

LNG 4.0 - Innovaties voor een succesvolle implementatie van LNG als brandstof in de scheepvaart

The Role of LNG Towards Zero Emission IWT

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Managing Director EICB
12/09/2018



Eerste cruiseschip op LNG bijna klaar voor eerste vaart



Norway bets on gas and CCS to complement Europe's energy transition

First Conversion of RoPax Ferries to LNG Operation Announced



BY MAREX 2018-08-29 17:45:07



Jan Valkier, ceo Anthony Veder, over doorbraak LNG 'Met alleen zon en wind redden we het niet'

Awilco Says LNG Shipping Market's Prospects Look Promising

in Hellenic Shipping News 01/09/2018

The world's first LNG fuelled cruise liner has been named in Germany

Published by Will Owen, Editorial Assistant LNG Industry, Monday, 03 September 2018 10:03

Minder stookolie en meer LNG gebunkerd in 2017

In de Rotterdamse bunkerhaven is in 2017 de verkoop van bunkerolie - brandstof voor de scheepvaart - verminderd van 10,1 miljoen m3 naar 9,9 miljoen m3. De meeste bunkers zijn stookolie, in 2017 8,3 miljoen m3. De overslag van bunker liquefied natural gas (LNG) - vloeibaar aardgas - nam toe van minder dan 100 ton naar 1500 ton.



Spain Modifies Laws to Support Transition to LNG-Fuelled Transportation

August 11, 2018 | Spain: Madrid

manager LNG at the Port of Rotterdam explains. LNG bunker suppliers [Shell](#), [Nauticor](#), [Titan LNG](#) and [Total](#) showed that they are ready for LNG bunkering. It is no longer 'wishful thinking'. High investments have been made and will be made in the coming period. The 'chicken and egg' situation has been broken. Marieke Knook from Shell asked all the parties to be engaged: 'That is very important. Because LNG is new for everybody.' In addition, Isabelle Capaldi-Lureau from Total mentioned: 'We need to work together to make this happen.'

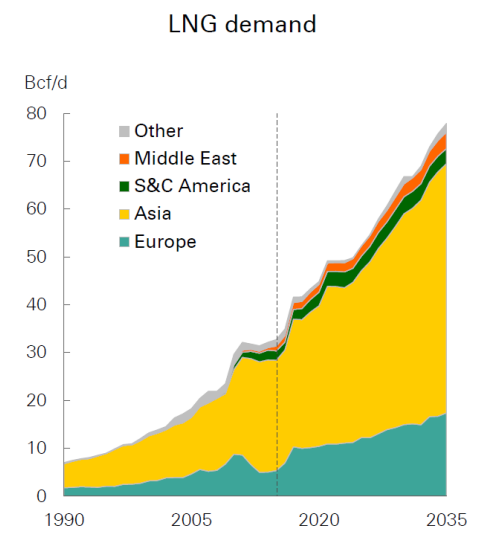
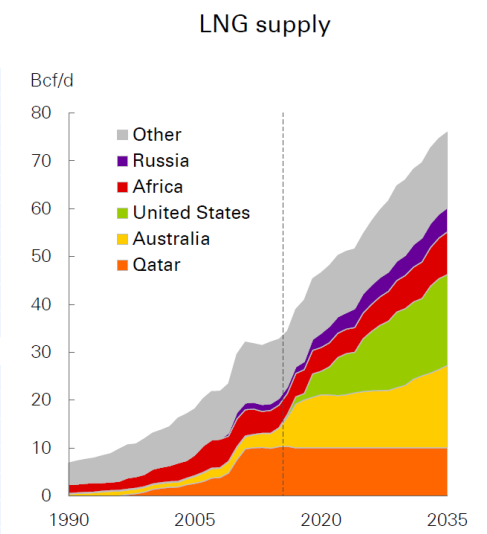
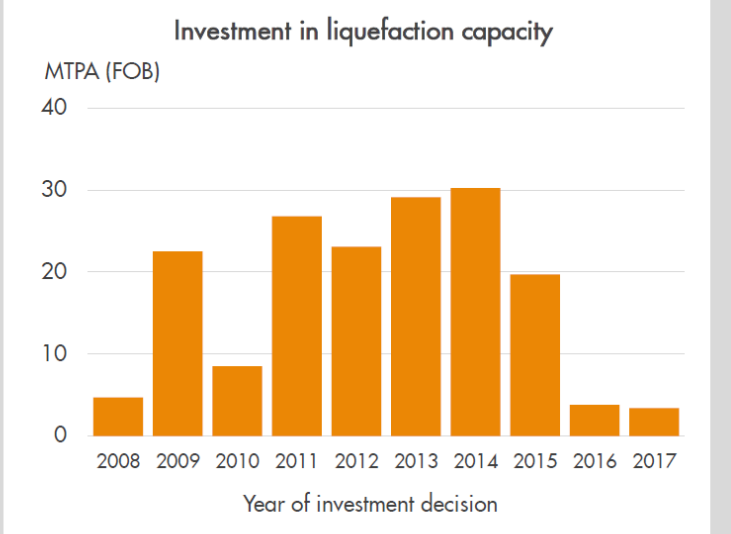
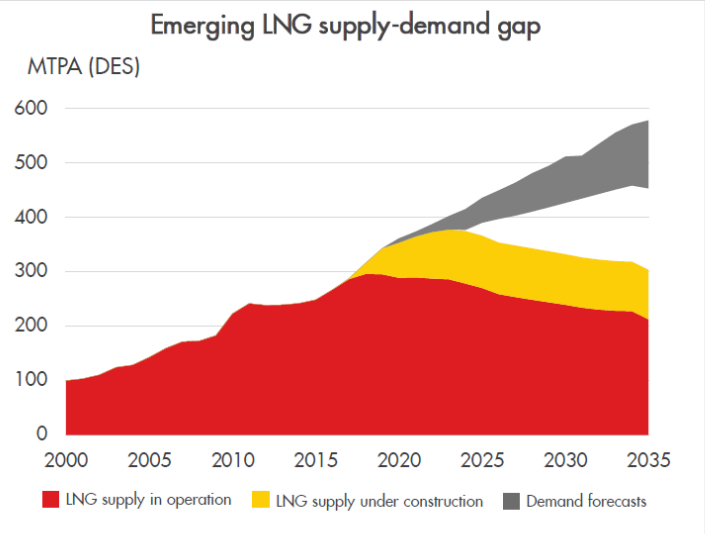


(Liquified) Natural Gas: Outlook

Key issues: LNG and global gas markets

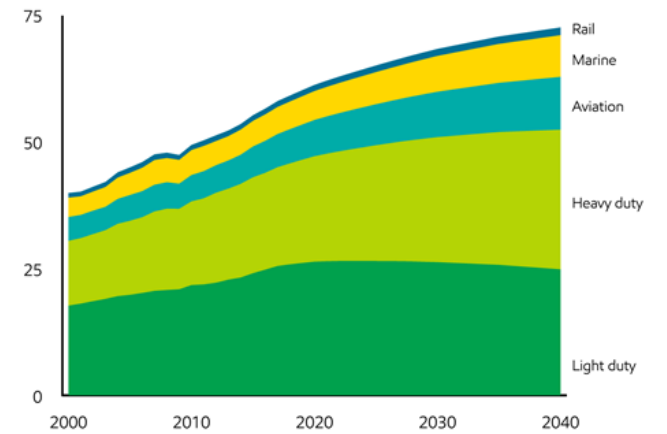


LNG supplies grow strongly led by US and Australia...

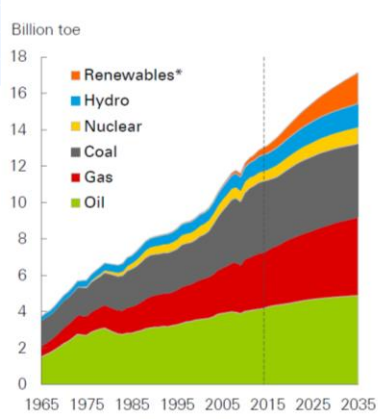


Source: Shell interpretation of IHS Markit, Wood Mackenzie, FGE, BNEF and Poten & Partners Q4 2017 data

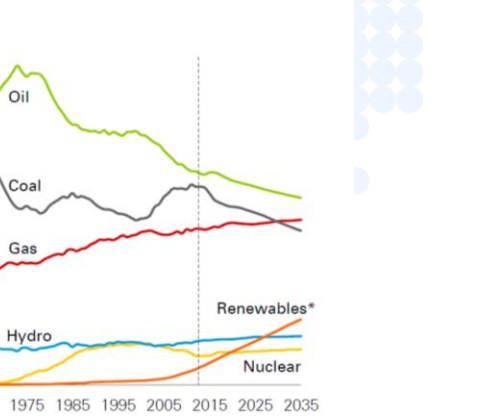
Transportation energy demand growth driven by commerce
Global sector demand - million oil-equivalent barrels per day (MBOE)



Primary energy consumption by fuel











Shares of primary energy



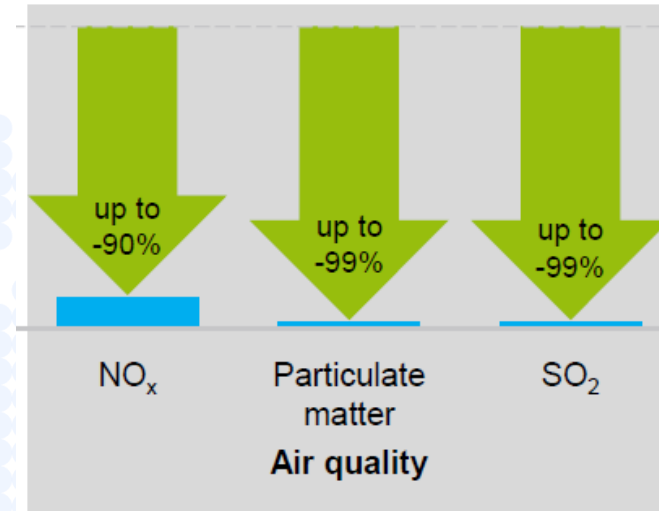
*Renewables includes wind, solar, geothermal, biomass, and biofuels

(Liquified) Natural Gas: Advantages

LOWER GREENHOUSE GAS EMISSIONS

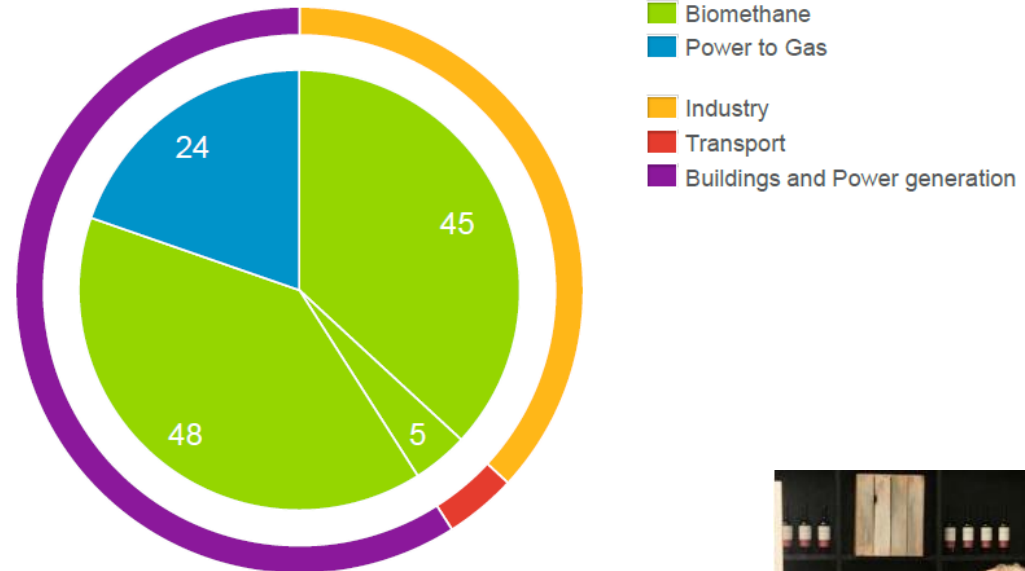
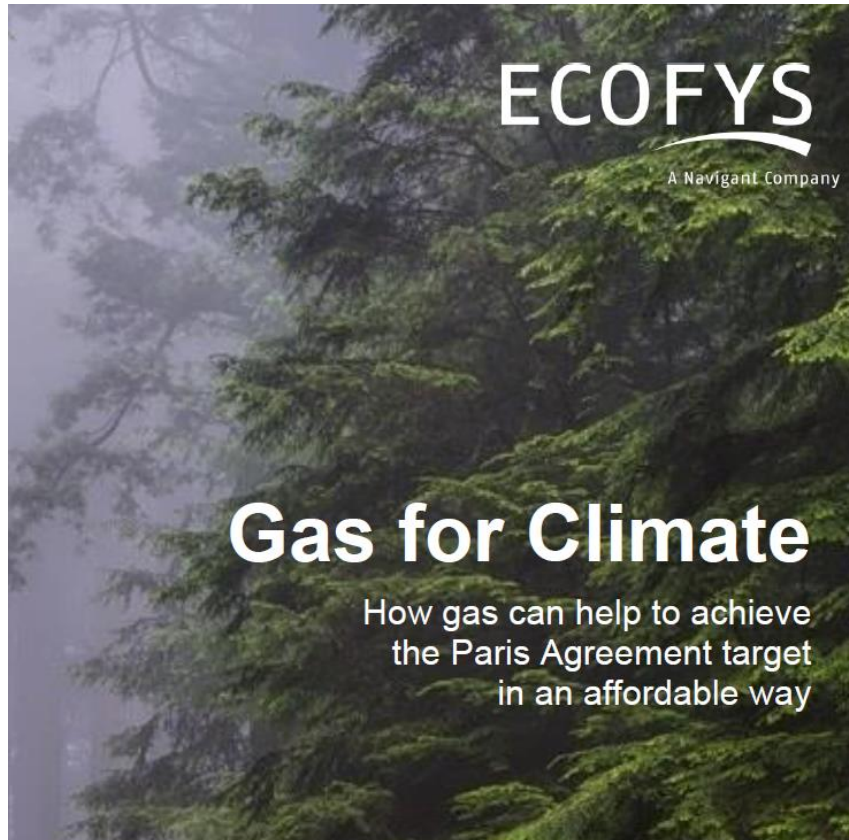
	Extraction	Processing	Transportation and storage	Emissions at end use	Total life cycle
Natural gas (LNG)	 94 g/km	 25 g/km	 55 g/km	 842 g/km	1016 g/km
Diesel	 148 g/km	 132 g/km	 6 g/km	 1079 g/km	1365 g/km

Based on Natural Resources Canada's GHGenius model, version 3.15.
Assumes use of Westport Innovations 15 litre HD engine system.



[DNV, Volvo Trucks, Roland Berger]

Transition to renewable (Liquified) Natural Gas



Allocation of renewable gas over various sectors in billion cubic metres of gas



Convenant duurzame Bio-LNG getekend!



Bio-LNG	Platform Bio-LNG: voor zwaar wegvervoer en scheepvaart. Maatregelen: continuering tijdelijke accijnsteruggave, opschaling productie en doorontwikkeling voor binnenvaart.
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IWT ambition

- CO2 reduction from 2.1 Mton/y to at least 1,7 Mton/y in 2030
- Meeting the NRMM stage V emission levels
- Setting up funding/financing instruments for Greening the fleet
- New business models (e.g. pay-per-use)
- Bio-blending of fuels
- Electrification of propulsion system
- Implementing Fuel cell technology



THANK
YOU!

