

The Role of Natural Gas in Transition to a Low-carbon Economy



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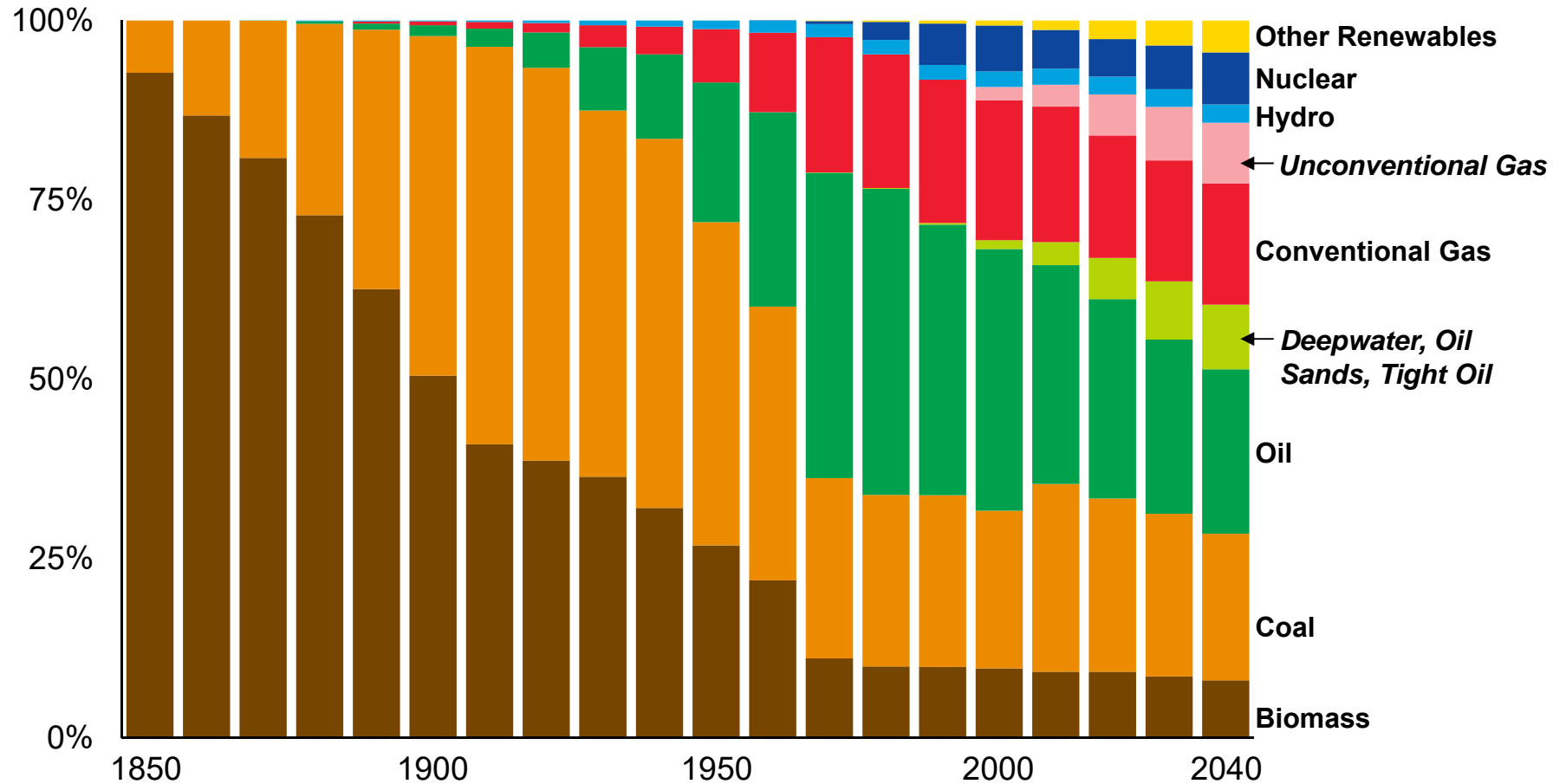
Why Natural Gas?

- ◆ Natural gas is the cleanest-burning fossil fuel and is affordable, abundant and flexible
- ◆ It has a critical role to play in today's and tomorrow's secure and diverse energy mix
- ◆ Natural gas offers an immediate and material opportunity to reduce global emissions through fuel-switching from coal and oil
- ◆ Natural gas flexibility can support peak-demand response which is needed due to the intermittency of renewable energy sources

Why Liquefied Natural Gas (LNG)?

- ◆ LNG provides more flexibility of sources and allows connection among regional macro areas
- ◆ It allows to exploit otherwise unreachable resources
- ◆ Improves security of supplies through import sources' diversification
- ◆ It is a valuable alternative as a fuel for transportation (Small Scale LNG)

Global Energy Mix and Trend



Source: Smil, Energy Transitions (1800-1960)

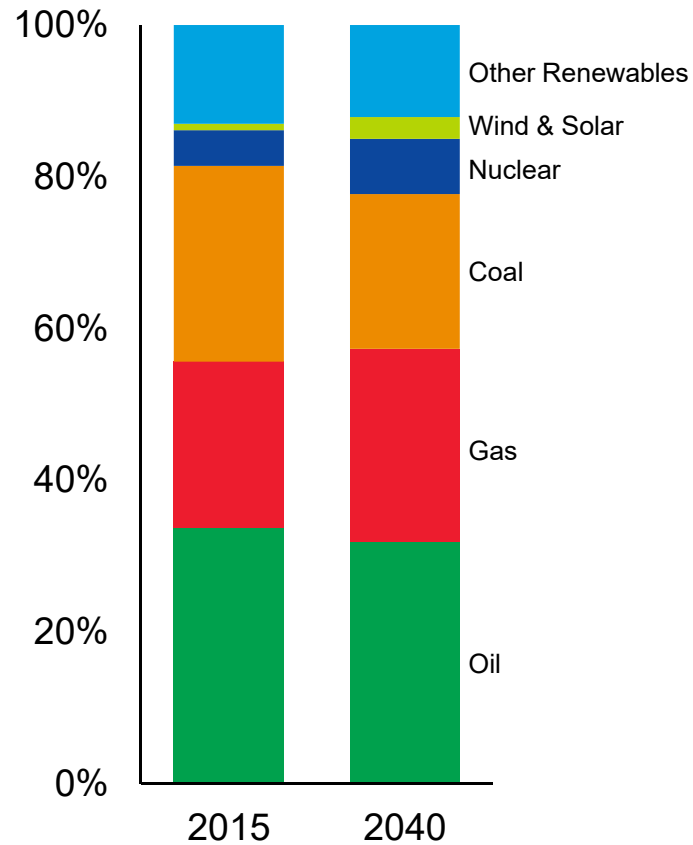


Text Slide

Energy Mix Shifts to Lower-Carbon Fuels

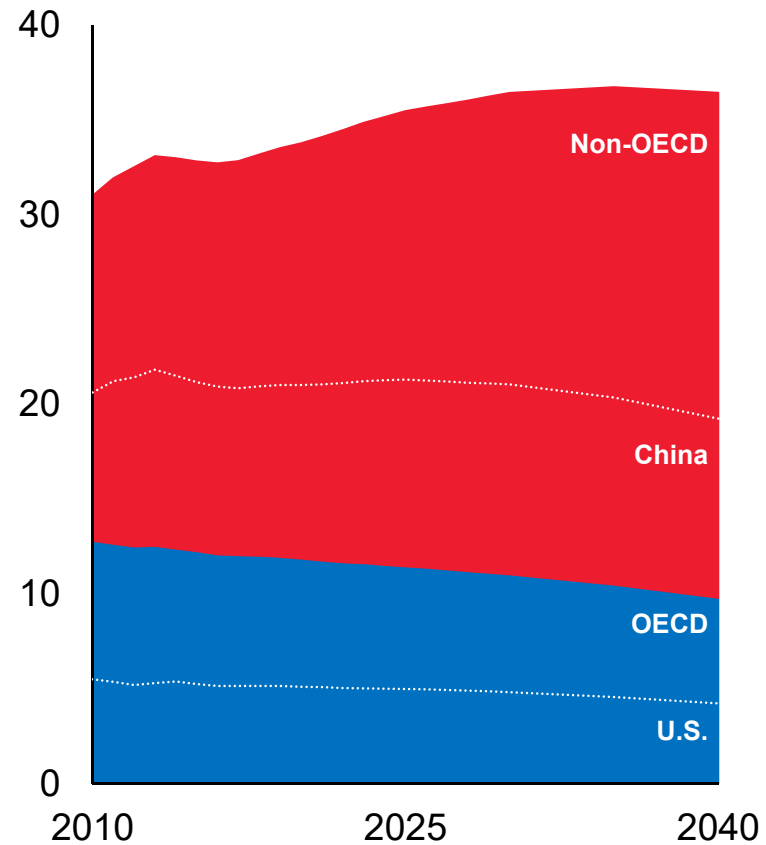
Global Energy Mix

Percent



Energy-Related CO₂ Emissions by Region

Billion Tonnes



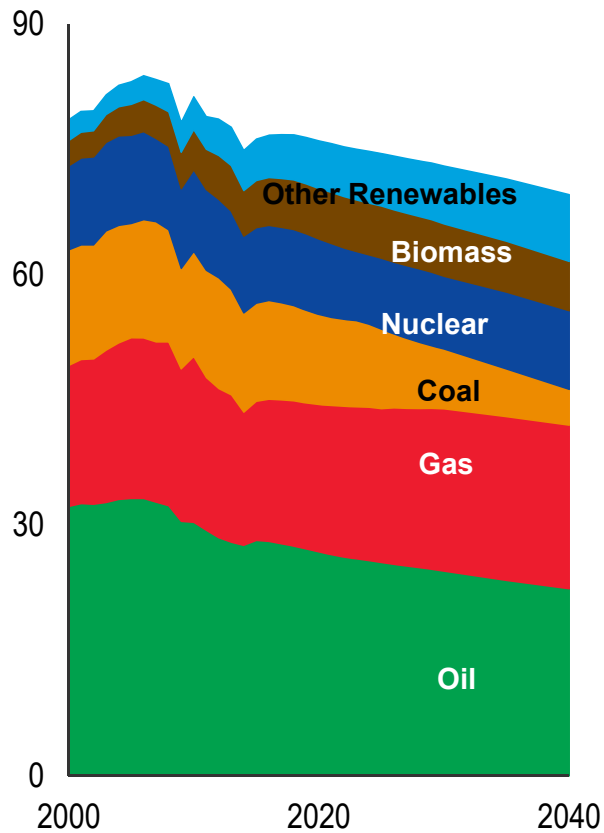
Source: ExxonMobil 2017 Outlook for Energy



Europe Energy Demand and Supply

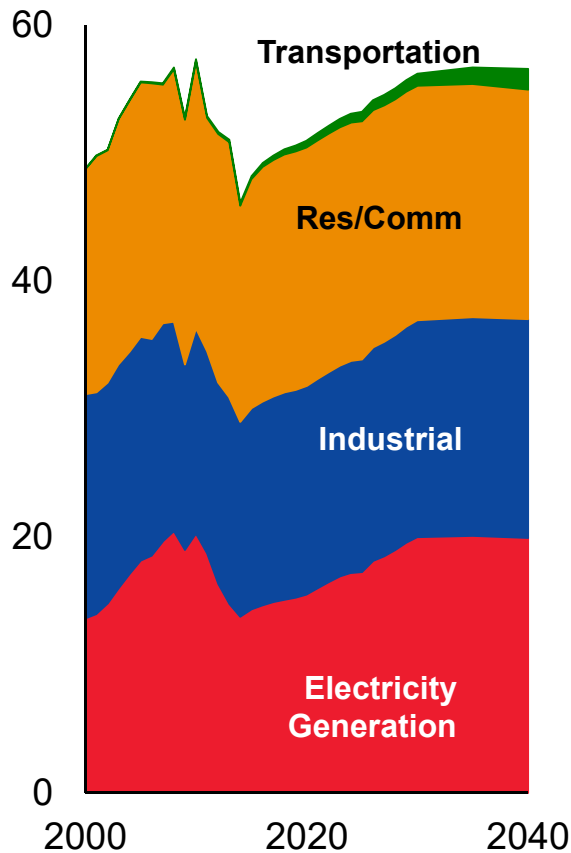
By Fuel

Quadrillion BTUs



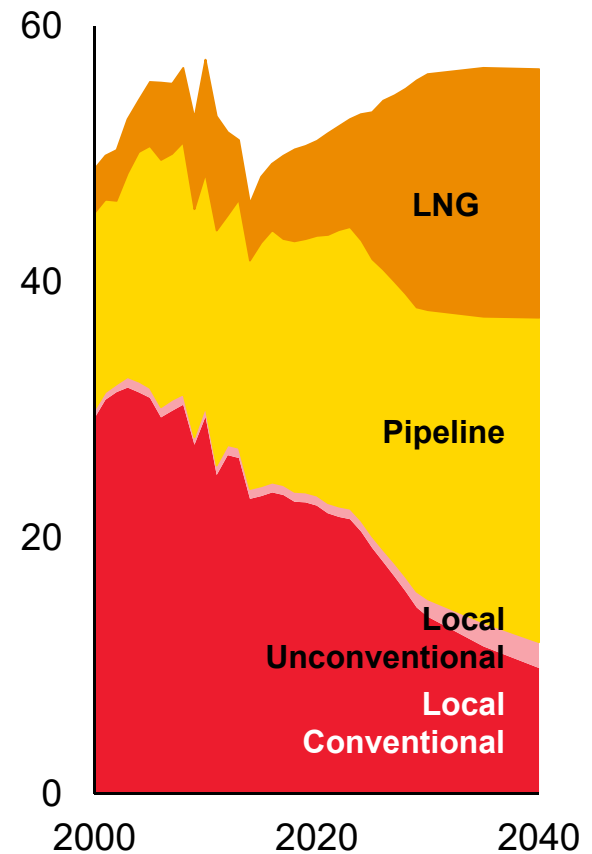
Gas Demand by Sector

BCFD



Gas Supply by Type

BCFD

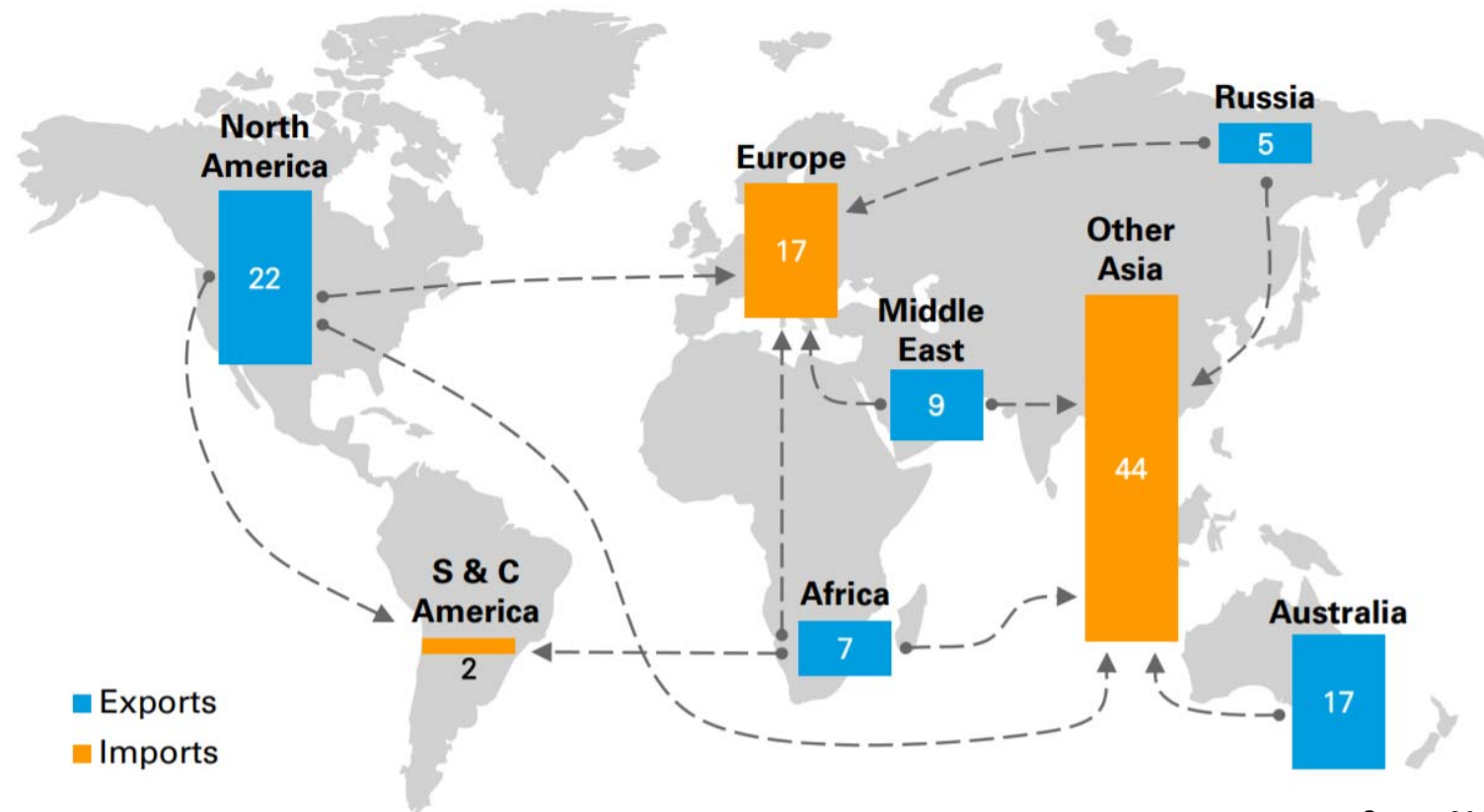


Source: ExxonMobil 2017 Outlook for Energy



LNG's share in trade gas increase sharply

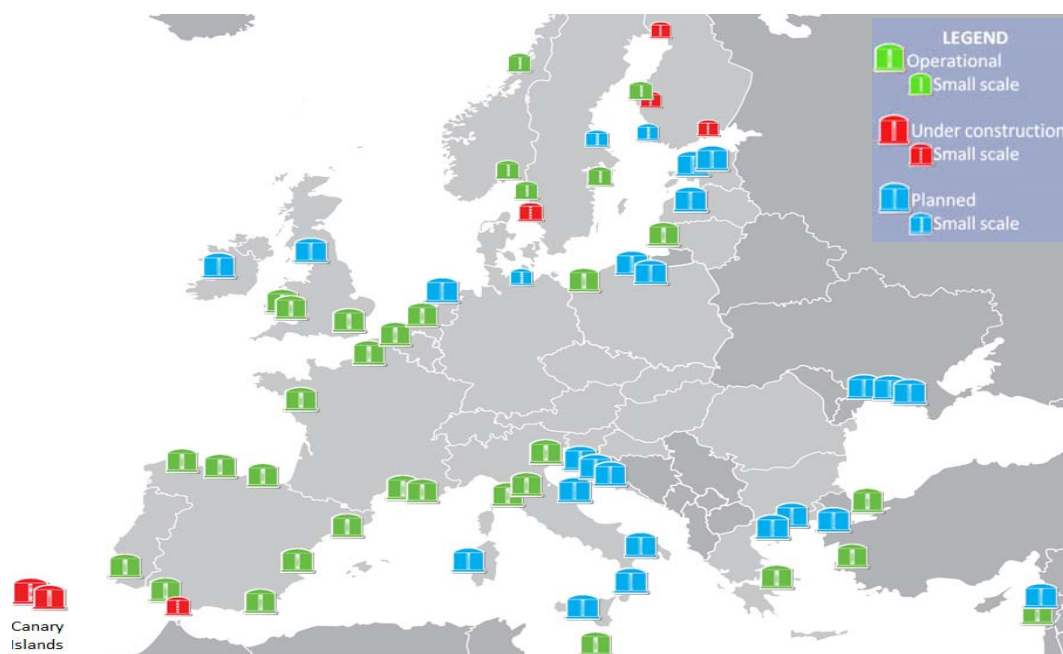
Net LNG exports and imports 2035 (Bcf/d)



Source: 2017 Energy Outlook

Large scale and Small scale LNG terminals in Europe in 2017

European SSLNG installations



Installations per type	Status		
	Operational	under construction	planned
LNG terminals (large + small):			
Reloading	14	2	13
Transshipment	3	2	4
Bunkership loading	9	7	11
Truck loading	19	8	6
Rail loading	-	-	4
Liquefaction plants	22	n.a.	2
Bunkering facilities for vessels	26	5	22
Bunker ships	5	4	6
Refuelling stations for trucks	70	14	19
Satellite Storages	>1000	n.a.	n.a.

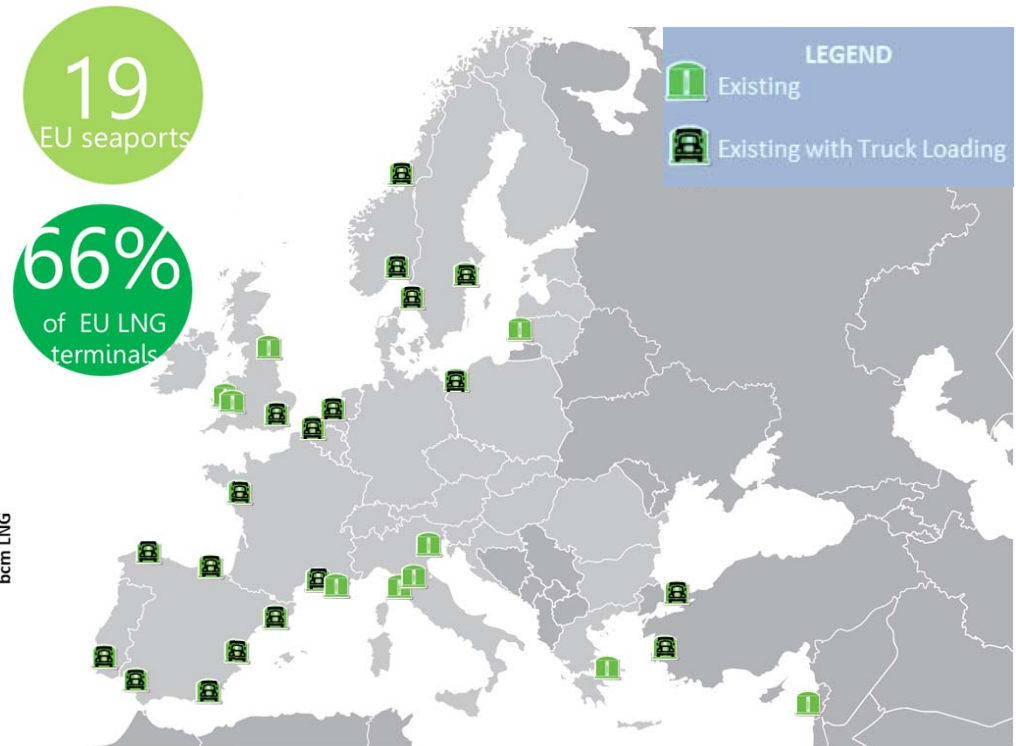
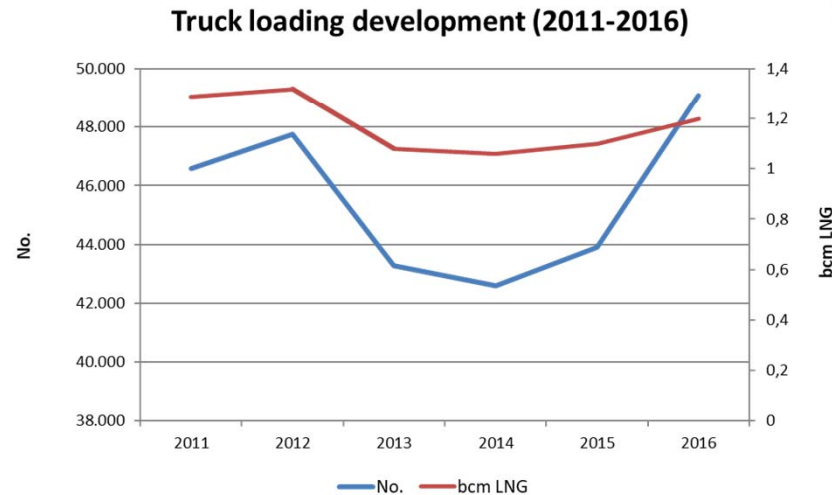
Installations per country (Top 10)	Number of Installations*		
	operational	under construction	planned
1. Spain	37	3	12
2. Norway	35	-	-
3. UK	23	2	9
4. Netherlands	17	5	6
5. Sweden	13	-	10
6. France	11	4	11
7. Belgium	7	5	1
8. Germany	5	3	9
9. Portugal	4	1	4
10. Finland	2	8	5

* excl. satellite storages

New SSLNG Services Truck Loading

Truck loading

- LNG is loaded on tank trucks which transport LNG in smaller quantities



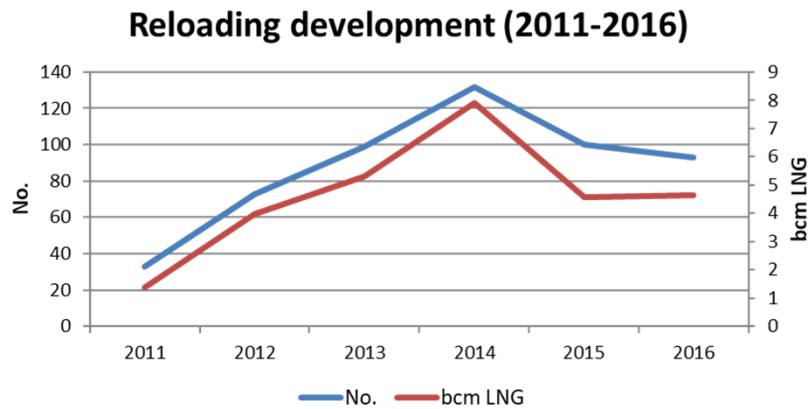
- New record:** More than 49,000 trucks loaded 2.1 mcm LNG at truck loading facilities in 2016, the highest rate in the past 5 years.
- In comparison with the previous year, an increase of 12% was registered.

Source: GLE New LNG Services Inventory, May 2017

Reloading

Reloading

Transfer of LNG from the LNG storage tanks of the terminal into a vessel (large and small scale)



14
EU
seaports

48%
of EU LNG
terminals



- The number of reloading, the transfer of LNG from the LNG reservoirs of the terminal into a vessel, **tripled in the past 6 years**.
- Countries with **highest reloading capacity**: Spain, France, Belgium, the Netherlands

Source: GLE New LNG Services Inventory, May 2017

Adriatic LNG Overview

- Adriatic LNG Terminal is the first ever offshore Gravity Based Structure (GBS) for unloading, storing and regasifying LNG
- Company established in May 2005:
 - Owners: ExxonMobil ~71%, Qatar Petroleum ~22%, Snam ~7%
- 8 Bcm/y regasification capacity:
 - 10% of the national gas demand
- Named as the “Best Infrastructure Project of the Year” in the 12th edition of the Platts Global Energy Awards



GBS resting on the seabed:

- 188m long by 88m wide (more than two football fields) in 30m water depth
- 90,000 cubic meters of concrete and 30,000 tons of steel structures

Operational results

◆ **More than 550** LNG carriers arrived and **more than 46 Bcm** of natural gas send out into the national grid since the Terminal commenced commercial activities

◆ **In the first 10 months of 2017:**

- 65 LNG carriers (2017 outlook 78 LNG carriers)
- 5.6 Bcm of natural gas send out into the grid
- Utilization rate @ 84.6%. (vs. 72% same period 2016)
 - Utilization rate @ 95.8% in July, the highest since May 2011
 - The average utilization rate for the EU terminals is about 20%
- Expansion of import sources:
 - Nigeria - June 2017
 - USA - September 2017
- The terminal continues to sustain a regasification reliability greater than 99.8%.

www.adriaticlng.it



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