2022

SAILCARGO CONCEPT PILOT TESTING

DUAL Ports is co-funded by the North Sea Programme 2014-2021; Eco-innovation priority.
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About DUAL Ports

DUAL Ports is an Interreg North Sea Region project started in December 2015, with a duration of 3 years. In December 2018, DUAL Ports was extended until 2021 with an increase in partners, pilots and budget. DUAL Ports is based on the operational pilots in Regional Entrepreneurial Ports REP's). DUAL Ports will be measured in the concrete success of the pilots and the pilots' renderability to other REP's.

DUAL Ports addresses the Interreg Programme's objective of promoting resource efficiency and stimulate the adoption of new products, services and processes to reduce the environmental footprint of regions around the North Sea.

A series of pilot reports

DUAL Ports consists of 16 pilot projects and 16 partners from the port industry, knowledge institutions and tech business within sustainable energy. In a series of publications, we are introducing each of the pilot projects highlighting the experiences, results and learnings from their work. Knowledge sharing is vital for the continuous development of sustainable energy and the publications of DUAL Ports pilot projects will be a source for further work.

For more information about the Pilot Project: SAILCARGO CONCEPT PILOT TESTING, please contact the DUAL Ports partner:

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Summary of pilot

The publishable summary should include:

- *A summary description of project context and objectives.* Our project consisted of refurbishing a sailing vessel to carry cargo for a designated route, the route to be set up was to be from the Port of Oostende in Belgium to Ramsgate in England/UK. Further, the aim of creating the vessels own energy whilst using the wind for propulsion
- *A description of the work performed since the beginning of the project and the main results achieved so far.* The work undertaken to date has been the refurbishment of a sailing vessel from a charter boat into a sailing cargo vessel, and importantly, the creation of a viable sailing cargo liner service and route to fit into the intermodal cargo transport system.
- *The final results and their potential impact and use (including the socio-economic impact and the wider societal implications of the project).* The final result is an operational sailing cargo route and vessel, capable of producing most if not all its energy needs via wind propulsion and hydro energy creation..
- *The address of the project public website and the partners' website if applicable* See Dual Ports website

Project Description

Describe your motivation for this pilot. Introduce your pilot project in general.

The motivation is to prove both financially and operational wind energy is a viable for freight transportation and hydro as well as other renewable energy technologies production onboard

In 2020, Short Sea Shipping [SSS] in Europe amounted to 1.7 billion tonnes of cargo [Eurostat 2022]. For several well documented reasons, [a key factor is road congestion and costs of road freight] SSS is experiencing growth as a transport solution. At the same time, there is a call for regulations that protect the environment: Shipping has no choice but to get serious about green compliance.

Challenge

Deadlines for compliance are being put in place, and are certain to be enforced.
The European Shipping Industry, has to find ways to sustain business while drastically cutting its contribution to global emissions.
To do this we need innovative solutions.

The Project's Objective

What was the target of your pilot project? Remember to include any technical facts and goals. To refurbish our sailing vessel to a sailing cargo vessel (for which it was designed) and operate it on a liner route which needed to be set up. The original intended route being Oostende to Ramsgate and back on a regular and reliable basis. This route became unavailable so a major objective was to establish a second route with detailed discussions with potential transport partners required. Proving this operation and sharing the financial and operational data would follow once the route became operational.

Our Solution

A hybrid system that provides both WIND and SUSTAINABLE ONBOARD ENERGY for:

Short Sea Shipping

Highly reliable, cost-effective and with ultra-low, ultimately Zero carbon emissions.

Problem Definition

Why is the pilot necessary? What are the circumstances that requires a change?

The pilot aims to test the adaptation of a sail vessel to innovatively transport cargo by combining wind propulsion to hydrogen generation. The pilot will also investigate the market opportunity of establishing a regular liner cargo transport network between the EU and UK south coast

The Process – From Concept to Completion

How was the process of pilot from planning, development to the implementation, Please describe the project phases you were going through; highlight your milestones within the pilot.

Initial situation

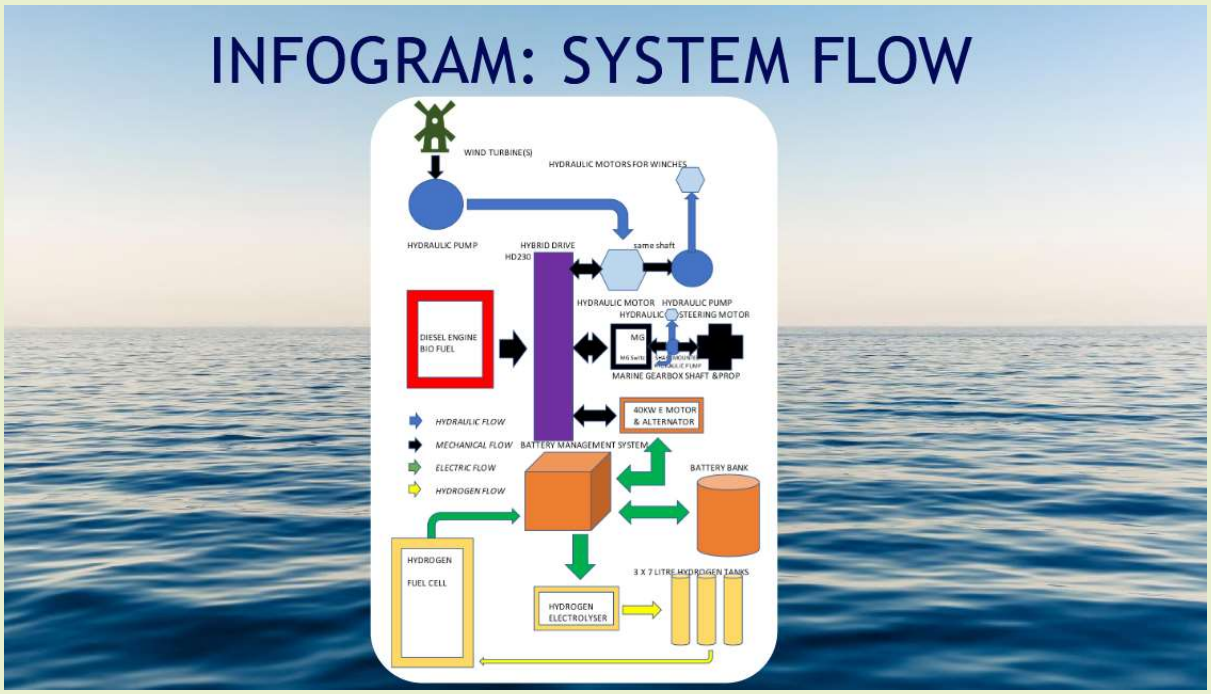
The sailing vessel was designed as a sailing cargo vessel, an important factor in using this vessel, but had been converted to a charter passenger sailing vessel. In order for this modern sailing vessel to be used once more for its designed purpose, carrying cargo, it needed to be internally redesigned to make space for a larger cargo hold to specifically carry palleted freight, an increase the square meterage stowage area rather than the tonnage capacity.
In order to achieve this, the interior had to be removed, the cement ballast removed which exposed unforeseen defects in the bottom hull plates which necessitated their replacement.
Once this was done, rebuilding commenced and the vessel refurbishment has continued with the hold space, renewal of the accommodation areas and an increased deck stowage area. In parallel with this work, sources of innovative wind energy and hybrid hydrogen solutions were identified and discussions with potential suppliers started.

The initial planned route was Oostende to Ramsgate but this became unavailable therefore a major effort was the identification of another trading route together with discussions with potential partners in the logistics chain.

Results

Results and achievements during the project period of DUAL Ports

Significant progress has been achieved in that the vessel is now almost ready to sail a major project milestone. Work continues in increasing its capacity to carry 76 euro pallets. Alongside this work has been the design of the hybrid system to achieve zero emissions. This has included identifying and sourcing innovative wind energy and potential hydrogen solutions, together with a greater understanding of potential cutting edge solutions.



In addition to the technical side of the project, the creation of a sound business case for the intended routine liner operation has been completed another major milestone.

With the loss of the Oostende to Ramsgate route a new potential route was essential to the project going forward. The identification of a potential new route from the EU to south coast UK, together with discussions with possible logistics partners involved a considerable amount of time and effort. The positive outcome is considered to be a major milestone and detailed commercially sensitive discussions continue.

The impact of the Covid pandemic on this project are not to be underestimated as it has resulted in cost and time over runs. Cost of some materials doubled and personnel normally engaged were unavailable for long periods.

Deliverables and milestones

The measurable results include the physical progress of the vessel, the identification and subsequent detailed discussions with potential logistics partners concerning the alternative Eu/UK liner route. In addition the business case and marketing strategy have been developed in parallel. Once operational a measurable result will be the numbers of pallet loads of cargo transferred by sail and other renewable means.

Sustainability

The goal of the 0peration is to fit into the "Green Economy". The 'green economy' is one: …that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient and socially inclusive. Its growth in income and employment is driven by public and private investments which reduce carbon emissions and pollution, enhance energy and resource efficiency and prevent the loss of biodiversity and ecosystem services.

In this regard we intend using wind for the propulsion of our sailing cargo vessel as well as producing energy whilst under sail. The business case indicates it can be achieved at a very competitive cost even when the competition is highly subsidised making for an extremely un level playing field due to our ability to not use fossil fuel for propulsion.

Conclusions & lessons learned

Significant progress has been made toward the achievement of providing zero carbon emissions capability for carrying cargo between the near continent and the UK.

The original planned route between Oostende and Ramsgate had to be abandoned and therefore a new route had to be researched in detail. The process of achieving this new route possibility is a major highlight and has led to numerous new interested parties and awareness of our plans. It has also led to further unplanned work being undertaken on the vessel in lieu of new freight constraints (mainly due to the desired height of the pallets).

Once the new route is formally secured, the intention is to become operational in 2023, offering a green transport alternative from which the data collected can be used to inform similar options in the future.

Most importantly, and a significant highlight, is that we have a logistics company willing to offer us a proportion of their freight traffic. Research has shown that there is a desire for green transport amongst cargo owners, but little ability within the freight transport system (land and maritime) to deliver this option at present. Working on the Dual Ports project has brought this reality much closer with our vessel.

It is worth noting that much of our research into both the operational and investment costs has been used by the Dual Ports project partner, but also by other interested sail cargo entities.

Furthermore, we are in confidential talks with a green maritime energy company with a view to achieving our secondary goal of wind propelled hydro energy production and storage, which although extremely expensive, may yet be possible due to the proof of concept possibilities we are able to offer via our hybrid drive propulsion/hydro energy production option we will be able to offer on the vessel. We have also been identified as an ideal vessel to trial innovative wind sail technology.

In summary, despite numerous setbacks and delays, such as Covid 19, Brexit, soaring steel prices etc, we recognise that we are now at the forefront of fulfilling the desire for green short sea freight transport. We are in this fortunate position due to our participation in the successful Dual Ports project.

Contact information

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