

# Conclusions of the workshop WAVE/HEAT/HYDROGEN in HVIDE SANDE

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The workshop in Hvide Sande has presented you the 12 works of Hercules: 12 very motivated speakers have given an insight in the developments in the world of sustainable energy.

Instead of listening to nice fairy tales which are promoted in the social media, the DUAL Ports are facing major challenges: the time of the monofunctional ports has longtime gone, although the policymakers still not have understood that the world is changing. Today, SME ports are more than logistic operators. SME Ports also function as energy-hubs, whereby different levels of operationality are concerned.

Within the scope of energy, the SME ports are playing different roles:

A. The SME ports play an active role in the energy production in a smart design.

Facing the challenges of different sustainable energy production, the port managers of today needs to find an answer on the challenges, related to the multi-energy production within ports. The use of mature sources of energy, like solar and wind, and immature sources, like H<sub>2</sub>, wave, tidal and biofuel, have a major impact on the organization of the port infrastructure. When WindEurope announces that 450 Gigawatt wind power needs to be installed before 2050, it is clear that the ports will need to prepare their operations and to work together. (Today, only 20 Gigawatt wind energy has been installed).

B. The SME ports are also passive energy consumers.

The use of vehicles and the vessels in the port, the management of warehouses, terminals and pontoons has a direct impact of the energy consumption of ports. It is clear that the efforts that have been taken within DUAL Ports are first steps in order to green the port operations.

C. The SME ports as energy service providers.

Energy is an economic product that needs to be stored and distributed in safe conditions. There is a whole market of supply that needs to be organized in order to get the energy in the house of the customer. The bunkering of ships and the organization of the fuel supply and cold ironing have major consequences on the organization and the functioning of the port operations.

D. The SME ports as centers for innovation and research

As centers for innovation and research, ports can help improve the performance of the marine renewable energies. The work of Laminaria and Seabased show very clearly how important it is to have the relevant testing facilities in and around the SME ports.





Considering the speed of innovation and technological development and considering the policy issues, it is of major importance that port managers take a flexible attitude and an open mind to the new evolutions: What has been revolutionary in 2016 is outdated in 2020.

The intense cooperation between the SME ports, the industry and research institutions with full respect for each other's role is absolutely necessary. Therefore, it is of major importance that the necessary funding is organized so that the port infrastructure can be adapted to the needs of the future within logistics and energy-supply.

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