



Norwegian Centres of Expertise
NCE Maritime CleanTech



Developing clean maritime solutions by cluster cooperation

Hege Økland, CEO, NCE Maritime CleanTech

Sea Japan, 13 April 2016



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NCE Maritime CleanTech



www.maritimecleantech.no

Based in the maritime cluster - south west of Norway

One of the most complete maritime business clusters in the country

Leading shipping companies, shipyards, service and equipment suppliers

The headquarters of the Royal Norwegian Navy and the main office of Norwegian Maritim Authority are located in the cluster's region

R&D institutions: The Naval Academy, Norway Business School, colleges, Universities and research institutes are located in the region



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BERGEN

STAVANGER



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Norwegian Innovation Clusters: - A government supported cluster program



NORWEGIAN
INNOVATION
CLUSTERS

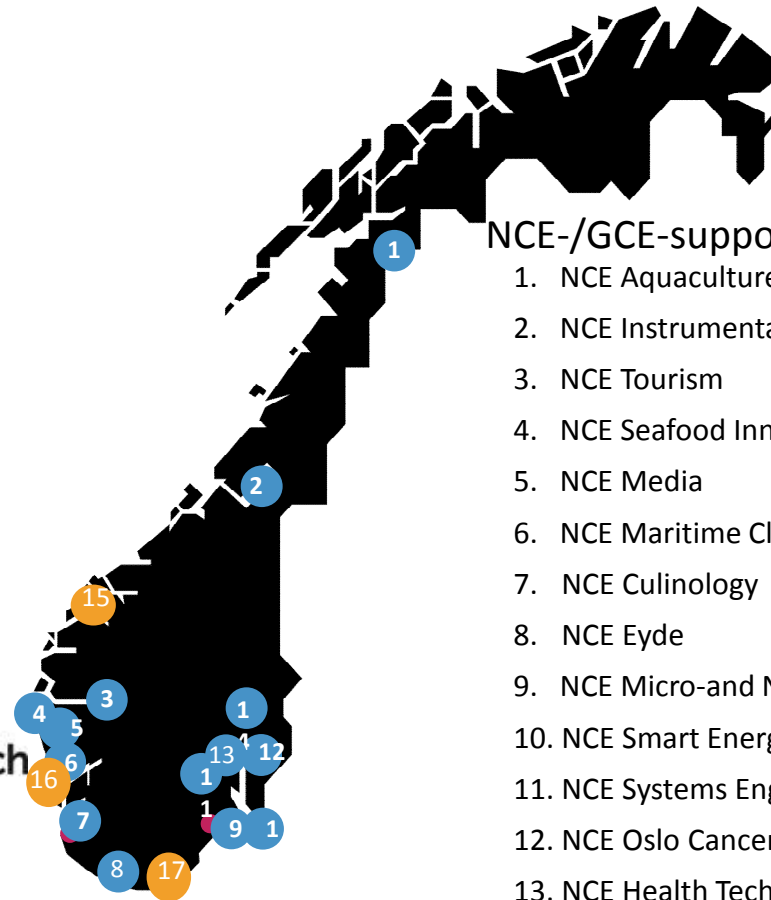
Norwegian Centres of Expertise / Global Centres of Expertise:

Established to enhance sustainable innovation and internationalisation processes in the most dynamic and growth-oriented Norwegian clusters

Supports long-term development processes in the clusters based on collaboration between industry, R&D and the public sector.



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NCE-/GCE-supported Cluster:

1. NCE Aquaculture
2. NCE Instrumentation
3. NCE Tourism
4. NCE Seafood Innovation Cluster
5. NCE Media
6. NCE Maritime CleanTech
7. NCE Culinology
8. NCE Eyde
9. NCE Micro-and NanoTechnology
10. NCE Smart Energy
11. NCE Systems Engineering Kongsberg
12. NCE Oslo Cancer Cluster
13. NCE Health Technology
14. NCE Raufoss
15. GCE Blue Maritime
16. GCE Subsea
17. GCE Node

Increased competitiveness in regional clusters through long-term internal and external collaboration between companies, R&D- and educational institutions



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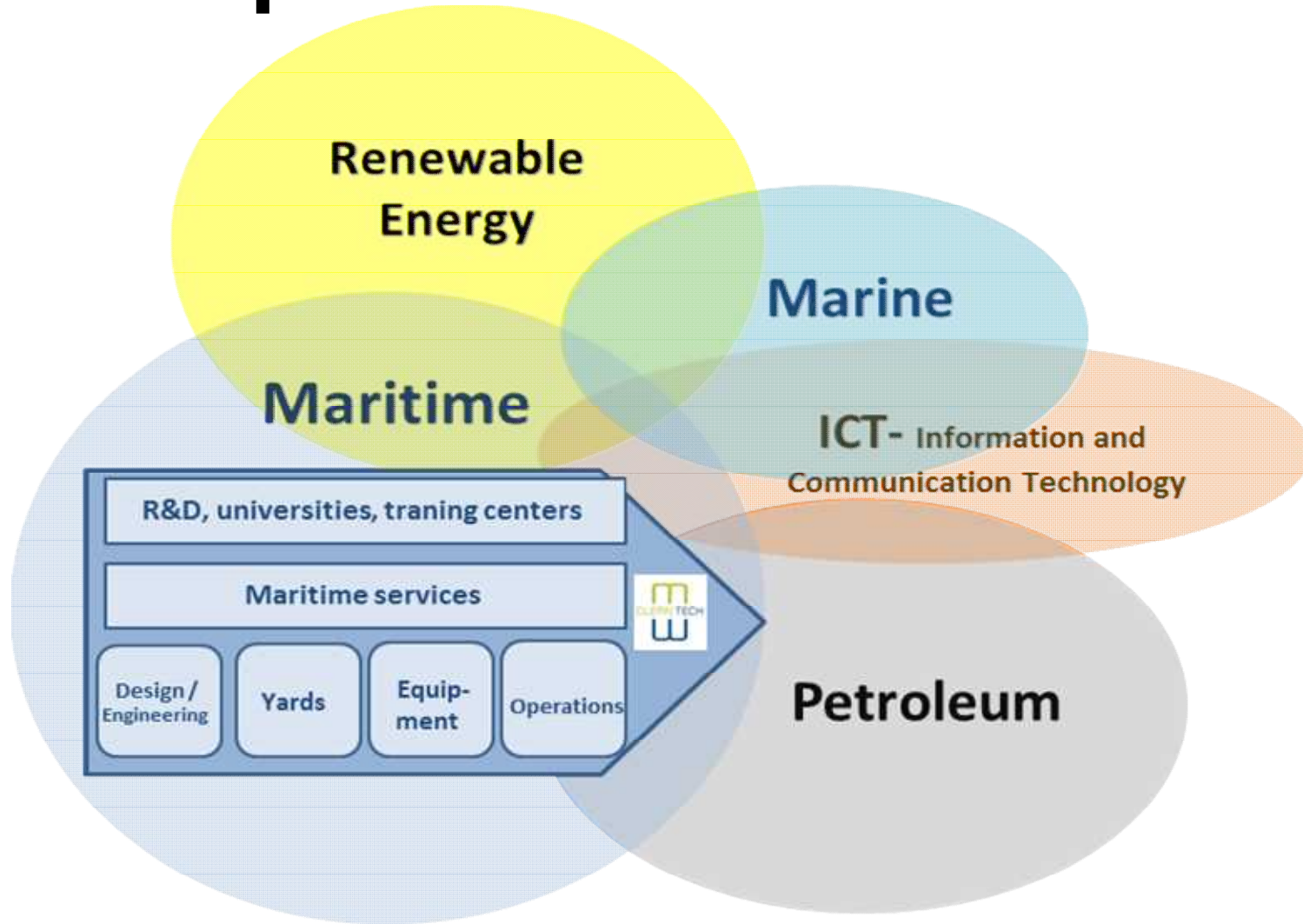
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Cluster Partners:

Bostek
Maritime CleanTech
SKL
 Energi til utvikling
Huisman
DNV-GI
FJELLSTRAND
APPLY OIL & GAS
HMMS
 HORDALAND MARITIME SelskAP AS
HAUGLAND KRAFT
 din egen kraft
HØGSKOLEN I BERGEN
Future Solutions
KVERNER
sapa:
NORLEDE
NCL
BTO
corvus energy
E
FMG AUSTEVOLL MARINE GROUP
IFE
HYDRO
SOLSTAD OFFSHORE ASA
SIMSEA
 REAL OPERATIONS
Østensjø Rederi AS
 Superior Provider
LMG MARIN
WÄRTSILÄ
CFD marine
Wave Propulsion
SOLUND VERFT AS
HALVORSEN POWER SYSTEM
SERVOGEAR
BREMNES SEASHORE
NSS
EKER SANDVIK
WESTCON
cmr Prototech
 norwegian electric systems
SCANELEC AS
Multi Solutions
NHH
HØGSKOLEN STORD/HAUGESUND
uni Research Polytec
ZEM
GRENLAND ENERGY
BERGEN TEKNISKE FAGSKOLE
 HORDALAND FYLKESKOMMUNE
RØGLAND FYLKESKOMMUNE
HORDALAND FYLKESKOMMUNE
SIVA
Forskningsrådet
Innovasjon Norge

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Collaboration between companies and businesses





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VISION

THE WORLD-LEADING CLUSTER FOR CLEAN MARITIME SOLUTIONS

*The partners lead the way in creating break-through solutions for the maritime sector.
The cluster seeks actively for inspiration in other industries, and collaborates with
world-leading expertise.*

The partners make a significant contribution to Norway's international competitive strength.

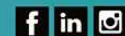
MAIN GOAL:

**Strengthen the cluster partners' competitiveness by developing
and launching innovative solutions for energy-efficient
and clean maritime activities**



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Strategies for NCE Maritime CleanTech

- **Increase innovation:**
 - Joint innovation and demonstration projects of new technologies
- **Strengthen knowledge base:**
 - International cooperation,
 - Competence development, education programs etc.
- **Stimulating market pull effects and reducing market barriers:**
 - Regulatory framework
 - Demonstration and commercialization of energy efficient environmental technology
 - Public relation
- **Increase the attractiveness of the cluster:**
 - Capital
 - Recruitment



Innovation: Electric and hybrid solutions – Proof of concept



Car and passenger vessels



Offshore vessels

Fishing vessels and workboats

Tourism and expeditions

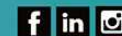
The worlds first electric ferry: Ampère



- 120 cars and 360 passengers
- Shore power is used to fast charge during docking
- Aluminium hull
- Fully powered passenger/vehicle ferry by batteries
- Renewable Norwegian electricity
- Fuel cost reduced by 60%



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The Urban Water Shuttle

Zero emission fastgoing vessel



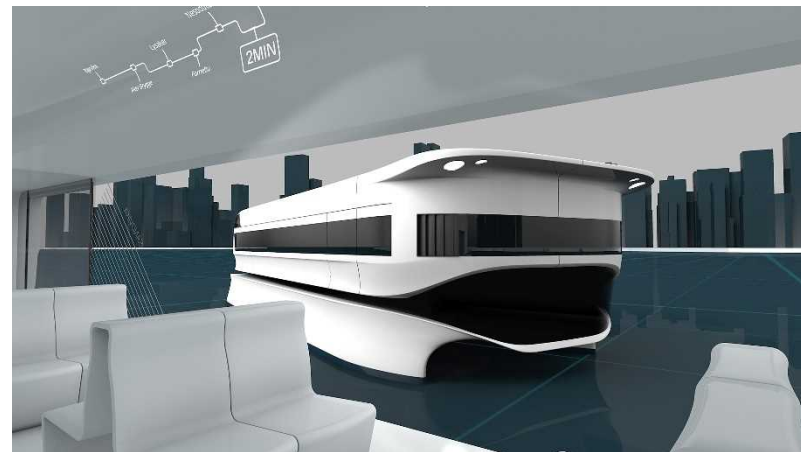
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The Urban Water Shuttle (UWS) is an energy-efficient, high-speed vessel concept for passenger transport.

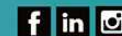
The vessel will be built in low weight and sustainable materials like aluminium, propelled using the latest low- and zero emission energy storage technologies.



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Short Sea Pioneer

– The new way of transporting goods at sea



Our cluster's role in developing and launching new innovative low emission vessel concepts

Creating stronger market pull effects through public relations and influencing stakeholders

- Market demand: The most important driver green technology.
 - Market barriers: lack of regulations, the contractual regime, lack of finance etc.
 - Public purchases: Stricter procurement criterias, e.g. energy efficiency, low / zero emissions, life cycle assessment

Demonstrating technological possibilities

- Demo project: Creates notice and acceptance in the market
 - Cluster cooperation increases the ability for deliver integrated solutions. Joint development projects. Reduces risk and increases implmentation capacity.

Establishing arenas for innovation through collaboration

- Close cooperation between different players in the value chain, e.g. harbor authorities, cargo owners, charterers and other transport sectors, in addition to related businesses is needed to seek the right incentives and best solutions.
- The cluster is through its partnership with different private business companies, R&D-institutions and representatives from the public sector well positioned for developing and launching new solutions

Thank you for your attention!



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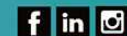
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