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Russian energy policy in North-East Asia: prospects for energy exports to NEA countries

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Outline

1. Russian Energy Sector: Current Status
2. Rationale of Northeastern Direction of the Energy Policy of Russia
3. Large-Scale Energy Projects in the Far East of Russia
4. Current Status of Energy Cooperation Between Russia and NEA Countries
5. Prospects for Increasing Energy Exports to NEA Countries
6. Concluding Remarks

1. Russian Energy Sector: Current Status

1.1. Russian Energy Sector: key trends

- ***Energy sector share in the russian economy (2009):*** 26% of GDP, more than 42% of total taxes, more than 66% in total export income and 30% in total investments.

- ***Increase in production of major energy resources 2000-2009*** – coal by 42 mln ton (15%), oil by 170 mln ton (53%), natural gas by 80 bln m3 (13.7%).

- ***Strengthening of external incentives for development (2000-2008): domestic consumption of energy grew 10%, energy exports volume*** 1.5 times (from 545 mln tce to 813 mln tce).

1.2. Russian Energy Sector: world rankings

1st place by volume of oil production (13% of world total)

2nd place by volume of gas production (18% of world total)

3rd place by total consumption of energy (6% of world total)

4th place by volume of electricity production (5% of world total)

5th place by volume of coal production (4% of world total)

1.3. Russian Energy Sector: by resource type

Oil

- 5.6% of world reserves - 10 bln ton
- Oil production 500 mln ton per year -> 20 years
- 75% of extracted oil is exported
- Share in world oil exports – 12.5%
- 80% of Russian oil goes to Europe (Germany, Italy, France etc)

Gas

- 24% of world reserves – 44 bln m3
- Gas production 583 bln m3 per year -> 75 years
- 25% of extracted gas is exported
- Share in world gas exports – 23%
- Most of gas exports go to Europe (Germany, Italy, France etc)

Coal

- 19% of world reserves – 157 bln ton
- Coal production 300 mln ton per year -> 523 years
- 30% of extracted coal is exported
- Share in world coal exports – 12.5%

2. Rationale of Northeastern Direction of the Energy Policy of Russia

2.1 Rationale of Northeastern Direction of the Energy Policy of Russia

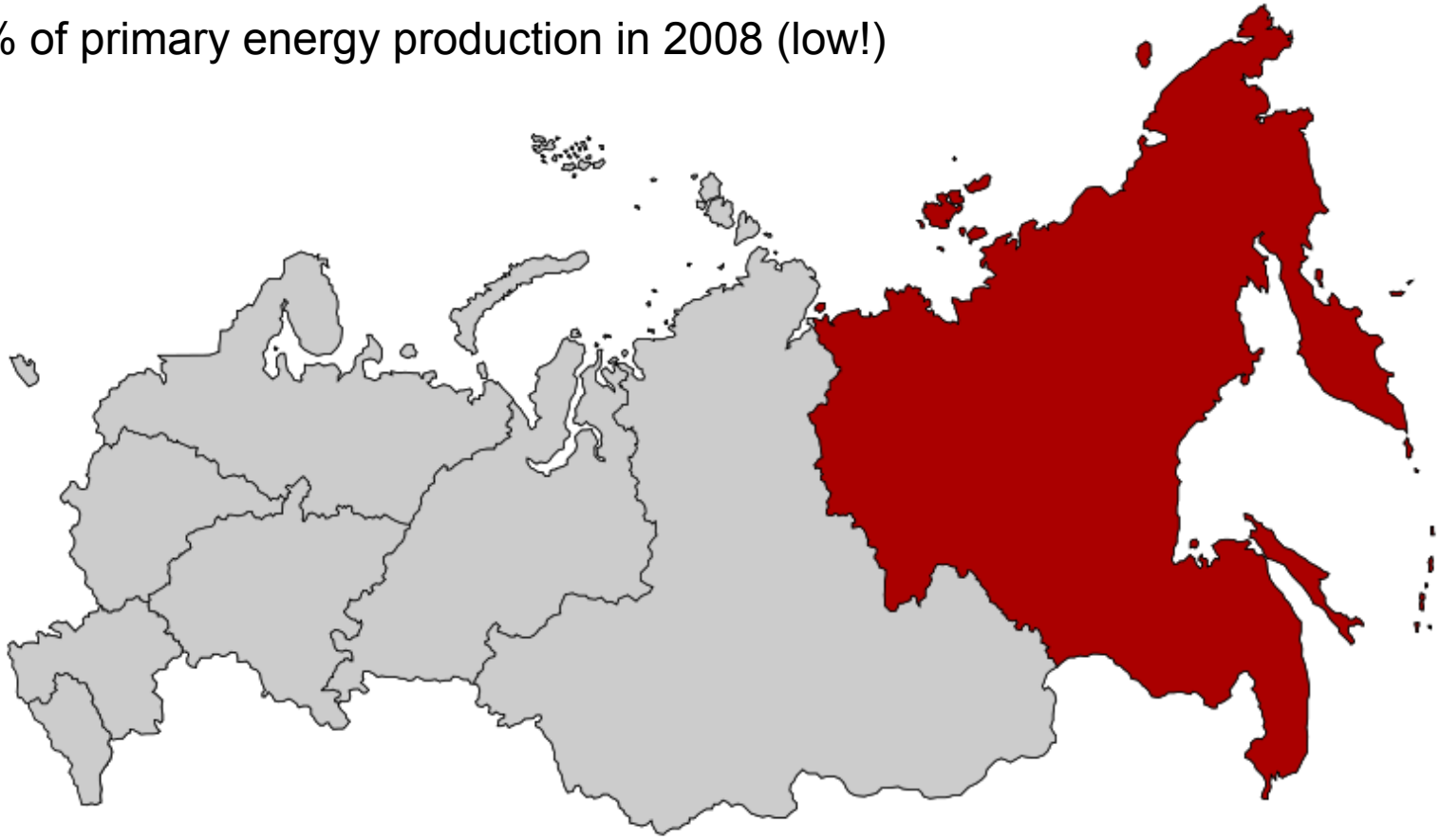
- Growing demand of NEA countries for energy resources
- Interest of NEA countries to diversify energy import routes
- Interest of Russia to diversify export destinationas by increasing the share of eastern direction
- Interest of Russia in economic development of the Far Eastern territories by implementation of large-scale energy projects
- Common interest towards providing energy security and stability in the NEA energy markets.

These points are reflected in many recent official documents in Russia, such as "Energy Strategy of Russia until 2030" (approved 2009), "Eastern Gas Program" and others.

3. Large-Scale Energy Projects in the Far East of Russia

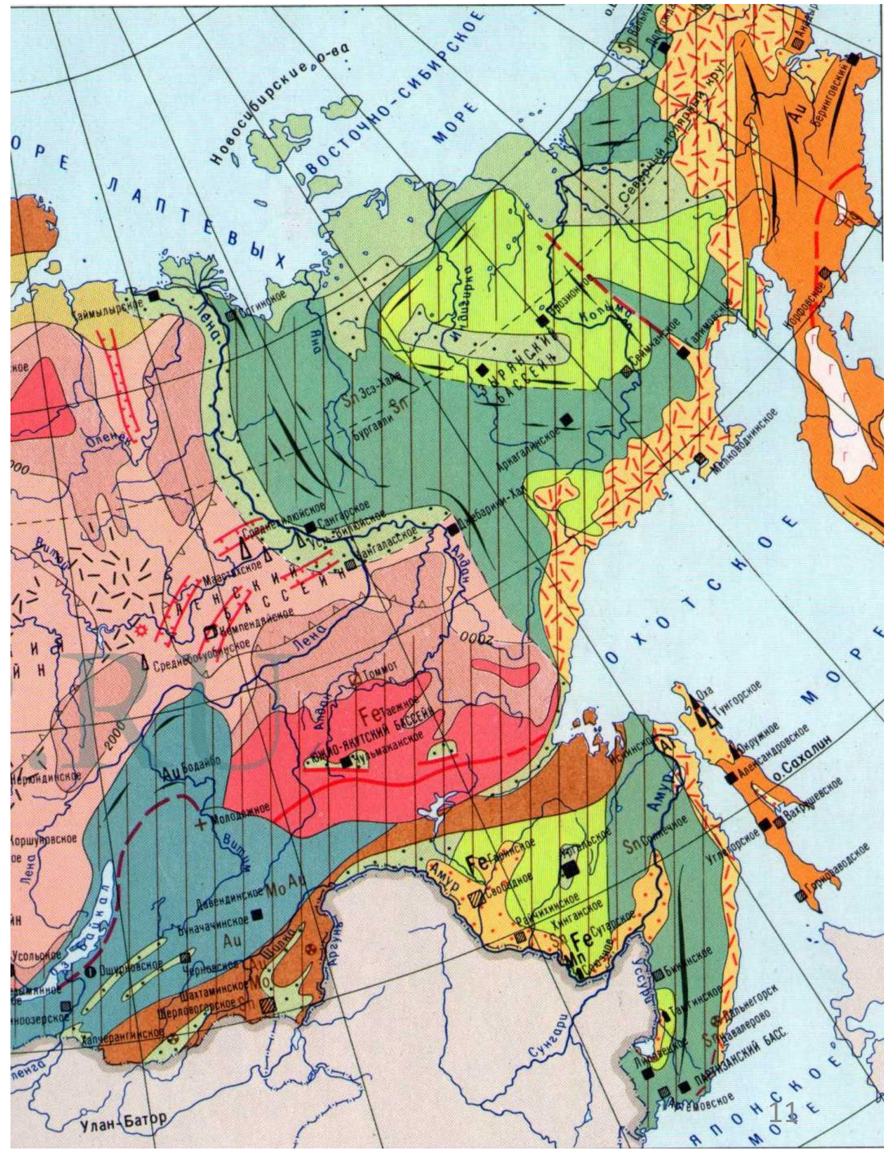
3.1. Russian Far East: key data

- 36% of territory
- 4.5% of population (very low density) – 6 mln people
- 5% of GDP
- 3% of primary energy production in 2008 (low!)



3.2. Far East Energy Sector.
Major Energy Production Centers.

- Sakha republic (Yakutia) (bituminous coal, natural gas)
- Sakhalin region (oil, natural gas)
- Amursky region (hydro energy)



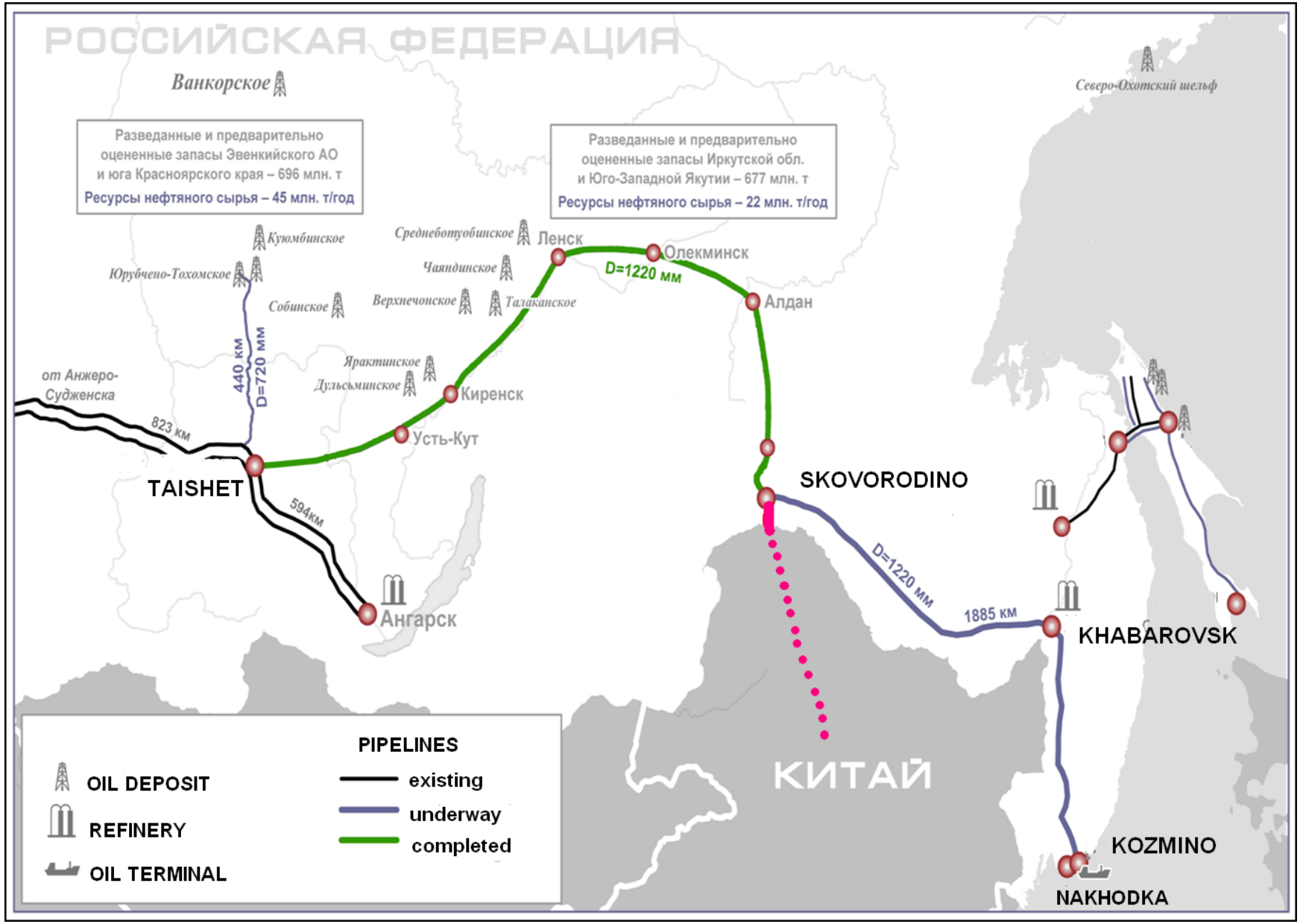
3.3. Major Large-Scale Energy Projects in the East of Russia

1. Sakhalin oil and gas projects
2. Eastern Siberia – Pacific Ocean oil pipeline (ESPO)
5. Eastern Gas Program by "GAZPROM" → in the Far East - 2 major gas pipelines
6. Gas processing, gas liquidation and chemical processing facilities (Yakutia, Primorye)
7. "ELGA" large coal deposit in Yakutia
8. Projects of large electricity exports to China

3.4. Current large energy projects in RFE (1)

Project Name	Start of operation	Current capacity	Recipients
Sakhalin-1	Oil and gas since 2005	Oil - 8.2 mln ton, gas 9.4 BCM	Oil -> Japan, ROK Gas -> domestic consumption
Sakhalin-2	Oil since 1999 LNG since 2009	Oil – 5.5 mln ton LNG – 9.6	Oil -> Japan, ROK LNG-> Japan (60%), ROK, China, India, USA
Sakhalin-3	Plan since 2014		Transport to Vladivostok and possibly LNG export
ESPO oil pipeline	1st stage-2009 2nd stage-2014	Oil – 15 mln ton, 2nd stage – 30 mln ton	USA, Japan, ROK, China, Thailand, Phillipines; Contract with China – 15 mln ton/y

3.5. Eastern Siberia – Pacific Ocean Pipeline



3.6. Current large energy projects in RFE (2)

	Start of operation	Current capacity	Recipients
Sakhalin-Khabarovsk-Vladivostok gas pipeline	2011	Gas – 6 BCM/y	Domestic consumption
Yakutia-Vladivostok pipeline	2016	Gas – 25 BCM/y	Export 15-20 BCM to NEA countries (including export as LNG)
ELGA coal deposit	2011	2011 – 1 mln ton, by 2020 – 25 mln	to China and other NEA
Large Electricity Exports	2013	2013 – 4 bln kWth By 2020 – 60-70 bln	to China
ELKON uranium dep.	2018-2020	5000 ton of yellowcake	Under construction

3.7. “Eastern Gas Program” (since 2007)

3.8. Large-scale electricity exports to China

Possible export volume – 60-70 billion kWh in 2020

4. Current Status of Energy Cooperation Between Russia and NEA Countries

4.1. RFE Energy Cooperation with China

OIL	ROSNEFT-CNPC **48.4 mln t** contract for 2006-2011 +LUKOIL-SINOPEC **3mln t** contract for 2009-10 +export of oil products: fuel oil 2011-2031 ROSNEFT-CNPC **15 mln t/y** (may be increased to **30 mln t/y**) Transported by ESPO pipeline via branch "Skovorodino-China"
GAS	Price negotiations to finish in 2010-2011 Possible start of export via "eastern" route – by 2015 Via "western" route– by 2018 Source - Yakutia gas deposit
COAL	2008 – **0.76** mln ton exported, 2009 – **12** mln ton exported May increase after 2013 due to ELGA coal project Main supplier – MECHEL
ELEC-TRICITY	2009 – 0.8 bln kWth exported 2010 – 1 bln kWth From 2013– 4-5 billion, By 2020 – up to 60 billion kWth
OTHER	13 mln t Joint Refinery in Tianjin, China + 500 petrol stations ($5 bln) 10 mln t Joint Refinery in Primorsky region, Russia JOINT EXPLORATION: Veninsky block (ROSNEFT+SINOPEC)

4.2. RFE Energy Cooperation with Japan

OIL	Exported from Sakhalin-1 since 2006 and Sakhalin-2 since 1999 Total export in 2009 – 5.3 mln t Since 2010: start of export from ESPO pipeline
GAS	Since 2009 - Sakhalin-2 (LNG) long-term contract for about 6 mln ton/y
COAL	In 2009 - about 9 mln ton exported Possible expansion after 2013 (ELGA coal deposit)
ELECTRICITY	NA
OTHER	Joint exploration LPG WIND PP (Russkiy island)

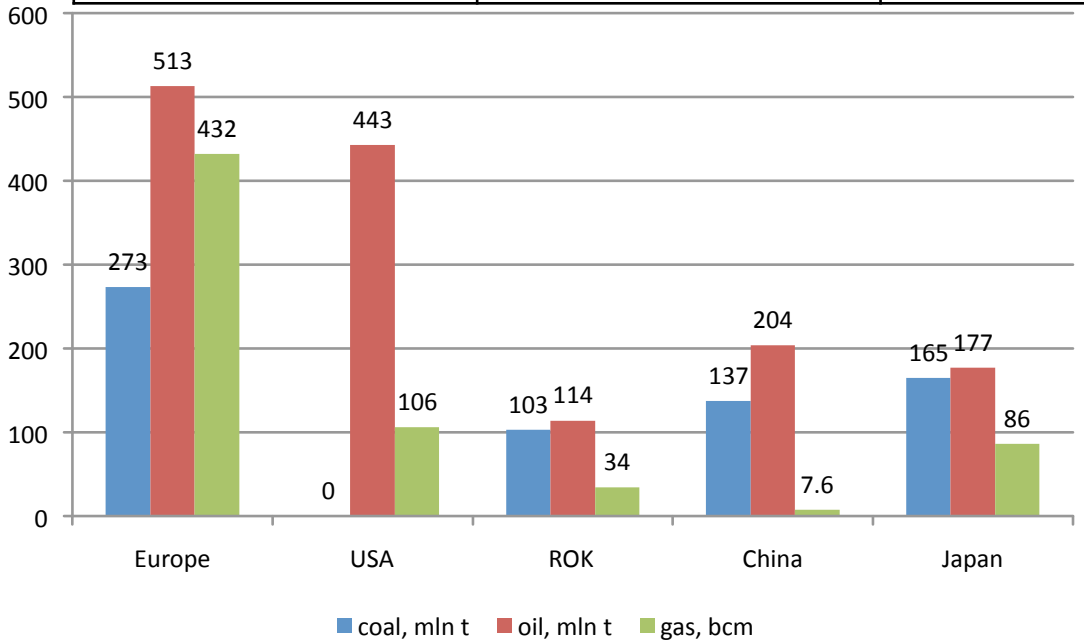
4.3 RFE Energy Cooperation with ROK

OIL	From Sakhalin-2 since 1999, From Sakhalin-1 since 2006 Possibly ESPO and/or oil products after 2014
GAS	In 2009 – 0.6 mln ton LNG, Since 2010 – 1.5 mln ton/y LNG Source: Sakhalin-2 Prospective: Vladivostok-South Korea gas pipeline - since 2014 up to 10 BCM
COAL	Since 1996 small volumes from EREL deposit Since 2010 – 5 year contract 0,3 mln ton/y Since 2010 – 5 year contract 1,3 mln ton (HYNDAY+POSCO) Possible expansion after 2013 with ELGA coal deposit
ELEC-TRICITY	Primorsky region-Korean Peninsula power exports project – JSC "INTER RAO UES" + KEPCO *stopped since 2009 due to DPRK issues
OTHER	Joint exploration of West Kamchatka Shelf Joint development of South Yakutia coal mines (Kolmar – LG)

5. Prospects for increasing energy exports to NEA countries

5.1. Current Share of Russia in Energy Imports of NEA Countries(2009)

Country	Coal, %	Oil, %	Gas, %
Europe	23	33	26
USA	0	1	0
Republic of Korea	5	5	0
China	7	6	0
Japan (2010)	5	7	9



Volume of Energy Imports of NEA Countries (2009)

5.2. Prospects for increasing energy exports to NEA countries

	2009	2020	2030	2050
OIL, mln t	24	38	55	60-85
GAS, bcm	13	25-50	60-90	85-95
COAL, mln	23-28	39-48	46-49	50
ELECTRICITY, bln kWth	1	8	60	60-65

5.3. Concluding Remarks

- Despite Russia being a world leading energy supplier, its share in the NEA energy imports is very low (about 5-7%).
- Successful development of new and ongoing large energy projects will lead to significant growth in volumes of Russian energy exports to NEA.
- Despite that, the share of Russia in NEA oil and coal imports will still remain under 7%, while for gas it could be slightly higher up to 15-20%.
- Europe will remain the major consumer of Russian energy exports for next decades.
- Oil, gas and coal export volumes will be increasing until 2030 but will probably remain stable afterwards.

Thank you!

Far East Energy Demand: prospective changes
Expected new large-scale projects

Amur region

- National space port
- Ore Mining and Smelting Plant
- Oil Refinery
- Aluminium plant
- Olekmin hydrometallurgical processing plant
- ESPO expansion (including branch to China)
- Kuranah iron ore deposit
- Cement plant

Jewish Autonomous region

- Kimkan-Sutar iron ore deposit
- Bridge over Amur river
- Timber processing facilities

Magadan region

- Natalka,Degdekan, Pavlik, Igumen deposits
- Yano-Kolim gold mining area
- Several mining facilities

Sakhalin island

- Cement plant
- Metal processing facilities
- Oil and Gas Processing facilities

Primorsky region

- Russkiy island projects
- Oil refinery (Nakhodka city area)
- ESPO - 2nd part
- Kozmino oil port facilities

Yakutia

- Oil and Gas deposits (Talakan, Chayanda)
- Elga coal deposit
- Elkon Uranium deposit
- Kuranah and other iron ore deposits

Khabarovsky region

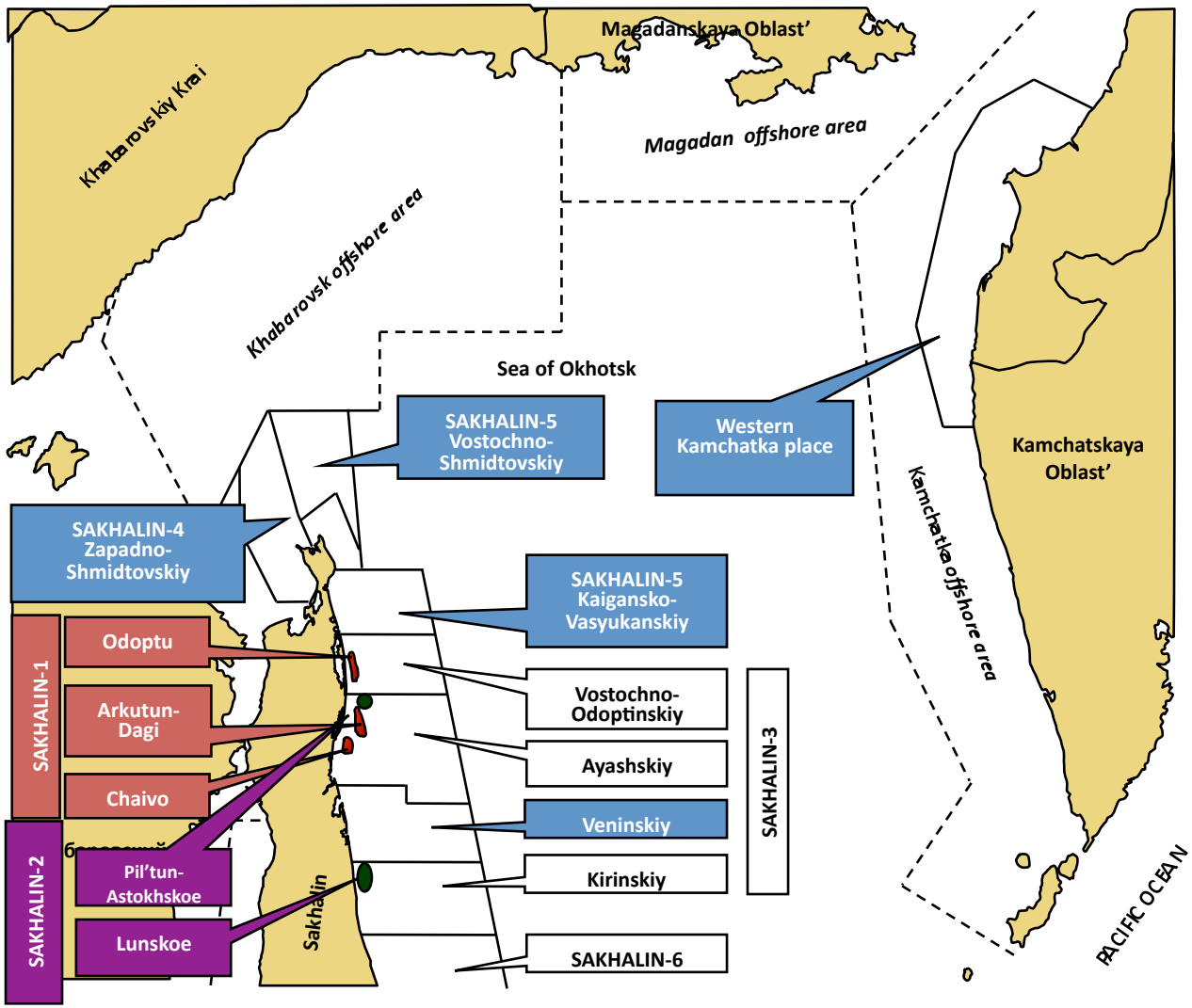
- Khabarovsk and Komsomolsk oil refinery expansion
- Oil processing facilities
- Coal enrichment plant
- Ore enrichment facilities
- Cellulose plant

Other Sakhalin offshore

- Sakhalin-3
  - Veninsky block - currently: exploration (ROSNEFT + SINOPEC) - 165 mln t and 313 BCM
  - Kirinsky gas deposit – geological exploration by Gazprom, start of gas production in 2011
- Sakhalin-4 (West-Shmidtovsky block)
  - In March 2009 ROSNEFT & BP returned license after unsuccessful drilling - deposits not discovered yet
- Sakhalin-5 (Kaigano-vasyukansky & East-Shmidtovsky)
  - East-Shmidtovsky: In 2009 after conducting geological analysis ROSNEFT & BP returned license without drilling – deposits not discovered yet
  - Kaigano-vasyukansky: geological exploration (ROSNEFT & BP) – 56 mln ton of oil and 30 BCM of gas discovered so far – not enough for commercial extraction
- Sakhalin-6 (Pogranichny block)
- Western shelf of Kamchatka peninsula (ROSNEFT & KNOC)

- In 2009 licenses for exploration granted to Gazprom – Sakhalin-3 (Kirinsky, Ayashsky, West-Odoptinsky blocks)

Far East Offshore Oil & Gas Projects



Eastern Siberia – Pacific Ocean Oil Pipeline (ESPO)

1st STAGE – completed in 2009

- Route: Taishet (Irkutsky region) – Skovorodino (Amursky region)
- Capacity is 30 mln ton/y
- Current operating capacity – 15 mln ton/y
- Currently transported to Kozmino by RAIL for export to Japan, Korea.

2nd STAGE – will be completed by 2014 (till then – by RAIL)

- Route: Skovorodino (Amursky region) – Kozmino Oil Port (Primorsky krai) – 2100km
- Overall ESPO capacity is 30 mln t/y, possibly up to 50
- Expansion of Kozmino Oil Port

Branch to China

- In 2009 oil export contract signed for 15 mln /t for 20 years since 2011
- Skovorodino-China Border - complete in August 2010
- Daqing (China) -China Border – will complete in October 2010
- Start of operation – November 2010