

# Experiences from the Norwegian Green Shipping Programme

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# Green Shipping Programme

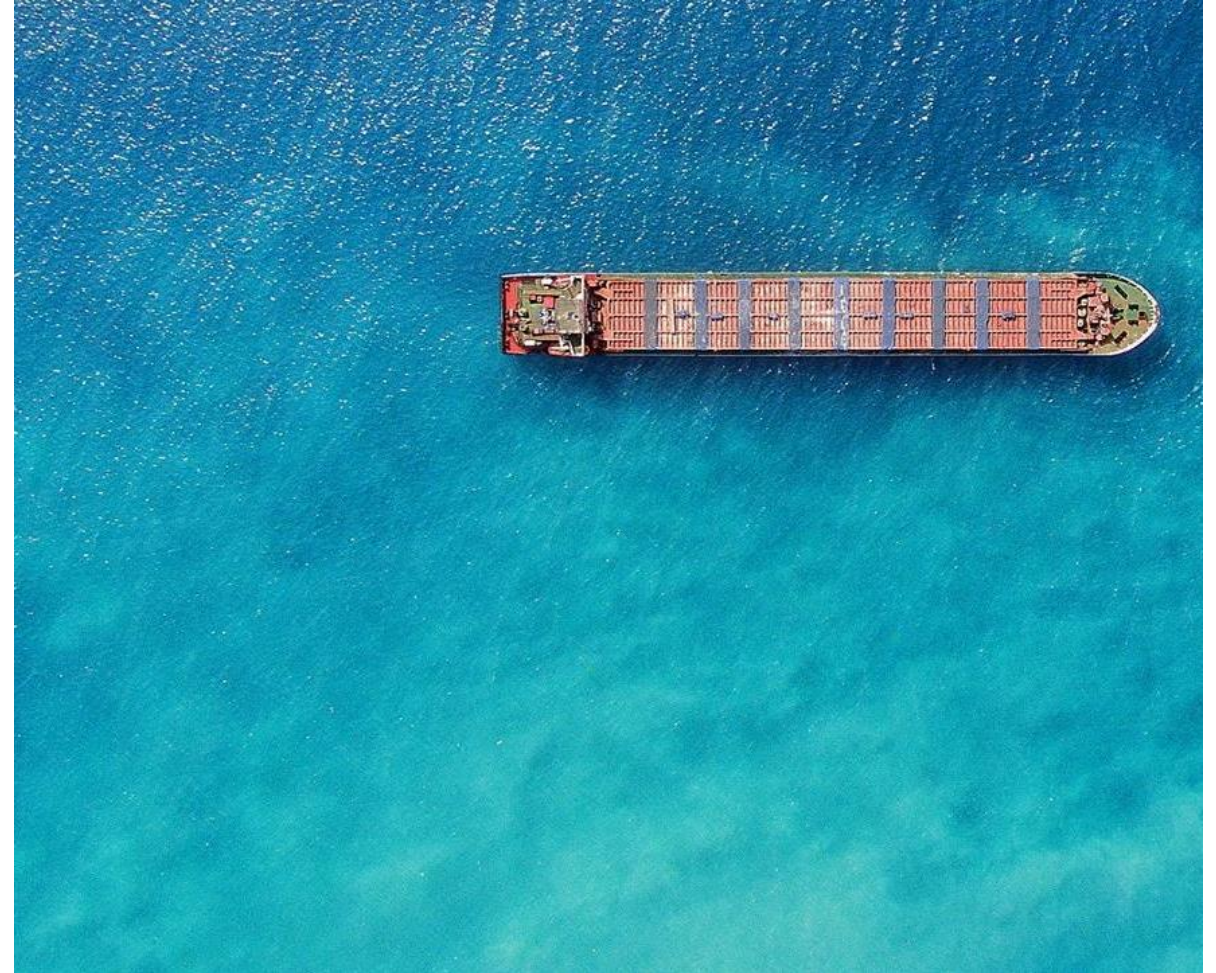
## A paradigm shift in maritime

- Emissions are regulated and charged
- Green requirements from the market, investors, and the public
- Climate change and new requirements
  - a significant business opportunity

## Vision:

Establish the world's most **efficient** and **environmentally friendly** shipping

- Profitable emission cuts
- Sustainable logistics solutions
- Green jobs
- Increased competitive advantage
- International leadership position





# Green Shipping Programme



# Pilot overview – 57 pilots

Pilot Legend:

Under realization

Maturing

In progress

Other activities:

Cargo owner forum

Tech. radar

## Pilot owner

Pilot owner	Pilots									
Cargo owner	Greenbulk	Battery HSLC		Hydrogen HSLC	Ammonia deep-sea tanker				EPD calculator	Green Navy Ships
	Logistics 2030	Public procurement		Offshore wind			Intermodal Corridor	Green mass transport	Marine survey	
Ship owner	Yara Birkeland	Shuttle tanker	Transport of fish	Ammonia deep-sea bulker	Ammonia sea trawler	Cruise roadmap				Nuclear Power
	Smart ships	Fishing vessels	Fish farm vessel	Hydrogen cargo-ship	Bio-gas	Methanol Retrofit	Ammonia ferry		On board CCS – Shuttle Tanker	
	Cargoferry	Autonomous drone		Sail in a box	Bio-diesel ferry	Zero-emission high speed ferry	Methanol new build		On board CCS – Container	
Infrastructure	Green port	Port Index		LOHC infrastructure	Hydrogen infrastructure	Port barometer		Green corridor port	Hydrogen bunkering	
				Environmental terminal	Transition of LNG infrastructure	Ammonia bunkering			Coastal emergency power	
Finance	Financing 2 <sup>o</sup> shipping	Transition financing shipping	Transition financing fishery	Green finance	Transition financing ports	Green infrastructure			Transition financing offshore	
Other	Autonomous ferries	Circular economy		Next generation bulker	Reuse offshore vessels	Battery ferry Greece				

# Examples of pilots realized

## Yara Birkeland:

First battery electric and autonomous cargo ship  
In operation 2022



Yara Birkeland - Autonomous battery-powered containership, <https://greenshippingprogramme.com/pilot/autonomous-battery-powered-containership/>

## ASKO:

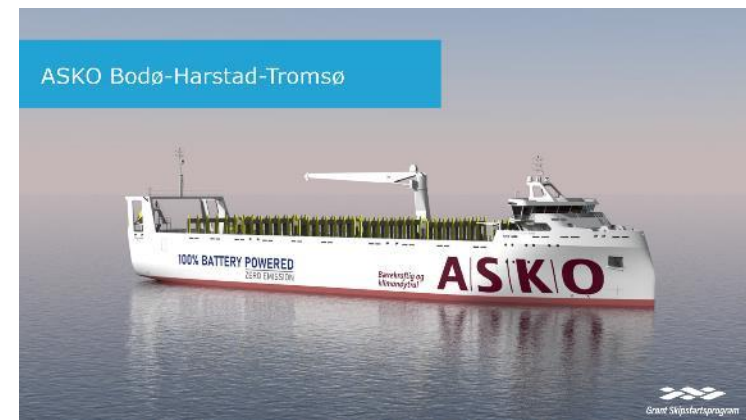
Two battery electric autonomous ships  
In operation 2023



ASKO - A flexible fully electric transport system on autonomous ships, <https://greenshippingprogramme.com/pilot/fully-electric-transport-system-on-autonomous-ships/>

# GSP Service Center for green fleet renewal – project overview

- 120 projects since inception
- 80 customers – most cargo owners
  - Construction
  - Industry/minerals
  - Aquaculture
  - Grocery/food
  - Wind
- 132 ships
  - Bulk
  - Container/RoRo/RoCon
  - Aquaculture vessels
  - Tank
  - Offshore O&G and wind
- 25 ships achieved Enova support
- 3 ships with final investment decision



# Lessons learned

- Technology is very seldom the main barrier.
- More often, financial, legal or organizational barriers stop implementation.
- The cost gap is always a major issue!
  - Sometimes it is mostly a CAPEX issue (battery electric ships).
  - Sometimes it is mostly a FUELEX issue (biofuels).
  - Sometimes it is both (hydrogen, ammonia).
- Realization of Green corridors is not possible today without government support to close the cost gap.
- The exception is sectors with strong government purchasing power and requirements (ferries) or policy requirements.



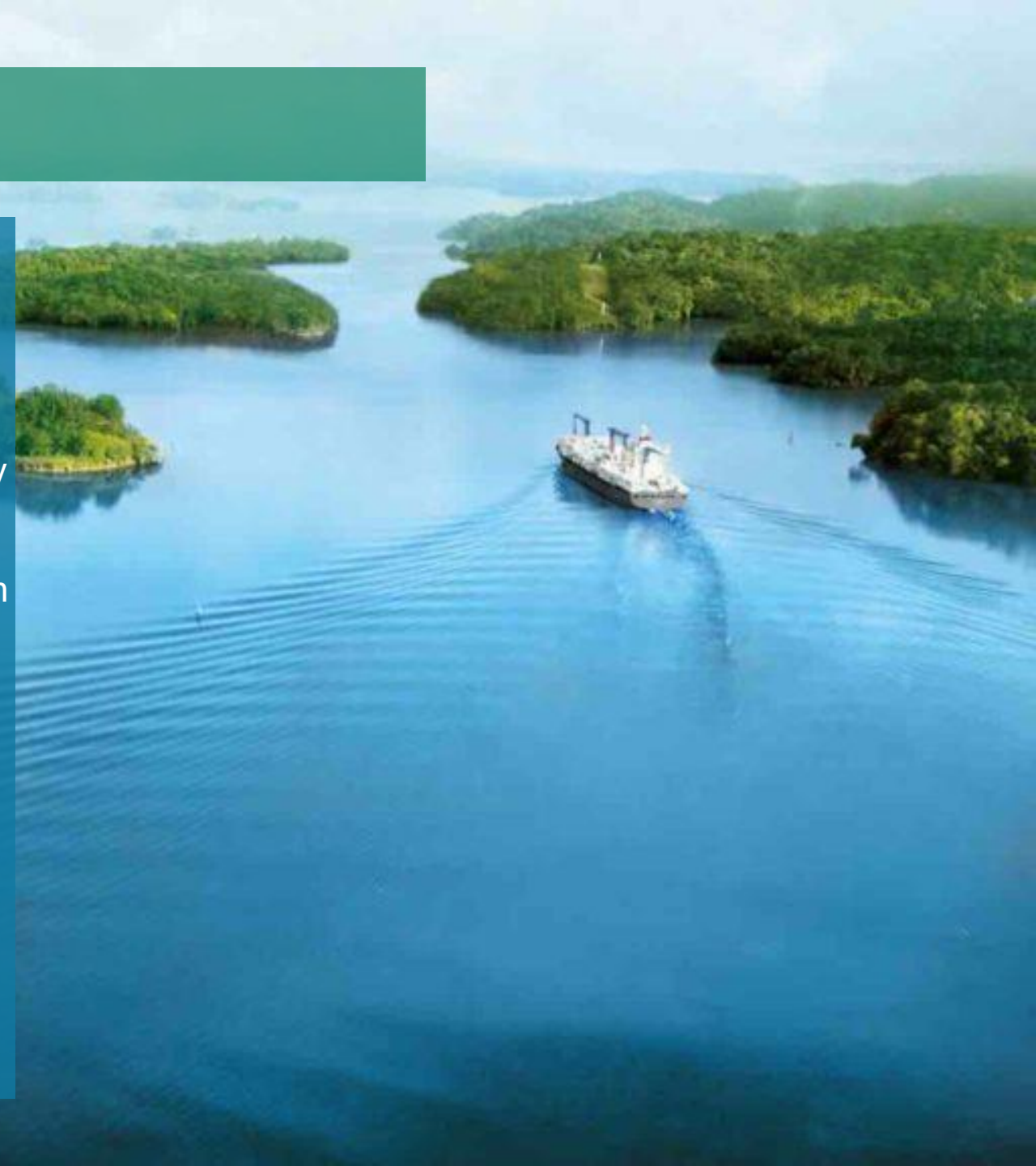
# Lessons learned (cont.)

- With time, increased CO2 taxes, IMO regulations, EU regulations or other drivers will likely give sufficient incentives for zero emissions shipping; but this will take many years still.
- Do not over-estimate the willingness of cargo owners and charterers to pay premium for green transportation.
- Our experience is that forward leaning actors will engage and participate in risk-sharing but will not accept higher cost.
- There is a BIG difference between intentions and binding agreements.



# Lessons learned (cont.)

- Even with generous CAPEX support, the business case for green corridors will in most cases not be sufficient. Support relating to FUELEX is needed.
- Most ship owners building new green ships are choosing dual fuel solutions - due to large uncertainty of future fuel costs.
- Beware the hidden costs incurred when embarking on a zero-emission project, a lot of hassle and bother, risk and costs which can be difficult to identify and appraise upfront!
- Reward the pioneers!



**Thank you for the attention!**  
**Questions?**

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