

The Progress and Potential of Russian gas exports to the Asia-Pacific Region

BIEE Gas Seminar: The Geopolitics of Russian Gas – how will events of the last year affect European & Global gas markets?

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Key drivers

- ◆ Gazprom's 2007 Eastern Programme serves a geostrategic purpose for the Russian Government that commits the company to massive investments, but with questionable financial gains.
- ◆ Gazprom wants to diversify into Asia to find new markets in the face of competition and complications in Europe (Novatek and Rosneft want to grow their gas business through LNG exports).
- ◆ The December 2013 'Liberalisation' of Russian LNG exports set the stage for competition between Gazprom and Rosneft to develop new LNG export capacity in the Russian Far East.
- ◆ The May 2014 Gas 30-year \$400 billion deal between Gazprom and CNCP for 38 bcm of natural gas exports via the 'Power of Siberia' provides the basis for the Eastern Gas Programme (no inter-governmental agreement yet).

Key gas targets for East Siberia and RFE in Russian Energy Strategy to 2030

	2008 (Actual)	Phase 1 (2008-12)	Phase 2 (2012-20)	Phase 3 (2020-30)
<i>The share of East Siberia & RFE in total gas production, % & (bcm)</i>	2% (11.3)	7-8% (43-53)	12-14% (91-122)	15% (130-152 bcm)
<i>Eastern gas exports (bcm)</i>	-	24-36	55	70-75
<i>Share of APR region in total gas exports, %</i>	-	11-12	16-17	19-20 (31.5% by 2035)
<i>Share of LNG in export structure, %</i>	-	4-5	10-11	14-15

Sources: Ministry of Energy RF (2009) *Energeticheskaya Strategiya Rossii na period do 2030* (Energy Strategy of Russia to 2030), Moscow: Ministerstvo Energetiki Rossiyskoye Federatsii, p.141 and Tabata, S. and Liu, L. (2012) 'Russia's energy policy in the Far East and East Siberia' in Alto, P. ed. *Russia's Energy Policies: National, Interregional and Global Levels*. Cheltenham: Edward Elgar, pp. 156-181.

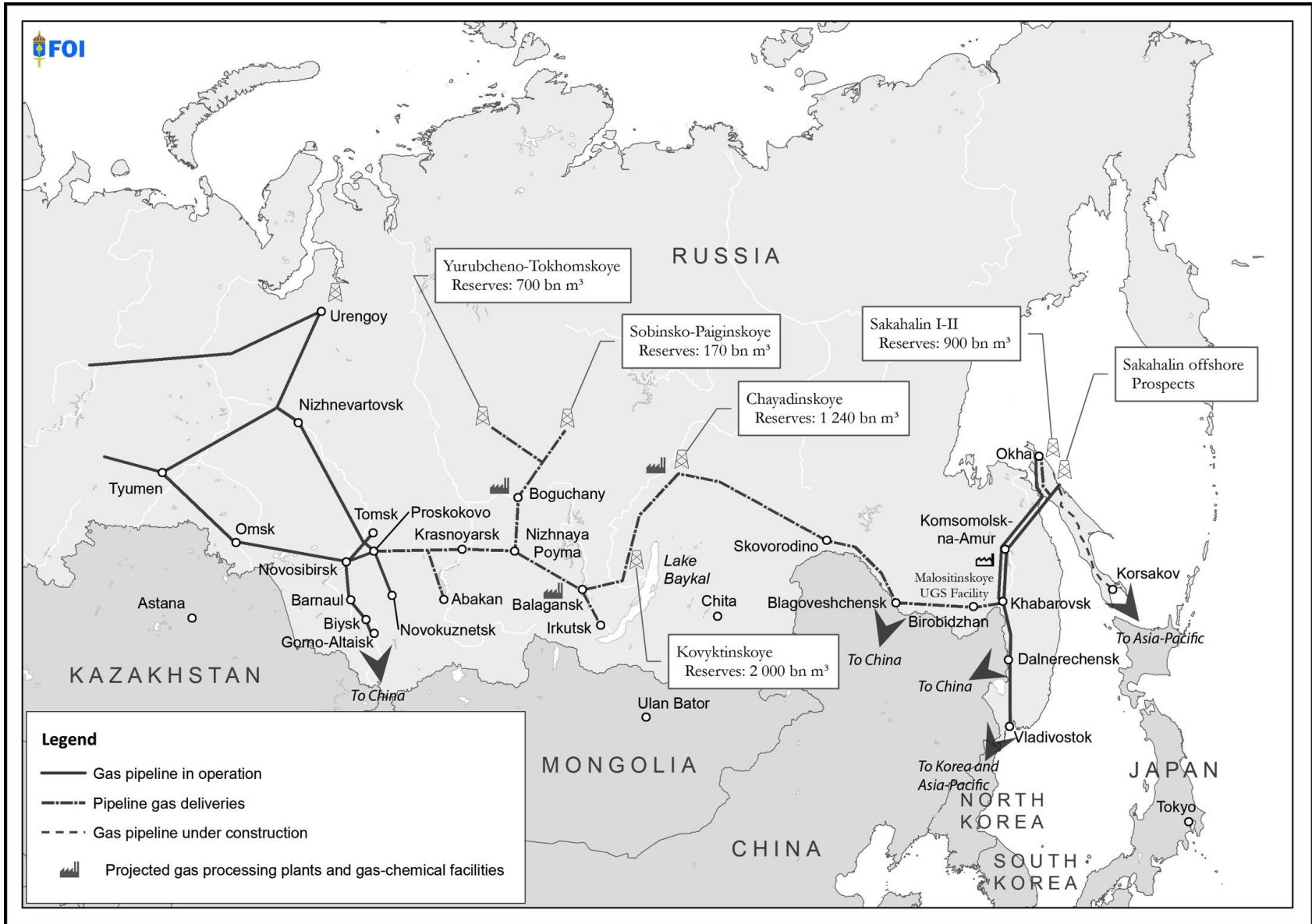
Основные Положения Проекта Энергетической Стратегии России На Период До 2035 Года

In late January 2014 the Russian Federation Ministry of Energy published a draft Energy Strategy to 2035, the full document is expected autumn 2014. The strategy reinforces the eastward drive in the previous strategy, discussed above, to diversify Russia's oil and gas exports away from Europe towards Asia:

- ◆ To increase oil and oil products from 12% now to 23% by 2035 (including 32% of crude oil exports), and to increase gas exports from 6% (Sakhalin-2 LNG=10.8 mtpa) now to 31.5% by 2035.
- ◆ The volume of LNG exports to rise to 30 mtpa by 2020 and to 100 mtpa by 2035.

Source: <http://minenergo.gov.ru/documents/razrabotka/17481.html>

Gazprom's 2007 Eastern Programme



The Sakhalin Projects



Source: Gazprom

Producing Projects



Sakhalin 1: Exxon Neftegas Ltd. 30%, SODECO (Japan) 30%, ONGC (India) 20% & Rosneft & SMNG 20%



Sakhalin 2: Gazprom 50% + 1 share, Shell 27.5% (UK-Netherlands), Mitsui 12.5% and Mitsubishi 10% (both Japan)

Developing Projects

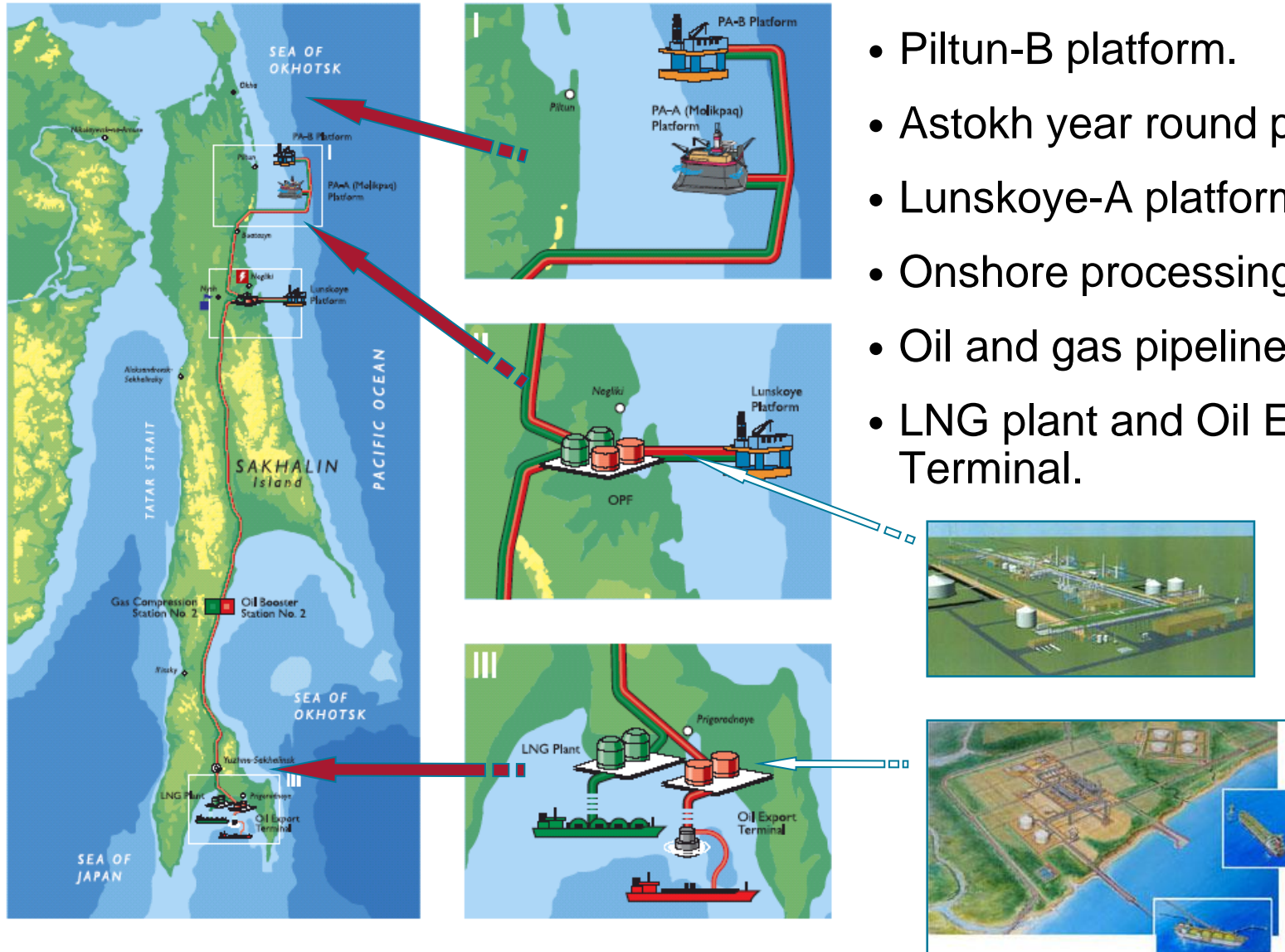
Sakhalin 3: Veninsky- Rosneft 74.9% & SINOPEC 25.1% (China)

Sakhalin 3: Gazprom

- Kirinskoye GCF-Gazprom—production started October 2013—eventually will produce 5.5 bcma.
- South Kirikinsky (2018-15 bcma),
- Ayashkiy & East Odoptinskiy

Sakhalin 4 & 5: Rosneft

Sakhalin 2: Phase 2 development



- Piltun-B platform.
- Astokh year round production.
- Lunskeye-A platform.
- Onshore processing facility.
- Oil and gas pipelines.
- LNG plant and Oil Export Terminal.

Slide copyright: Sakhalin Energy Investment Company Ltd.

Prigorodnoye: Russia's First LNG Plant



Source: author

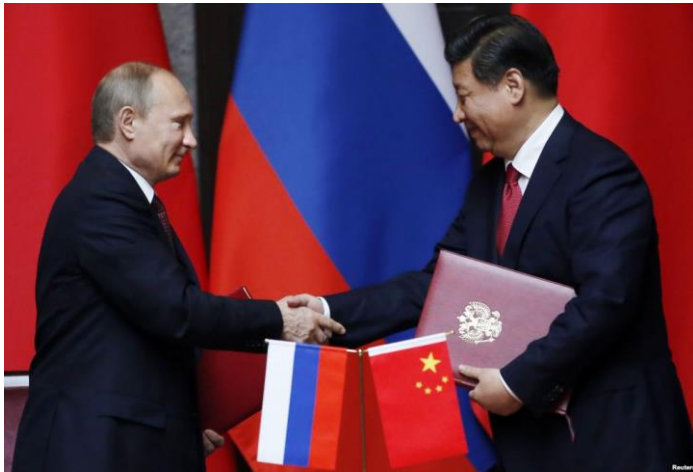
Sakhalin-2 LNG Exports 2009-2013

(Thousand Tonnes of LNG per annum)

	2009	2010	2011	2012	2013	2013 %
<i>Japan</i>	2,884	6,127	7,416	8,317	8,4	81.63
<i>South Korea</i>	1,097	3,034	2,742	2,191	1,8	17.77
<i>China</i>	260	326	256	392		
<i>India</i>	519	--	--	--		
<i>Taiwan</i>	187	449	181	--	70	0.06
<i>Kuwait</i>	324	65	--	--		
<i>Thailand</i>	--	--	64	--		
Total	5,271	10,000	10,670	10,900	10,770	100

Source: Sakhalin Energy Investment Company (Various Years) *Sustainable Development Reports*. Yuzhno-Sakhalinsk: SEIC.

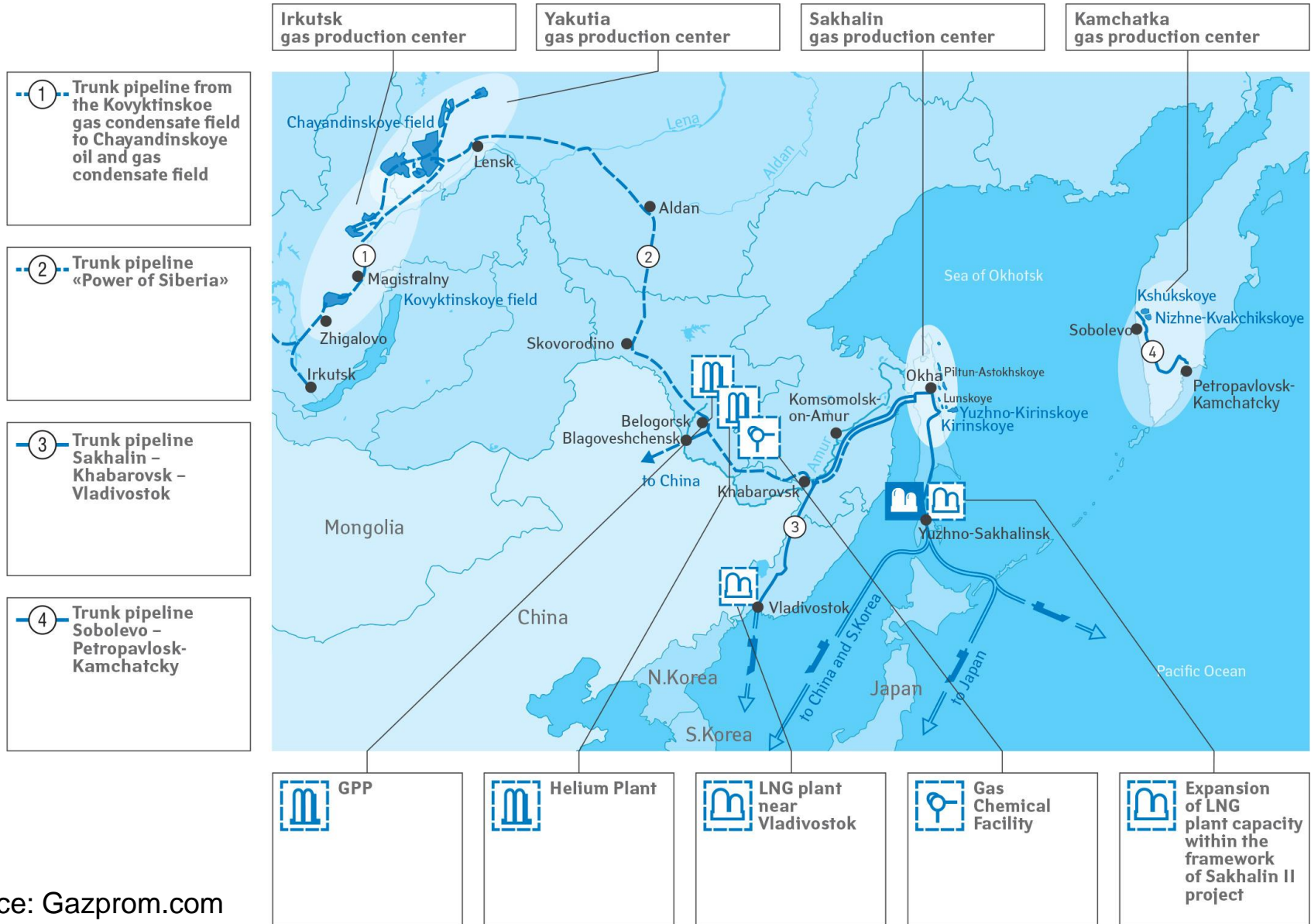
Russia-China Gas Deal



- ◆ May 21st 2014 Gazprom and CNCP sign a 30-year gas supply agreement, worth \$400 billion.
- ◆ Deliveries will start in 2019 and over five years ramp up to 38 bcma (C. Asia = 65 bcma).
- ◆ Two fields will be developed: Chayandinskoye (Sakha-Yakutia) and Kovytinskoye (Irkutsk).
- ◆ By late 2018 the 'Power of Siberia' pipeline will be built to connect the Chayandinskoye field to a spur to China at Blagoveshchensk (2,200 km) and then on to Vladivostok on the Pacific Coast (a further 1,800 km).
- ◆ The cost of developing the two fields, plus processing facilities and building the pipeline is thought to be in the region of \$55 billion (China providing a \$25 billion loan).
- ◆ Details on price are not public, but estimates suggest \$10-11 mmbtu or \$350-380 mcm, plus the Russian Government has provided a tax break (MET), providing a modest return for Gazprom.



Gazprom's 2014 Eastern Programme

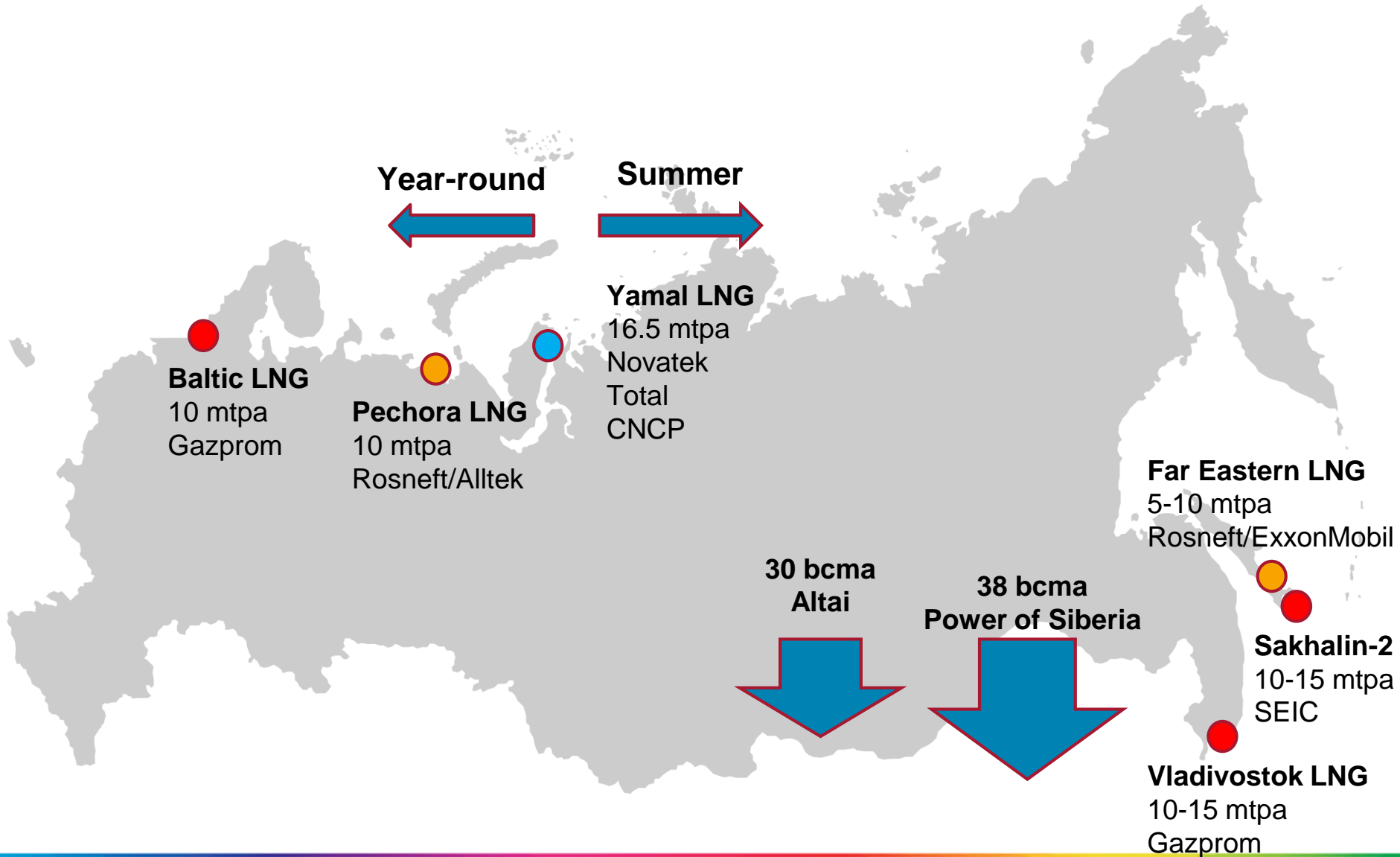


Source: Gazprom.com

Liberalisation of Russian LNG Exports

- ◆ Ahead of changes in Russian legislation, both Novatek and Rosneft were moving forward with export projects (Yamal LNG and Sakhalin-1—Far Eastern LNG).
- ◆ At the St Petersburg Economic Forum in June 2013 President Putin indicated a willingness to break Gazprom's monopoly over gas exports in relation to LNG.
- ◆ 1 December the Russian Parliament approved legislation to allow both Novatek and Rosneft to export LNG (Gazprom's pipeline monopoly remains in place).
- ◆ Rosneft is now taking legal action against Gazprom to gain third party access to the Trans-Sakhalin pipeline to supply its Far Eastern LNG project, and is also lobbying for third party access to the 'Power of Siberia' pipeline, when it is built.

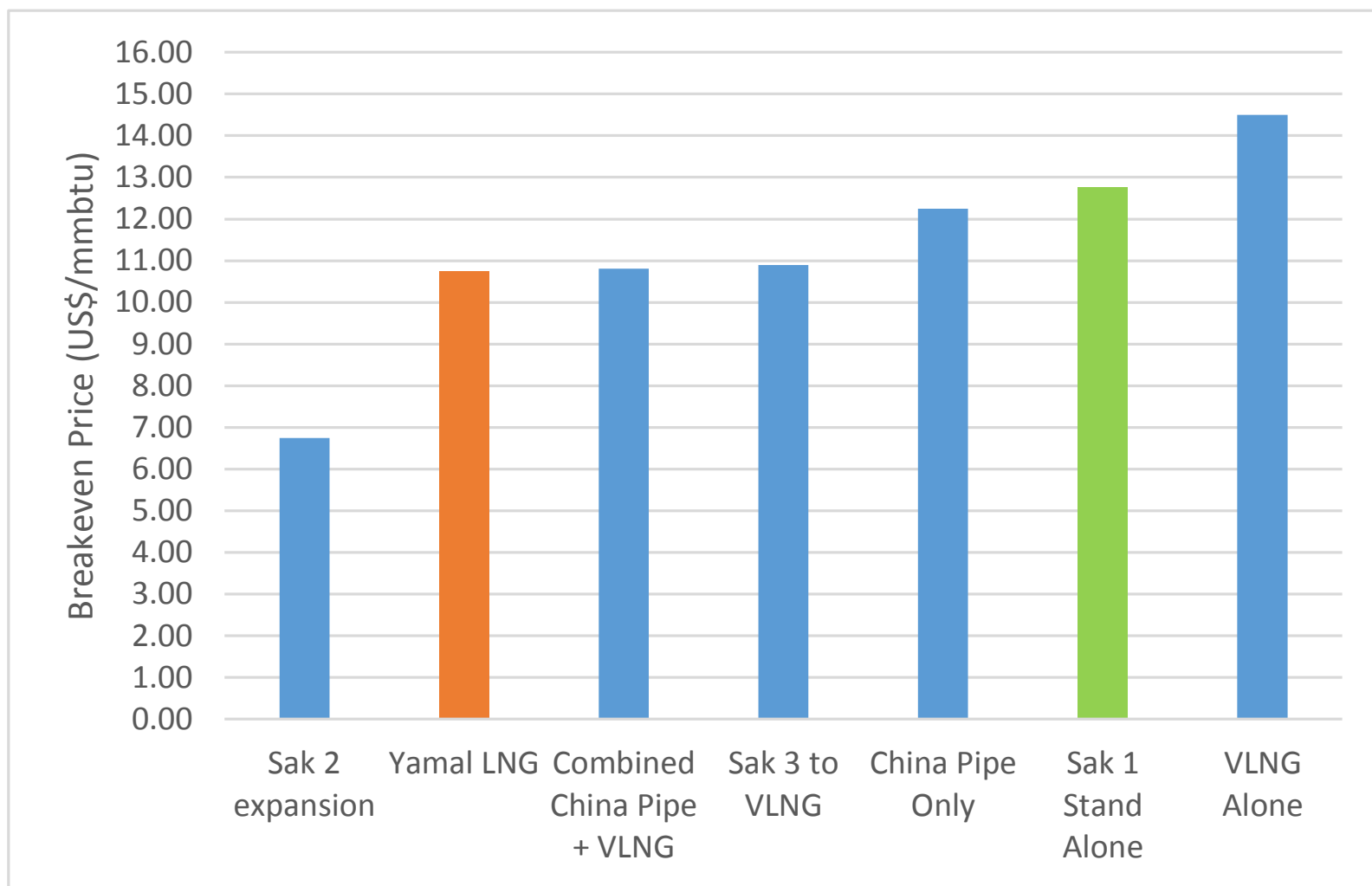
Russian LNG Projects



Potential Russian LNG Exports to Asia

	Sakhalin-2 Expansion	Sakhalin-1 LNG	Vladivostok LNG	Yamal LNG
Location	Prigorodnoye, Aniva Bay, Sakhalin	<i>Ilyinsky, Southwest Sakhalin</i>	<i>Lomonosov Peninsula, south of Valdivostok</i>	<i>Sabetta, Yamal Peninsula, West Siberia</i>
Capacity	<i>Additional 5 mtpa</i>	<i>5-10 mtpa (2 x 5mtpa)</i>	<i>15 mtpa (3 x 5mtpa)</i>	<i>16.5 mtpa (3 x 5.5 mtpa)</i>
Cost	<i>\$5-7 billion</i>	<i>\$13 billion</i>	<i>\$ 13.5 billion</i>	<i>\$27 billion</i>
First Exports	<i>2019-20</i>	<i>2019-20</i>	<i>2018</i>	<i>2017</i>
Lead companies	<i>Sakhalin Energy (Gazprom, Shell, Mitsui and Mitsubishi)</i>	<i>Rosneft & ExxonMobil</i>	<i>Gazprom</i>	<i>Novatek (51%), Total (20% France), CNCP (China 20%), TBC (9%)</i>
Source gas	<i>Sakhalin 2 & Sakhalin 3</i>	<i>Sakhalin 1</i>	<i>Sakhalin 3, Chayanda and Kovytko</i>	<i>South-Tambeyskoye</i>

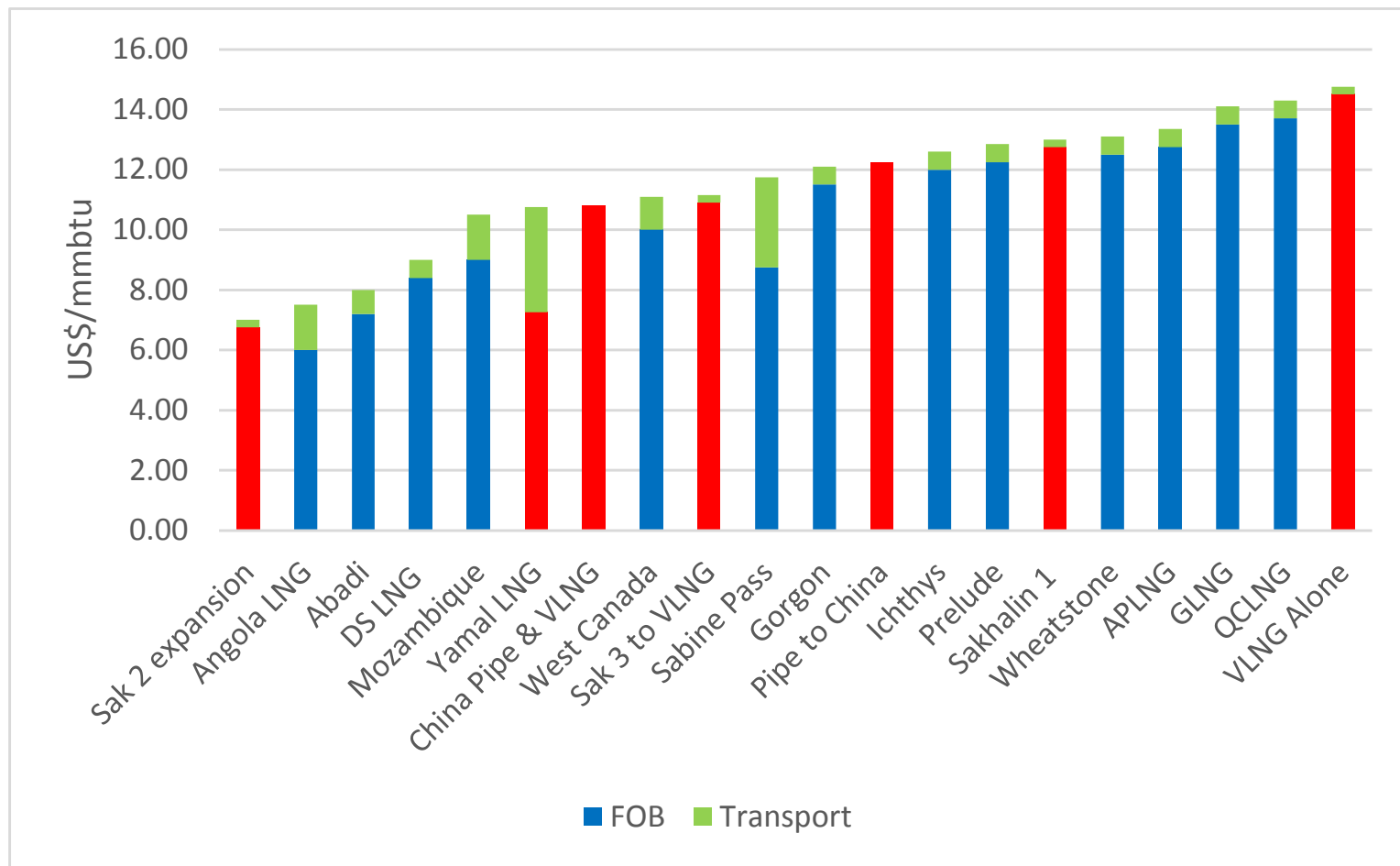
Comparative cost of Eastern Russian gas supply



Source: Henderson (2014) 'Russian Exports to Asia and LNG,' BIEE Conference, Oxford, September.

Can Russian LNG Compete in Asia?

Comparative cost of supply to Asia



Source: Henderson (2014) 'Russian Exports to Asia and LNG,' BIEE Conference, Oxford, September.

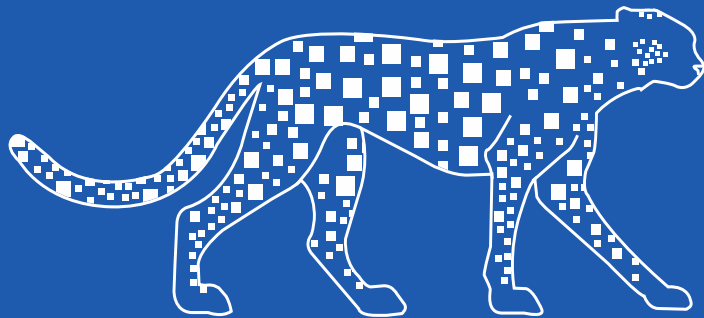
Key issues going forward

- ◆ The Russia-China gas deal will underwrite the expansion of gas exports to Asia, but the liberalisation of LNG has sparked competition between Rosneft and Gazprom.
- ◆ Rosneft aims to build a gas business aimed at Asia, but needs access to Gazprom's pipelines on Sakhalin and the mainland.
- ◆ Gazprom does not have access to enough gas on Sakhalin soon enough to meet local demand on the Island and the mainland, to feed Sakhalin-2 expansion and the first stage of VLNG.
- ◆ Gazprom is already in negotiations for a second pipeline deal with China that would bring 30 bcma of gas from West Siberia.
- ◆ Gazprom has recently hinted that if the second deal was done it might shelve the Vladivostok LNG project. This would mean Sakhalin-3 gas would initially meet local demand and the expansion of the Sakhalin-2 LNG plant and then even a pipeline to China or Japan?
- ◆ Where does this leave Rosneft—pipeline access is the key.

Conclusions

- ◆ Russia's expansion of energy exports to Asia has both a commercial and a geostrategic logic and it is important to balance both economic and non-economic drivers.
- ◆ The recent gas deal between Russia and China will underwrite Gazprom's Eastern Gas Programme.
- ◆ Gazprom suggests that there is the potential for Russian pipeline exports to China to grow to 60-100 bcm by early next decade (Gazprom's pipeline exports to Europe were 130 bcm in 2013).
- ◆ The prospects for the expansion of LNG exports from the Russian Far East are far less certain-Yamal LNG and expansion of Sakhalin-2 LNG can deliver an additional 10 mtpa+ by 2020 (and Yamal LNG and an expanded Sakhalin-2 plant gets to the over 30 mtpa target by 2020); but the status of Gazprom's VLNG and Rosneft's FELNG remain unclear.
- ◆ The development of Russian pipeline gas exports to China is of global significance as it will impact upon China's appetite for increased LNG imports and may set a benchmark price for gas to China (\$12 mmbtu).

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