A New Russian Revolution: Liberalization of LNG Export Market in the Face of Shifting Global Supply

> Presentation by: Bennett E. Resnik

Current State of Affairs Russian Imports Russian Export Trade Movements

Future Trends & Implications Demand versus Supply LNG Liquefaction Capacity Asian-Pacific Marketplace

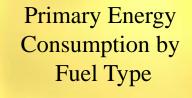
Current State of Affairs

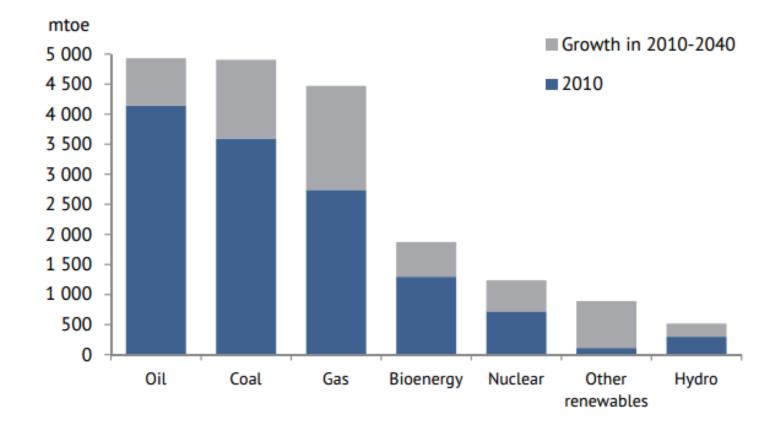
	2012]	2013			
Billion cubic metres	Pipeline imports	LNG imports	Pipeline exports	LNG exports	Pipeline imports	LNG imports	Pipeline exports	LNG exports
US	83.8	4.9	45.1	0.9	78.9	2.7	44.4	0.1
Canada	27.5	1.8	83.8	-	25.8	1.1	78.9	-
Mexico	17.6	4.8	†	-	18.6	7.8	†	-
Trinidad & Tobago	-	-	-	18.9	-	-	-	19.8
Other S. & Cent. America	15.8	15.2	15.8	5.5	18.6	19.6	18.6	5.7
France	32.3	10.3	1.2	0.2	30.5	8.7	1.1	0.6
Germany	83.5	-	12.5	-	95.8	-	15.1	-
Italy	55.4	7.1	0.1	-	51.6	5.5	0.2	-
Netherlands	20.9	0.8	48.6	-	21.5	0.8	53.2	0.2
Norway	-	-	107.6	4.8	†	-	102.4	3.8
Spain	13.3	20.4	0.7	1.2	15.3	14.9	0.9	2.6
Turkey	37.4	7.7	0.6	-	38.2	6.1	0.6	-
United Kingdom	37.7	13.7	12.0	-	41.9	9.3	8.9	-
Other Europe	101.9	8.2	10.5	1.6	102.2	6.1	11.9	1.6
Russian Federation	29.8	-	194.2	14.8	27.8	-	211.3	14.2
Ukraine	29.4	-	-	-	26.9	-	-	-
Other Former Soviet Union	29.3	-	63.3	-	29.5	-	68.5	-
Qatar	-	-	19.2	103.1	-	-	19.9	105.6
Other Middle East	24.4	4.6	8.8	25.7	25.1	4.5	9.4	28.5
Algeria	-	-	34.2	15.3	-	-	28.0	14.9
Other Africa	6.3	-	9.7	38.5	6.4	-	8.6	31.6
China	21.4	20.0	2.8	-	27.4	24.5	2.8	-
Japan	-	118.8	_	-	-	119.0	_	-
Indonesia	-	_	10.2	24.8	-	-	8.9	22.4
South Korea	-	49.1	-	-	-	54.2	-	-
Other Asia Pacific	28.8	36.7	15.8	68.9	28.5	40.4	16.9	73.5
Total World	696.6	324.2	696.6	324.2	710.6	325.3	710.6	325.3

†Less than 0.05.

Gas trade in 2012 and 2013

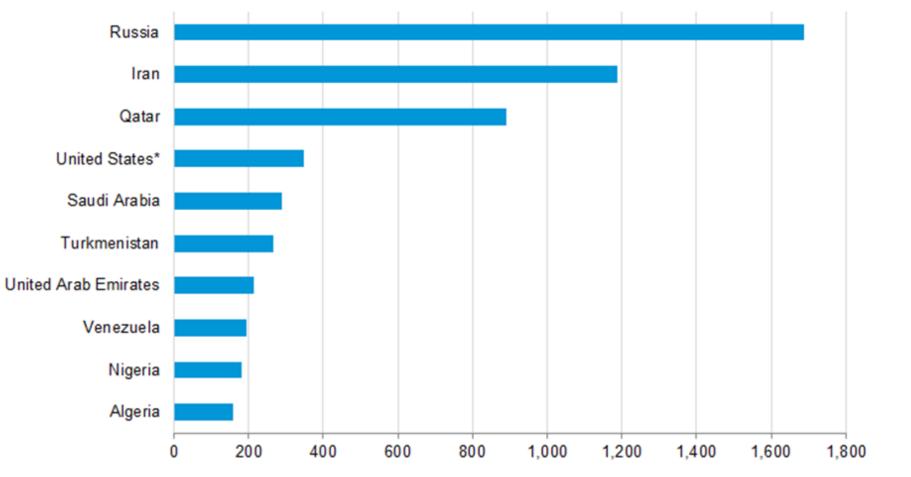
Source: Includes data from Cedigaz, CISStat, FGE MENAgas service, GIIGNL, IHS CERA, PIRA Energy Group, Poten, Waterborne.





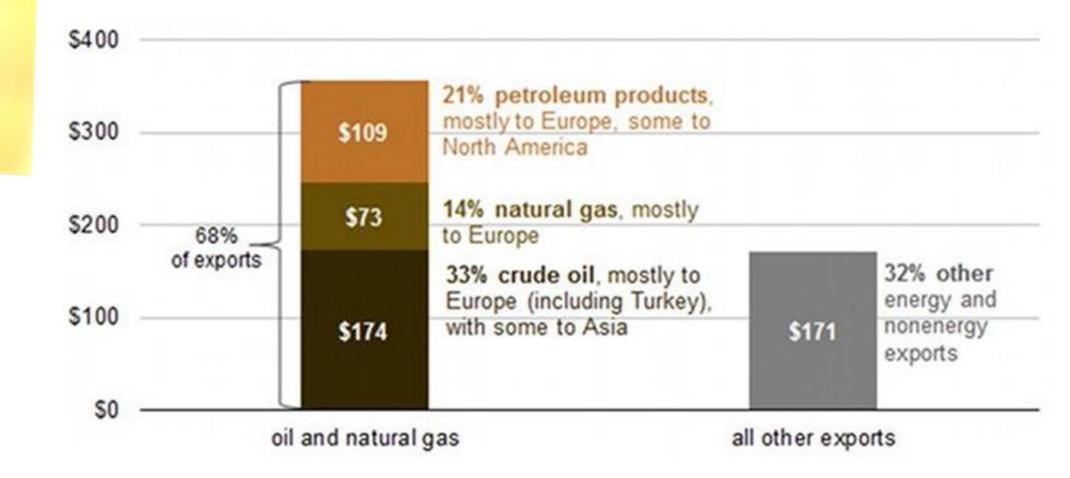
Source: ERI RAS

Largest Proven Natural Gas Reserves





Note: The United States reserves are wet gas reserves as of December 2011 Source: United States: U.S. Energy Information Administration; Other Countries: Oil and Gas Journal 2013 Russia Gross Export Sales, 2013



Russia's natural gas production by region, 2012

Russia's natura	gas	production by	y company, 2	2012
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Company	Bcf/d
Gazprom	47.1
Rosneft	1.2
LUKoil	1.6
Surgutneftegaz	1.2
TNK-BP	1.3
Others	1.6
ITERA	1.2
Novatek	5.5
PSA operators	2.6
Total	63.4

Source: Eastern Bloc Energy

Region	Bcf/d
Siberia	59.6
Tyumen	55.9
Yamalo-Nenets	52.4
Khanti-Mansiisk	3.5
Tomsk	0.4
Krasnoyarsk	0.2
Irkuts	0.2
Yakutsk	0.2
Sakhalin	2.7
Urals Volga	3.3
Orenburg	1.5
Astrakhan	1.1
Others	0.7
Komi Republic	0.3
North Caucasus	0.1
Total	63.4

Source: Eastern Bloc Energy

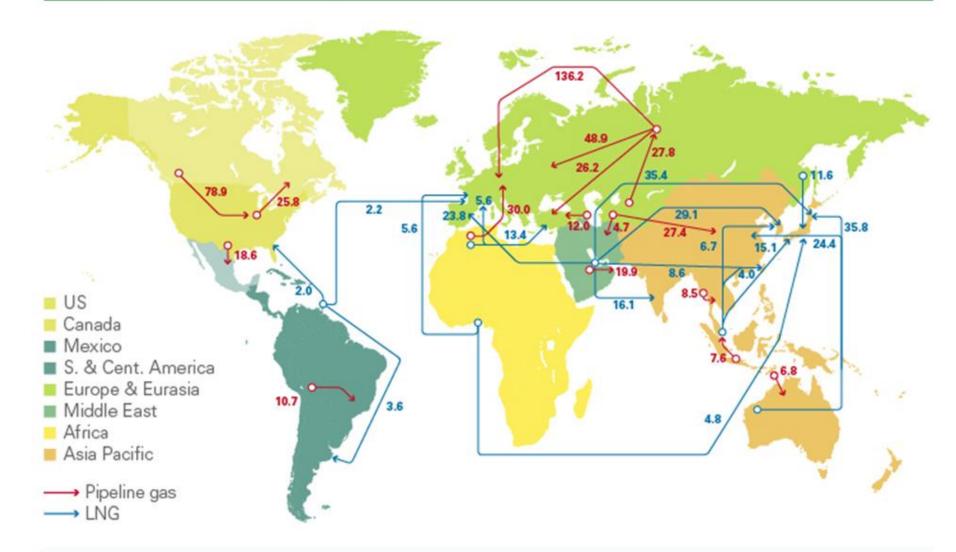
Liquefaction Plants

On-Stream	Under Construction	Planned
Sakhalin LNG Plant	Yamal LNG Plant	Shtokman LNG Plant
		Vladivostok LNG Plant

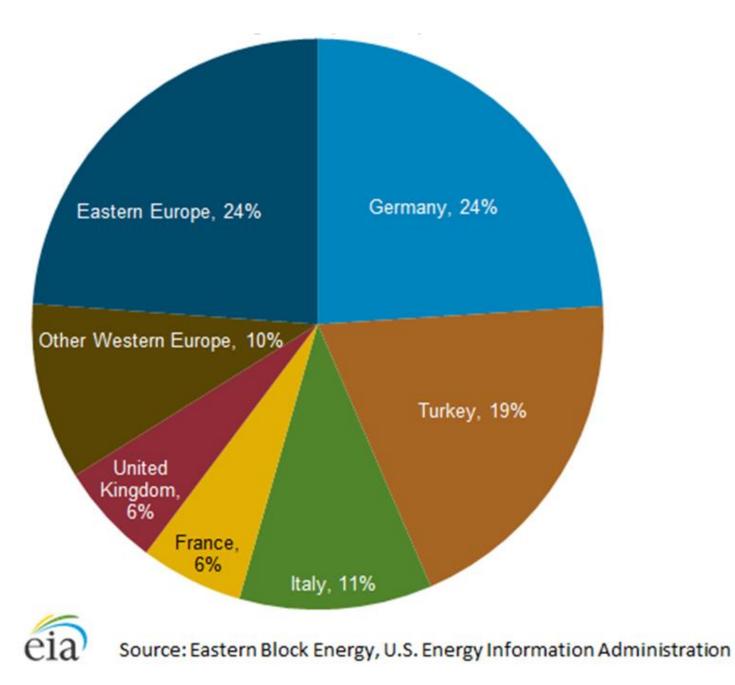
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Trade flows worldwide (billion cubic metres)

Natural Gas Major Trade Movements, 2013



Source: Includes data from Cedigaz, CISStat, FGE MENAgas service, IHS CERA, PIRA Energy Group. BP Statistical Review of World Energy 2014 © 2014 BP p.l.c. Share of Russia's Natural Gas Exports by Destination





Global LNG Demand vs. Contracted LNG Supply



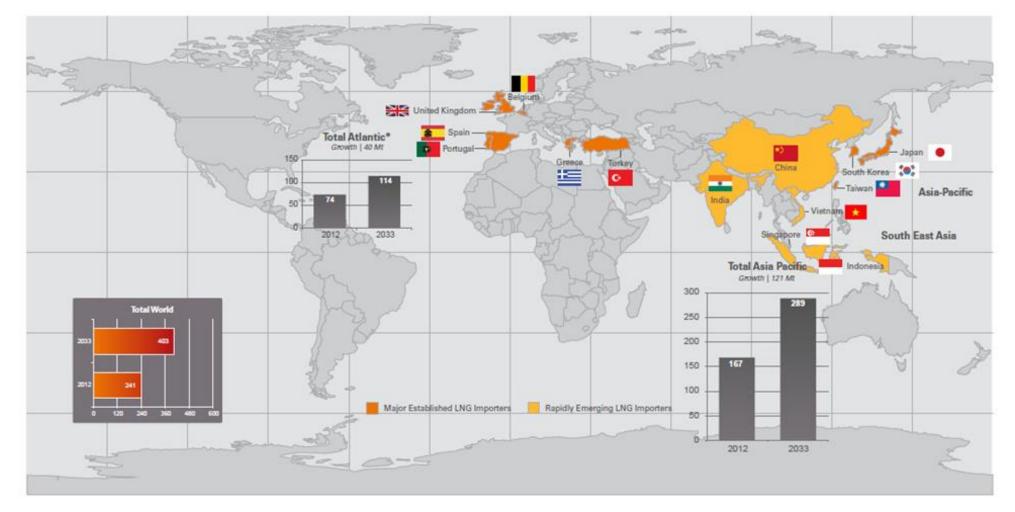
Global LNG Demand

Historic Europe Middle East North America Asia Pacific South America

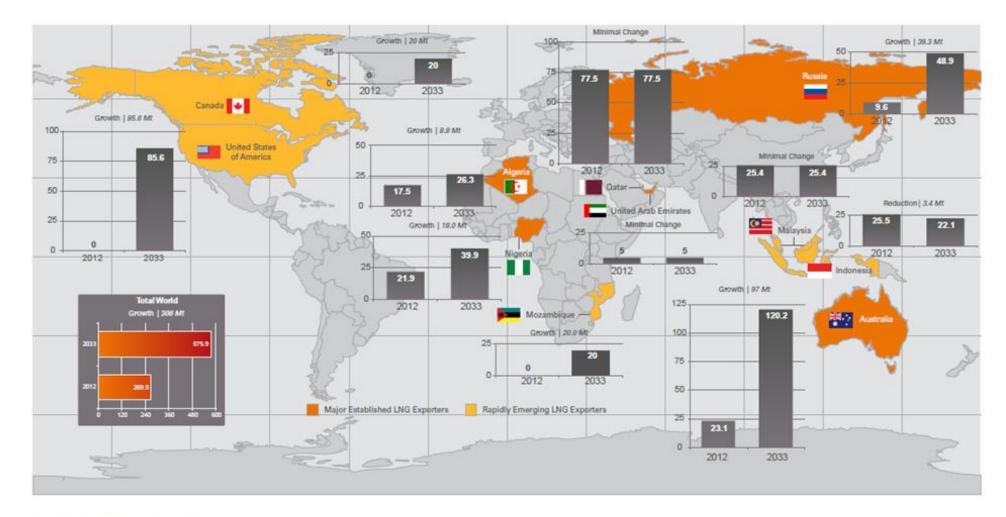
Global LNG Demand (Reference Scenario) | Mt

Source: History - BP Statistical Review of World Energy; Projections - Core Energy Group.

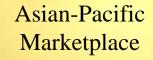
Role of Major LNG Importers

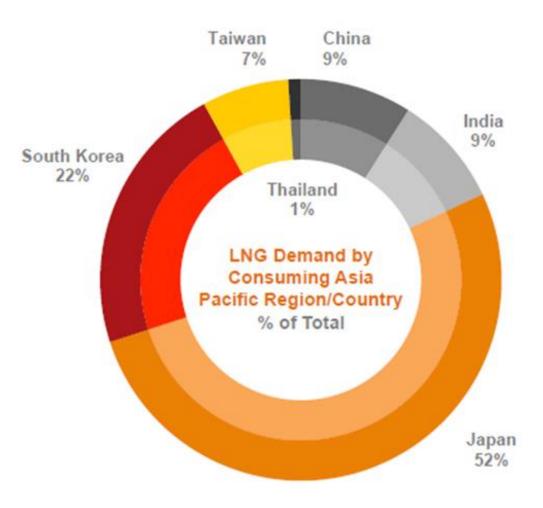


Source: Core Energy Group; 2013. Note: The statistics refer to total demand in Core's GLobal LNG Reference Scenario. *Includes Middle East. Major LNG Liquefaction Capacity



Source: Core Energy Group; 2013.





Source: Core Energy Group; BP Statistical Review of World Energy 2013.

"Russia Pays High Price for Export Price," Petroleum Hartley, P.H. and K.B. Medlock III, "The Baker Economist LNG, 25 September 2012.

"Global and Russian Energy Outlook up to 2040," with A. Makarov, ERI RAS, Moscow, 2013.

Tatiana Mitrova, "Russian LNG: The Long Road to Export," Russia/NIS Center, 2013.

David W. Montgomery & Sugandha Tuladhar, **Macroeconomic Impacts of LNG Exports from the United States, NERA Economic Consulting (2013).**

Matt Zahynac, Prospects for Exporting Liquefied Natural Gas from British Columbia: An Application of Monte Carlo Cost-Benefit Analysis (University of Victoria Department of Economics, Working Paper **2013-03**) available at

https://web.uvic.ca/~repa/publications/REPA%20work http://www.aemo.com.au/Gas/Planning/Gasing%20papers/WorkingPaper2013-03.pdf

Institute World Gas Trade Model," in Natural Gas and Geopolitics From 1970 to 2040, edited by Amy Jaffe, **David Victor and Mark Hayes, Cambridge University Press (2006).**

BP Energy Outlook 2030, Russia Insights, available at, http://www.bp.com/en/global/corporate/aboutbp/energy-economics/energy-outlook/country-andregional-insights/russia-insights.html

International Energy Outlook 2013, Natural Gas, available at http://www.eia.gov/forecasts/ieo/nat_gas.cfm

Core Energy Group, Projections of Gas Demand for LNG Export from Eastern and South Eastern Australia, available at

Statement-of-Opportunities/GSOO-2013-LNG-**Projections (July 2013)**