong engagement of a network of Policy and Technical Experts across 13 European regions – **OWN RESOURCES**
 - An inventory of around 120 organisations across 23 regions & A database of around 300 pivotal companies from the 4 market areas – **PAID BY SCOTTISH GOVERNMENT**
 - 3 background studies and an industry survey on industrial challenges and technology needs & A Workshop on Industrial Challenges & Technology Roadmap with over 130 participants (27 January 2016) & A Technology Roadmap report – **PAID BY BASQUE GOVERNMENT**
 - A Vanguard Initiative Matchmaking event and a report on the main outcomes of the panel sessions (26 February 2016) – **PAID BY EC**

Resources

- Lessons learnt
 - There is a clear need of an **interregional funding framework** that supports the operational level - Regional funds doesn't assure a systematic and coherent framework for the interregional cooperation
 - Since we started our interregional collaboration we have been working through various application processes (INNOSUP 2015, Interreg Europe, TREC, INNOSUP 2016, Blue Growth) **without success** – there is not an instrument that fits this kind of interregional cooperation, **INNOSUP is the closest one but success ratio is too low.**

Next steps

