



**PORT OF  
GOTHENBURG**

The Port of Scandinavia

February 2020

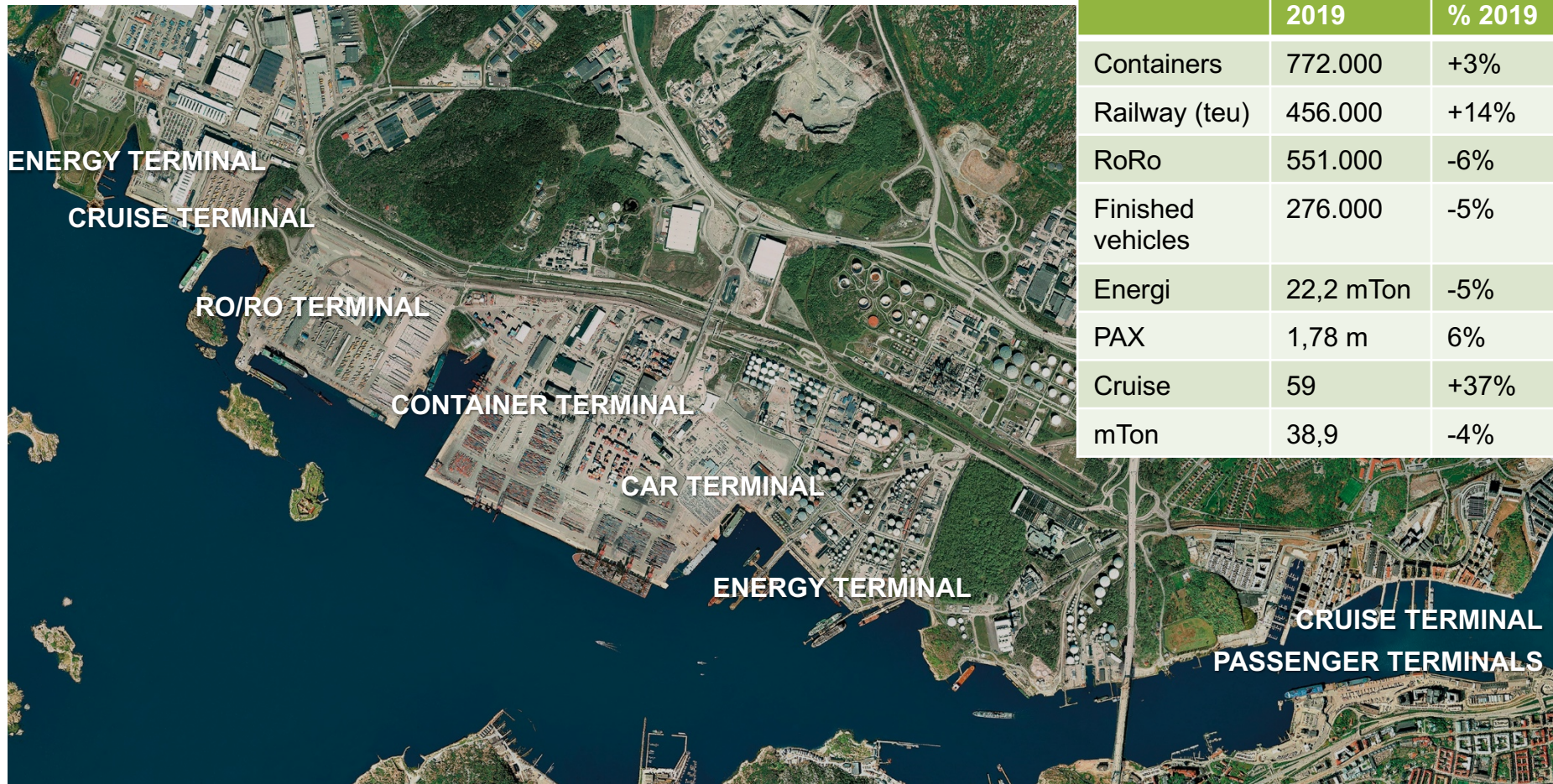
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Market Intelligence and Innovation  
Port of Gothenburg

# The port perspective

## Prospects for energy and maritime transport in the Nordic Region







	2019	% 2019
Containers	772.000	+3%
Railway (teu)	456.000	+14%
RoRo	551.000	-6%
Finished vehicles	276.000	-5%
Energi	22,2 mTon	-5%
PAX	1,78 m	6%
Cruise	59	+37%
mTon	38,9	-4%



Air quality

1



Energy  
consumption

2



Noise

3



Relationship with  
local community

4



Ship waste

5



Port development  
(land related)

6



Climate change

7



Water quality

8



Dredging  
operations

9



Garbage /  
Port waste

10

**Top 10 environmental  
priorities of European  
ports for 2018**

1



Air quality

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Water quality

**Top 10 environmental  
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# The pallet of actions and consequences in the port

- Climate goals
  - On shore power supply
  - Scrubbers
  - Trucks
  - Rail
  - LNG/LBG
  - Differentiated port dues
  - Electrification
- 
- Alternative fuels
  - CCS
  - Port call optimisation
  - Noise
  - Local environment
  - Internationally and national cooperation

# Stick to what you know

- On Shore power supply
- Differentiated port dues
- Alternative fuels



WPSP Launch i Antwerp, March 2018

## New climate goal:

# 70% reduction to 2030

- Relative to 2010
- CO2 equivalents
- Approx 0,5 m C02

		Outlook
50%	Port authority	✓
	Cargo handling	✓
	Rail	✓
	Trucks	✓
50%	Ships	x



## The Port as part of the city

Source	SO <sub>2</sub> (t/yr)	NO <sub>2</sub> (t/yr)	VOC (t/yr)	Fossil CO <sub>2</sub> (t/yr)	Partiklar (t/yr)
Road traffic	2	2 046	259	644 000	324
Industry	178	963	6 918	1 071 859	22
Energy/Heating	30	482	127	538 743	73
Shipping	769	2 610	56	163 369	121
Machinery	0,066	444	49	106 000	19
Solvent use	0	0	3 958	0	0
Total	979	6 545	11 367	2 523 971	559

Estimated emissions of air pollutants in Gothenburg during 2013 (Miljörapport 2013, Göteborgs Stad).

Shipping is  
part of  
the solution!

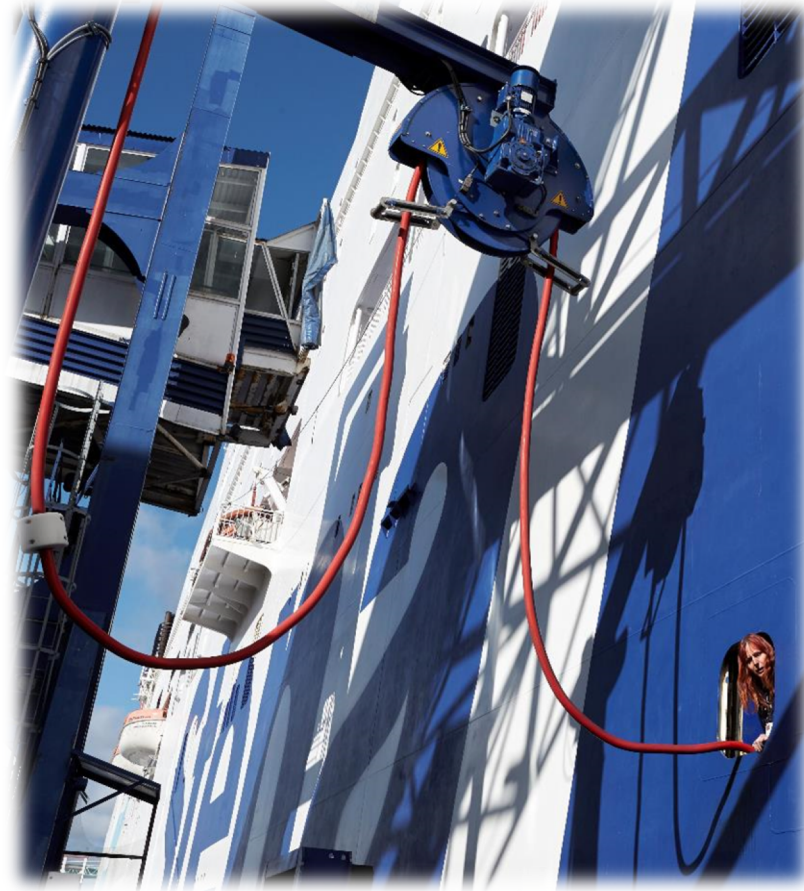


# Onshore power supply

Reduced emissions  
and a quieter port environment

## Onshore Power Supply

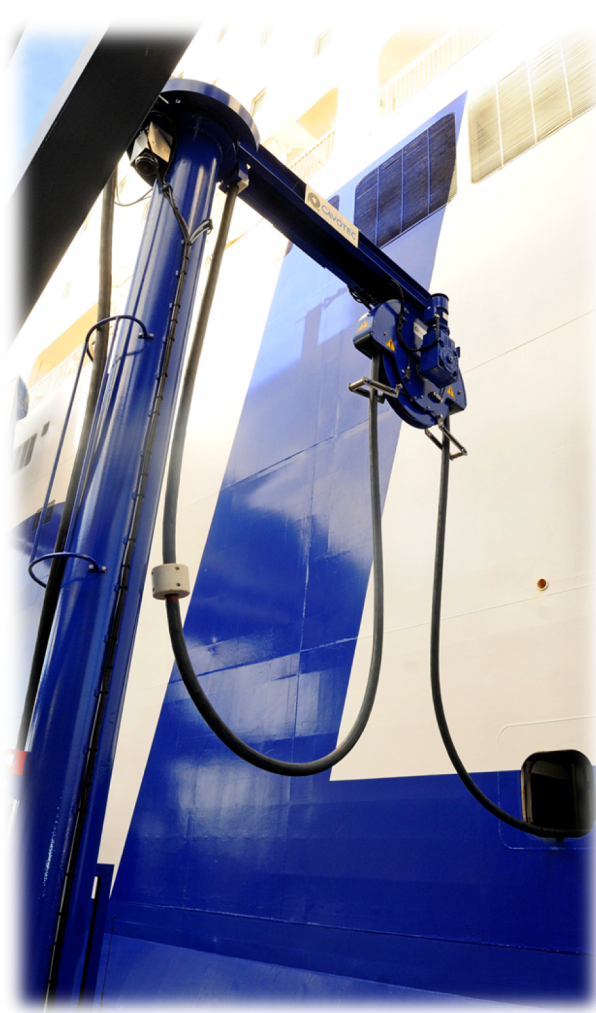
- Initiated in 2000
- Initially a project/test phase
- Eventually included also in permits
- Funding from national, regional and local level





## Current situation

- 35% of all port calls can connect to OPS
- All new quays are prepared
- Taxfree electricity
- Core ports in the *Trans-European Network for Transport* of the European Union shall offer OPS from 2025



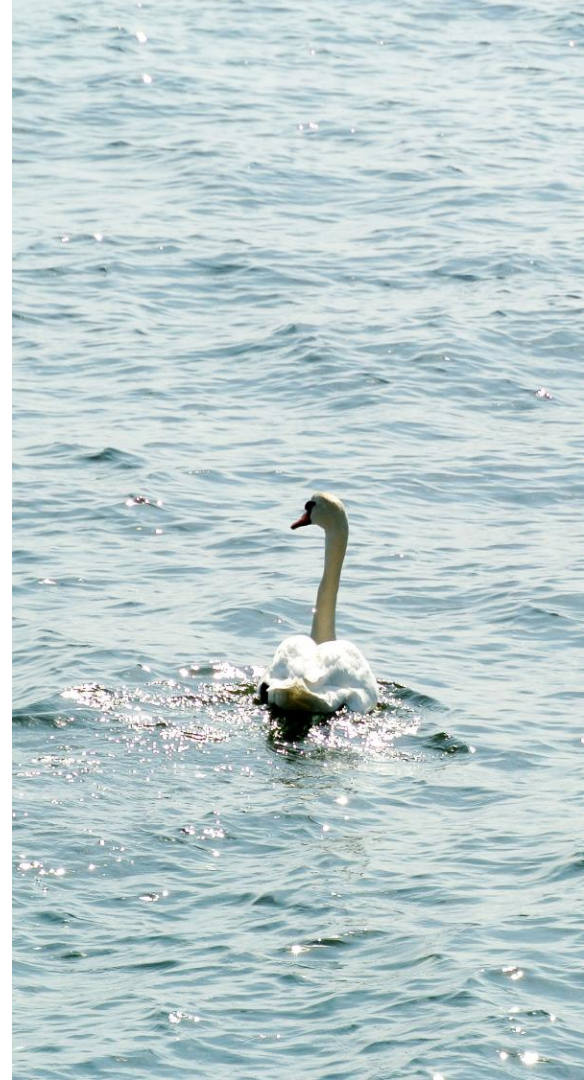
## District heating connection

- In 2014, Stena Line in Port of Gothenburg became the world's first to also use district heating connection



## Scrubber wastewater

- Can be acidic, limited by IMO
- Contains heavy metals?
- Can wastewater be discharged in coastal waters?
  - Transport agencies says *yes*
  - Environmental agencies says *no*
- Different opinions on which legislation supercedes
- Depends on how the water framework directive is interpreted



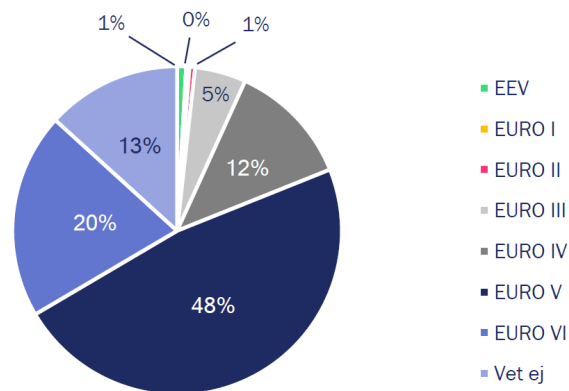


# Trucks, trucks, trucks

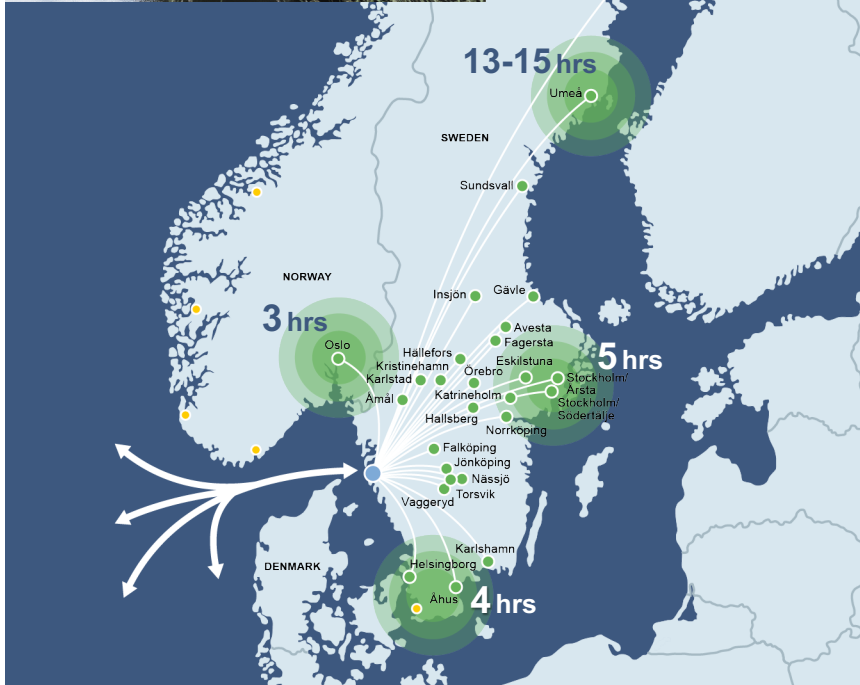
- Several thousand every day
- "All" within one hour from the port
- Multiple runs every day per truck



Charing in the port and electric trucks make sense



# Rail, rail, rail - Railport Intermodal



Destination	Rail operator	CO <sub>2</sub> Emission (kg)	
		Train	Lorry
Luleå	Real Rail AB	9	1300
Umeå	Real Rail AB	7	1000
Sundsvall	Real Rail AB	5	680
Helsingborg	Green Cargo AB	2	210
Jönköping	Green Cargo AB	1	140
Norrköping	Green Cargo AB	2	350
Nässjö	Green Cargo AB	2	230
Stockholm/Södertälje	Green Cargo AB	3	410
Katrineholm	Green Cargo AB	2	340
Stockholm/Årsta	Green Cargo AB	3	440
Gävle	Green Cargo AB	3	480
Oslo	Green Cargo AB	2	270
Avesta	Vänerexpressen AB	3	410
Fagersta	Vänerexpressen AB	2	370
Hällefors	Vänerexpressen AB	2	300
Insjön	Vänerexpressen AB	3	450
Karlstad	Vänerexpressen AB	2	240
Kristinehamn	Vänerexpressen AB	2	240
Amål	Vänerexpressen AB	1	180
Eskilstuna	GDL	2	350
Hallsberg	GDL	2	250
Vaggeryd	GDL	19	200
Åhus	CFL Cargo Sverige AB	33	270
Falköping	Schenker AB	1	120
Nässjö	Ancotrans	2	230



# LNG

**Maritime fuel with some benefits...**

- Sox, Nox and PM are important for ports



# Differentiated Port Dues

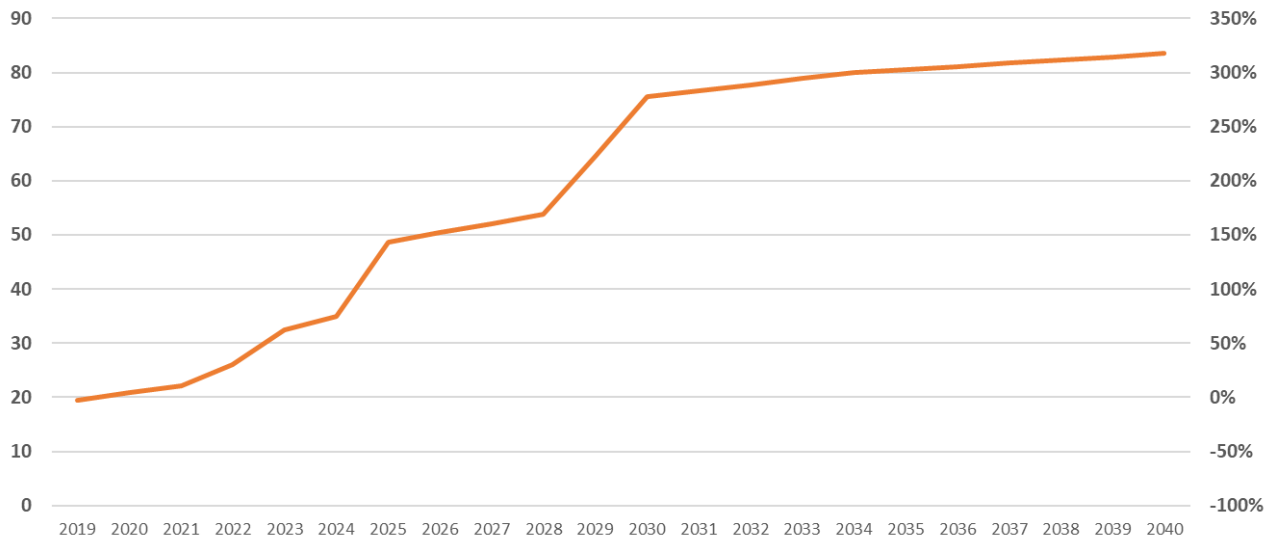
- 10 % discount in the port tariff :
  - Environmental Ship Index
  - Clean Shipping Index
- 10% discount for ships that can run on LNG
- 10% discount for ships having using LBG



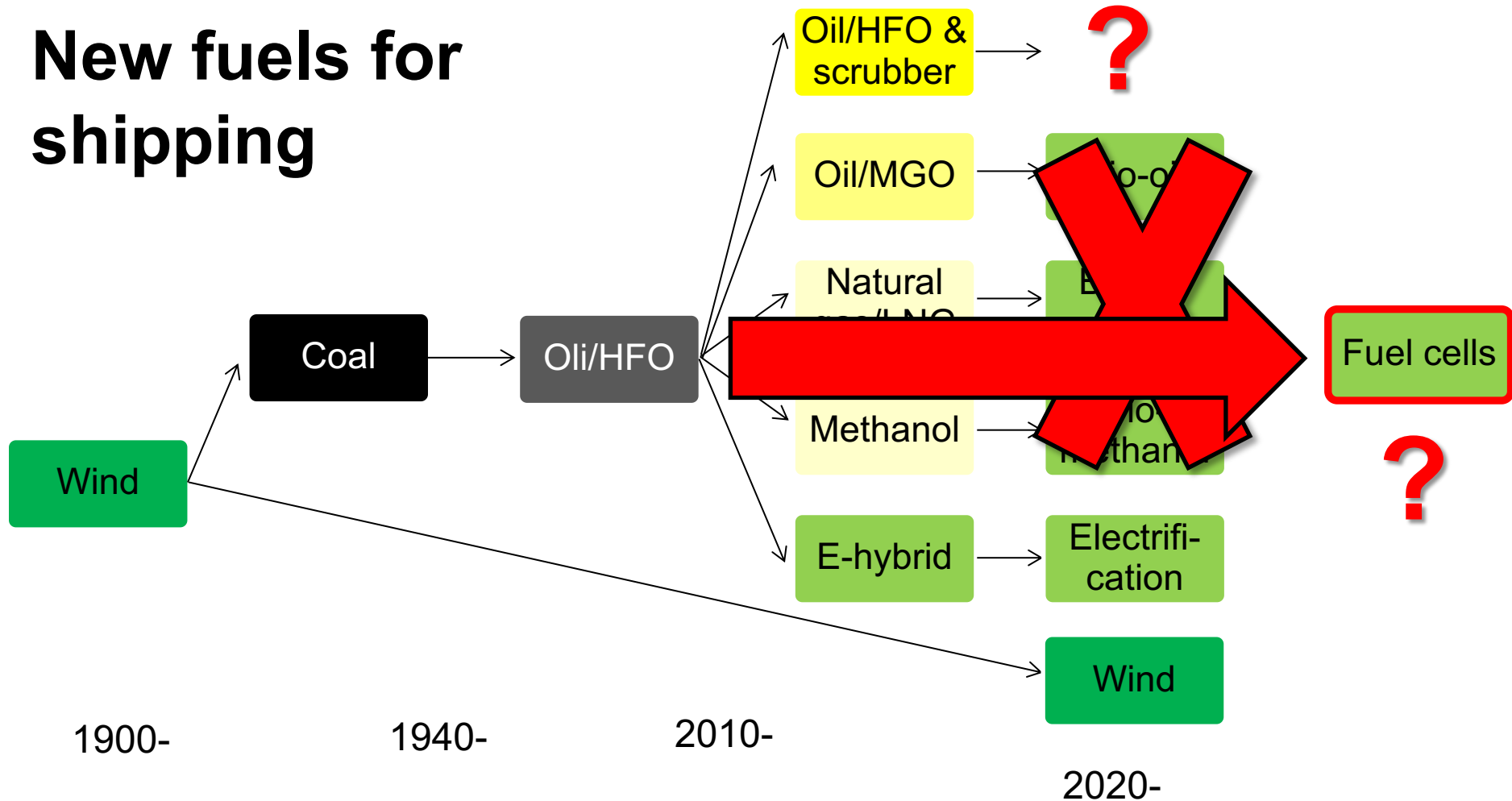
# Fully electric and hybrid (Tesla and Prius on our waters)

Donsö tanker shipping cluster and Stena Line – early movers

Power need (MW) Port of Gothenburg (outer port) 2019



# New fuels for shipping









**GÖTEBORGS  
HAMN**

The Port of Scandinavia