



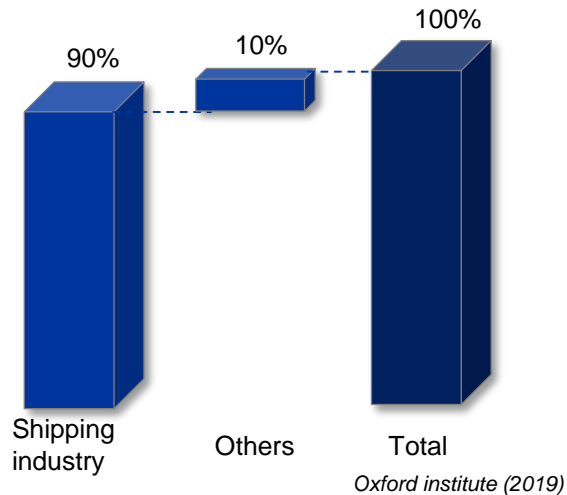
## **Small Scale LNG: Big Opportunities**

**Hany Aouad**  
**GLE Vice-President**

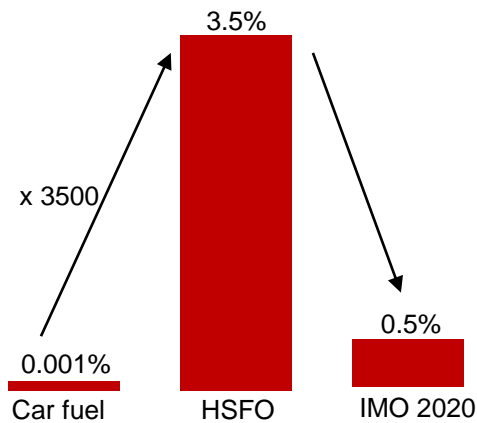
# Strengthened IMO emission standard push to alternative fuels



## SOx emission from transport sector



## SOx emission



### Emission Control Areas – 0.1% (SOx)

- North Sea
- Baltic Sea
- Pacific coastal areas off N-A
- Caribbean Seas of USA

### IMO 2020 – 0.5% (SOx)

- Global waters
- As from 1/1/2020

- NOx reduction as from 1/1/2021 in North sea & Baltic sea



## Shipping leaders start countdown to IMO 2020

This time around, the IMO deadline set for next new year is central to the outlook for 2019, as ships will have to either burn low sulphur fuel or install scrubbers by 1 January. Asked about the impact of the new rules, respondents pointed to both challenges and potential upside of IMO 2020. And some

WEEKLY

03 Jan 18:00 GMT by TradeWinds staff

Search  
Business  
Bloomberg  
**Oil Industry Starts Eradicating Ship Fuel Supply Before IMO 2020**

## Containerships to face sulphur cap challenges in year ahead

challenges will bring opportunities for shipowners and operators, as the IMO sulphur cap brings service disruptions and ship demolition that could boost rates...need to recover the cost of compliance and to prepare a contractual framework for the new IMO 2020 reality. Mirco Erdtmann Managing director, Hanseatic

# Available options for shipping industry



Option 1



Do nothing and keep using HSFO.

Option 2



Scrubber - is a system that is designed to wash - by the use of water - the exhaust gases to remove sulfur dioxide (SO<sub>2</sub>) which is a toxic gas, that is directly harmful to human health.

*Shippipedia*

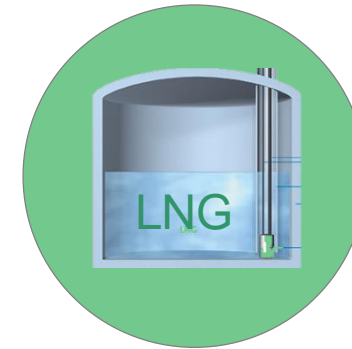
Option 3



Compliant fuel - Blend of HSFO with a low Sulphur blend stock (marine gas oil/marine diesel oil, light condensate, or light sweet crude oil).

*TradeWinds*

Option 4



LNG – liquified natural gas.

# LNG: what it is and why the world wants it



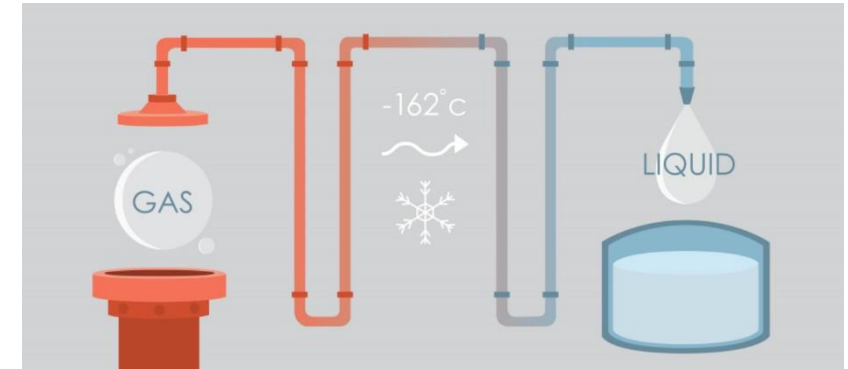
- ✓ It is the **fastest growing gas supply source** globally;
- ✓ It is **affordable**;
- ✓ It is clean compared to marine gas oil and heavy fuel oil:
  - **15-25 % GHG emissions-reduction potential**,
  - **0% sulphur oxides**;
  - **reduces** by an order of magnitude emissions of **nitrogen oxides**
  - **hardly any particle emissions**
- ✓ Almost **100% GHG emissions reduction** for biomethane and bioLNG;
- ✓ **Mature technology** of gas engines;

## Retrofitting a 8500 TEU containership to:

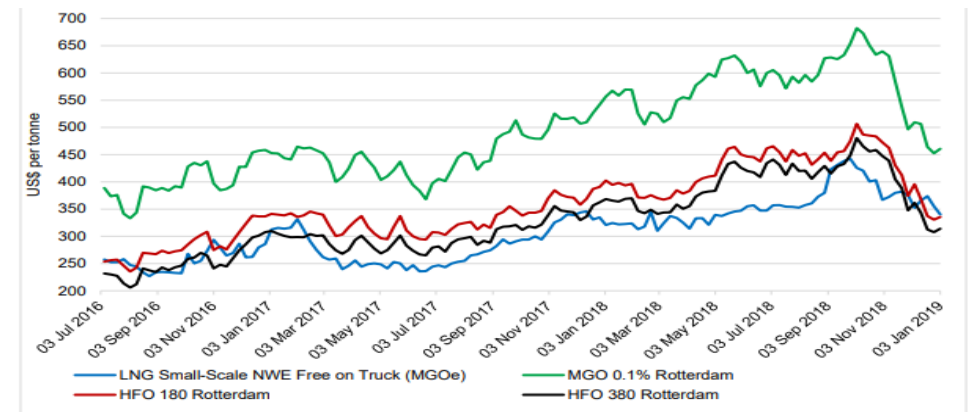
LNG	Scrubber
Existing: +\$28m	Existing: +\$6-7m
New: +\$13m	New: +\$5-6m

Oxford institute (2019)

## What is Liquefied Natural Gas (LNG)?



Source:  
Energyindepth.org



Data from Argus (2020)

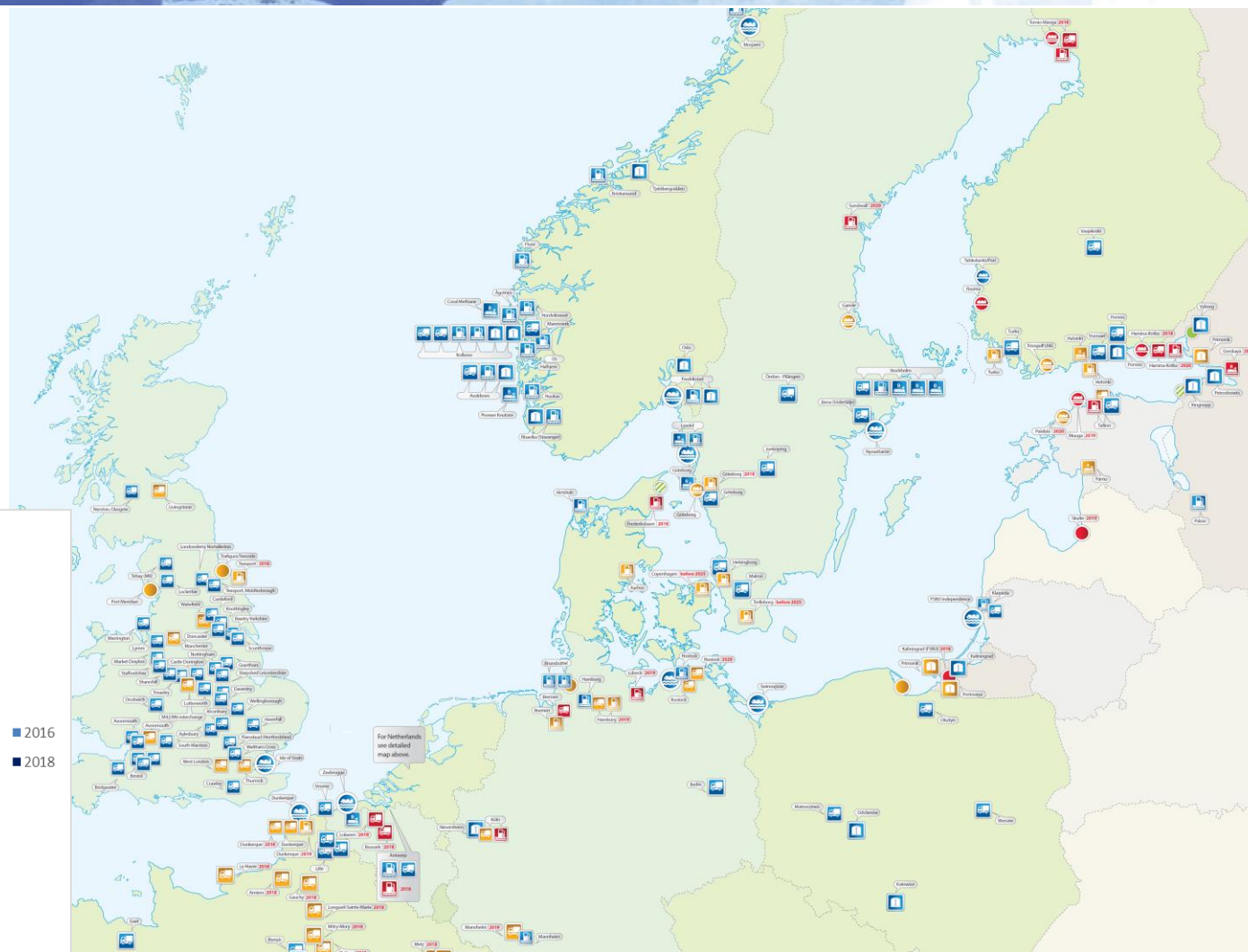
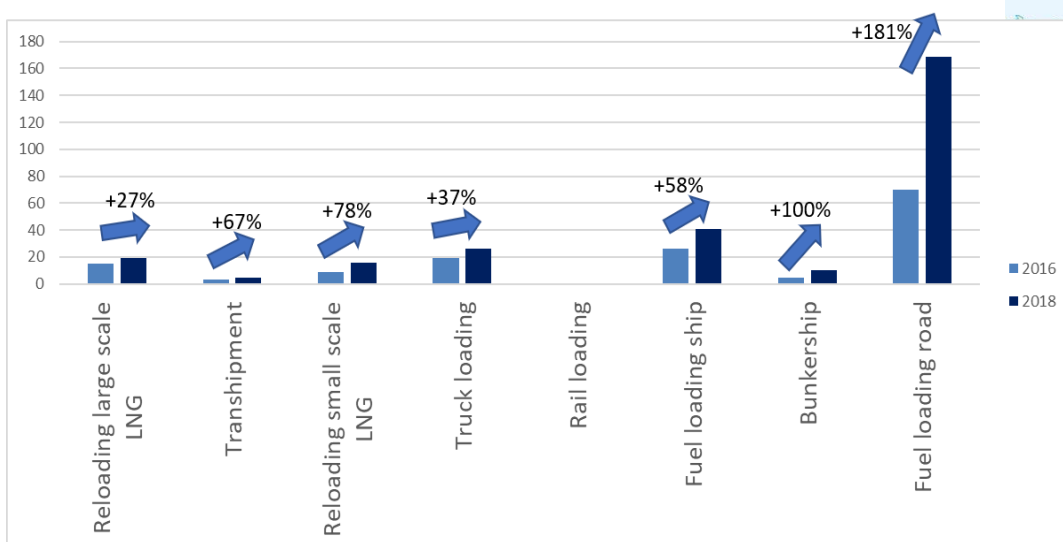


# LNG – infrastructure developments



- GIE Small-scale LNG map 2018
- Find it here:

<https://www.gie.eu/index.php/gie-publications/maps-data/gie-sslng-map>



Source: GIE Small-scale LNG map 2018 - [link](https://www.gie.eu/index.php/gie-publications/maps-data/gie-sslng-map)

# Positive elements of the current policy



- **The European Maritime Safety Agency (EMSA) guidance on LNG bunkering**
- **Harmonised EU standards at national levels**
- **Stable regulatory framework for LNG**
- **The Directive on Alternative Fuels Infrastructure**
- **Financial instruments** (i.e. TEN-T or the lending of the European Investment Bank)

# Barriers and missing actions



- **Proper implementation of DAFI**
- Extension of the “**Sulphur Emission Control Areas**” (SECA) zone to whole European coastline
- Classification of **Small Scale LNG infrastructure projects as sustainable** within the European Commission’s Sustainable Finance Programme
- Recognition of **bio LNG** as part of the circular economy
- **Strengthening of the emissions controls and sanctions** in case of breach
- **Emission issues are not transferred from air to sea water**







**Thank you for your attention!**