

# Journey from fossil fuels to zero emission shipping

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Together with customers and partners Nordea enables the transition towards a sustainable future

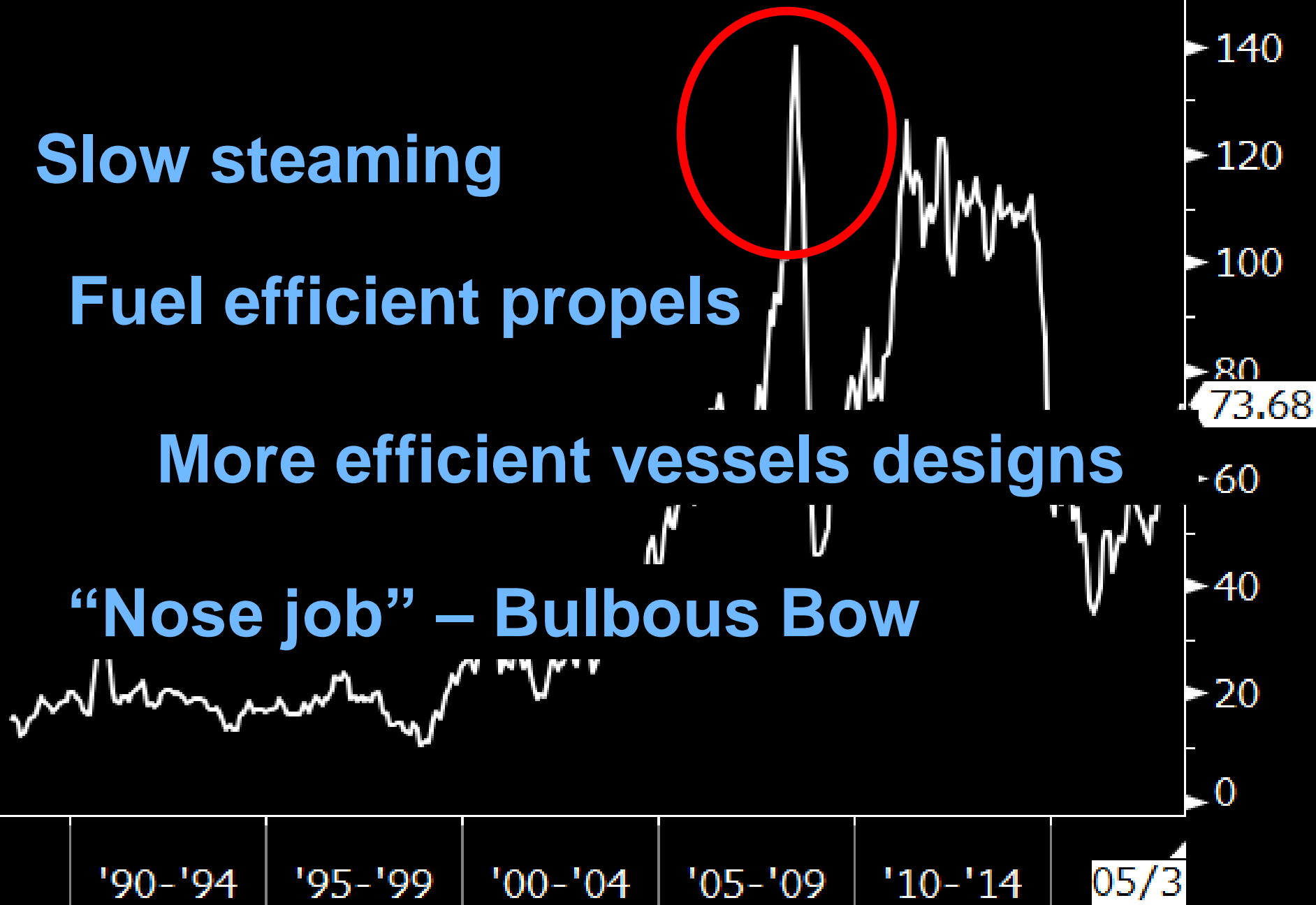


**Slow steaming**

**Fuel efficient propels**

**More efficient vessels designs**

**“Nose job” – Bulbous Bow**



## High fuel costs trigger investments in new and cheaper alternatives

### Høy oljepris skaper problemer for fiskerinæringen

Tidens skyhøye oljepris skaper problemer for fiskerinæringen. Norges største fiskebåt «Libas» har ikke råd til å dra til sjøs.



# New regulations on sulphur, NOx and CO2 will push the development of new energy sources and new technology

## U.N. shipping agency reaches deal to cut CO2 emissions

Jonathan Saul, Nina Chestney

4 MIN READ



LONDON (Reuters) - The United Nations shipping agency reached an agreement on Friday to cut carbon emissions, following years of slow progress.

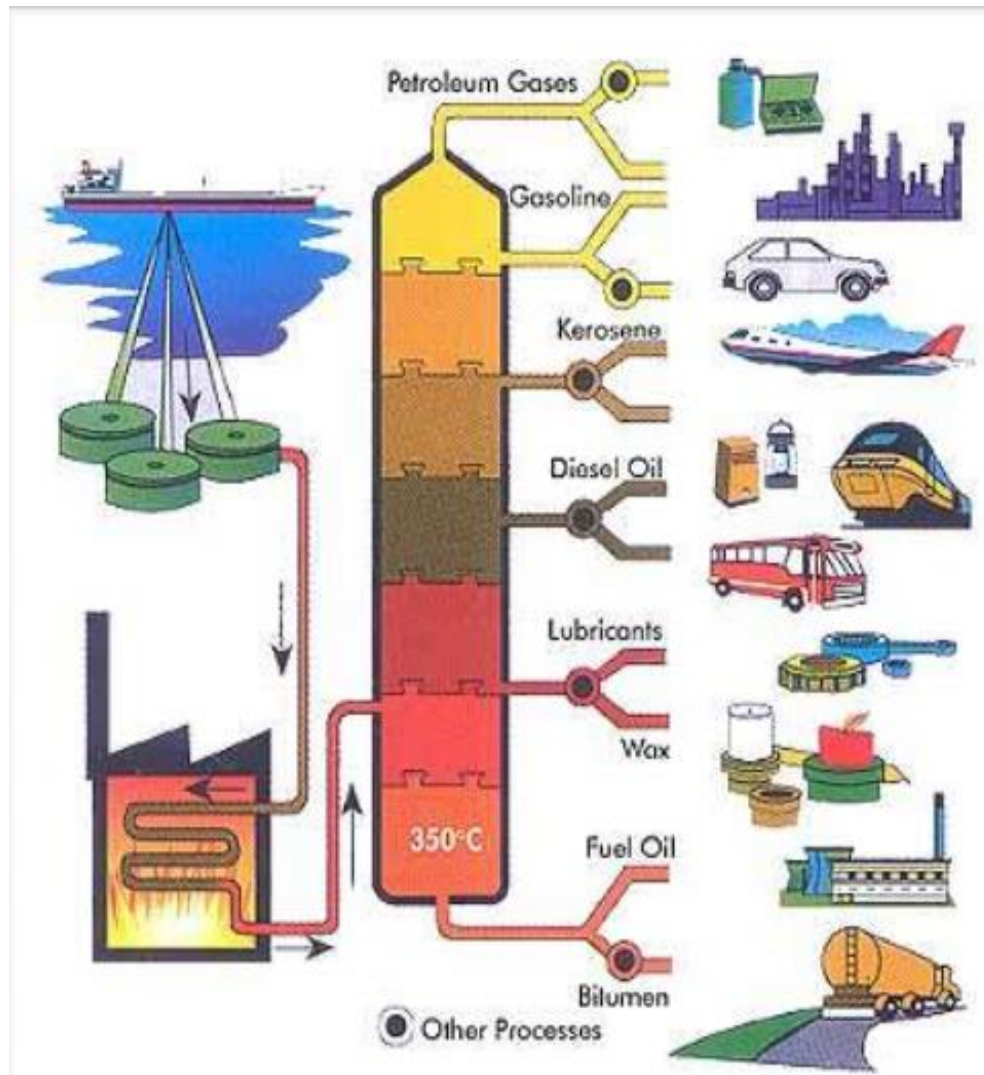


FILE PHOTO: Shipping containers are being loaded onto Xin Da Yang Zhou ship from Shanghai, China at Pier J at the Port of Long Beach in Long Beach, California, U.S., April 4, 2018. REUTERS/Bob Riha Jr.

## IMO sets 2020 date for ships to comply with low sulphur fuel oil requirement



## What will happen to fuel prices in 2020?



**Price of marine diesel could rise or the market is flooded with products such as:**

- **Petrol:**  
Low prices could trigger car use at the expense public and low emission choices
- **Heavy fuel oil:**  
Could end up being burnt in power plants in emerging markets

# The big trend shifts





Google



Digitalisation



SAIC MOTOR



Alibaba.com



Traditional car industry

New companies



Disruptive technology



LeEco



# New technologies will challenge the existing fleet and business concepts. The question is how fast will it go?

## Wärtsilä and Rolls-Royce launch eco marine technology to boost shipping automation

Namrata Nadkarni, deputy executive editor | 8 April 2018

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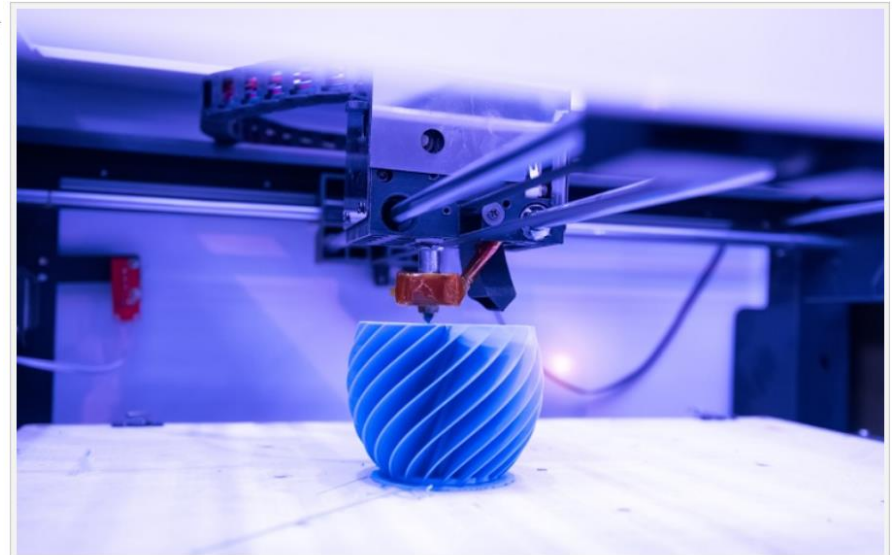


Rolls-Royce Intelligent Awareness Navigation System (pictured) uses sensors to give seafarers a 3D model of nearby vessels and hazards. Credit: Rolls-Royce

## 3D Printing to cause major blow to shipping

Michael Hollmann, Germany correspondent | 6 October 2017

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Locally printed goods could substitute traditionally manufactured products, says report. Credit: Getty Images



# «Be an innovator – not an immitator»

## Smart harbours, smart logistics, from owning to leasing/sharing...

### Q&A. Wärtsilä's Smart Shipping Vision

Maritime Industry / Ships / Terminal Equipment



INNOVATION FOCUS / January 5, 2018



# Biggest Threat to Humanity? Climate Change, U.N. Chief Says

By **Somini Sengupta** March 29, 2018



António Guterres, the United Nations secretary general, said, “I am beginning to wonder how many more alarm bells must go off.” Giuseppe Lami/European Pressphoto Agency, via Shutterstock.

A close-up photograph of vibrant green bamboo leaves, slightly out of focus, creating a soft, natural background. The leaves are long and narrow, with visible veins. The text 'Climate Risk' is centered over the image in a clean, white, sans-serif font. The word 'Climate' is on the top line, and 'Risk' is on the bottom line, both in a large, bold size.

# Climate Risk

**“A Sense of Purpose”**  
**BlackRock’s CEO Laurence D. Fink,**  
**Januar 2018**

“Society is demanding that companies, both public and private, **serve a social purpose.**”

To prosper over time, every company must not only deliver financial performance, but also show how it makes a **positive contribution to society.**”



**BLACKROCK**

# Investors are pushing companies to report on their climate exposure

## Oljefondet skal ut av kullselskaper

ANDREAS SLETTOLM | NTB

OPPDATERT: 27.MAJ.2015 22:16 | PUBLISERT: 27.MAJ.2015 20:28



Yngve Slyngstad leder Oljefondet, som nå ikke lenger skal investere i selskaper med mer enn 30 prosent av inntektene fra kull.

FOTO: Pedersen, Torje

## Støttet av Oljefondet: Exxon gikk på klimanederlag

Oljefondet og andre eiere tvinger oljegiganten ExxonMobil til å stressteste klimarisiko, mot Exxon-ledelsens vilje. I fjor ble et lignende forslag nedstemt.



**STRESSTESTER- EXXON:** Et flertall av ExxonMobils aksjonærer, med Oljefondets stemme, vedtok på generalforsamlingen onsdag at selskapet bør vurdere sin klimarisiko og rapportere om dette årlig. Dette bildet er fra en demonstrasjon i New York i februar, til støtte for New Yorks granskning av om Exxon har dekket over sin kunnskap om klimaendringer i fortiden.

FOTO: SPENCER PLATT AFP

Kilde: Dagens Næringsliv, E24.no

**Pricing of climate risk will influence the direction in which capital flows are moving – from fossil to green. A high climate footprint will have an impact on:**

**Lower credit rating**

**Refinancing of loans**

**Worsen credit terms/  
More expensive loans**

**Limited or no access to capital  
and new financing**

# Sharp fall in production cost of solar and wind power

Environment

## Solar and wind power cheaper than fossil fuels for the first time

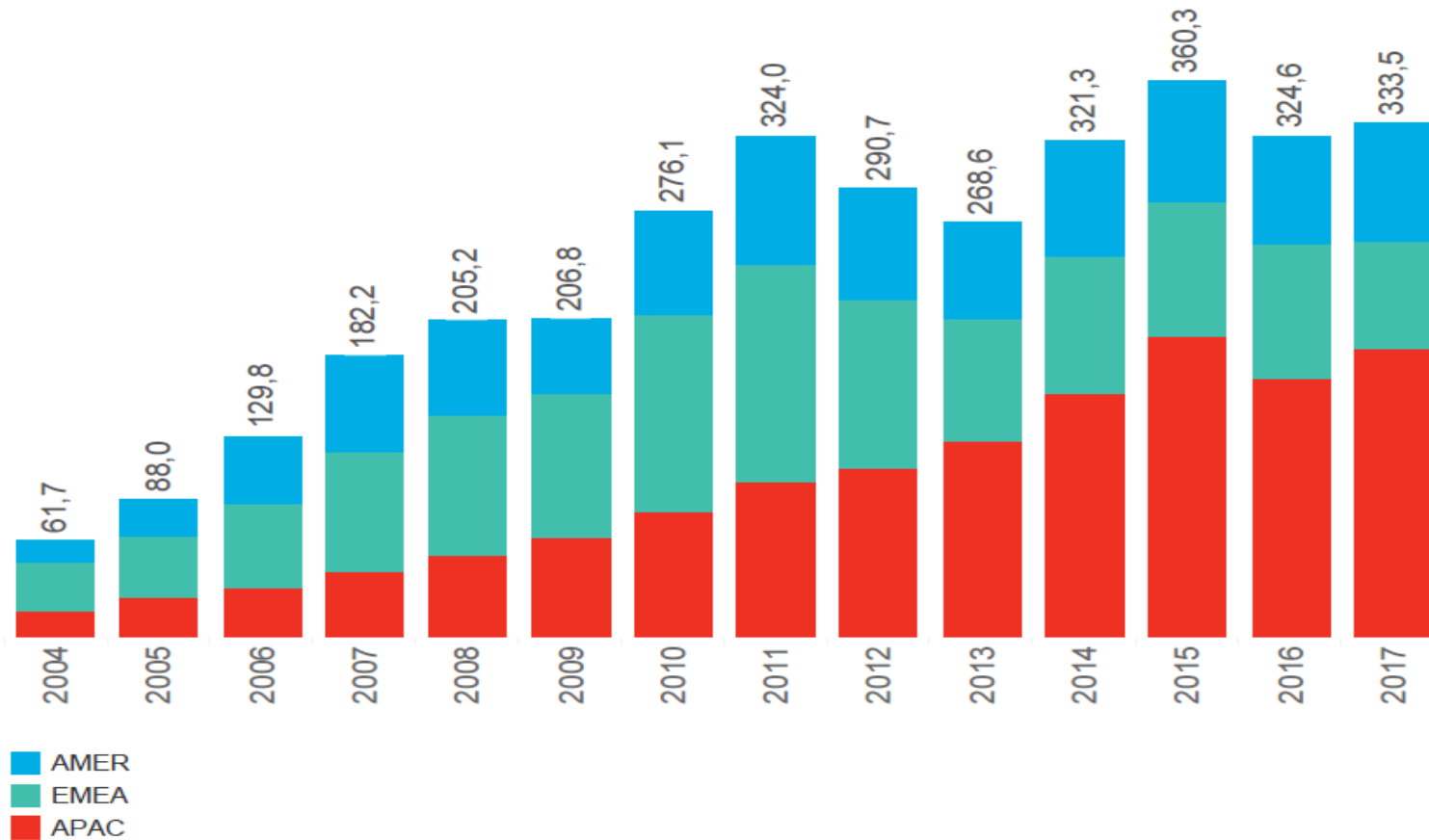
Despite the low price, not enough money is being put into renewable ways of generating electricity

Andrew Griffin | [@\\_andrew\\_griffin](#) | Wednesday 4 January 2017 11:58 GMT | [104 comments](#)



Source: The Guardian

# Investments in green energy increasing markedly – China is driving the development

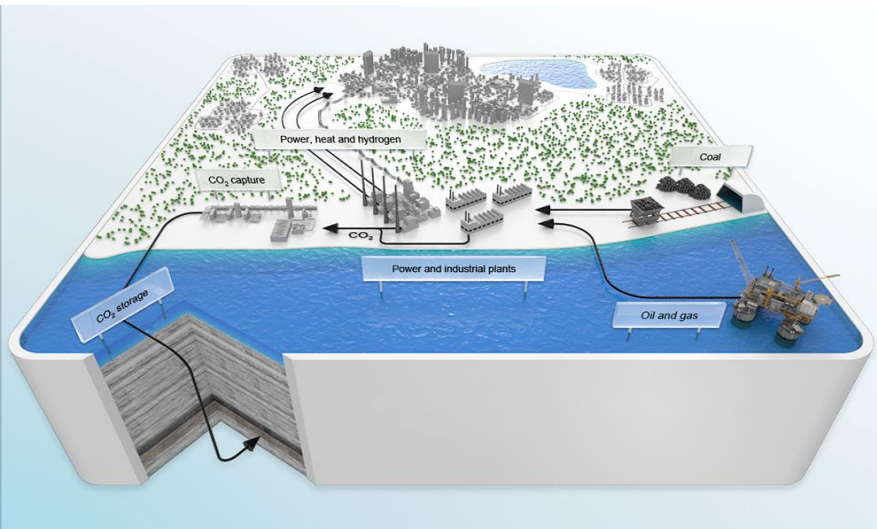


Source: Bloomberg New Energy Finance



# Green hydrogen from hydro or from natural gas with carbon capture and storage (CCS)

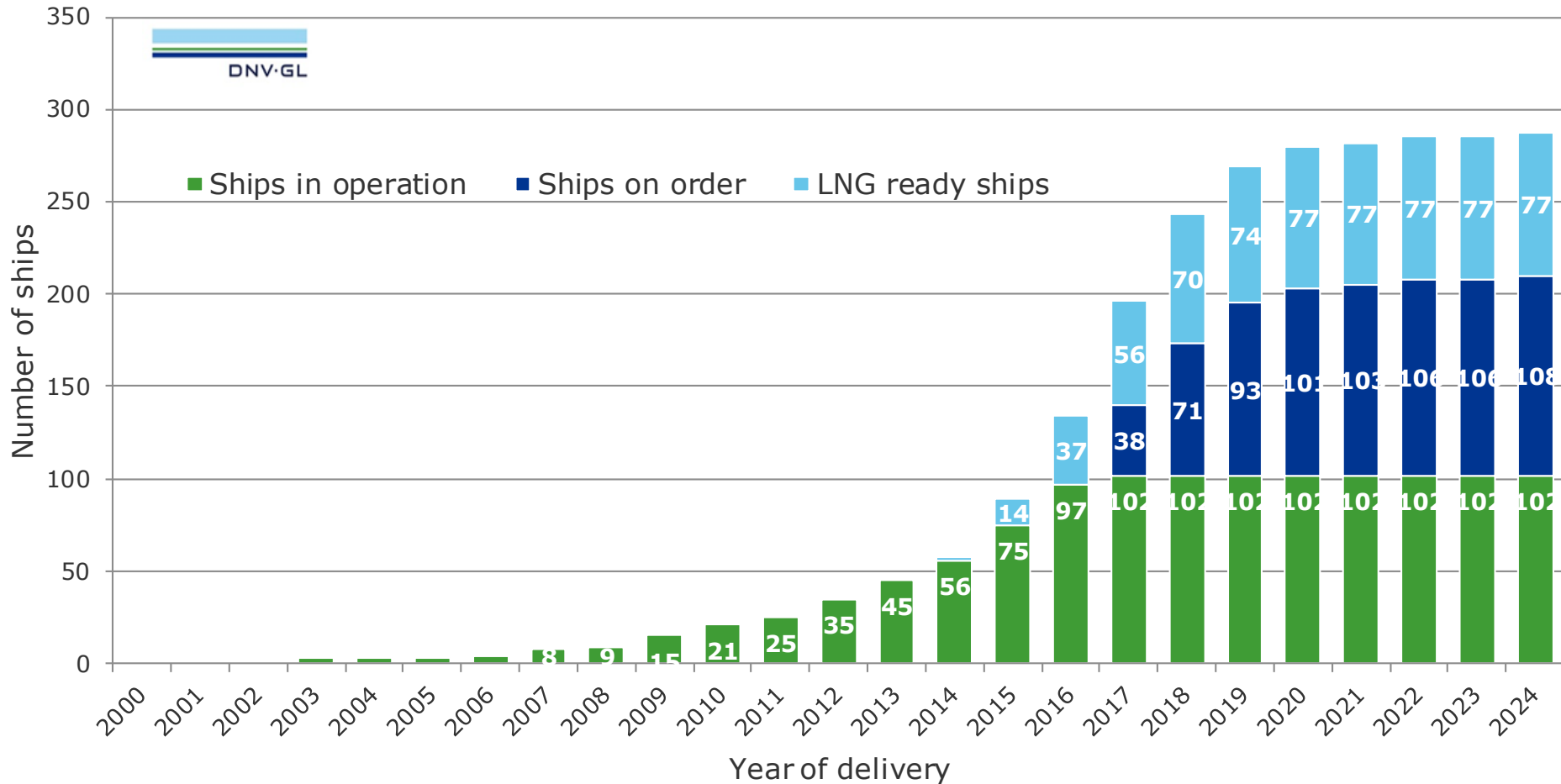
## Carbon Capture and Storage



Hydrogenstasjon i Bergen. (Foto: Marius Valle)

**En av verdens største fabrikker for «grønn hydrogen» etableres i Norge**

# There are currently 201 confirmed LNG ship fuel projects



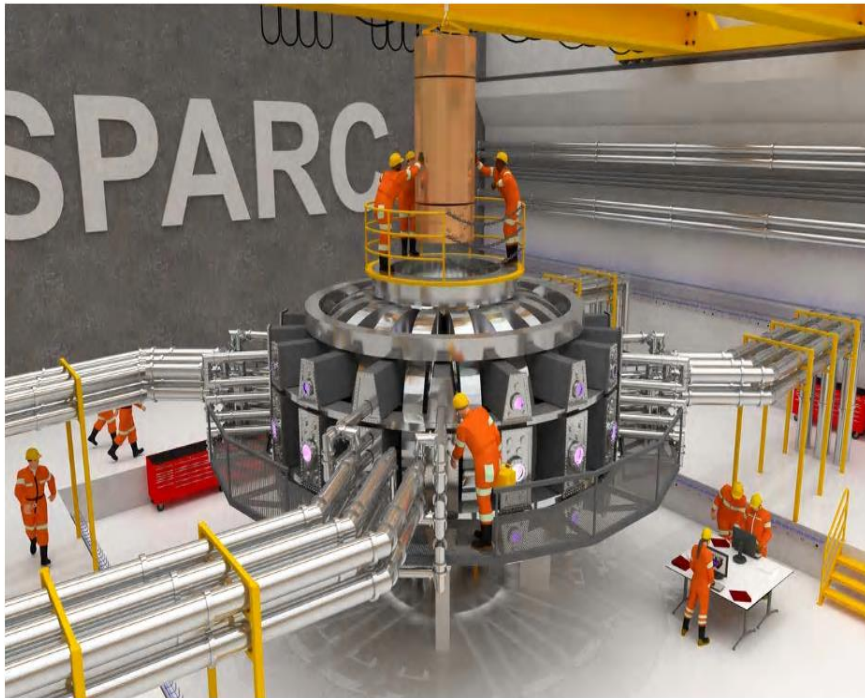
Additional orders beyond 2018 are confirmed

Updated 20 March 2017  
Excluding LNG carriers and inland waterway vessels

# Are nuclear fusion the next black swan?

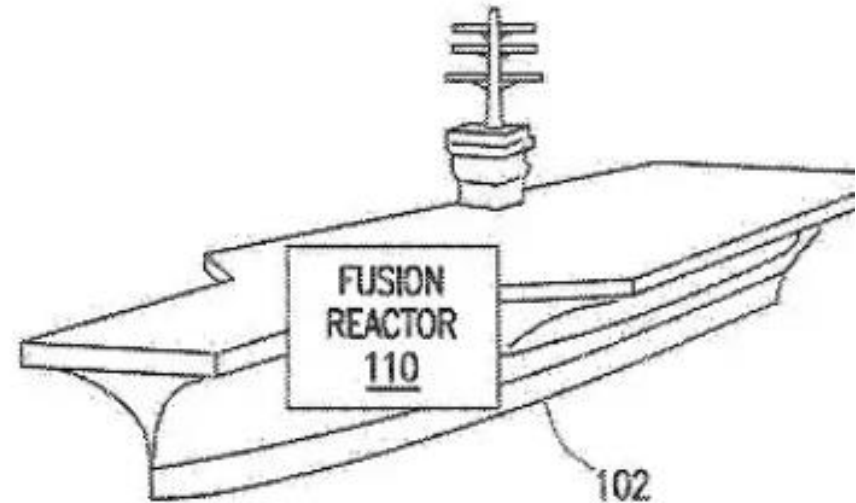
## Nuclear fusion on brink of being realised, say MIT scientists

Carbon-free fusion power could be 'on the grid in 15 years'



▲ A visualization of MIT's planned fusion experiment. Photograph: Ken Fehr/MIT

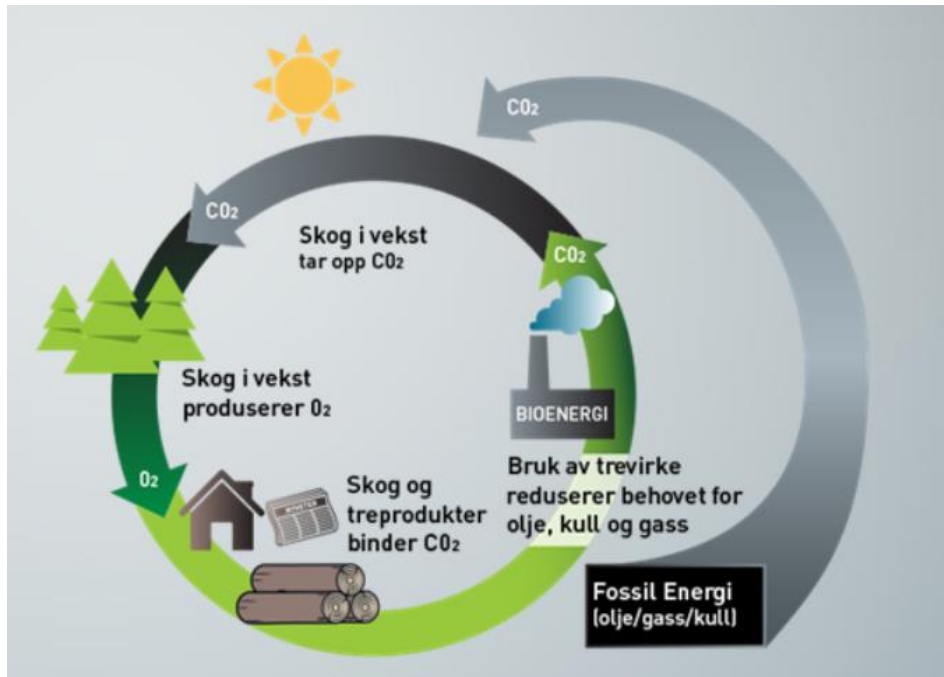
## Fusion ships



## From linear to circular economy

**From produce, consume and scrap...**

**...to Reduce, Reuse and Recycle**



**Circular Norway**

Source: Circular Norway, Jakhelln

## Nordea joins Initiative for Responsible Ship Recycling

# Banks Join Ship Recycling Debate



BY [MAREX](#) 2017-05-31 17:21:02

**Thank you!**

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