



Scalloway Harbour paving the way in sustainability

The Pure Energy Centre (PEC) is currently working on a Pan-European Project called E-Harbours co financed by the Interreg IVB North Sea Region Programme. The focus is on creating more sustainable harbours using innovative intelligent energy networks. The PEC's efforts are focused on the well known Shetland based Scalloway Harbour showcase. The aim of the Scalloway Showcase is to gather energy data. When gathered, these data will be analysed with a future aim to reduce and stabilise the harbour's energy consumption. By reducing the energy consumption, the harbour will become both more financially and environmentally sustainable.

The project is attracting interest from around the world and last week Mike MacKenzie, MSP visited the harbour to hear more about the project. Mr MacKenzie said

'I was delighted to have the opportunity of visiting Scalloway harbour and to see the innovative energy audit being conducted which aims to improve the energy efficiency of this busy harbour as well as providing lessons for elsewhere. It was no surprise to me that Shetland and the Pure Energy Centre are leading the way in this research, because Scotland's islands are host to some of our hardest working and most innovative people and communities. The energy efficiency aspect of the Scottish Governments Energy Policy is often overlooked which is why I am particularly pleased to see this work being taken forward in Shetland.'



Scalloway Harbour



From left to right, Alastair Rendell, Scalloway Harbour, Elizabeth Johnson, Pure Energy Centre, Mike MacKenzie, MSP

The intensity and the large variety of activities in a relative small footprint make Scalloway Harbour a unique case study for the development of an energy monitoring strategy. Therefore, in collaboration with the harbour authority and the local organisations based

within the harbour, Pure Energy Centre® and Robert Gordon University have developed a set of criteria for an effective data monitoring of the energy consumption of the Harbour.

At the same time, the large potential of renewables energy available in Scalloway is under investigation. The aim is to assess the potential benefits in terms of economic value and CO2 emission reduction. The Scalloway harbour showcase aim to increase the uptake of Renewable Energy in the harbour area by integrating the existing energy network with smart grid, virtual power plant and electric vehicles in order to generate a new sustainable energy management system for the harbour.

The energy monitoring strategy developed assesses the harbour activities and energy consumption level by using state of the art data monitoring technologies. The data gathered should provide the required knowledge to define corrective actions to optimise the energy system within the harbour and increase its sustainability. It also supports harbour organisations to quantify their environmental impact within the harbour.

The outcomes of the energy monitoring strategy will allow the harbour community to analyse their energy consumption and behavior. This will lead to the development of new and effective energy management strategies for North Sea based harbours to reduce their energy costs and become more competitive, locally, regionally, nationally and internationally.

Currently an accurate monitoring system of the harbour has been developed by Pure Energy Centre. Distributed sensors and data loggers have been installed in the most important electrical nodes and process within the harbour. The monitoring system is currently logging 112 electrical parameters, 37 weather parameters, room temperatures and oil flow consumption.

The E-harbours project focuses on 3 objectives:

- Increase the production and use of renewable energy in harbour cities. Harbour cities have extensive industrial areas with a great potential for development of sustainable energies; from wind, solar PV, tide, waves and the reuse of industrial waste, heat or cooling available;
- Increase the use of energy smart grids. Attuning demand and supply of energy by flexible demand management, instantaneous load shedding (both directions), energy labeling, intelligent storage;
- Increase the use of electric transport, a perfect partner to connect to large scale renewable energies and leading the a more healthy environment in the harbour regions.

The project is co financed by European Union, Interreg IVB North Sea Region Programme.

Project partners are:

Municipality of Amsterdam, Netherlands

Port of Antwerp, Belgium

City of Malmö, Sweden

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Pure Energy Centre, Shetland
Robert Gordon University, Aberdeen
VITO, Belgium
Municipality of Zaanstad, Netherlands