



TAKING THE ELECTRIC REVOLUTION TO THE SEAS

Wednesday 15 November 12:30 - 13:25 PM
Nordic Pavilion D.08, Bonn Zone

Speakers:

Jan Kjetil Paulsen, Senior Advisor Shipping Bellona Foundation

Rolf Sandvik, CEO The Fjords

Bernhard Stormyr, Head of Sustainability Management Yara International SA

Egil Hystad, General Manager Power Systems, Wartsila Norway AS

Brent Perry, CEO PBES Norway AS

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Present the subject: The electric revolution that has happened in Norway during the last few years.

During this session we will hear stories from important players who have played an important part as game-changers in developing products and services compliant with a zero-emission future in coastal shipping.

The electric revolution at sea must start on land

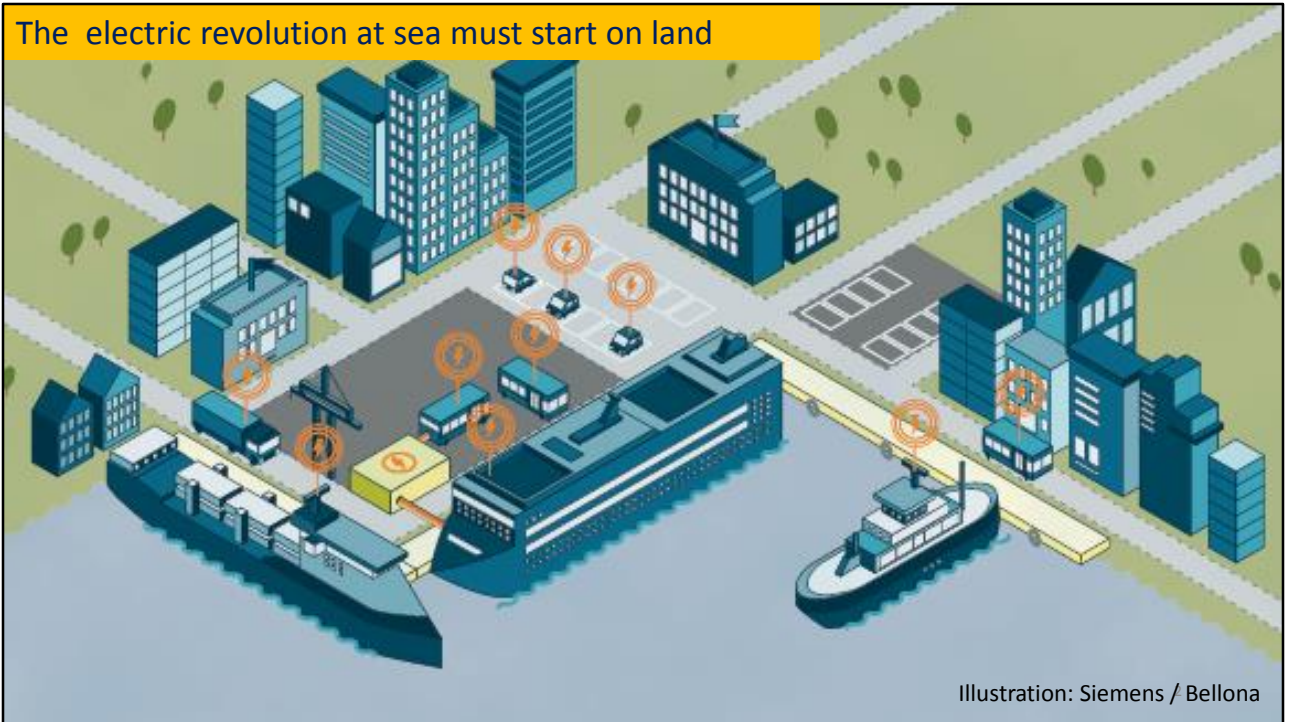


Illustration: Siemens / Bellona

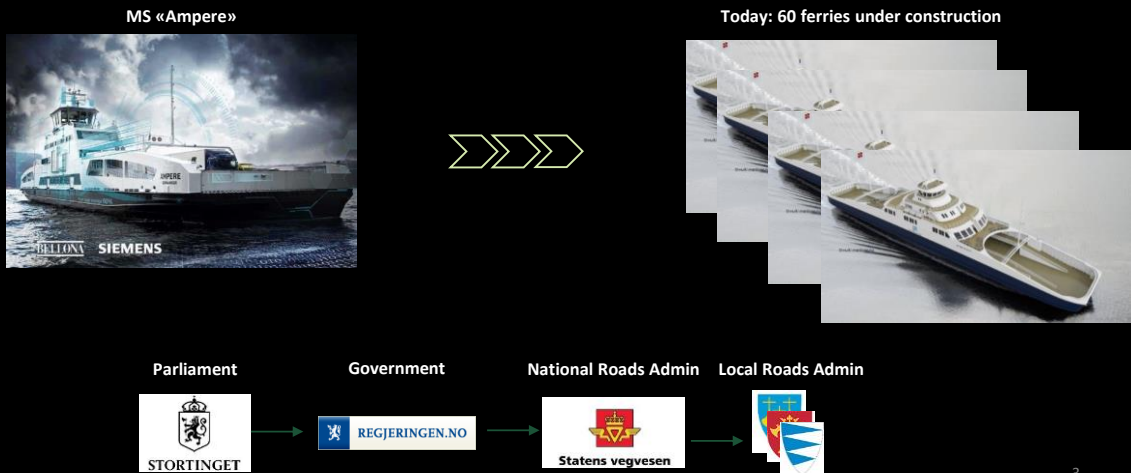
The electric revolution must start on land.
The harbour as an electric hub

The illustration shows our vision for electric infrastructure combining land-based and sea-based applications.

The purpose of this concept is to be able utilize the required electric infrastructure for both shore power and battery charging of ships as well as charging of electric vehicle, buses, trucks etc.

From 1 to 60 ferries for national roads in 3 years

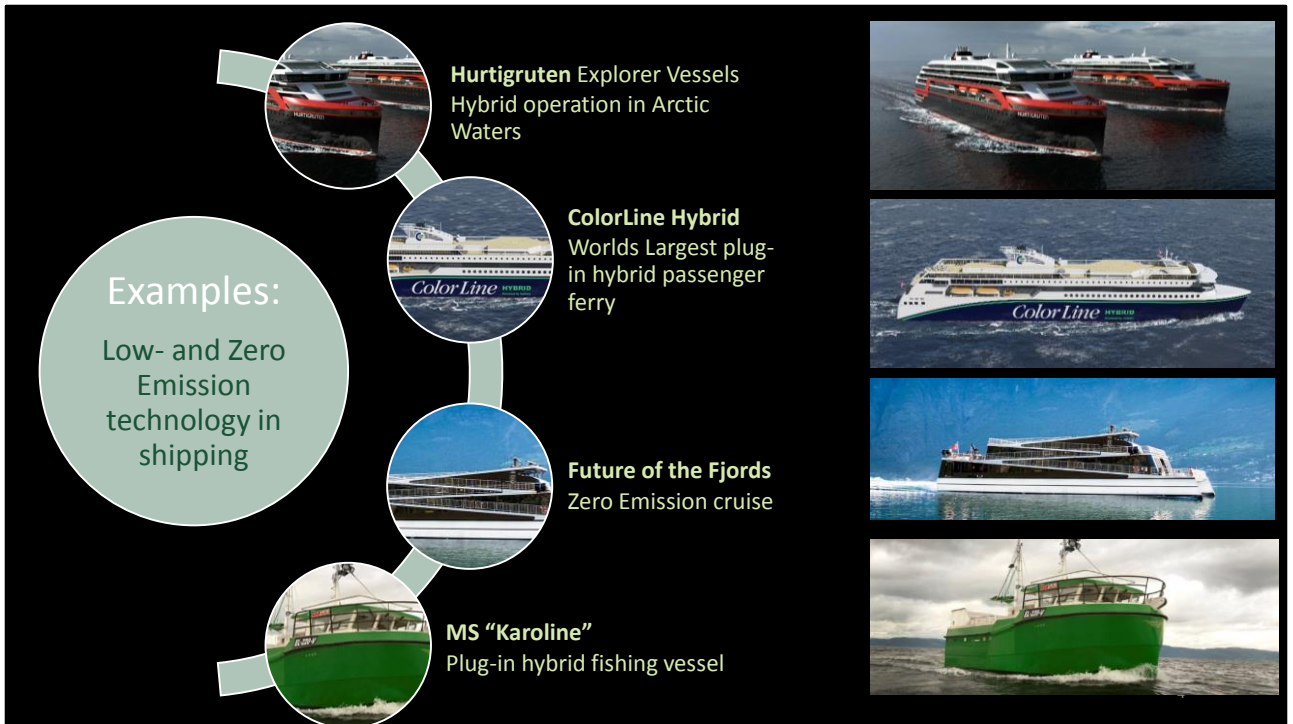
- Spring 2015: The first battery ferry MS «Ampere» was launched
- Dec 2015: Norwegian parliament passes a law requiring low- or zero-emission vessel for public roads
- New technology and business models have been developed in record time



The electric revolution in the norwegian maritime sector started 3 years ago when the first electric ferry for the Norwegian Roads administration was launched. This vessel was made possible by a development contract issued by the Norwegian Roads Administration. The electric ferry showed almost immediate success, both as a zero-emission solution, but also with respect to reduced operational cost.

In December 2015 the Norwegian parliament also passed a law requiring low- and zero emission solutions for all national and local ferries. This was also followed up with financial support.

Now only 3 years after, more than 60 ferries are in under planning and construction to be put into operation during the next 34 years.



The technology and solutions developed for the ferry market has also inspired several other sectors to develop similar solutions

Hurtigruten Explorer vessels: Hybrid solution for emission free operation in arctic waters

ColorLine Hybrid: passenger ferry between ports in Norway and Sweden. Requirement from local port authorities for emission-free operation in the harbour area

Future of The Fjords : 100% battery operated (emission free) sightseeing/cruise vessel for operation in UNESCO World Heritage Areas

MS Karlone: Coastal fishing vessel with hybrid battery solution. Reducing fossil fuel consumption and emissions with 50%

What are the business drivers ?

	Regulations by law	Concession requirements (ie. to operate a transport route)	Customer demand	More profitable to use electricity
Public road ferries	X			X
Hurtigruten Explorer vessel			X	
ColorLine Hybrid international passenger ferry		X		
Future of The Fjords Cruise vessel			X	X
Coastal Fishing vessel				X

5

What are the business drivers- motivation for investing in zero emission technology?

Public road ferries: Requirements from the Norwegian parliament, followed up by the government. Reduced opex, increased profit (reflected by skyhigh stockmarket price for the largest ferry companies)

Hurtigruten Explorer vessel: operating in arctic waters. Zero-emission operation is part of the value proposition to the customers

Future of the Fjords: Operating in UNESCO World Heritage pristine nature areas. Zero emission operation is part of the company DNA and a prerequisite for their operation.

Coastal Fishing Vessel: battery-hybrid operation will reduce operating expenses and increase profit for the fisherman.



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Photo: Sverre Hjørnevik

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