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GREEN COASTAL SHIPPING:

# NORWAY – A SHOW-CASE FOR GREEN SHIPPING

Norway is going to show the world that tomorrow's shipping industry will be eco-friendly. The Green Coastal Shipping Programme, initiated and headed by DNV GL, has high ambitions starting with short-sea shipping. They want to show the way towards a future zero-emission industry.

## VISION:

Establish the world's most effective and environmentally friendly coastal shipping

This will require a common commitment across industry and state agencies to help:

- Reach global and national climate goals
- Reduce emissions to air which are dangerous to human health and the environment
- Create green jobs and innovative, competitive technologies and services
- Create significant export opportunities for the Norwegian maritime, energy and supplier sectors
- Implement the government's and parliament's environmental ambitions and create profitable, lasting emissions reductions
- Make Norway a world leader within green shipping and attract international attention

We in the Green Coastal Shipping Programme (GCSP) have a vision that Norway will establish the world's most effective and environmentally friendly coastal shipping, powered wholly or partially by batteries, LNG, or other eco-friendly fuels. This vision encompasses the entire coastal fleet, including offshore vessels, tankers, general cargo, container, bulk-carrier and passenger ships, ferries, fishing and aquaculture vessels, tugs and other coastal vessels. "Norwegian coastal shipping can become a show-case in the world, a platform for Norwegian exports of green technology and environmentally friendly transport services. The technologies are there. Now we need to develop an effective infrastructure and scale the deployment," says Remi Eriksen, CEO and President DNV GL.

In mid-January, DNV GL arranged a roundtable conference at which the Norwegian Minister of Climate and Environment and Minister of Trade and Industry and 17 top executives from the industry signed a declaration of collaboration. This marked the start of the Green Coastal Shipping Programme.



Monica Mæland, the Norwegian Minister of Trade and Industry, and State Secretary Lars Andreas Lunde, representing Tine Sundtoft, the Minister of Climate and Environment, Remi Eriksen, CEO and President DNV GL and 16 other top executives from the industry signed a declaration of collaboration. This event marked the initiation of the Green Coastal Shipping Programme.

### A joint effort

The programme will be realized by the industry and government working together in a long-term public-private partnership. This is a joint effort in which all the significant players in the value chain contribute, ie, cargo owners, logistic companies, ship owners, ports, and vendors of electricity, gas, equipment and services. "This is important," explains Narve Mjøs, the programme director. "For example, ship owners will not install LNG or battery technology for all-electric operation before the infrastructure is in place. But gas and electricity suppliers and ports will not build the infrastructure before the market is there. And thirdly, it does not help that the ships can sail and fill green fuel from a well-developed infrastructure if cargo owners and logistics companies will not prioritize sustainable transportation. The authorities must facilitate it all to happen. The programme can be an effective instrument for the implementation of the government's new port and maritime strategies."

The Ministry of Climate and Environment (KLD) participates in GCSP as an active contributor to a green shift in the shipping industry and to listen to

industry's needs, according to State Secretary Lars Andreas Lunde in KLD.

Norway Post, a Nordic mail and logistics group, is a major player and has a large fleet of trucks. Its Director of Environment and Social Responsibility, Colin Campbell, believes the group's knowledge as both a carrier and buyer of transport services is valuable in GCSP. "We're working to get more transport by sea. Some types of cargo are better suited than others, but certain assumptions must be in place. There we have a lot to contribute," says Campbell.

### The programme

GCSP will be long term, probably lasting for more than 30 years, but there will be short-term results and demonstration projects/pilots in all phases. The main activities are as follows:

#### Phase 1 - Study of the potential

- Assess the potential for battery- and gas-based transport in Norway
- Business economic analyses

### GREEN COASTAL SHIPPING PROGRAM IS ABOUT

- Profitable emissions reductions
- Green jobs
- Increased competitive advantage
- Leading position internationally

- Socio-economic analyses
- Cost/benefit assessments of a green shift

#### Phase 2 - Business cases

- Further develop and evaluate the business case for all main players in the value chain
- Define regulatory, financial and procurement policy incentives and instruments
- Establish consensus on how key barriers and challenges can be overcome

#### Phase 3 - Implementation planning

- Define realistic goals for reduced emissions of CO<sub>2</sub>, SOx, NOx, PM and for socio-economic results such as increased green employment, value creation, productivity and exports
- Develop an implementation plan

#### Phase 4 - Implementation

- Implement and validate GCSP

#### Piloting in Phase 1

The objective of the initial piloting, Phase 1a, is to conduct a feasibility study of selected pilots to clarify the environmental and cost implications of specific innovations.

- The focus is on LNG and battery operation
- The overall concept, investments, changing operational costs and payback time will be considered at a high level for each demonstration project
- One of the overarching objectives is to start implementing five demonstration projects in the tail of Phase 1a
- Phase 1a has a duration of one year
- The documentation from the pilot projects will be used by the pilot owners to prepare more detailed project descriptions and financing plans for the actual implementation of the pilots, including applications for funding from Innovation Norway, the NOx Fund and other relevant bodies

"Phase 1a is jointly funded by 25 industry partners and the governmental body Innovation Norway," says Narve Mjøs. Five pilots have already been selected for Phase 1. The first is NorLines' future cargo ferry with LNG/battery hybrid propulsion and zero-emission port sailing and port operation, including electric cranes with energy recovery.

CEO of NorLines Tor Arne Borge is very positive and enthusiastic, but he cannot refrain from stating that



the government can do more to speed up the cargo shift from road to sea and green coasting. "It's amazing what the government has achieved by facilitating more electric cars. Now we need to get the authorities to create similar incentives for coastal transport," says Borge.

The second pilot involves Teekay's next-generation green shuttle tanker and the goals are to investigate and determine the feasibility of using alternative fuels such as LNG and/or VOC in combination with robust power generation for offshore DP operations and to evaluate the potential use of batteries in a hybrid solution.

The third pilot involves a hybrid aquaculture vessel specified by the Cargo Freighters' Association and ABB. Similarly, the Norwegian Gas Association and Øytank Bunkersservice are exploring the benefits of hybridizing a bulk vessel which is planned to be converted to a low-cost LNG bunker vessel with gas propulsion.

The fifth pilot is initiated by the Port of Risavika, which plans to electrify its port operations, including heavy duty vehicles and crane operations, and to offer cold ironing services. Part of the plan is also to offer to charge ships with plug-in hybrid solutions.

#### Why join GCSP?

- Influence future regulatory, financial and procurement policy instruments and incentives
- Evaluate and influence changes in market conditions
- Identify new business opportunities
- Obtain revenue growth, cost savings and competitive advantages
- Take a leading position within green shipping

Author: *Martin.Wold@dnvgl.com*



#### GREEN COASTAL PROGRAM PARTICIPANTS:

- Norwegian Ship Owners' Association
- Cargo Freighters' Association
- Nor Lines
- ABB
- Energy Norway
- The Confederation of Norwegian Enterprise
- GasNor
- Statoil
- Federation of Norwegian Industries
- DNV GL
- Teekay Shipping Norway
- Norwegian Gas Association
- Norwegian Electric Systems
- Inpower
- The NOx fund
- Rolls-Royce
- Norway Post
- Norled
- Kongsberg Maritime
- KS Enterprises (KS Bedrift)
- Risavika Harbour
- Damen Shipyards Norway
- GMC
- Maritime Battery Forum
- ZEM
- Ministry of Climate and Environment
- Ministry of Trade and Industry and Fisheries
- Innovation Norway
- Norwegian Public Roads Administration
- National Transport Plan
- Norwegian Coastal Administration
- Norwegian Maritime Authority

More Norwegian and foreign participants are welcome