Eastern Vector of Russian Oil and Gas Industry Development

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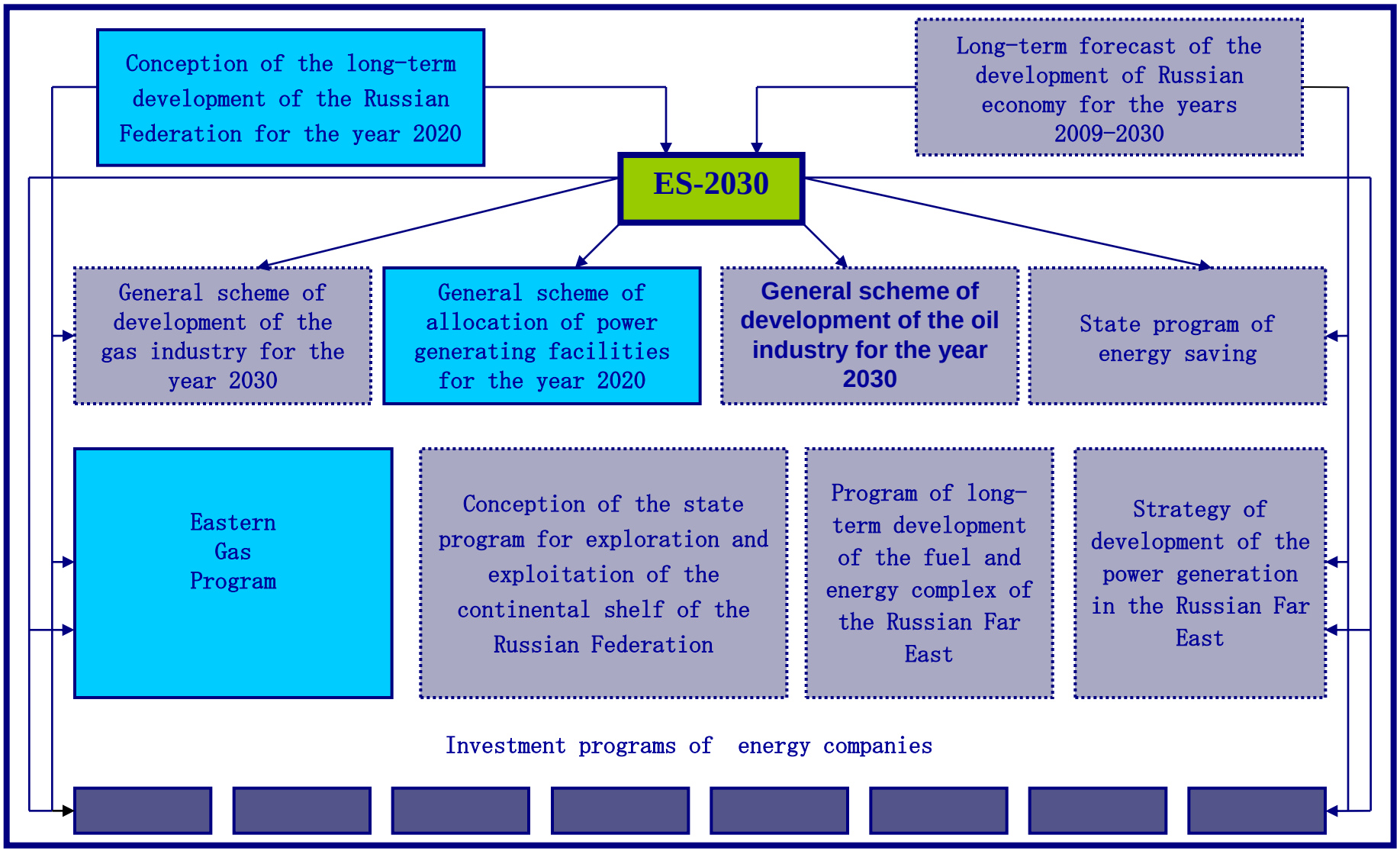
Northeast Asia Petroleum Forum 2011
October 18 - 19, 2011, Seoul, South Korea

Agenda

1. Russian Energy Strategy and Russian Eastern Regions Development
2. Russian Energy Strategy and Asia – Pacific Energy Markets
3. Oil and Gas Reserves in Eastern Siberia and Far East
4. Main Russian Oil and Gas Export Infrastructure Projects
5. Mechanisms of International Cooperation to Promote Russian Oil and Gas Export Opportunities and Regional Energy Security

Energy Strategy 2030 in the System of Documents of the Strategic Development



Russian Energy Strategy and Russian Eastern Regions Development

- Accelerated economic growth and living levels of population in Siberia and Far East
- Accelerated growth of domestic energy consumption in Siberia and Far East
- Development of oil and gas reserves in Siberia and Far East
- Development of energy infrastructure
- Growth of energy export to Asian markets

EASTERN VECTOR IN ES-2030: NEW SIDES OF “OLD” TASK

Road Map of implementation of ES-2030 : Eastern vector

task №19 «Increase in the share of the Asia-Pacific countries in the structure of the Russian energy export to 16–17%»

task №10 «Implementation of a complex of program measures for petrochemistry and gas-chemistry development in the Eastern Siberia and Far East»

task № 17 «Extended reproduction and attraction of human resources for development of new areas of the Eastern Siberia and Far East»

Key initiatives in the Russian energy sector: Eastern vector

Key initiatives in the Russian energy sector:	Eastern vector
Energy infrastructure: development and diversification	ESPO pipeline, Eastern Gas Program, petro- and gas-chemistry development
Development of oil and gas complexes in Eastern regions of Russia	Sakalin, Yakutia, Magadan, Irkutsk and Krasnoyarsk regions
Exploitation of the oil and gas potential of the Northern regions of Russia and Arctic shelf	Shelf of the East Arctic, reanimation of the Northern Sea Way
Non-fuel energy	Large-scale development of hydro energy and renewables
Energy saving	Modernization of electric power and heat supply systems in the Region

Eastern Vector of Russian Energy Strategy

Development of cooperation with Asian-Pacific countries – priority of ES-2030

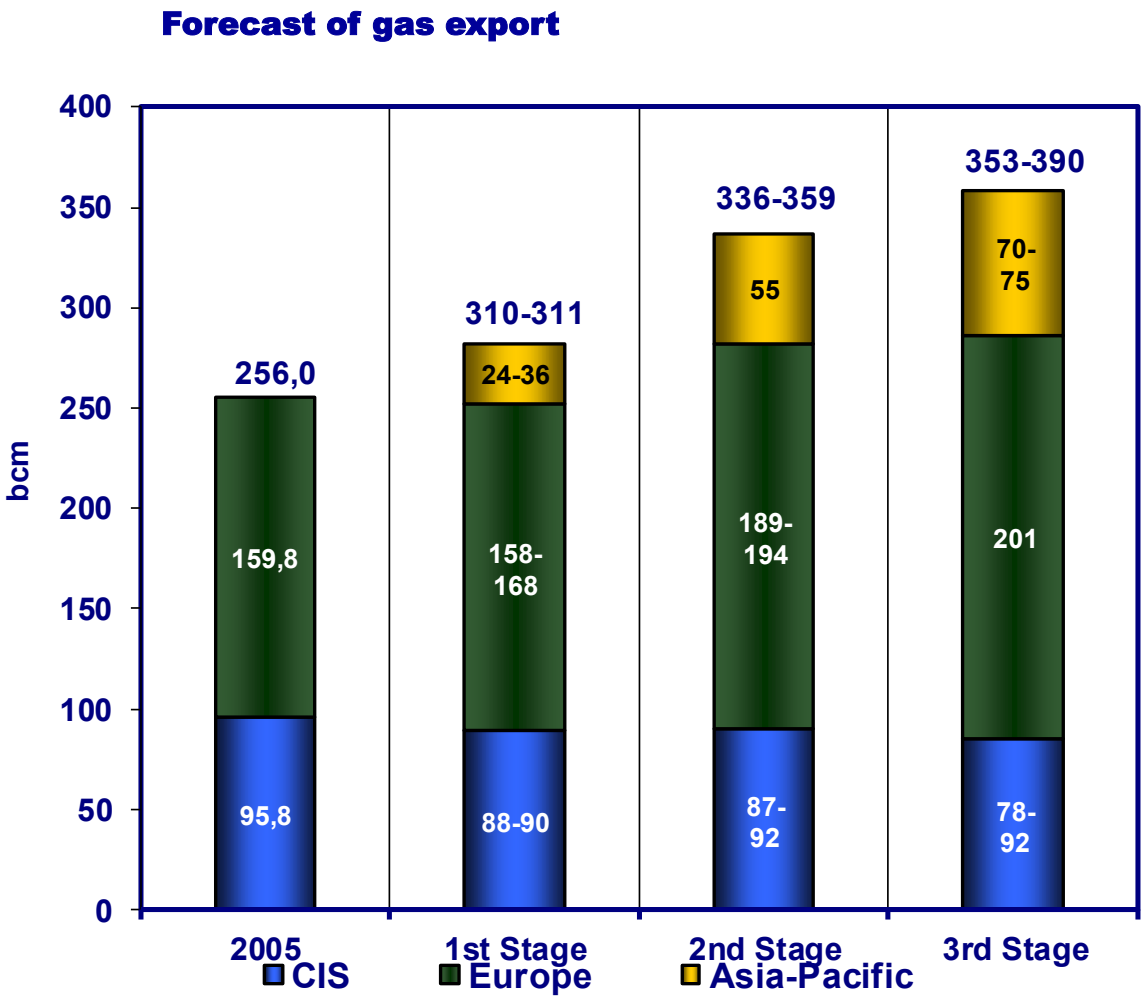
Share of Asian-Pacific countries in Russian energy export

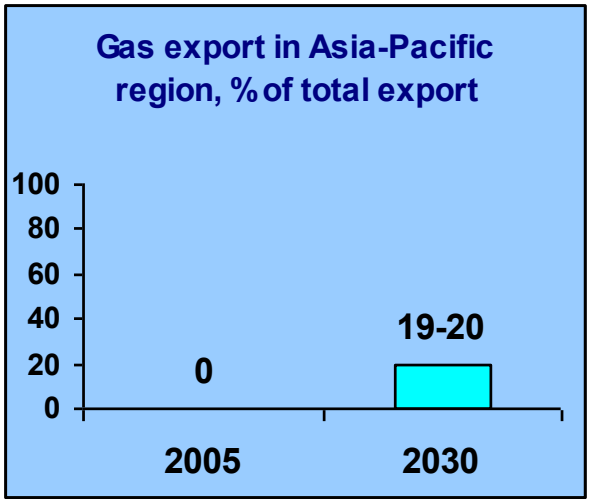
- **Oil – 22-25%**
- **Gas – 19-20%**

Development of "Eastern Vector" doesn't contradict with energy cooperation with Europe

"Eastern Vector" relies on new resource base and infrastructure in the Eastern Siberia and Far East

THE EAST IS A KEY DIRECTION OF DIVERSIFICATION OF THE RUSSIAN EXPORT





Oil and Gas Industry in Eastern Part of Russia

Measures aimed to increase efficiency and create favorable conditions for foreign investment:

1. **Creation of oil pipeline Eastern Siberia – Pacific Ocean;**
2. **Realization of Eastern Gas Program;**
3. **Exemption from export duties on oil, produced in Eastern Siberia;**
4. **Tax remissions from Mineral Extraction Tax for the initial phase of fields' exploration in Eastern Siberia and shelf of the Sea of Chukotsk.**

Energy production in the Eastern Siberia and Far East in 2030

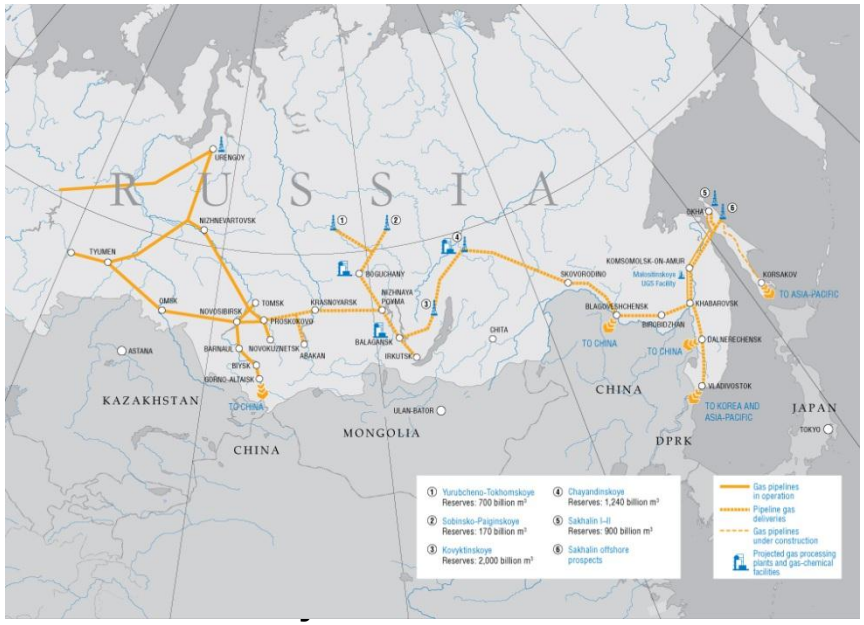
- **Oil – 100-105 mln t**
- **Gas – 130-150 bln cub. m**
- **Coal 100-115 mln t**

RESULTS OF ES-2030: CAREFUL OPTIMISM

	2008	2010	Strategic Indicator for the first stage of ES-2030 (2013-2015)
Share of Eastern Siberia and the Far East in gas production	2%	3,7%	7-8%
LNG share in gas export	0%	3,5%	4-5%
Share of the countries of the Asia-Pacific Region in the structure of gas export	0%	3,5%	11-12%

KEY GAS PROJECTS IN THE EASTERN SIBERIA AND THE FAR EAST

- **Eastern Gas Program**



- **Natural gas Export to China**

Project "Sakhalin-1"

- Natural gas and oil production from Odoptu,Arkutun Dagi and Chayvo fields;
- Japanese partner – Sakhalin Oil and Gas Development Co.;
- Project supplies oil to international markets and natural gas to the Russian Far East;
- Project's expanses are compensated, partition of production is started;
- Russia will receive over 50 bln USD over the life of the project.

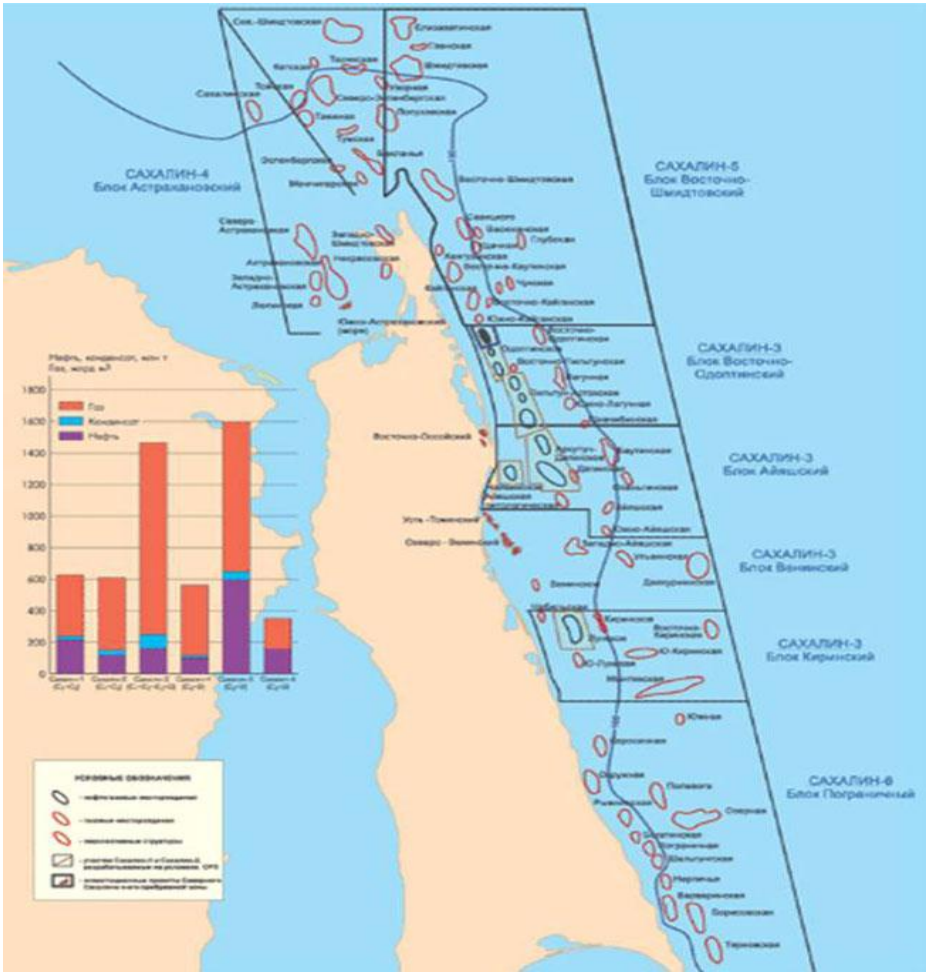
Project “Sakhalin-2”

- Natural gas and oil production from Pil’tun-Astohskoe and Lunskaya fields;
- Japanese partners – Mitsui&Co. (12,5%), Mitsubishi Corporation (10%);
- Project supplies oil and LNG to international markets (share of oil supplies to Japan – about 50%);
- On February 18th, 2009 the first LNG factory in Russia was launched;
- Over 65% of LNG produced will be delivered to Japan.

Sakhalin - 3

- Gazprom holds licenses for three blocks within the project: Kirinsky, Ayashsky and Vostochno-Odoptinsky (licenses granted in 2009 pursuant to the Russian Federation Government Directive), and for the Kirinskoye gas and condensate field (license granted in 2008 pursuant to the Russian Federation Government Directive).
- Gas reserves and resources of the Sakhalin 3 project are estimated at some 1.4 trillion cubic meters. The bulk of them are concentrated in the Kirinsky block. It will be put into operation in 2014.
- 2010 – discussion about partnerships with KOGAS
- Discussion with Japanese companies postponed because of political reasons

Sakhalin 4, 5, 6



Gas Supply to Kamchatka

Gazprom is pre-developing the **Kshukskoye** and **Nizhne-Kvakchikskoye fields** on the western coast of the Kamchatka Peninsula. The Company is also constructed the **Sobolevo – Petropavlovsk-Kamchatsky gas trunkline** in 2010.
In addition, the project stipulates construction of gas distribution networks in Petropavlovsk-Kamchatsky. The Russian Federation Government took a decision to grant Gazprom the subsurface license for the **Zapadno-Kamchatsky block**. Between 2009 and 2011 natural gas reserves are projected to increase by some 200 billion cubic meters here.

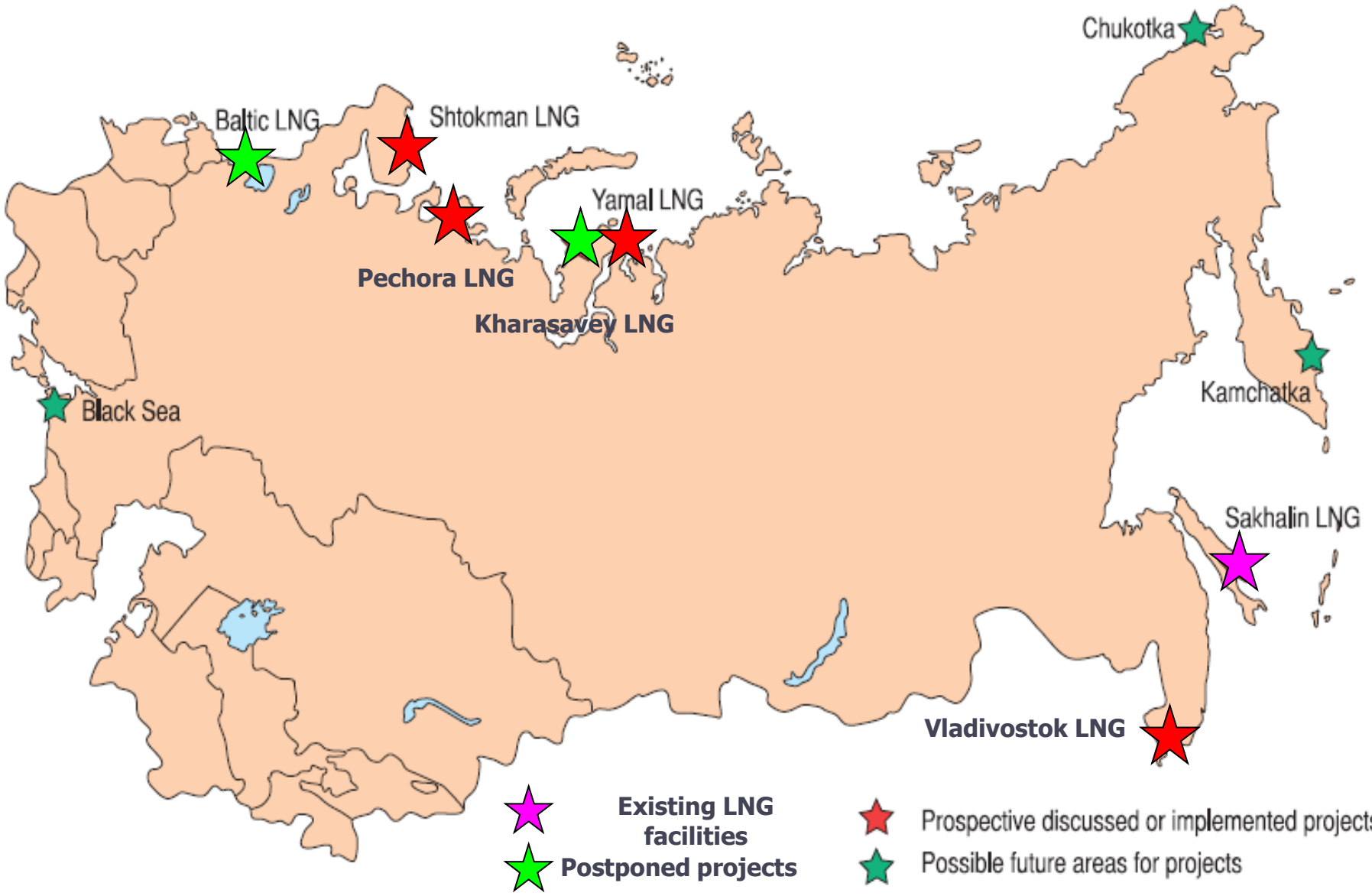
Gas Infrastructure - UGS

- By Gazprom estimation total capacity of UGS will reach 5.9 – 6.4 BCM up to 2030:
  - For Eastern Siberia - 1.9 BCM
  - For Far East – 1.5 BCM
  - For export needs – 2.5 – 3 BCM

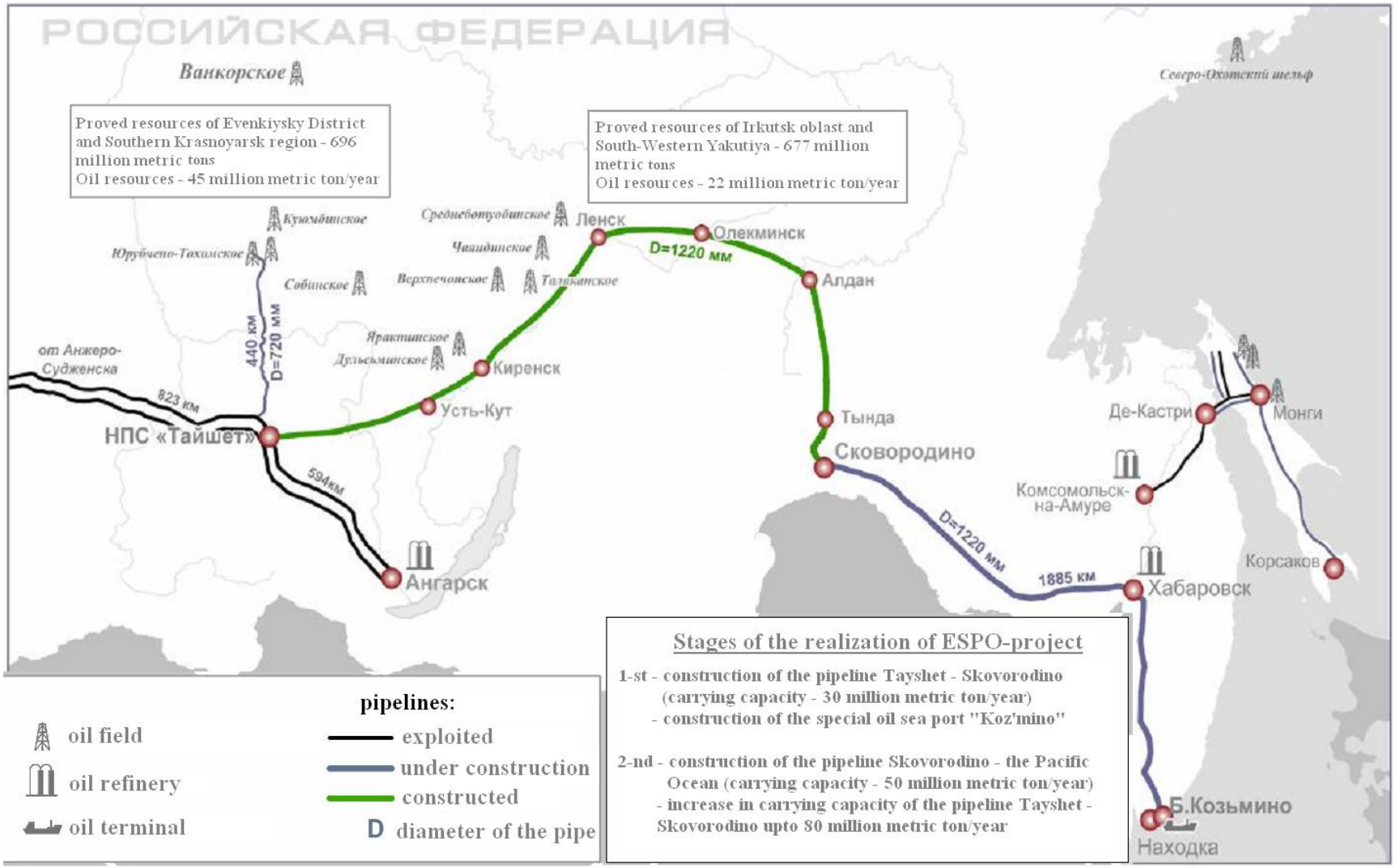
Gas Infrastructure – Gas Processing and Chemical Plants

- Khabarovsk – GPP (2016) and GCP - helium (2017)
- Sajansk – GPP (2015) and GCP - helium (2015)
- Niznaya Poyma - GPP (2015) and GCP - helium (2015)
- Vladivostok – GPP, GCP, LNG (2016)

Russian LNG Projects



Oil-trunk pipeline
Eastern Siberia – Pacific Ocean



Oil-trunk pipeline
Eastern Siberia - Pacific Ocean

- **<u>1st Stage: Construction of section Tayshet – Skovorodino</u> (30 mln t/y)**

- **2008: - over 2000 km of pipeline were constructed;**
- **- section Yust-Kut – Talakan was launched in reverse regime;**
- **- construction of special oil seaport in Koz'mino started;**

- **2009: - construction and infill of linear part of the pipeline Tayshet –**
- **Skovorodino finished;**
- **- first delivery of oil from Koz'mino was realized;**
- **- construction of branch Skovorodino – border with China started;**
- **- designing of the Second stage of the ESPO commenced;**
- **- feasibility study of construction of oil refinery and chemical plant**
- **"Vostochniy" in the terminus of ESPO was in progress.**
- **2011 – January 1 – start of oil deliveries to China 15 mln.t per year (9 mln.t by Rosneft, 6 mln.t by Transneft)**

- **<u>2nd Stage: Construction of section Skovorodino – Pacific Ocean</u>**
- **- construction of section Skovorodino – Pacific Ocean with**
- **carrying capacity 50 mln t/year;**
- **- expansion of section Tayshet – Skovorodino to carrying capacity**
- **80 mln t/year.**

Forecasts of Oil and Gas Export from Russia to Asia - Pacific

	2015	2020	2025	2030
Natural Gas, BCM	30 - 35	55-60	70-80	70-80
Crude Oil, Mln.t	30-35	40-45	55-65	55-75

Fukushima shock

- 30% of oil refineries stopped
- 8 GW of coal and 12 GW of nuclear generation affected
- Japanese LNG import increase by 13-30% in the coming years is inevitable.
- Energy policies of many countries regarding nuclear under review (especially in EU). Environmental security becoming more broader issue than CO2 emission.
- Meeting “450” target without CCS (before 2030) and Nuclear Renaissance seems to be an unsolvable intellectual task.
- Increasing call on renewables and gas

Russian Reaction on Disaster

- Quick increase of short – term LNG supply
- Proposal on European – Asian pipe and LNG supply exchange
- Invitation to invest in oil and gas deposits
- Acceleration of oil and gas deposits development

Legal Frames for International Cooperation between Russia and North-East Asia

Russia-Japan:

- **«Main directions of the long-term partnership between the Government of the Russian Federation and the Government of Japan in the sphere of energy industry»**
- **«Subjects of partnerships in particular spheres of the energy industry»**

Russia-China:

- **«Intergovernmental agreement of cooperation in oil industry»**
- **«Intergovernmental Program of cooperation in energy sphere for the year 2020»**
- **China – Russia Energy Dialog**

Russia – Republic of Korea:

- **«Intergovernmental agreement of cooperation in the sphere of peaceful utilization of nuclear energy»**
- **«Intergovernmental agreement of cooperation in gas industry"**
- **Agreements discussed in 2010**

Legal Frameworks for Multilateral Energy Cooperation between Russia and NEA countries

- Shanghai Cooperation Organization
- APEC – Vladivostok 2012
- NEA Energy cooperation ?

General aspects of regional energy cooperation

- Regional cooperation and energy cooperation both allows to a group of countries jointly to solve problems of energy security, sustainable energy development, environmental protection and improvement of investment attractiveness of fuel and energy complex today, but, most importantly, for the future development.
- Infrastructure development is a foundation that ensures the desire of member states for economic development through enhanced cooperation. The development of energy infrastructure is vital for overall economic growth and prosperity.
- After FSU collapse and broken industrial links actors are looking for new forms of regional cooperation, both energy producers and energy consumers on market bases – **it is a main challenge.**
- **BUT!** According to international experience it is a **most difficult and complicated** sphere of cooperation and integration processes.

Mechanisms of International Cooperation to Promote Russian Oil and Gas Export Opportunities and Regional Energy Security

- Price stability and strategic reserves and storage maintenance
- Good political environment will result in investments in export projects and access to resources
- Normal conditions under access to international energy trade
- Security of supply together with security of demand
- Development of international regulation options

Possible Fields of Energy Cooperation in NEA in Oil and Gas Industries

Short term

- Energy supply of China
- Energy supply of Korean Peninsula
- Japan situation and regional energy security
- Development and transportation of the Caspian reserves

Long term

- Offshore of Okhotsk Sea
- Arctic offshore development

Super long term

- Gas hydrates