



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 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 the Harbour Master from the Falkland Islands, Malcolm Jamieson, visited the harbour to hear more about the project. Malcolm said 'It is very interesting to see what the Pure Energy Centre is doing at the Scalloway Harbour, with harbour developments in the Falklands, it is important to keep abreast of what other harbours around the world are achieving with regards to increasing their sustainability'



Scalloway Harbour



Elizabeth Johnson, Pure Energy Centre, Malcolm Jamieson, Harbour master, Falkland Islands, Ross MacIannan, Pier Master, Scalloway Harbour



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 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 supports the assessment of the harbour activities and energy consumption level by using state of the art data monitoring technologies. The technologies monitoring enables the lowest disruption for harbour's stakeholders. It also aims to reduce the cost and time of the assessment. The information /data gathered using the monitoring strategy can 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 complex.

The outcomes of the energy monitoring strategy will allow the harbour community to analyse their energy consumption and behaviour, leading to the development of new and effective energy management strategies 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.

E-harbours 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 to a more healthy environment in the harbour regions.

The project is 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
Hamburg University of Applied Sciences, Germany
Pure Energy Centre, Shetland
Robert Gordon University, Aberdeen
VITO, Belgium
Municipality of Zaanstad, Netherlands