



JOGMEC

3rd Japan-Russia Energy Dialogue

Japan's Participation in East Siberia
Oil and Gas Development

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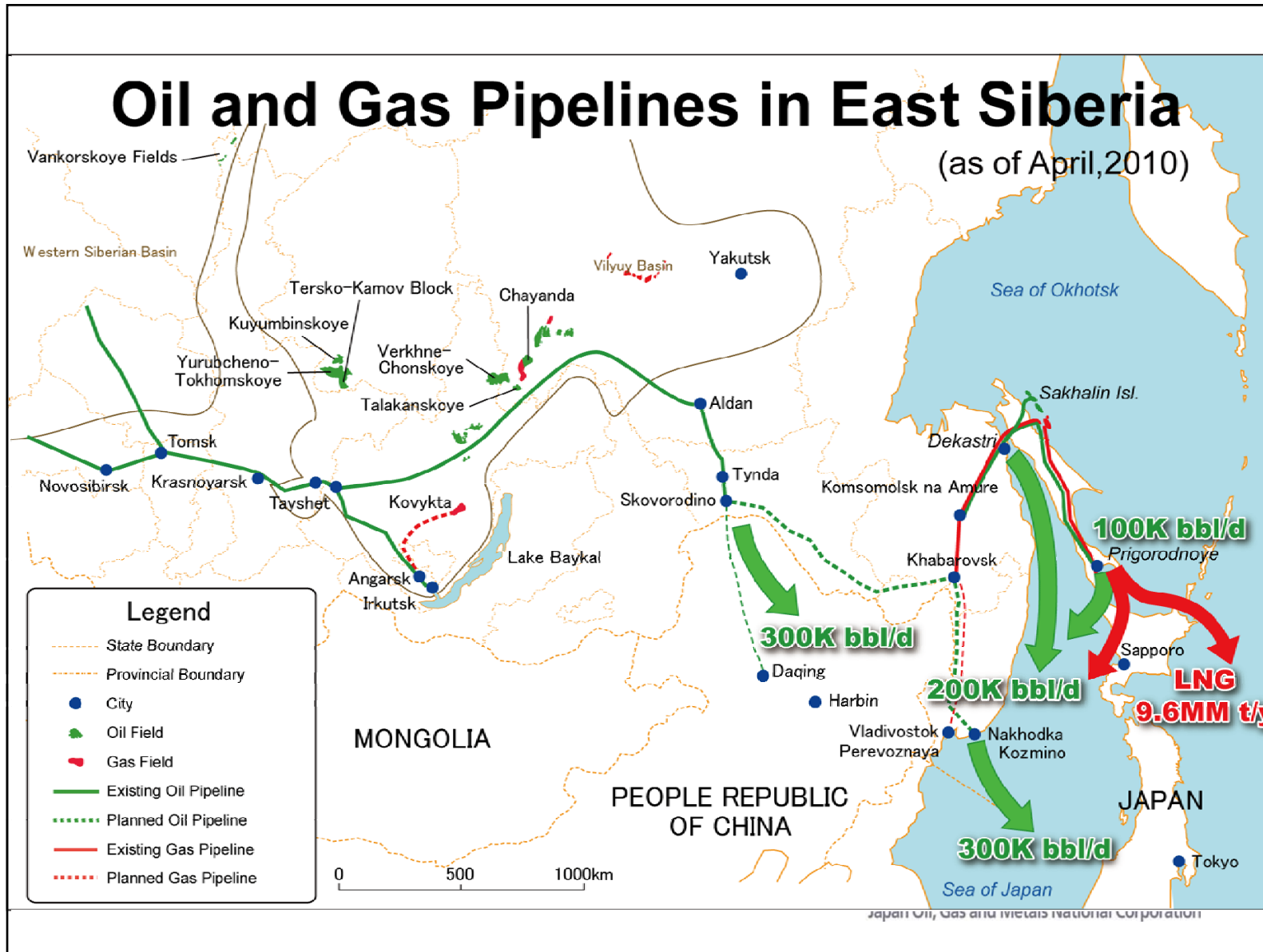
Why is Russia important?



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- Japan needs a new crude oil source which will diversify its energy source, avoiding too much concentration on the Middle East.
- New competition of crude oil in the Asian market will weaken the crude oil price imported from the Middle East.
- Russia would be the most appropriate energy supplier to Japan and will create Japan's stronger position against traditional oil suppliers.

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New Energy Flow to NE Asia



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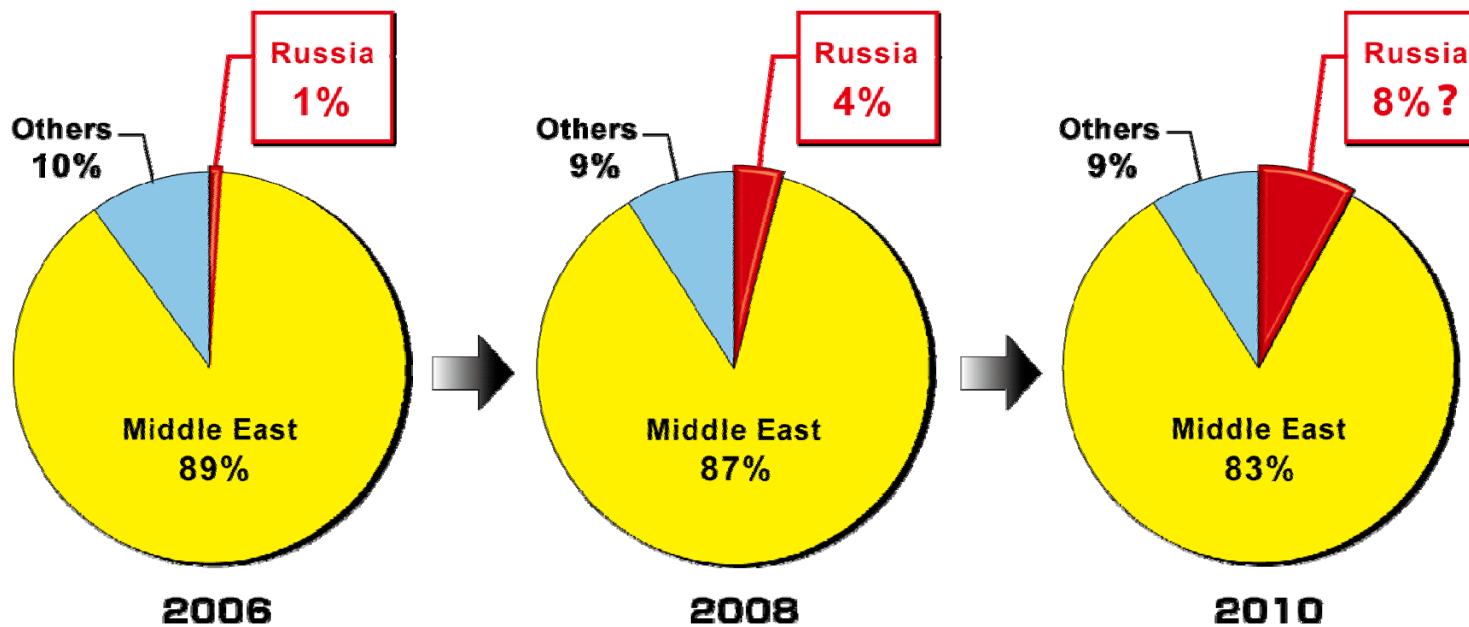
- Sakhalin-1
 - Oil: since 2006, average 200Kbbl/d
 - Gas: local use, possibility for LNG export
- Sakhalin-2
 - Oil: since 1998, 30Kbbl/d → 100Kbbl/d
 - LNG: from 2009, 9.6million ton/year
- ESPO (East Siberia–Pacific Ocean)
 - Oil: since the end of 2009,
 - first stage 300Kbbl/d, second stage 1 million bbl/d
- These three source have contributed to energy security in NE Asia
 - No choke point in the Sea of Japan
 - Russian crude oil is welcomed by Japanese Refiners

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Crude Oil Import to Japan



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“Asia Premium” vanished ?



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Arabian Light	Jan. 2010	Feb. 2010
To USA	\$75.49	\$79.26
To Asia	\$77.35	\$73.77
“Asia Premium”	\$1.86	-\$5.49

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Action Program by Mr. Koizumi



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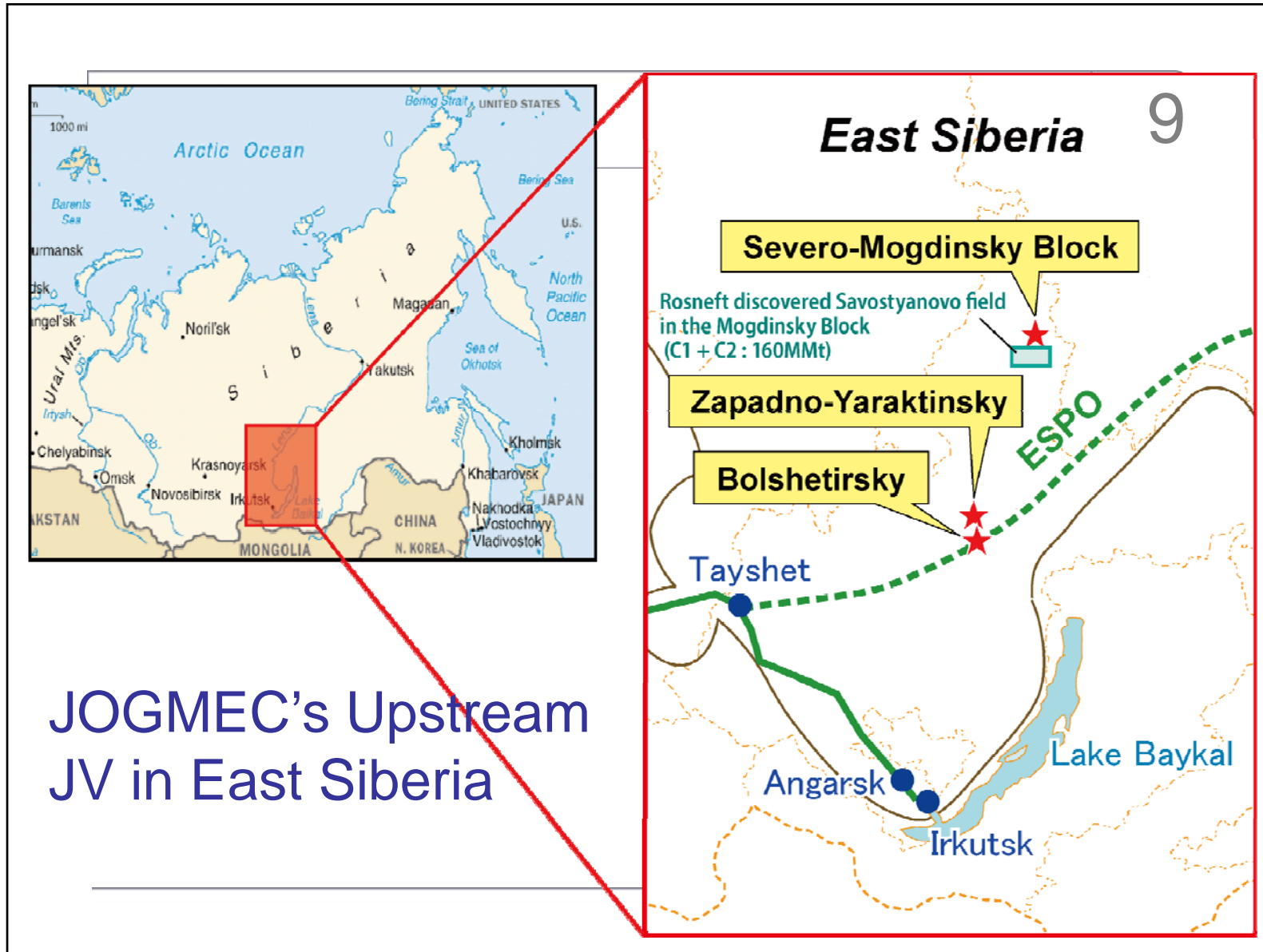
- 2003 Jan: Mr. Koizumi and Mr. Putin signed Japan-Russia “Action Program”
 - To promote the pipeline project in Siberia and the Russian Far East for transportation of energy
 - To support private companies of both countries for cooperation of oil and gas development in Siberia and the Russian Far East
 - To execute Sakhalin 1 & 2 projects smoothly
 - To maintain dialogue of energy cooperation

G8 Summit Heiligendamm June 2007



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- “Initiative for the Strengthening of Japan–Russia cooperation in Far East Russia and Eastern Siberia” signed by Mr. Abe and Mr. Putin
- **Energy:** Cooperation between the private commercial entities of Japan and Russia in Far East Russia and East Siberia by utilizing Japan's advanced technologies in the areas of oil, natural gas, and the peaceful use of atomic energy, and Russia's business to secure stable energy supply for mid- and long-term energy security for the Asia-Pacific countries and development of Far East Russia and East Siberia.



Site of Severo Mogdinskaya #301



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Japan's JV in East Siberia



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- JV: ① “INK–Sever” ② “INK–Zapad”
- Shares: Irkutsk Oil Company(51%), JOGMEC(49%)
- ① “INK–Sever” : “Severo–Mogdinsky”
 - Location: 1,000km north of Irkutsk
 - Operation: Drilling and Seismic
- ② “INK–Zapad” : “Zapadno Yaraktsky, Bolshetirsky”
 - Location: close to ESPO
 - Operation: Seismic work started in 2009

Effective use of Associated Gas



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In 2009, the Russian Government decided that associated gas in oil fields should be used effectively more than 95% by 2012. GTL (Gas To Liquid) would be one of the best solutions to utilize associated gas.

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GTL Plants in Japan



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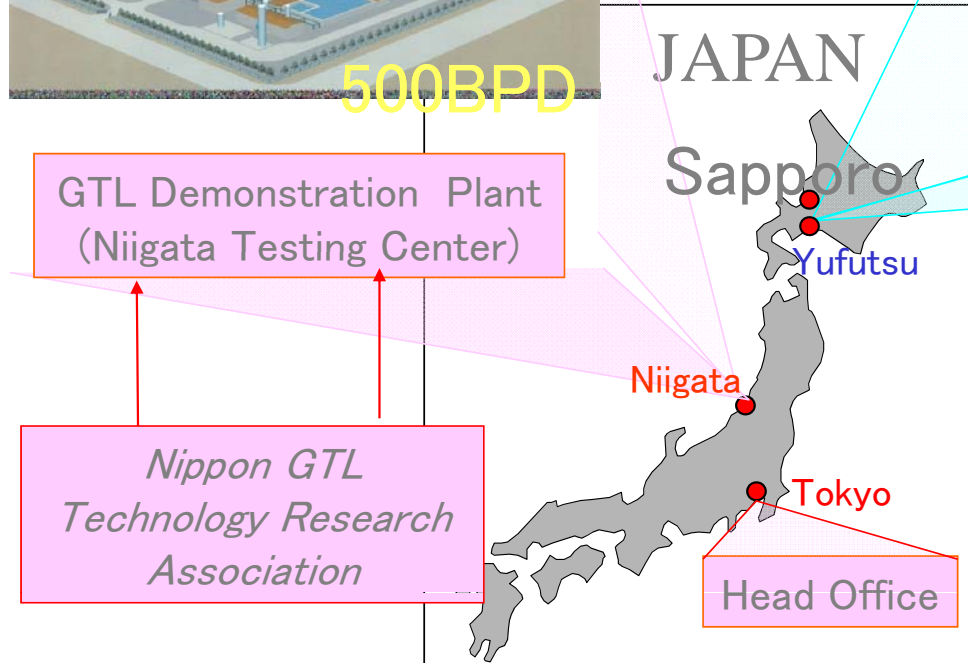


500BPD



7BPD

Yufutsu GTL Pilot Plant



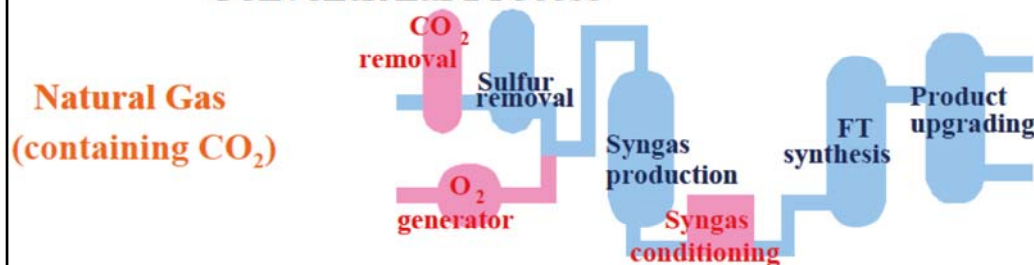
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Characteristics of JAPAN-GTL Process



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Conventional Process



Syngas Production

- Non-catalytic Partial(OX) Oxidation
- Auto thermal Reforming(ATR)

FT Synthesis

- Co or Fe Based Catalyst

JAPAN-GTL Process



Syngas Production

- Steam/CO₂ Reforming

FT Synthesis

- Co Based Metal Catalyst

No Need for

- O₂ Generator
- CO₂ Removal Unit
- Syngas Conditioning

○ Steam/CO₂ Reforming (CO₂ as Feed Gas)

○ Simplified Process (Potential of Cost Reduction)

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JOGMEC's Joint Study with INK



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- Nov. 2009: JOGMEC and Irkutsk Neft (INK) signed MOU for study of application of JAPAN–GTL process to INK's oil fields.
- Flaring of associated gas will be replaced by GTL process to reduce carbon emission.
- Associated gas of medium to small size oil fields in East Siberia will be utilized by producing synthetic fuels (diesel).