



International
Association
of Oil & Gas
Producers

Maritime Energy Transition

Why think about LNG?

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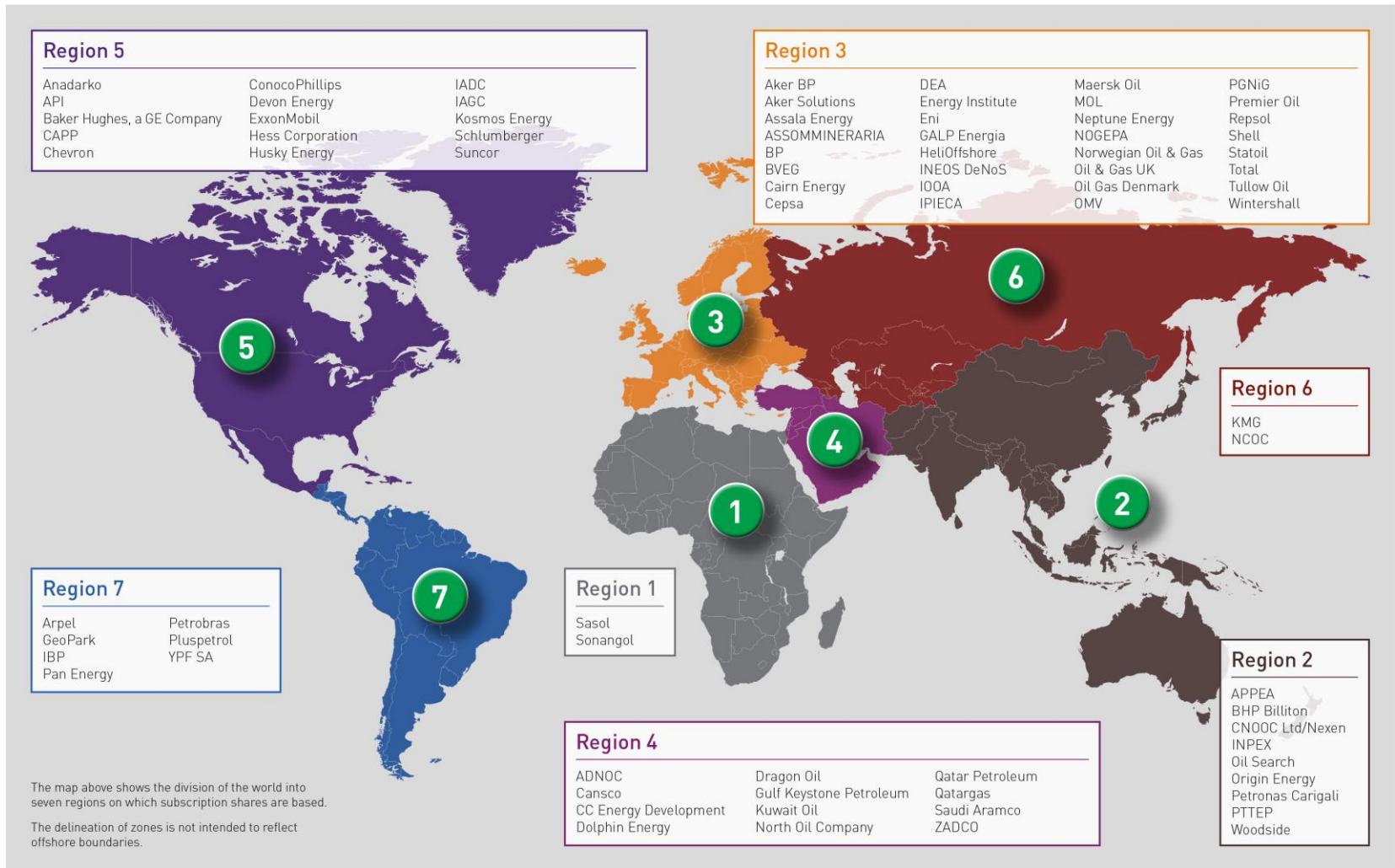
European Parliament, Brussels
27 June 2018



Agenda

- 1. Challenges for the shipping sector**
- 2. Why think about LNG?**
- 3. Looking ahead**

IOGP: 80 Members around the world



Map shows locations of Member Head Offices. Many operate globally

Challenges for the shipping sector



Lowering emissions:

- IMO: SO_x, NO_x limits
- COP21: CO₂ limits
- Future Air Quality limits

Market specificities:

- Overcapacity (CAPEX)
- Bunker cost (25% of OPEX)

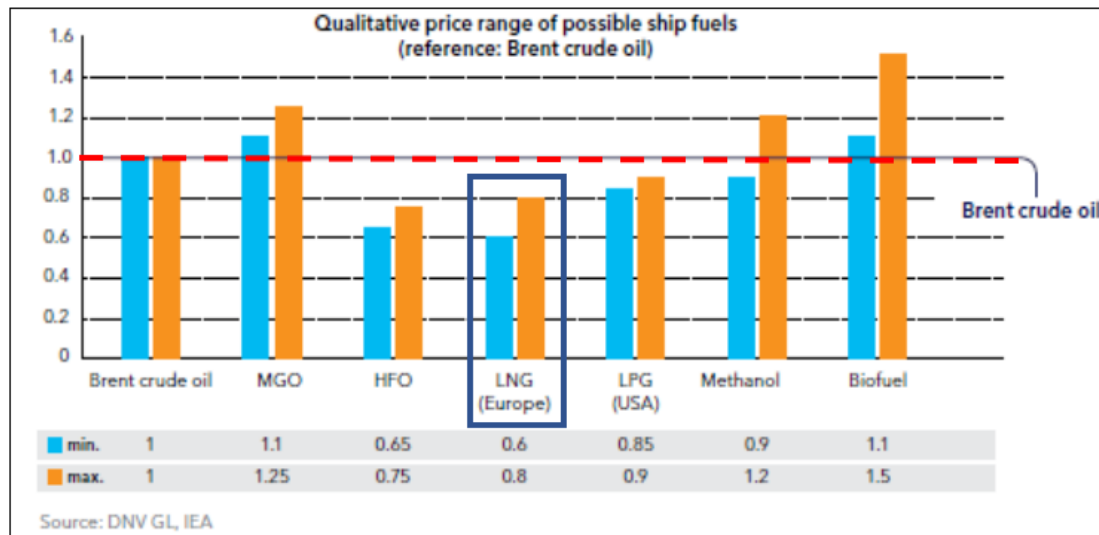
Alternative Fuel = Environmental benefits + Fuel availability

Why think about LNG?

Emissions and ... cost opportunities

Name	Carbon Dioxide	Nitrogen Oxide	Sulphur Oxide	Particulate Matters
Acronyms	CO2	NOx	SOx	PM2.5
Negative effect	GHG – world T°	Respiratory problems	Respiratory problems	Lungs and heart problems
LNG Benefit	-20% to -30%	- 58% to -80%	- 100%	-100%

Source: EEA Report 22/2017



LNG offers the most competitive feedstock alternative

Looking ahead

Opportunity to accelerate cleaner shipping



China's Maritime Silk Road

Policy Asks

- Stricter control of SOx limits
- Encourage investment in (small scale) bunkering facilities
- Facilitate planning and permitting processes

Potential to provide deep emissions reduction, including CO₂

Conclusion

Climate & Air Quality Targets

Regulations will push the demand for Alternative Fuels (AF) further

Today

LNG is the only AF which is today available (in bulk) in sufficient quantities

Tomorrow

LNG meets potential air quality and GHG requirements for many years

Further reduction of LNG carbon intensity through blending of biogas and synthetic gas



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