

5 March 2014, Gdańsk, Poland

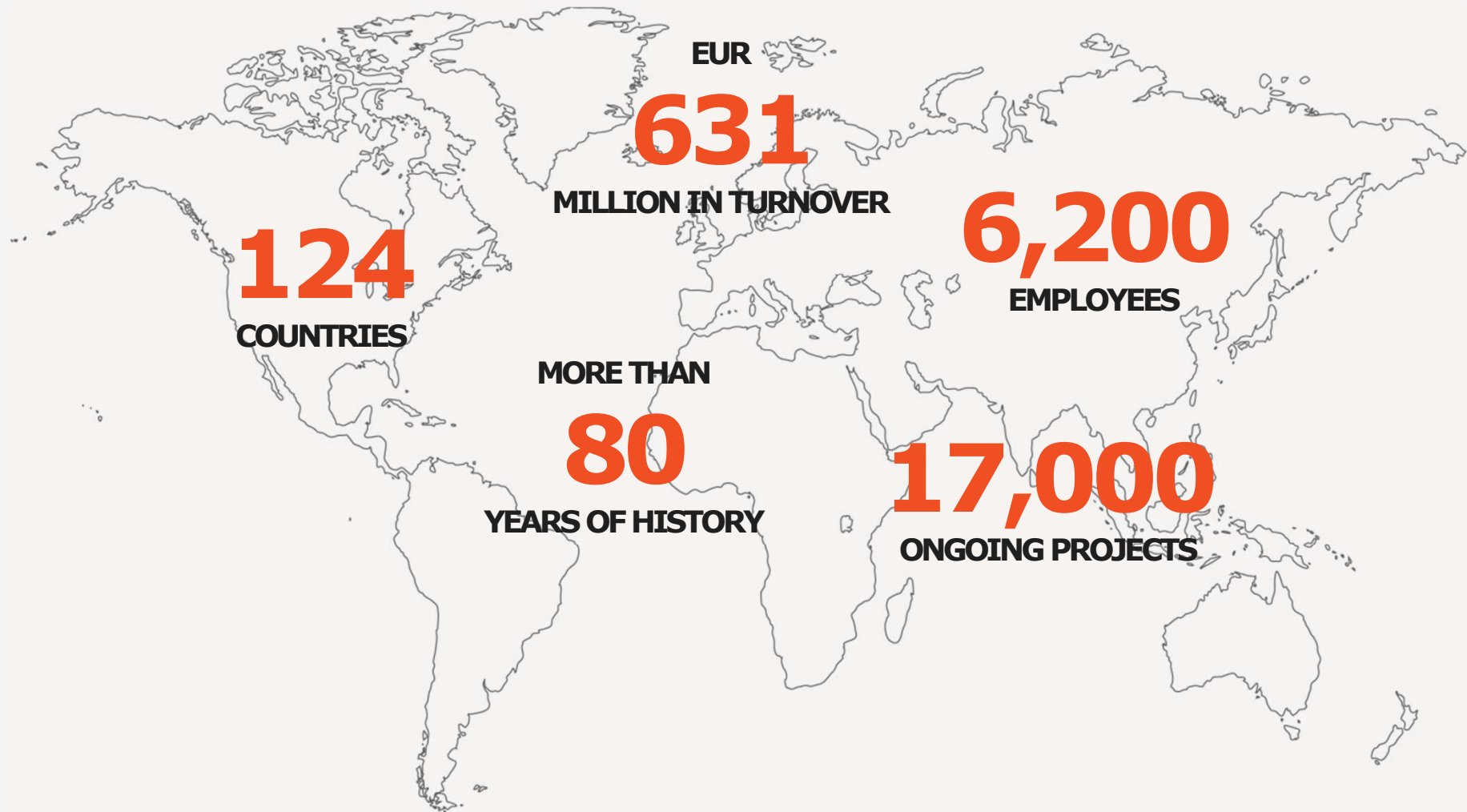
Scrubbers. What do they mean to ports?

Tomas Nilson, Consultant, Environment, COWI AB

BPO Environmental Seminar on sewage from passenger ships waste port from scrubbers training on SDM

About COWI

COWI around the world



5 March 2014, Gdańsk, Poland

Agenda

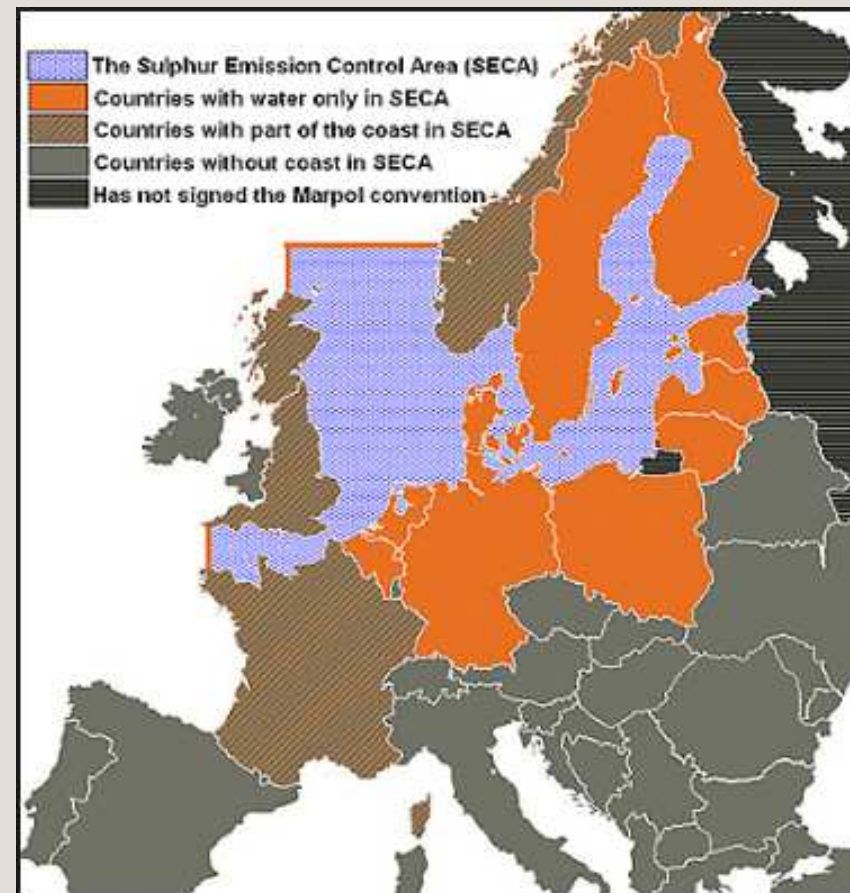
- > Legislation
- > Scrubber technology
- > Scrubbers in action
- > Scrubber waste
- > Discussion

Tomas Nilson, Consultant, Environment, COWI AB

BPO Environmental Seminar on sewage from passenger ships waste port from scrubbers training on SDM

Legislation

- > Emission limits of 0,1% sulphur in SECA areas by 2015
- > IMO, Marpol Annex VI
- > Directive, 2012/33/EU sulphur content of marine fuels (amends 1999/32/EC)



Source:

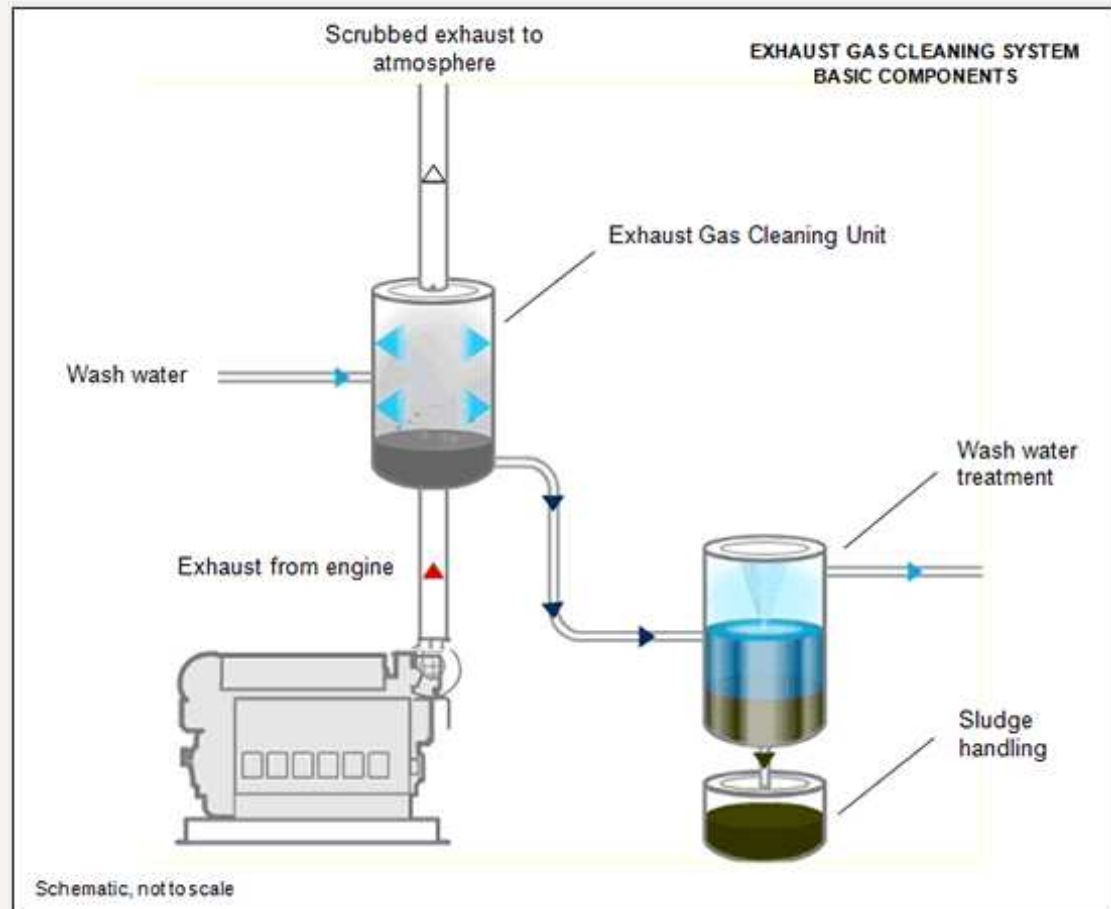
http://www.jernkontoret.se/energi_och_miljo/bilder/seca_kartan.jpg

Background – stricter requirements on SOx

- > Stricter requirements regarding SOx-emissions (Directive 2012/33/EU)
- > One option: MGO (Marine Gas Oil)
- > Another option: Natural gas (LNG) and ethanol
- > A third option is to install a scrubber. Systems use heavy oil.
- > Scrubber=emission control facility for *purification of exhaust gases*

Scrubber technology

- > For new ships and retrofits
- > Open and closed system
- > Closed systems so far used in ports



Open scrubber system. Source: EGCSA

EGCSA – Exhaust gas cleaning systems association

- > European members contacted

Alfa laval

Clean Marine

Green Tech Marine

MAN Diesel

Saacke GmbH

Wärtsilä

Scrubber waste

> Amounts

Example from Alfa Laval.

	ENGINES	TOTAL EFFECT MW	HFO TONNES/YEAR	SLUDGE TONNES/YEAR
Container ship	1	8	5 800	1
Tanker	1	13.74	5 925	6
RO-RO ship	4	24.8	17 534	14

Contents and handling

- > Contents – classification
 - > 10 01 18* wastes from gas cleaning containing dangerous substances
 - 10 01 19 wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
 - > 16 10 aqueous liquid wastes destined for off-site treatment
 - 16 10 01* aqueous liquid wastes containing dangerous substances
 - 16 10 02 aqueous liquid wastes other than those mentioned in 16 10 01
- > Handling of waste in ports

Discussion

- > Avoid sludge (engine running in port – Gothenburg as example)
- > Scrubber systems are still under development, can/should ports be a factor in the further development? (legislation?)