

Arzikulov Otabek

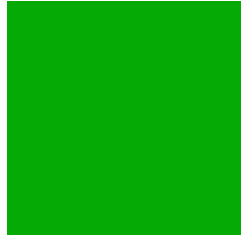
Tyumen State University



LNG Market Overview

Designations

Color of country



Country
imports LNG

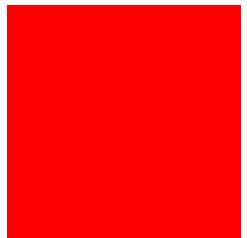


Looking for new
ways to meet
domestic demand



Country
exports LNG

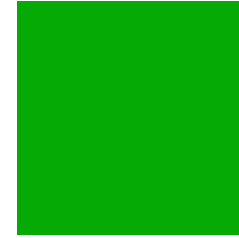
Color of shape



Less preferable
from import
perspective

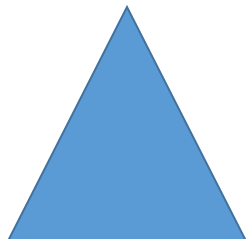


The potential of
the region should
be analyzed



Preferable from
import perspective

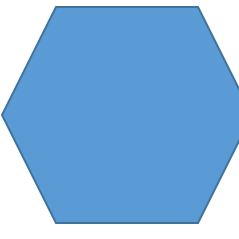
Shapes



Less preferable
from export
perspective



The potential of
the region should
be analyzed



More preferable
from export
perspective

South America



There is an economic growth after the global crisis in the countries of South America. Evidence of this is a steady increase in hydrocarbon consumption.

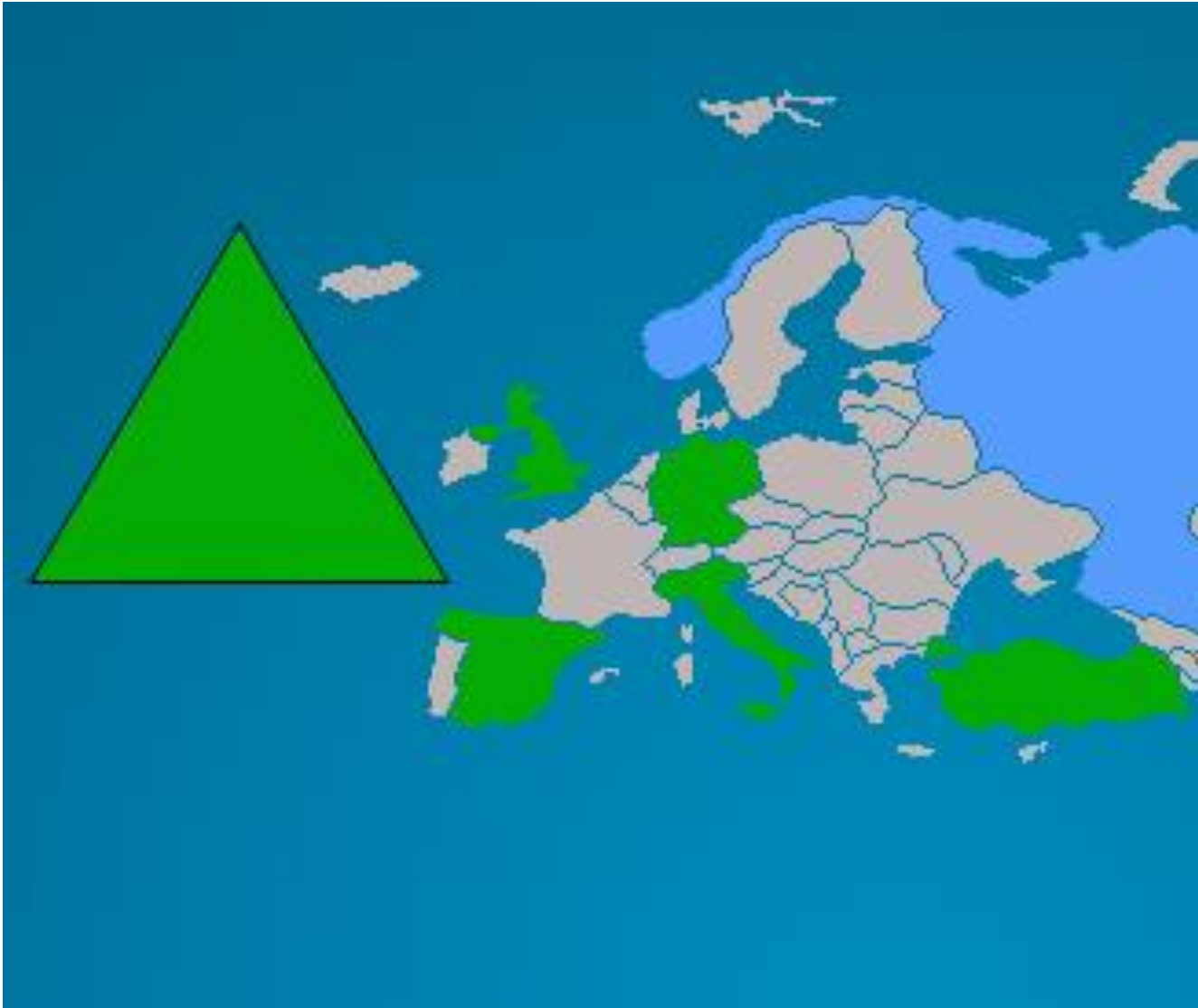
Despite the fact that Brazil has its own oil reserves, but the country does not refuse to import LNG.

Argentina is looking for import substitution opportunities for LNG. The infrastructure and hydrocarbon reserves are available for this.

So far, the only major LNG producers in the region are Peru and Trinidad and Tobago.

The LNG market in South America needs additional analysis.

Europe

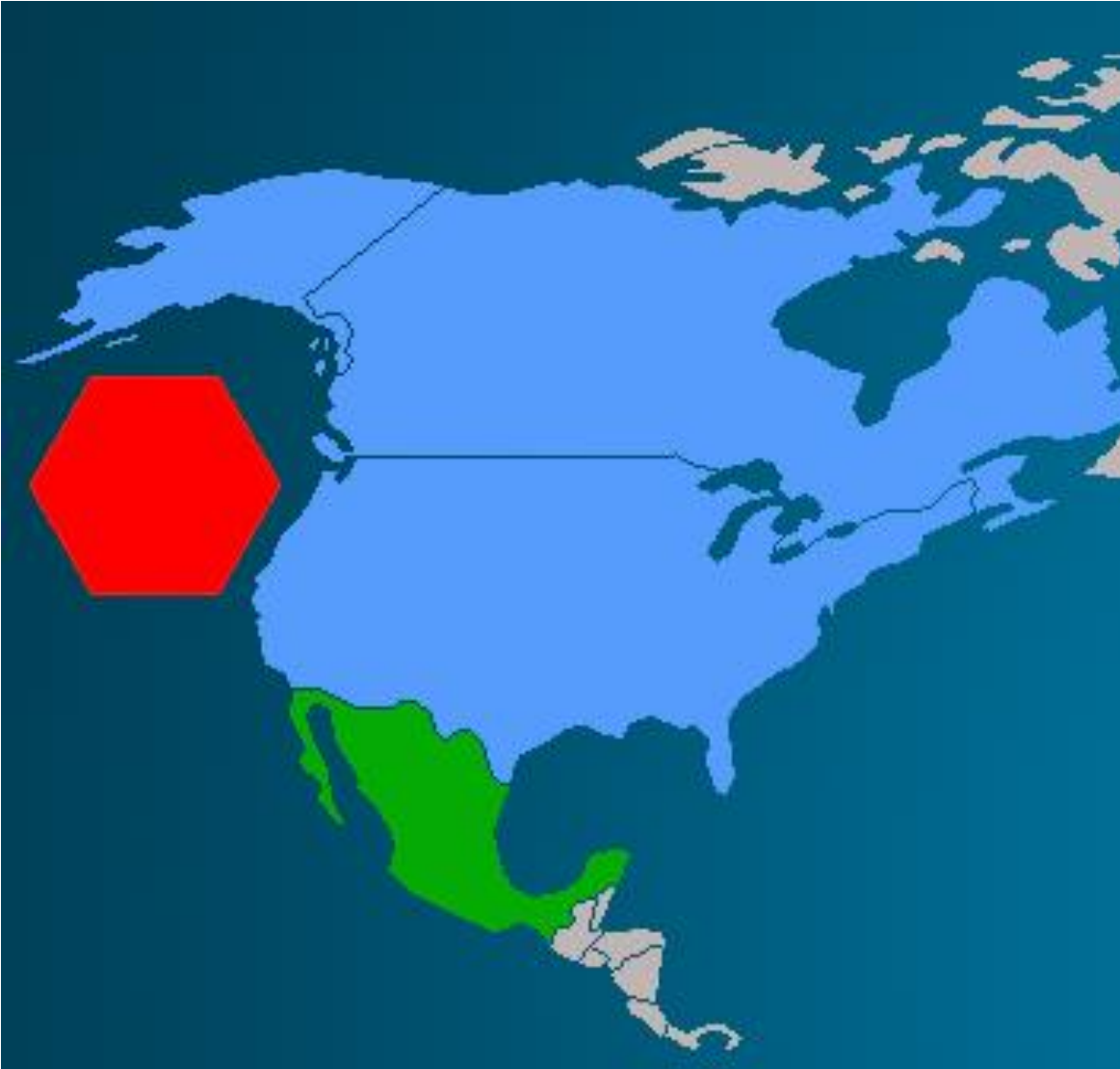


Europe is trying to diversify the import of energy resources to be maximally independent of suppliers.

If gas pipelines are stretched from the Eastern part of Europe, then Western Europe is developing the LNG market. In this way active participation take Spain and Italy. For these countries LNG becomes not only a source of new revenue, but also develops domestic industries, thereby creating a multiplicative effect.

Qatar, Norway and the Russian Federation are the main suppliers of LNG to Europe.

North America – Export Potential



The U.S. will add 66.2 million tonnes per annum (mtpa) of liquefied natural gas (LNG) export capacity by 2019, by which time final investment decisions (FIDs) on a second wave of export terminals will be made.

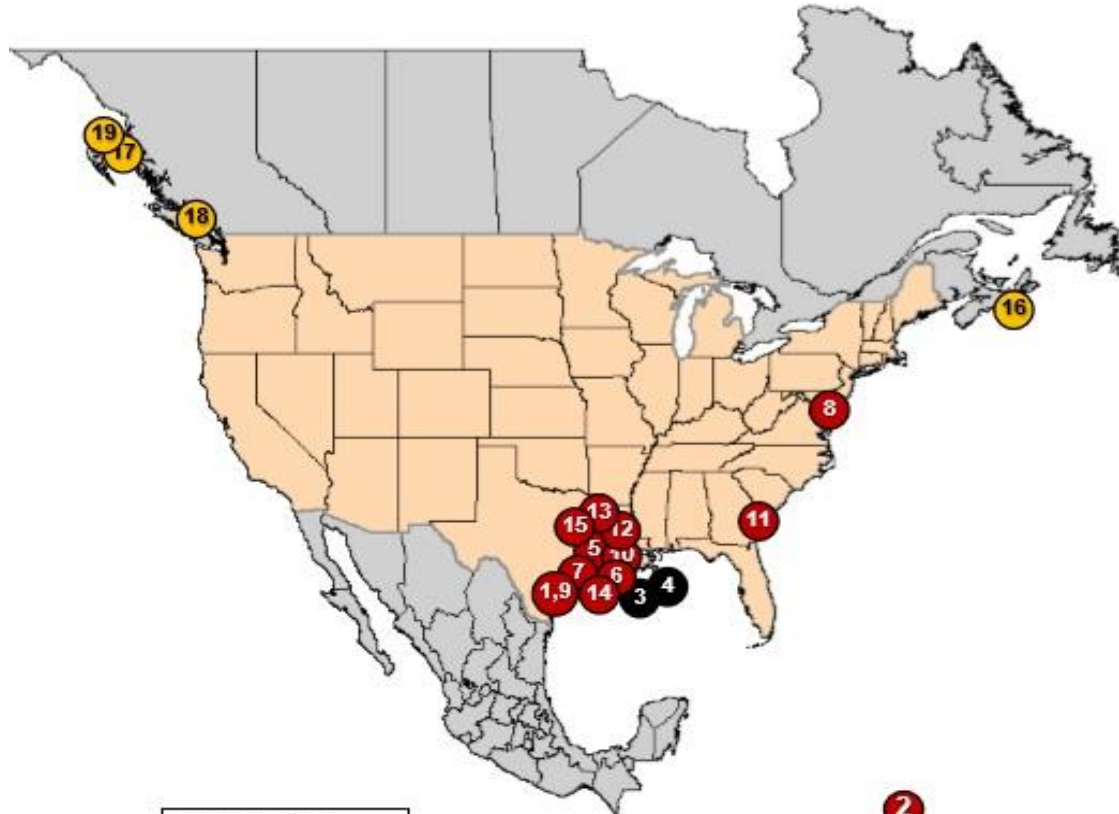
- Three trains now exporting LNG from U.S. and six LNG project have begun construction.

This strategy could make the U.S. the world's third largest exporter of natural gas by 2018. The shale revolution in the U.S. makes new revolution – in LNG global market.

Canada, which focused its exports to the US, is now forced to look for new LNG demand markets. This market will be in Asia-Pacific Region.

North American LNG Import/Export Terminals

Approved



US Jurisdiction
 ● FERC
 ● MARAD/USCG

As of January 5, 2017

Import Terminals

U.S.

APPROVED - UNDER CONSTRUCTION - FERC

1. Corpus Christi, TX: 0.4 Bcfd (Cheniere – Corpus Christi LNG) (CP12-507)

APPROVED – NOT UNDER CONSTRUCTION - FERC

2. Salinas, PR: 0.6 Bcfd (Aguirre Offshore GasPort, LLC) (CP13-193)

APPROVED - NOT UNDER CONSTRUCTION - MARAD/Coast Guard

3. Gulf of Mexico: 1.0 Bcfd (Main Pass McMoRan Exp.)
4. Gulf of Mexico: 1.4 Bcfd (TORP Technology-Bienville LNG)

Export Terminals

U.S.

APPROVED - UNDER CONSTRUCTION - FERC

5. Sabine, LA: 1.4 Bcfd (Cheniere/Sabine Pass LNG) (CP11-72 & CP14-12)
6. Hackberry, LA: 2.1 Bcfd (Sempra–Cameron LNG) (CP13-25)
7. Freeport, TX: 2.14 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction) (CP12-509) (CP15-518)
8. Cove Point, MD: 0.82 Bcfd (Dominion–Cove Point LNG) (CP13-113)
9. Corpus Christi, TX: 2.14 Bcfd (Cheniere – Corpus Christi LNG) (CP12-507)
10. Sabine Pass, LA: 1.40 Bcfd (Sabine Pass Liquefaction) (CP13-552) ★
11. Elba Island, GA: 0.35 Bcfd (Southern LNG Company) (CP14-103)

APPROVED – NOT UNDER CONSTRUCTION - FERC

12. Lake Charles, LA: 2.2 Bcfd (Southern Union – Lake Charles LNG) (CP14-120)
13. Lake Charles, LA: 1.08 Bcfd (Magnolia LNG) (CP14-347)
14. Hackberry, LA: 1.41 Bcfd (Sempra - Cameron LNG) (CP15-560)
15. Sabine Pass, TX: 2.1 Bcfd (ExxonMobil – Golden Pass) (CP14-517)

Canada

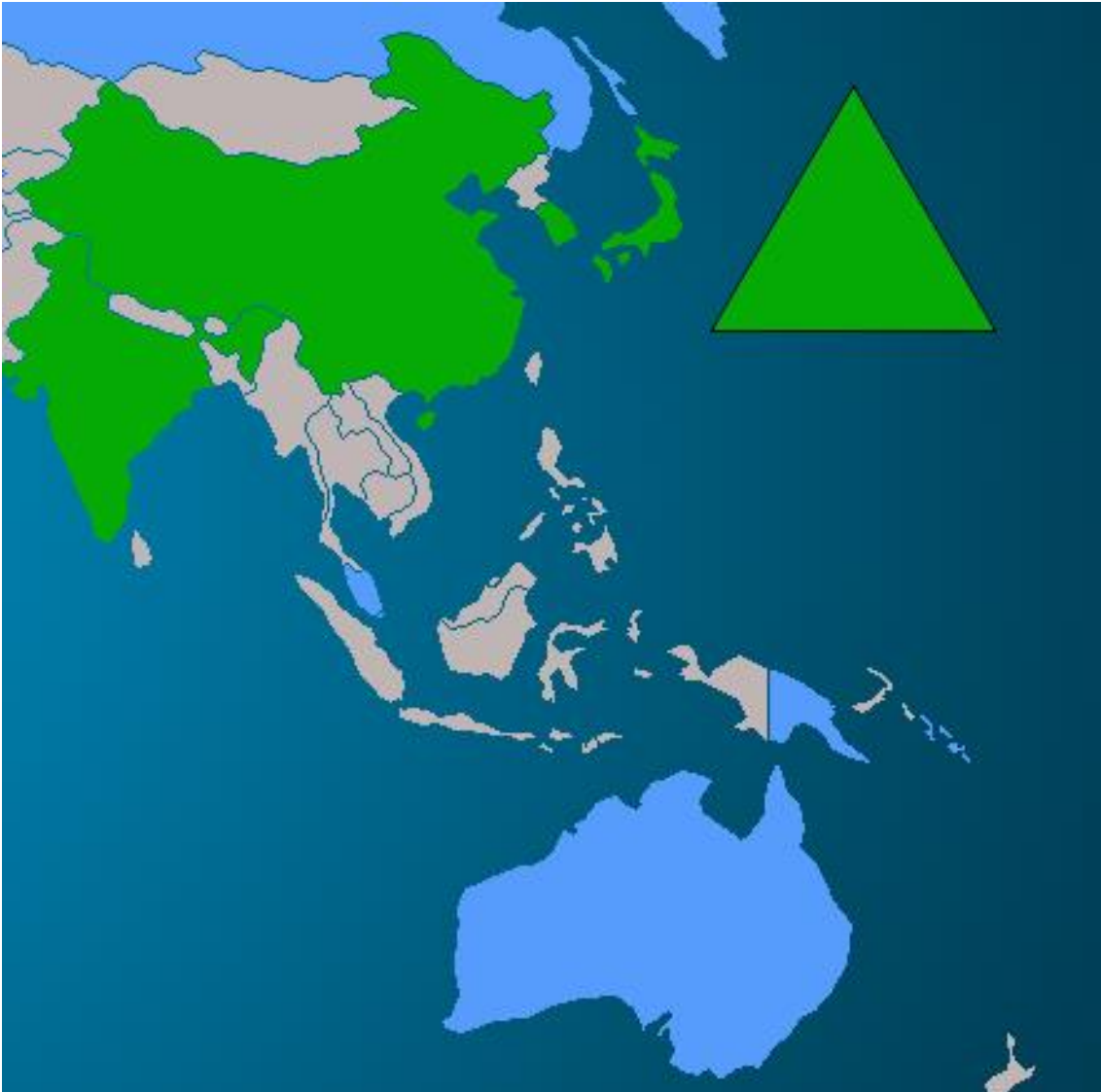
APPROVED – NOT UNDER CONSTRUCTION

16. Port Hawkesbury, NS: 0.5 Bcfd (Bear Head LNG)
17. Kitimat, BC: 3.23 Bcfd (LNG Canada)
18. Squamish, BC: 0.29 Bcfd (Woodfibre LNG Ltd)
19. Prince Rupert Island, BC: 2.74 Bcfd (Pacific Northwest LNG)

★ Trains 5 & 6 with Train 5 under construction

Source: The U.S. Federal Energy Regulatory Commission

Asia-Pacific Region – Developing Countries



There are fast developing countries in region, and gas demand will rise in future.

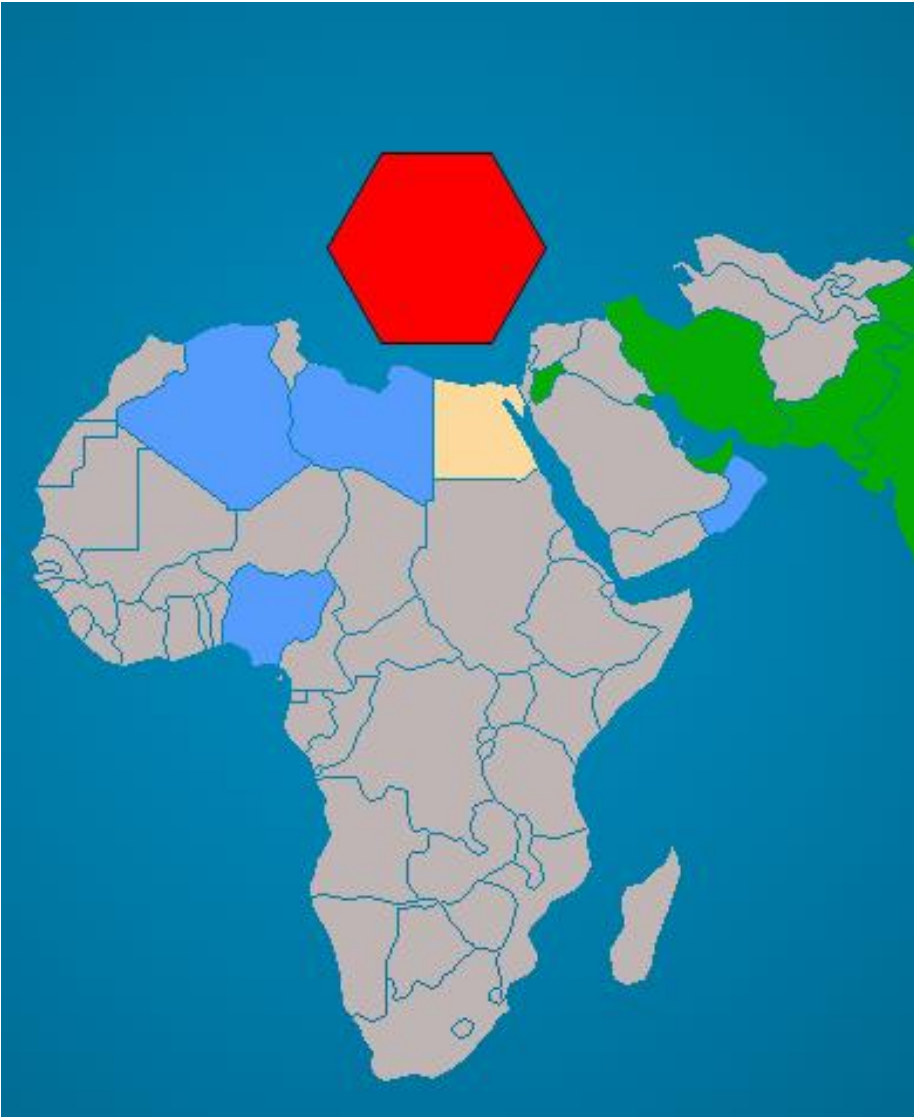
India is fast-growing economy. By halving customs duty on LNG from 5% to 2.5%, the Finance Minister has laid the foundations for the creation of a natural gas grid, encouraging the construction of mid-stream infrastructure from LNG terminals to gas pipelines.

China ready to deregulate its gas market. In its 13th 5-yr plan, the Chinese government has set ambitious targets for gas growth of 10% to 16% over the next 5 yr.

In Indonesia gas is expected to account for 30% of the country's national primary energy mix by 2025.

Despite Australia's ambitions, it will not be able to meet the demand for LNG in the region.

Africa & Middle East



In Africa LNG nominal capacity 24.2% of world capacity.

Three projects hoping to take FID in the near term:

- Fortuna FLNG (2.2 MTPA);
- Mozambique LNG (5.0 MTPA);
- Coral FLNG (2.5 MTPA).

Angola is expected to increase gas liquids capacity to 140 kb/d in 2021.

Qatar will lose leadership in the global market, but will be able to meet the demand in the Middle East.

The Middle East developing countries will also increase the demand for LNG in the future.

RIPSCOT Formula for BG Group

Ripscot

R – for Resources. Resources are the more important element for LNG business-model in near future for BG Group, because company is going to be the first supplier of this resource in the global market.

BG Group is a part of Royal Dutch Shell, which concentrates only on the LNG market

List of sources

- Company official site
- Shell company official site
- Asian gas: Partnerships for a growing
- Industry (McKinsey&Company)

RIPSCOT Formula for Gazprom

ripScot

S – for supply chains. Channels are the more important element for LNG business-model in near future for Gazprom, as the company at the state level needs to look for new markets in Europe and Asia-Pacific Region. In this case the most important part is the Northern Sea Route.

Its development will become multiplicative, dragging along other spheres. This will also affect the development of the Russian Arctic zone.

Pre-organized logistics will allow us not to think about new trading channels in the future when new fields will being developed.

List of sources

- Company official site
- Yamal LNG official site
- Asian gas: Partnerships for a growing Industry (McKinsey&Company)
- <http://www.vestifinance.ru/articles/20568>

Additional information

Four important trends in the LNG industry

- **The influx of LNG capacity coming online**

Expects 50% more LNG capacity to be in operation in 2020 vs. 2015

- **Strategies for lowering LNG production costs**

Market players and analysts are examining how to bring costs down to below \$500/t, and how to make LNG more competitive.

- **Emergence of new LNG markets**

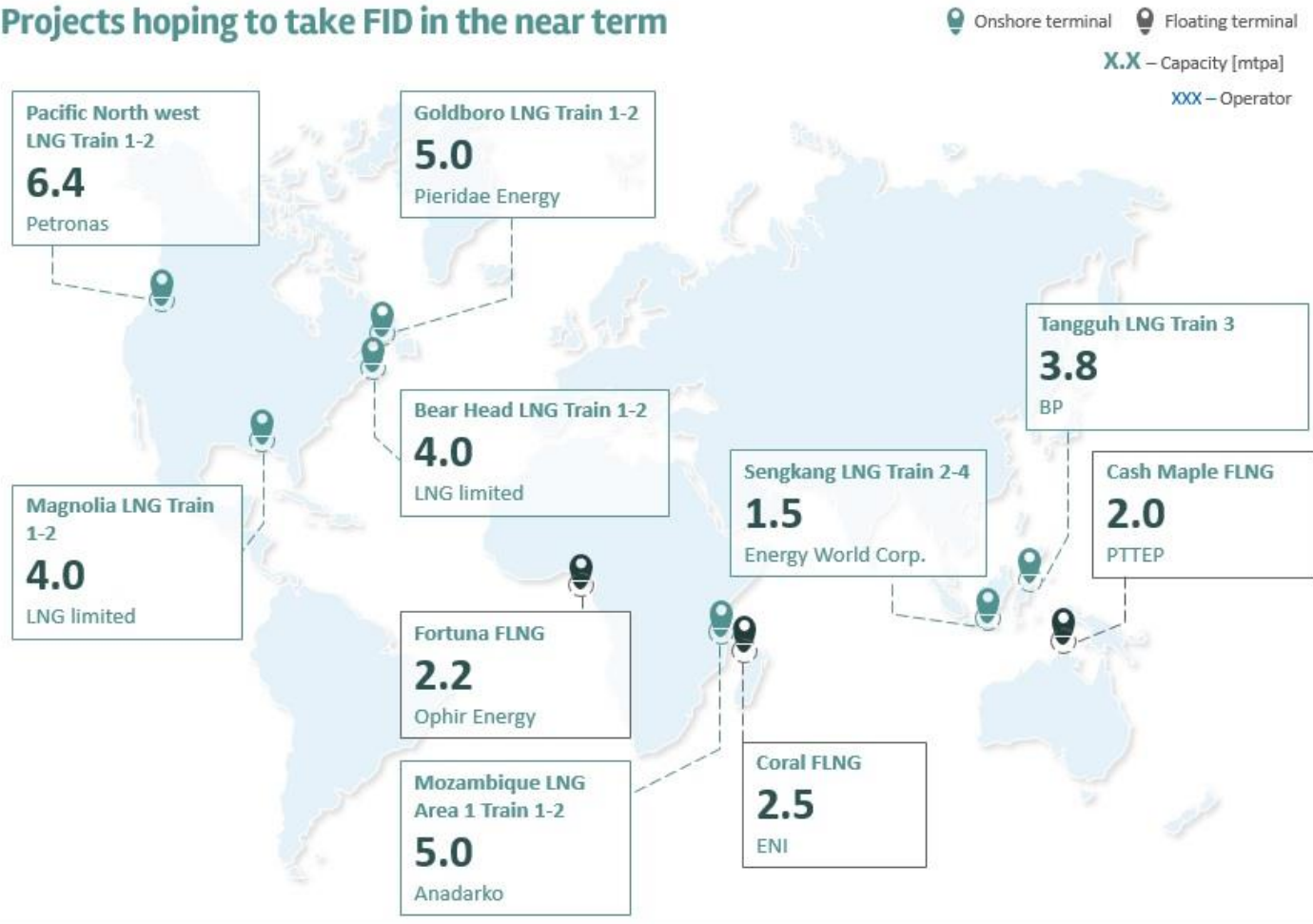
Emergence of more than 30 new LNG markets over the next several years

- **New uses for natural gas**

Additional information

Risks in LNG market

Projects hoping to take FID in the near term



LNG oversupply until 2024

MEI has modeled 10 upcoming LNG projects at FID stage – including Coral FLNG and Mozambique LNG – against its Energy Insights LNG cost curve.

The current market oversupply is creating challenging conditions for operators hoping to take FID on projects in the near term. For these projects to be viable, they would require an assumption of either a sustained high LNG price post-2024 or a cost optimization strategy to reduce projected capital expenditures.

The research highlights that the market will remain oversupplied unless today's low prices can stimulate a demand recovery.

References

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- <http://www.hydrocarbonprocessing.com/conference-news/2017/03/ceraweek-17-gas-execs-analysts-discuss-asian-lng-market-reforms>
- Report on current developments in the oil & gas industry in Africa (PwC)
- SOCIO-ECONOMIC IMPACT ASSESSMENT AND STAKEHOLDER PERSPECTIVES IN A LNG TERMINAL CASE STUDY IN TUSCANY, ITALY (Onepetro.org)
- <http://www.hydrocarbonprocessing.com/news/2016/06/mckinsey-energy-forecasts-lng-oversupply-until-2024> McKinsey Energy Insights' (MEI)