

Department of Geography



Russia's Eastern Gas Strategy

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THE UNIVERSITY OF THE YEAR 2008/9

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Plan

- Introduction
- What the Eastern Programme?
- Why was it conceived?
- How will it be implemented?
- Conclusions

What is Gazprom's Eastern Programme?



Source: http://www.gazprom.com/production/projects/east-program/

Gazprom's Eastern Strategy

A September 2007 Order by the Russian Federation Industry and Energy Ministry approved the state-run Development Program for an integrated gas production, transportation and supply system in Eastern Siberia and the Far East, taking into account potential gas exports to China and other Asia-Pacific countries (Eastern Gas Program). Gazprom was appointed by the Russian Federation Government as the Program execution coordinator.

The primary development principles (according to Gazprom):

•Giving priority to meeting gas demand of Russian consumers and maintaining sustainable gas supply throughout Russia by expanding the Unified Gas Supply System (UGSS) eastwards;

 Shaping a natural gas market based on prices formed with the account of competition between various fuels without direct administrative pricing regulation by the state;

Implementing an export policy based on a single gas exporter.

Sakhalin Island was identified as an initial site for full-scale commercial development.

Resource Base

- Sobinskoye Field (Krasnoyarsk Krai) Gazprom is looking to establish gas processing and gas chemical facilities.
- Chikanskoye Field (Irkutsk Oblast) Pilot commercial production began in 2008, engineering underway on a pipeline to Sayansk, Angarsk and Irkutsk.
- Chayanda Field (Republic of Sakha (Yakutia) geological exploration is in progress, plan to construct the Yakutia-Khabarovsk-Vladivostok pipeline.
- Kamchatka Fields (Kamchatka Oblast) initial development of the Kshukskoye and Nizhne-Kvakchikskoye field and the completion of the 392 km Sobolevo-Petropavlovsk-Kamchatsky gas pipeline (commissioned late September 2010)—local gasification.
- Sakhalin Fields (Sakhalin Oblast) -Sakhalin II—9.6 mtpa LNG export terminal, plus programme for the gasification of Sakhalin Oblast. Sakhalin III current exploration activity is focused on the Kirinsky block with production schedule for 2014. Also has exploration licenses for Vostochno-Odoptinsky and Ayashsky blocks. Gazprom also wishes to obtain gas from the Exxon Mobil led Sakhalin I project.
- Kovyktinskoye Field (Irkustk Oblast) Currently being developed by RUSIA Petroleum (62.7% owned by TNK-BP). Agreement announced in June 2007 to sell to Gazprom for \$ 700- \$ 900 million, but no final agreement has been reached—reported June 2010 that TNK-BP had prompted RUSIA Petroleum to file for bankruptcy in an attempt to recoup its investment.

Sakhalin-Khabarovsk-Vladivostok (SKV) Pipeline





Initial decision in April 2006, design work started in 2008 and the first joint was welded on 31st July 2009. The completed pipeline will be 1,830 km (1,140 miles) long (\$21-24 billion). Aim to deliver natural gas to Vladivostok in time for the 2012 APEC Summit—operational by third-quarter of 2011. By August 2010 some 750 km of gas pipeline had been welded, trenched and buried. The initial capacity will be 8 bcm, later it will be expanded to 30-36.5 bcm. Longer term plans include an LNG plant in the Vladivostok region and an export pipeline to China.

To summarise...

- The Eastern Gas Strategy is a state-sponsored integrated development programme initiated in 2007-- estimated cost \$ 70-80 billion in 2007 (Gromov 2010).
- Gazprom has been given a monopoly over its implementation <u>and</u> the export of natural gas to Asia-Pacific.
- The gasification of key economic centres in East Siberia and the Far East is an essential component of the programme—link to regional development programme.
- While the emphasis is on the export of pipeline gas and LNG, there is also a clear desire to develop gas processing and gas chemical industries in Pacific Russia to increase the level of value-added in Russia's exports.

Why?

- To diversify Russian energy exports by developing new markets in the Asia-Pacific Region (APR) to provide a new revenue stream.
- To diversify Russian exports from East Siberia and the Russian Far East by developing processing industries—long-standing regional development goal.
- To ensure the 'effective occupation' of Pacific Russia by providing domestic energy security, employment and export revenues.
- To increase Russia's economic weight in the Asia-Pacific region.

International Gas Trade in 2009



Source: BP (2010)

Role of Natural Gas in the Global Energy Mix: 2009



Natural Gas Consumption 1970-2009 (BCM)



--- North America ---- S. & Cent. America --- Europe & Eurasia --- Middle East ----- Africa --- Asia Pacific

Energy Mix in Major APR Economies in 2009



Source: BP (2010)

IEA: Demand for Natural Gas to 2030 (BCM)

Ref Case	2007	2020	2030	2007-2030*
US	655	635	649	-0.0%
EU	526	564	619	+0.7%
Japan	100	103	111	+0.4%
China	73	176	242	+5.3%
India	39	94	132	+5.4

450 Scenario	2007	2020	2030	2007-2030*
US	655	629	626	-0.2%
EU	526	523	509	-0.1%
Japan	100	92	98	-0.1%
China	73	163	198	+4.4%
India	39	89	132	+5.5%

* Compound average annual growth rate

Source: IEA 2009, 366 & 373

Main drivers and issues

- IEA and EIA projections see the APR as the major source of future energy (and gas) demand growth.
- There will be stiff competition for gas markets in APR, competition with Central Asia for pipeline gas to China, in LNG there is a market opening 2015-18 in Japan, but timing will be critical.
- There is uncertainty over future gas demand in the EU and in the US.
- There is uncertainty over the scale of future domestic gas production in India and China—both conventional and unconventional.
- Many gas exporting and reserve holding countries are experiencing rapid growth in domestic energy demand, which is reducing their exportable surplus (Indonesia).
- Due to global recession, expansion of LNG production and unconventional gas production in the US, there is currently a glut of gas which is challenging traditional pricing and contractual mechanisms and impacting on investment decisions—quite clear that Gazprom wants long-term contracts.

Russia's plans to 2030

	2008	2015 Stage 1	2020 Stage 2	2030 Stage 3
Natural Gas Production (BCM)	13	43-53	91-122	130-52
Share of Russian Gas Production %	2	7-8	12-14	15
APR share of Russia's Gas Exports %	0	11-12	16-17	19-20
Share of LNG in total gas exports %	0	4-5	10-11	14-15

Sources: C.Itoh (2010), Gromov (2010), MinEnergo

How? (It all starts on Sakhalin)





Sakhalin-2 Project





The Sakhalin Projects



First Generation

Sakhalin 1- ExxonMobil 30%, SODECO 30%, ONGC 20% & Rosneft & SMNG 20%

Sakhalin 2- Gazprom 50% + 1 share, Shell 27.5%, Mitsui 12.5% and Mitsubishi 10% (Since 2007)

Second (Lost) Generation

Sakhalin 3 Krinskiy - Exxon Mobil 33%, Chevron-Texaco 33% & Rosneft—license withdrawn 2004

Sakhalin 3 Ayashski and East Odoptinksi-ExxonMobil & Rosneft—license withdrawn 2004

Third (next) Generation

Sakhalin 3: Veninskii- Rosneft 74.9% & SINOPEC 25.1%-- reports that SINOPEC has withdrawn

Sakhalin 3 Krinskiy-Gazprom 100% (+Ayashkiy & East Odoptinskiy)—drilling at Krinskiy in 2009-10.

Sakhalin 4 & 5: BP 49% & Rosneft-51%--project 'lull'—still exploring Kaigansko-Vasykansky block

Sakhalin 6- Urals Energy (Petrosakh)

Sakhalin - II Phase 2 development



Slide copyright: Sakhalin Energy Investment Company Ltd.

Sakhalin II LNG Sales



Contracted LNG Deliveries (mtpa)



Number of cargos delivered per country



LNG exports commenced in March 2009 Since then:

- 190 cargoes
- 12.5 million tons of LNG

Equivalent to 9% of all Russian Gas
Exports to Europe and 5% of LNG market.

 Russia now accounts for 4.4% of Japan's LNG imports.

Key Issues and Drivers

- Sakhalin II LNG production is already committed and Gazprom needs new gas supplies for the gasification of Sakhalin and the SKV pipeline.
- From 2011 the Russian Government will be taking regular royalty payments and profit production under the Sakhalin 1 & II PSAs to supply the Far Eastern Okrug and Gazprom will market this gas.
- But Gazprom has maintained that the only immediate source of the gas it needs by 2012 for the Eastern Programme is the gas phase of Sakhalin I. The Sakhalin 1 consortium led by Exxon Mobil—that includes Rosneft--is in negotiations with Gazprom over the sale of gas.
- The continuing negotiations between Russia and China envisage deliveries starting in 2015 via the 'Western Channel', which means from Sakhalin via pipeline. Final agreement is expected in mid-2011 @ 30 bcm a year.
- Gazprom is now focusing on the exploration and development of Krinskiy block (production by 2014) to provide the additional gas needed for the SKV pipeline, the possible expansion of the Prigorodnoye LNG plant and exports to China
- Development at Krinskiy is being accelerated by the use of the *Polar Star* and *Northern Lights* drillings rigs in 2011, built for the Stokhman project.
- In 2016 Sakhalin's production will be supplemented by gas from the Chayanda field in Sakha-Yakutia.

Gazprom's Eastern Programme?



Source: http://www.gazprom.com/production/projects/east-program/

Conclusions

- There is a clear economic and geostrategic logic to Russia's Eastern Gas Programme.
- It is less clear how quickly it will be implemented, what the role of foreign investors might be and how it will be financed (China 'Gas for Cash', Japan Project financing).
- Less than 5 years ago Gazprom did not control the resource base in East Siberia and the Russian Far East, today it does (with the exception of Sakhalin I) and has been given a monopoly position by the Russian state to implement the programme and develop gas exports to the APR.
- The coming 2-3 years will be critical, will the SKV be completed on time? Will Gazprom secure the gas to deliver to Vladivostok. How quickly will Sakhalin III be developed? Will a deal finally be struck with China? Will the SEIC commit to a third train at their LNG plant? Longer term, will gas from Sakha-Yakutia connect to the SKV?