

1. PUBLISHABLE SUMMARY

Summary of the context and overall objectives of the project (For the final period, include the conclusions of the action)

Blue Energy is key in addressing one of the EU's biggest challenges; an energy transition to a flexible and interconnected system based on renewable resources. In fact, under favourable regulatory and economic conditions, Blue Energy could meet 10% of the European Union's (EU) power demand by 2050.

Supported by ambitious R&D and industrial development policies, the European Blue Energy sector is a world leader today, home to the most advanced technology so far. This technological advantage, and the need to stay close to the resource to reduce costs, ensures that manufacturing remains mainly local and involves a unique opportunity for European SMEs.

As an exceptional opportunity to create a new industrial sector, generating jobs in its regions throughout the local supply chain, Europe needs continued support for Blue Energy to take advantage of a global market, worth a potential €653bn between 2010 and 2050 (source: Ocean Energy Forum). The successful development of a competitive European Blue Energy industry would also place it in a prime position to seize export opportunities in the global market.

Within this context, ELBE aims to contribute positioning Europe as the world technological and industrial leader in Blue Energy, with a special focus on Floating Offshore Wind, Wave Energy and Tidal Energy. Following this rationale, the consortium will have started with a selected group of key regions (Strand 1) that aims to become the embryo of the development of a true pan-European Blue Energy cluster platform (Strand 2) with a clear internationalisation focus.

Within this context, specific objectives of this finished first phase have been connected to (1) better understanding the New Value Chain of Blue Energy emerging sector, (2) defining a common internationalisation strategy and (3) fostering collaboration among European companies located in different leading regions. These global objectives are further specified in the following paragraphs.

1. New Value Chain (NVC)

- To understand and identify the new value chain created under the Blue Energy paradigm, which will comprise companies from several traditional sectors such as energy, shipbuilding, sea logistics or environmental.
- To consolidate a true trans-regional New Value Chain comprising the companies and other agents that are currently within each of the partners' local value chains.
- To position SMEs into trans-European consortiums to compete and take a leading position globally in the Blue Energy sector.

2. Internationalisation Strategy

- To identify global trends, selecting target countries more open to the development of an early market and, therefore, internationalisation taking into account criteria such as high cost of energy, high resource availability, market size or support framework.
- To analyse in depth these target markets, understanding their competitive dynamics and identifying key stakeholders which with to establish contact during the project.
- To define an internationalisation roadmap that defines specific actions for each target market, to be developed and implemented by the consortium, and a monitoring scoreboard with verifiable indicators.

3. Cluster & SME Collaboration

- To foster clusters & SMEs mutual knowledge, high-level trans-regional cooperation and partnership building among key leading Blue Energy regions in Europe, promoting matchmaking activities that could lead to open innovation spaces.
- To help SMEs identify business and internationalisation opportunities in the Blue Energy sector by highlighting some of the key technology challenges in terms of affordability, performance, standardisation, reliability, survivability, installability, environmental impact, health and safety, predictability and operability.
- To strengthen the new ESCP-4i by defining a common identity and developing joint promotional activities, starting to identify new potential strategic partners across Europe to further strengthen the consortium, conducting compatibility and readiness checks in terms of strategy and profile.

During the first phase of ELBE (Strand 1), several activities have been developed that have strongly contributed to the achievement of these objectives.

A New Value Chain (NVC) structure has been defined, comprising company profiles from different sectors such as energy, shipbuilding or logistics, which are also key for the three main technologies that are at the core of ELBE (Floating Offshore Wind, Wave and Tidal). Over 400 hundred companies have been identified and profiled in a new NVC database, including 28 testing and demo facilities, 9 Floating Offshore Wind Platform developers, 20 Wave Energy Converters developers and 5 Tidal Energy Converters developers. This repository is already helping to create new collaboration opportunities among SMEs in Europe working in this field.

A common Internationalisation Strategy has been elaborated, identifying target markets and defining a clear set of future activities such as business missions, exploratory trips, key events or networking workshops, among other. This strategy was created after the feedback of more than 200 companies gathered in the three Networking Workshops and several regional workshops organized along the project.

Collaboration among European SMEs has been fostered by means of several activities. It is worth highlighting the organization of previously mentioned three Networking Workshops, which included B2B meetings that have derived in the identification of over 100 opportunities of collaboration between European companies.

In conclusion, activities carried out in the Strand 1 of ELBE have contributed to foster the collaboration among European SMEs in the Blue Energy sector, identifying collaboration opportunities among these companies and creating a network of different and complementary capacities, that will boost the creation of strong partnerships to tackle third markets in the second Strand of ELBE. This strong collaboration, connected to the powerful contacts collected during the exploratory trips to key target markets, has created a firm base to develop the next Strand of ELBE.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far (For the final period please include an overview of the results and their exploitation and dissemination)

During the first semester of the project, activities were centred on the development of a management structure in order to coordinate ELBE ESCP. The main part of WP2 was also developed during the first semester, where an expert consultancy was subcontracted to elaborate the market analysis of target countries of the ESCP. First, a high-level analysis and analysis of 20 countries around the world

was carried out. Then, a selection of 6 countries was made after the internal analysis of the first document. A second in depth analysis of these 6 selected countries was performed. These documents were completed with the information gathered in the exploratory trips to Taiwan, USA and Canada and the incoming mission from a Japanese Blue Energy delegation to Europe. In total, more than 50 key contacts were made with key entities in strategic markets. These reports, with the information gathered on the surveys made in the Networking Workshops and regional workshops to European companies, were the base to develop the internationalisation strategy of the project, that will be as well the base of the ELBE Strand 2 proposal.

The first semester and part of the second one also served as the promotional launch of the project and the activities that would be carried out in the following months. Mainly, focusing on the promotion of the three Networking Workshops that were to be held in Scotland, Belgium and Sweden. In order to create the dissemination documents (presentation of the project, brochures, website, etc...) it was needed to understand and gather information about companies with experience and skills in Blue Energy, that were members of participating clusters. This goal was achieved with the creation of the New Value Chain in Blue Energy, where all the companies in ELBE were analysed and categorized depending on their services, products and activities in Blue Energy markets. This NVC is the main product/service offered in the ELBE website, where all these companies may be found in different areas and categories, based on their activities. Besides, this NVC was also quite useful to prepare the three Networking Workshops organized during the project.

Held in Aberdeen, this first ELBE Networking Workshop event focused on the floating offshore wind market (FOW) took place the 29th of October. Representatives from 73 companies attended local site visits to Vattenfall's European Offshore Wind Deployment Centre, the Kincardine Offshore Wind Farm Project and Maersk Training, which runs courses for personnel involved in the safe operation and maintenance of offshore wind farms.

A presentation on the ELBE project and its objectives followed and included a roadmap demonstrating ELBE internationalisation prospects for the FOW sector. There were also guest speakers from industry key players including Equinor, Kincardine and Vattenfall. Networking opportunities included more than 80 B2B meetings taking place between participating businesses which resulted in several collaboration opportunities. There were also two networking receptions held during the event which were attended by several offshore wind developers including EDP Renewables and EDF. These provided an opportunity for the SMEs to address them directly, discuss new innovative projects and the potential for further collaboration in the future.

The following day, ELBE's event delegates visited the Floating Offshore Wind 2018 conference organised by industry body RenewableUK at the Aberdeen Exhibition and Conference Centre. The highlights included hearing updates on various ongoing projects and the integral part new technology continues to play. Delegates were also privy to a presentation from a government body, discussing its plans for future offshore wind installations in the coming years.

On 26 February, ELBE ESCP organized a workshop on marine energy (waves and tidal) in Temse, Belgium. This session focused on current topics such as cost reduction, standardisation or the identification of niche markets. The event also included a matchmaking and B2B session in which all participants had the chance to have individual meetings. This second workshop served as a reference to make known the latest breakthroughs of wave and current technologies; regarding technological and financial advances, as well as the market possibilities for these sectors. In total, more than 40 companies from ELBE ESCP regions participated in the workshop.

The event started with a visit to De Meyer family business, the manufacturer of large parts for the offshore sector, among others. De Meyer has developed a turbine for port areas with high current speeds.

The presentation session started with the welcome speech by Blauwe Cluster, followed by a series of presentations focusing on new sectoral trends. ORE Catapult presented a study on cost reduction potential, DEME Blue Energy explained their activities in the sector within the O&M area, while the Marine South East cluster listed different options for marine technologies with the purpose of offering multiple services. They also issued new methodologies that are currently under study to carry out certifications and the technical standards which should be considered. Before starting the business pitches session, the economic development agency of Flanders introduced the OCEANERA-NET call, providing economic support for collaboration projects in marine energy sources. The business presentations began with Belgian companies such as Laminaria or Jan De Nul, followed by the foreign companies of the ELBE ESCP regions. To complete the intense work session, the attending companies held a series of B2B meetings (43 in total).

The third event in Gothenburg, Sweden, ELBE cluster partners and its members met on May 21st to discuss potential European supply chains and projects within the Blue Energy sector. Hosted by OffshoreVäst, the seminar day highlighted several innovative alternatives such as SeaTwirl's offshore wind prototype, Minesto's Deep Green kite and several different material solutions presented by the likes of SSAB (steel) and Hydro Extrusions Sweden AB (aluminum).

Additional presentations were made by ABB, DNV GL, Sigma Marine and Energy as well as Innovation Norway. ABB gave an overview of challenges and solutions to distribute energy from offshore. When it comes to the value chain of blue energy, a clear link is development and DNV GL together with Sigma Marine and Energy gave clear examples on how the support from their organizations could strengthen the supply chain. Finally, Innovation Norway ended the seminar by presenting an overall picture of blue initiatives and clusters in Norway, another leading country in the development of Blue Energy.

The event in Gothenburg also included a matchmaking session hosted and organised by EEN (Enterprise Europe Network) and company visits to SSPA, MMT and Minesto. The first visit at MMT allowed participants to get a glimpse of the latest technology for seabed survey, enabling photogrammetric visualization in 3D. This was followed by a stop at the marine energy technology developer Minesto. They presented their technology and highlighted different ways to raise funds both public and private. The visit to SSPA was made on the following day and offered an opportunity to see the test facilities. A point was made regarding the possibility of early testing and verification of products and prototypes, reducing the lead time for several different projects.

As the event marked the third workshop of the ELBE project, a lot of discussions focused on the future regarding new projects and continued collaboration between the European clusters. In total, the event gathered more than 50 participants and over 20 B2B meetings were organized.

Besides the three main networking workshops, ELBE ESCP organized 16 regional workshops among their members and attended 9 international events (Blue Energy trade shows, conferences or exhibitions, also including 3 international cluster matchmakings organized by the ECCP). Dissemination of the project was accomplished in these events, promoting the Networking Workshops or the website, among other activities. Also, 10 articles were elaborated and disseminated in specialized Blue Energy magazines.

Progress beyond the state of the art, expected results until the end of the project and potential impacts (including the socio-economic impact and the wider societal implications of the project so far)

The exploratory trips carried out during this project and the participation of ELBE ESCP in international conferences and exhibitions served to disseminate the potential and capacities of the alliance in the Blue Energy sector. The exploratory trips served to position ELBE ESCP as the main Blue Energy partnership in Europe, the main contact point of entities and companies from USA, Canada, Taiwan or Japan involved in the Blue Energy sector. During these trips, ELBE ESCP made several key contacts for the development of future business mission with SMEs. In total, more than 50 contacts (institutions, key companies, research centres, etc.): 7 in USA, 8 in Canada, 21 in Taiwan and 23 from Japan. The relevance of the contacts made and their interest in the industrial structure in the Blue Energy sector in Europe will be key in the next phase of ELBE project to prepare the business missions with European SMEs to these countries.

Besides third target markets, ELBE was also recognised in Blue Energy conferences by clusters and companies from other European countries. The work of dissemination carried out in Blue Energy events was very important to gather the interest of other European countries interested in the sector like France, Norway or Germany. Regarding other clusters and ESCPs, they were also interested in the methodology and all the activities carried out during the Strand 1 of ELBE, where the European SME have participated and collaborate constantly to achieve new objectives and projects together.

As important as contacts made beyond Europe were the collaboration opportunities fostered in the three Networking Workshops organised in Scotland, Belgium and Sweden. During these three workshops, the SMEs had the chance of meeting other SMEs or even key companies in the Blue Energy sector in individual meetings (B2Bs). In total, more than 140 B2B meetings took place during the three Networking Workshops. Officially, out of these meetings, more than 60 collaboration opportunities were identified. These collaboration opportunities could be divided in different categories, such as collaborative projects, invitation to tenders, contracts to offer products/services, partnership collaboration agreements or even first steps to form a technological or commercial consortium.

Address (URL) of the project's public website

<http://www.elbeproject.eu/home>

Second Networking Workshop in Belgium 2



First Networking Workshop in Scotland 2



Exploratory trip to USA



First Networking Workshop in Scotland 1



Second Networking Workshop in Belgium 1



Third Networking Workshop in Sweden 1



Third Networking Workshop in Sweden 2

