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ENFAIT ENABLING FUTURE ARRAYS IN TIDAL

Final Local Community Engagement Strategy



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1 EnFAIT Project

1.1 About the Project

A Funding Grant was awarded from the European Union’s Horizon 2020 research and innovation programme in January 2017 to demonstrate a grid-connected tidal energy array at a real-world tidal energy site, propelling tidal energy towards competing on a commercial basis with alternative renewable sources of energy generation – Enabling Future Arrays in Tidal (EnFAIT). This was in response to the call LCE-15-2016: *Scaling up in the ocean energy sector to arrays to generate significant learning through demonstration of cost-effective tidal arrays.*

Enabling Future Arrays in Tidal (EnFAIT) is an EU €20.2 million flagship tidal energy project. It aims to demonstrate the development, operation and decommissioning of the world’s largest tidal array (six turbines) over a six-year period to prove a cost reduction pathway for tidal energy and that it can be cost competitive with other forms of renewable energy. The tidal array is located in the Shetland islands, in Bluemull Sound, between the islands of Yell and Unst.

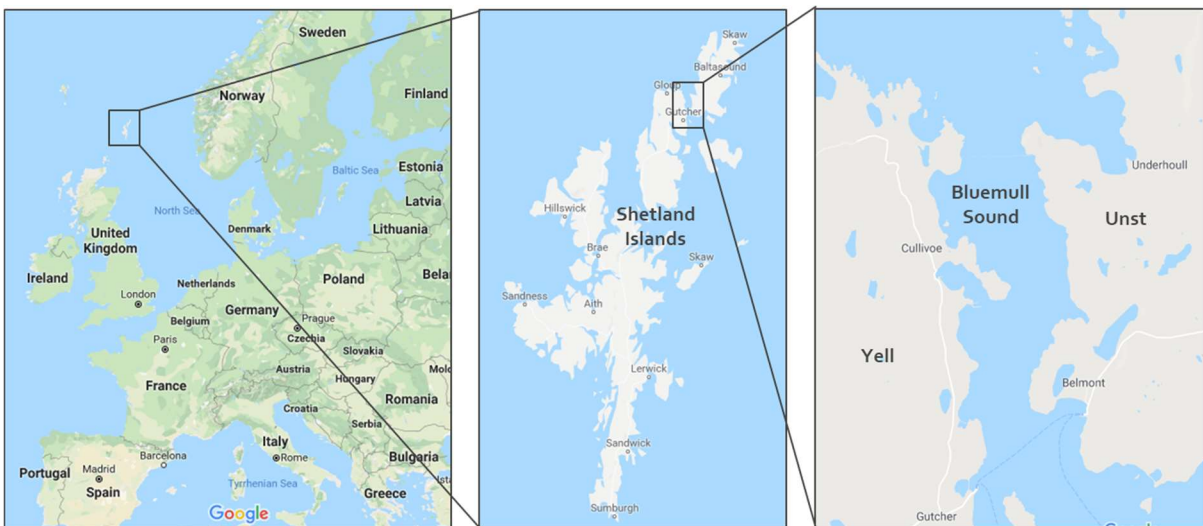


Figure 1: Bluemull Sound location

The project partnership of seven European companies, led by Scottish tidal energy developer NOVA, will demonstrate a grid-connected tidal energy array that:

- Delivers a step change in the lifetime cost of energy for tidal power;
- Proves that high array reliability and availability can be achieved with best practice maintenance regimes;
- Captures and disseminates substantial learning on fundamental issues for the ocean energy industry;
- Builds investor confidence; and
- Takes a significant step towards creating a commercial, bankable tidal energy sector.

The project started in July 2017 and continued until the end of June 2023.

1.2 This Deliverable

This document is a deliverable of WP8 Environmental & Socio-Economic Appraisal.

It is submitted to satisfy deliverable D8.11, due at the end of the project. The deliverable provides the fine-tuned strategy for engaging the local community in this and future tidal energy projects. A preliminary report was submitted in month 18 (Dec-2018) for deliverable D8.3 that contained the initial strategy.

2 Task Background

2.1 Description of Task

Both the Initial “Local Community Engagement Strategy” (deliverable D8.3 in month 18) and this “Final Local Community Engagement Strategy” (deliverable D8.11 in month 72) are related to task T8.6 set out in WP8 Environmental & Socio-Economic Appraisal.

The EnFAIT project management plan split this task T8.6 into below activities:

- Assess the impacts of the EnFAIT array on the local community in Shetland;
- Generalise to a framework to assess community impacts in future tidal energy projects;
- Develop a strategy to engage with local communities in this and future tidal energy projects;
- Ensure communities realise and grasp the economic opportunities presented by ocean energy arrays.

2.2 Partners in Task

Considering their expertise, the project partners below were involved in this task and its deliverables:

- **IDETA (T8.6 lead):**
Renewable energy project development and operation
Regional development agency based in Tournai (Belgium). IDETA has a strong track record in community energy projects with interests in biomass, solar, wind, hydro-power, tidal and demand side infrastructure. Successful track record in tidal, partnering with NOVA to deliver the Shetland Tidal Array Project.
- **Nova Innovation (NOVA) (EnFAIT project lead):**
Tidal turbine supply, deployment and operation
A world leader in tidal turbine technology, project development and operation. Full “water-to-wire” experience in turbine design, build, test, deployment and grid-connected, in-sea operation. Founded in 2010, in 2014 Nova installed the world’s first community-owned tidal turbine and in 2016 they deployed two grid-connected Nova M100 turbines in the Bluemull Sound, Shetland, with a further device deployed in early 2017 – the world’s first offshore tidal energy array. The array was extended as part of the EnFAIT project, with the addition of one M100D turbine in 2020 and two further M100D turbines in 2023, making it the array with the largest number of turbines anywhere in the world.
- **RSK Environment (RSK) (WP8 lead):**
Environmental and socio-economic appraisal, consenting and community engagement
Multinational health, safety, environmental and socio-economic consultancy operating across the UK and Europe. The company was established in 1989 and now employs more than 1000 staff. RSK’s key focus is the energy industry and they have worked on thousands of projects in this sphere. Their lead socio-economic impact assessor is based in their Paris office and her team operates to service clients across Europe.

- **Offshore Renewable Energy (ORE) Catapult (OREC) (WP2 lead):**
Communication and dissemination, hydrodynamic modelling, marine energy expertise
Research Technology Organisation focused on knowledge sharing in the offshore wind, wave and tidal energy sectors. The ORE Catapult offers world-leading expertise and advice to industry, facilitating access to industry and funders, to develop, de-risk and support the journey of bringing new technologies to market.

2.3 Objectives of Task

Throughout the project, the objectives of the Local Community Engagement Strategy and its related activities were to:

- Obtain the views and perceptions of people living in Shetland on the level of importance of the marine and coastal environment for their livelihoods, and on the different sources of renewable energy available;
- Provide information to stakeholders in Shetland on the EnFAIT project so that they understood the overarching aims, the key activities and timeline of EnFAIT;
- Obtain the views and perceptions of people living in Shetland on the EnFAIT project and assess whether these views changed during the execution of the project;
- Evaluate the effectiveness of the local community engagements undertaken during the EnFAIT project so that any lessons learned can be considered by other developers of tidal energy projects across the EU in the future.

2.4 Strategy Layout

The preliminary Local Community Engagement Strategy was published in month 18 (Dec-2018) of the EnFAIT project under the public document reference EnFAIT-EU-0040. It drafted the landscape and original foundations for the Local Community Engagement Strategy by laying out the following key topics:

1. Stakeholder mapping;
2. Stakeholder engagement methods;
3. Information materials;
4. Stakeholder engagement process;
5. Roles and responsibilities.

The final Local Community Engagement Strategy follows the same structure. This layout was also used in May 2023 for another European Union's Horizon 2020 tidal project called ELEMENT. The ELEMENT project also included NOVA and IDETA as consortium partners.

The outcome and analysis of the EnFAIT strategy is available in the Environment and Socio-Economic Analysis ('ESEA') reports drafted by RSK, under the public deliverables below:

- D8.9 "Initial Project & European ESEAs" published in June 2019;
- D8.10 "Final Project & European ESEAs" published in June 2023.

3 Local Community Engagement Strategy

3.1 Stakeholder Mapping

The following groups in the local Shetland community were identified as stakeholders of the EnFAIT project.

- Residents of Shetland, including adults and children, with a focus on the locations below:
 - **Lerwick**, the largest town, as well as the chief town and the administrative capital of the Shetland Islands (population 6,880 inhabitants as per data from the 2016 census) and located on Mainland Island (population 18,765 out of 23,167 for the whole the Shetland Islands, as per 2011 census);
 - **Cullivoe**, the village closest to the tidal array in Bluemull Sound in the Northeastern corner of Yell Island (population of around 200 counting inhabitants of Cullivoe, Gloup, Gutcher and Sellafirth, out of a population of 966 for Yell Island, the third most populated island of Shetland, as per data from the 2011 census).

The EnFAIT array is connected to the utility’s grid at Cullivoe Pier, in the Cullivoe Village. The grid continues to the next small village of Gloup, where it ends. The substation for the grid is located just before Cullivoe Village, at the small settlement of Gutcher. The substation also provides electricity via the grid to the adjacent island, Unst (population 632), which is the last inhabited island to the north of Shetlands. As such, the local community consists of people, public services, local authorities, and businesses in the Shetland Islands’ North Yell area, particularly in Cullivoe, starting from the Pier and extending to the Village, and nearby villages of Gloup, Gutcher and Sellafirth.

In 2022, another tidal energy project was initiated in the Shetland Islands by NOVA. This second project is located at Yell Sound, to the south of Yell between the islands of Yell and Bigga. In 2022, NOVA was awarded an Agreement for Lease by Crown Estate Scotland to develop a 15MW tidal array, their largest tidal array to date, which will be capable of meeting over a third of household electricity demand in Shetland.

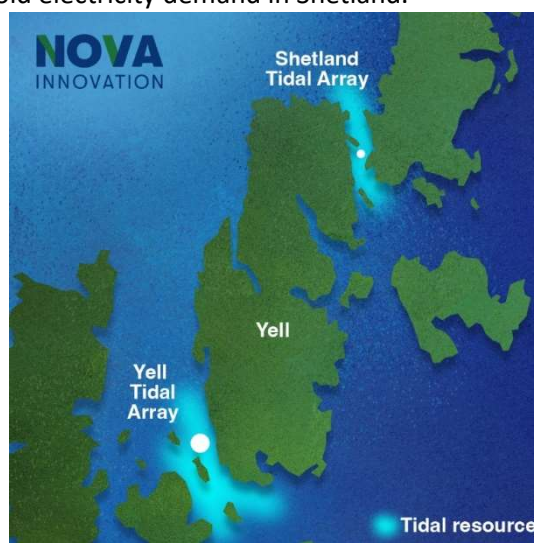


Figure 2: Map showing Nova's two sites at Yell Sound and Bluemull Sound

- Businesses active in Shetland, specifically:
 - Companies involved in the transport of people and materials using the sea and coastal environment;
 - Companies involved in fishing and aquaculture;
 - Companies involved in the supply chain of NOVA tidal turbines and tidal energy projects,
 - Power Station in Lerwick.
- Shetland Islands Council, specifically:
 - Council;
 - Sullom Voe Ports and Harbour Authority (responsible for managing Cullivoe Pier);
 - Transport, Infrastructure and Environment Committee;
 - Future Energy (Formerly Carbon Management Team).
- Cullivoe Marina Users Association.

3.2 Stakeholder Engagement Methods

The following series of stakeholder engagement methods and techniques were used to gather views and opinions from identified groups and individuals:

- A presentation stand was shown at public events attended by representatives from NOVA and other EnFAIT project partners;
- Town hall events open to the general public were held for the local community;
- Questionnaire to the general public containing below four questions:
 1. In general, to what extent do you support the development of the following energy technologies in Shetland? For each type of technology, please indicate level of support (strongly support, support, neither support nor oppose, oppose, strongly oppose):
 - a) Offshore wind energy;
 - b) Onshore wind energy;
 - c) Tidal energy;
 - d) Biomass;
 - e) Solar energy.

2. At present, the majority of Shetland's electricity comes from diesel generators at Lerwick Power Station operated by Scottish and Southern Electricity Networks (SSEN). The station is currently nearing the end of its scheduled full duty operational life. Please indicate to what extent you agree with each statement below (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree):
 - a) I am supportive of the tidal energy project being implemented in Yell;
 - b) I am content with the existing, main source of electricity;
 - c) Shetland should make use of its natural resources (e.g., wind, tide, sun) to generate energy locally;
 - d) Shetland should not be using fossil fuels, which contribute to climate change, to generate its electricity;
 - e) Electricity in Shetland is unreasonably expensive.
3. In the future, Shetland may be able to use its strong tidal currents by further developing tidal energy projects at one, or more, locations along the coastline. This would give more source options for the provision of local electricity supply and also reduce carbon emissions. Please indicate to what extent you agree or disagree with each statement (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree).
 - a) I would support this development if it worked in harmony with the environment, and with other users of the sea;
 - b) I would support this development if it does not increase the cost of electricity;
 - c) I would support the use of different electricity charges to encourage the use of cleaner forms of generation;
 - d) I would support this development if it contributed to growth of the local economy (supply chain, investment, jobs and skills);
 - e) This type of development would contribute to Shetland's energy security;
 - f) I would be interested to participate in this type of development (professionally via supply chain, financial support, or in other ways).
4. Do you have any comments, recommendations or suggestions in regard to the project? If yes, please write your thoughts in the space provided below.
 - Focus group discussions were planned where people were invited to attend a facilitated session to talk about selected topics;
 - Key informant interviews (KIIs) were led to gather specific information from identified stakeholders during one-to-one interviews using below type of questions:

1. What is the role of your organisation and what are your activities (in general and/or for the EnFAIT project)?
 2. Have there been any challenges with the use of the pier over the course of the Project? Who are the different users of the pier? How have the different users of the pier shared the space? How, if at all, has the project affected your activities at the pier? Positively and negatively?
 3. What were/are the key challenges you faced regarding the project? Did the existing regulatory framework cover the proposed activities to be undertaken during the tidal energy project?
 4. In your opinion what are the key lessons learned from the project? Has there been any notable observations through the course of the project?
 5. Has there been any advance/evolution in eco-tourism around Bluemull Sound and has the project had any bearing on this?
 6. Have other (external) stakeholders raised any concerns about potential impacts?
 7. Did you have any opposition / negative perceptions of impacts from the tidal energy project on the physical/socio-economic environment?
 8. How has people's interest/awareness of renewable energy changed in Shetland over the past few years?
 9. In your opinion, how might views of acceptability change if the project were to increase in scale in the future?
 10. Do you believe that the development of tidal energy projects can potentially contribute a significant quantity of energy to the Shetland energy mix?
 11. How would you evaluate the effectiveness of local community engagements during the EnFAIT Project?
 12. Are you aware of the tidal energy project in Yell Sound?
 13. Any questions?
- School sessions were organised in primary and secondary schools to encourage children to discuss local environmental and energy topics;
 - Ongoing, informal communication was posted between members of the public and the EnFAIT project team, led by NOVA.

There were two goals for the stakeholder engagement: the first was for the EnFAIT team to be able to provide information and updates about the project to stakeholders, and the second was for stakeholders to be able to provide feedback and opinions about EnFAIT to the project team.

3.3 Information Materials

During the initial phase, the following materials were used to provide information to participants of the focus group discussions and the wider public:

- The EnFAIT project video (available on the project website: <https://www.enfait.eu/videos/the-enfait-project/>);
- A PowerPoint slide pack presenting background and key information about the EnFAIT project;
- Printed materials in the form of an EnFAIT project brochure;
- Model of the turbines used in the EnFAIT project;
- Videos on the EnFAIT website;
- Public project deliverables on the EnFAIT website;
- News on the EnFAIT website;

In parallel, periodic newspaper articles related to the project were published locally in the Shetland Islands. Indeed, the local newspaper is a useful media to inform the community and promote the EnFAIT project. If this media is used together with internet articles, the benefits will continue longer in time and will have more effect. For example, the NOVA array has been mentioned on the Promote Shetland website at different points in time but are still viewable on the internet months and even years later. For example, below articles were found on the Promote Shetland website “Shetland - Islands of Opportunity” (<https://www.shetland.org>):

- Another world first for Shetland’s tidal energy, by Alastair Hamilton, published 8 November 2018;
- North Yell: A small community with big ideas, by Promote Shetland, published 19 June 2020;
- A new green deal for Shetland energy, by Promote Shetland, 25 June 2020;
- Finding energy in the Shetland tide, by Toby Skinner, published 21 October 2020;
- 2021: A year of innovation, by Toby Skinner, published 21 January 2021;
- Ongoing webpage on Clean energy, including a video on Shetland’s bold clean energy ambitions.

Finally, throughout the project, the EnFAIT website provided details of project activities and outputs and a contact page for people to get in touch with NOVA if they would like to know more about the Project, the Partners and the activities.

3.4 Stakeholder Engagement Process

In 2018, the following preliminary engagement actions were held:

- Questionnaire sent to Shetland residents through the Shetland Island Council's general survey.
- Presence at public event:
 - Yell Show with residents and businesses;
- School sessions:
 - Mid-Yell Junior High School children at Yell;
 - Anderson High School children at Lerwick;
- Focus Group Discussions (8 – 10 invited participants with a 50/50 gender balance):
 - General public from Yell community;
 - General public from Lerwick community.
- Key Informant Interviews (KIIs):
 - Shetland Islands Council Ports and Harbours (responsible for managing Cullivoe Pier);
 - Cullivoe Marina Users Association;
 - C & A Thomason (mussel aquaculture) based in Cullivoe Pier;
 - Cooke Aquaculture Scotland Ltd (nearby salmon fish farm);
 - Fusion Marine (manufacturer of salmon farm cages and other types of equipment);
 - Representative from Shetland Inter Island Ferries;
 - Representatives from an oil and gas association (Sullom Voe Environmental Advisory Group).

In June 2019, below further engagement activities were held:

- School sessions:
 - Brae Junior High School children at Brae;
 - Aith Junior High School children at Aith;
 - Cullivoe Primary School children at Yell;
 - Baltasound Junior High School at Unst.

- Key Informant Interviews (KIIs):
 - Distribution Network Operator, Scottish & Southern Electricity Networks', Lerwick Power Station;

There were no engagement activities from 2020 to 2022 due to the COVID-19 global pandemic and Scotland's national and regional lockdown and social contact restrictions.

In June 2023, for the project end, the below engagement activities were done:

- Questionnaire provided to attendees during open public town hall engagement activities.
- Open public town hall engagement activity events:
 - In Lerwick for Mainland residents and businesses;
 - In Cullivoe for North Yell residents and businesses;
- Focus Group Discussions (8 – 10 participants with a 50/50 gender balance):
 - Cullivoe Primary School children;
 - General public from Yell community;
 - General public from Lerwick community.
- Key Informant Interviews (KIIs):
 - Shetland Islands Council Ports and Harbours;
 - Shetland Islands Council Transport, Infrastructure and Environment Committee;
 - Shetland islands Council Future Energy;
 - RS Henderson haulage company;
 - Distribution Network Operator, Scottish & Southern Electricity Networks', Lerwick Power Station;
 - Shetland Environmental Ltd, tourist guide and environmental surveys;
 - Shetland Composites;

3.5 Roles and Responsibilities

At the initial phase, the roles and responsibilities were defined as follows:

NOVA, as lead partner in the EnFAIT project:

- Approved the Local Community Engagement Strategy;
- Approved all project information materials;
- Supported IDETA and RSK in the general planning and coordination of the local community engagement activities.

IDETA, as lead on the Local Community Engagement Strategy tasks and deliverable, and RSK, as WP8 lead, jointly:

- Planned and completed all initial local community engagement activities, with the support of NOVA;
- Recorded the outcome and outputs of engagements for analysis.

OREC, as lead on WP2 relating to Communication:

- Provided project information materials to IDETA, RSK and NOVA.

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