ENERGY BRIDGE
«RUSSIA–ASIA PACIFIC»

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Qatar
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THE ROLE OF ASIA-PACIFIC COUNTRIES IN THE WORLD ECONOMY
Economy of APR: the biggest world market with high growth rate

The share of APR countries in the world GDP, 1995-2035

- APR countries (incl. India) account for more than 46% of the global GDP, including the 2nd and 3rd economies of the world – China and Japan.
- Recent years GDP growth rate in APR countries was about 5-6% y/y and was remarkably higher than economic growth in the world (+1-2 percentage point) and in other large regions.
- By 2035 the share of APR countries in the world economy will be higher than 55%.

Source: World Bank, IEF estimates

The share of APR countries in the world trade, 1995-2035

- GDP growth was connected to the global trade growth (incl. inter-country trade in APR) – in 2014 APR countries provide about 41% of the world export.
- The rates of growth of the APR countries international trade was remarkably higher than global dynamics – in 2008-2015 it grew up by 1.4, whereas the other regions export increased only by 10%.
- By 2035 APR countries will account for a half of the world trade.

Source: World Bank, IEF estimates
APR is the largest energy consumer

Primary Energy Consumption in APR countries

- The share of APR countries in the global primary energy consumption is gradually increasing, and by 2014 it reached 46%.
- In the longer term APR countries will provide major gain in the world energy consumption.
- Up to 2035 APR will provide about 64% (!) of the world energy demand growth.
- The main driver of the energy demand growth up to 2025 will be China, after 2025 – India.

Source: IEF based on BP Statistical Review 2015, BP Energy Outlook 2035
The economic needs of APR countries will play a critical role in the future development of the world hydrocarbons markets.

Outlook of the consumption of liquid hydrocarbons in APR

Outlook of the consumption of natural gas in APR

Outlook of the natural gas import by APR

- APR countries will be gradually increasing the share in the global consumption of liquid hydrocarbons and natural gas.
- By 2025 about 50% of natural gas export will supply to APR countries, primarily to China, which can increase imports 4 times.

Source: IEF based on BP Statistical Review 2015
Source: IEF based on World Energy Outlook 2014
Source: IEF based on World Energy Outlook 2014
RUSSIA IS THE KEY PLAYER ON THE WORLD ENERGY MARKET
Russia is the largest player in the world energy

The Russian share in 2015

**PRODUCTION**

1. United States
2. Russia
3. Iran
4. Qatar
5. Canada

**RESERVES**

1. United States
2. Russia
3. Iran
4. Turkmenistan
5. United States

**OIL**

- Russia: 12.0%
- Place: 1st

- Venezuela: 6.1%
- Place: 6th

**GAS**

- United States: 17.7%
- Place: 2nd

- Iran: 17.4%
- Place: 2nd

**COAL**

- China: 4.5%
- Place: 6th

- United States: 17.6%
- Place: 2nd

**ELECTRICITY**

- China: 4.4%
- Place: 5th

- United States: 4.2%
- Place: 5th

Source: Estimated based on BP Statistical Review 2015, OPEC, EIA, IEA, CDU TEK.
Eastern Siberia and Far East are the regions with high natural resources potential

Structure of oil reserves (ABC1+C2) in Eastern Siberia and Far East, 2014, bln t

- 11.7 bln t – prospective and predicted oil resources
- 3.9 bln t – proved, probable and possible reserves (ABC1+C2)
- More than 13% of the Russian reserves (ABC1+C2)

Source: Ministry of Natural Resources and Environment of the Russian Federation

Structure of gas reserves (ABC1+C2) in Eastern Siberia and Far East, 2014, TCM

- 41.8 TCM – prospective and predicted gas resources
- 11.2 TCM – proved gas reserves
- 16.2% of the Russian gas reserves (ABC1+C2)

Source: Ministry of Natural Resources and Environment of the Russian Federation

Oil and gas reserves of Eastern Siberia and Far East nowadays are quite sufficient for extensive hydrocarbons production development
Gas production in Eastern Siberia and Far East will grow

- The main growth of gas production in Eastern Siberia and Far East will be observed after 2020.
- It is expected that the share of Eastern Siberia and Far East in total gas production of the Russian Federation will reach 15% by 2035.

The share of APR countries in Russian gas export will rise

- It is estimated that by 2020 the share of APR in Russian gas export will grow up from 7% to 19% followed by an increase to 41% by 2035.
- The share of LNG in gas export is to be raised from 7% to 17% with the subsequent growth till 23% by 2035.
THE STATE ROLE IN SUPPORTING OF OIL AND GAS PROJECTS IN EASTERN SIBERIA AND FAR EAST
Government supports the development of gas fields in Eastern Siberia and Far East

<table>
<thead>
<tr>
<th>TYPE OF FIELDS AND PROJECT</th>
<th>PREFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects on the territory:</td>
<td>Preferential royalty (10% of standard tax rate) on the period from 1 July 2014 till 31 December 2033</td>
</tr>
<tr>
<td>• of Irkutsk Oblast</td>
<td></td>
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<tr>
<td>• of Krasnoyarsk Krai or the Far Eastern Federal District</td>
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<tr>
<td>• or in Sea of Okhotsk</td>
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<th>TYPE OF FIELDS AND PROJECT</th>
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<tr>
<td>50% and more of the area in the Sea of Japan and southern part of the Sea of Okhotsk</td>
<td>Preferential royalty (15% of the mined materials cost) 7 years from the start of production or till 31 March 2032</td>
</tr>
<tr>
<td>50% and more of the area in northern part of the Sea of Okhotsk</td>
<td>Preferential royalty (10% of the mined materials cost) 10 years from the start of production or till 31 March 2037</td>
</tr>
<tr>
<td>50% and more of the area in the Kara Sea and Eastern Arctic (the Laptev Sea, the East Siberian Sea, the Chukchee Sea, the Bering Sea)</td>
<td>Preferential royalty (5% of the mined materials cost) 15 years from the start of production or till 31 March 2042</td>
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## Joint projects in Russia

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
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<tbody>
<tr>
<td>CNPC</td>
<td>JV «Vostok Energy» with «Rosneft» produce oil in Irkutsk oblast, 20% in Yamal LNG</td>
</tr>
<tr>
<td>Sinopec</td>
<td>Venineft (25,1%) – exploration, Udmurtneft (49%)</td>
</tr>
<tr>
<td>ONGC</td>
<td>Sakhalin-1 (20%)</td>
</tr>
<tr>
<td>JAPEX, Marubeni и др.</td>
<td>14 blocks in Tomsk oblast (77, 69, 80, 70-1, 70-1C, 70-2, 70-2 3M, 70-3, 70-3шМ, 70-3М, 85-1, 85-1Т, 86, 86-8) – by Imperial Energy</td>
</tr>
<tr>
<td>Mitsui</td>
<td>Sakhalin-2 (12,5%)</td>
</tr>
<tr>
<td>Mitsubishi</td>
<td>Sakhalin-2 (10%)</td>
</tr>
<tr>
<td>PetroVietnam</td>
<td>Rusvietpetro (49%), Gazpromviet (49%)</td>
</tr>
</tbody>
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## Joint projects outside Russia

<table>
<thead>
<tr>
<th>Country</th>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Rosneft</td>
<td>Design and construction of the Tianjin Refinery and Petrochemical complex (capacity - 13 Mt/year).</td>
</tr>
<tr>
<td>India</td>
<td>Rosneft</td>
<td>Signed general terms of &quot;Rosneft&quot; participation in equity capital of Vadinar refinery (49%)</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Rosneft</td>
<td>35% in PSA on gas-condensate block 06.1, block 05-3/11</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Gazprom</td>
<td>49% in two blocks (05.2 and 05.3) in South China Sea, offshore blocks 112a, 129-132</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Zarubezhneft</td>
<td>JV Vietsovpetro (49%), PSA on block 12/11, Block 04-3, VRJ Petroleum Company (50%)</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Bashneft</td>
<td>PSA on oil block EP-4</td>
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The most successful Russian-APR PSA in Eastern Russia

«Sakhalin-1»

- The first large-scale PSA offshore project in Russia (1996)
- Shareholders: Rosneft (Russia) – 20%, Exxon Neftegas Ltd (USA) – 30%, SODECO (Japan) – 30%, ONGC (India) – 20%
- The project provides for production from Chayvo, Odoptu and Arkutun-Dagi fields located on the north-eastern offshore of Sakhalin island in Sea of Okhotsk.
- Proved oil reserves ABC1+C2 – 307 Mt, natural gas reserves – 485 bcm
- Oil production in 2014 – 7.6 Mt

«Sakhalin-2»

- Operator of Sakhalin-2 (PSA since 1996) is Sakhalin Energy
- Shareholders: Gazprom – 50%+1 share, Shell (UK-Neth.) – 27.5%-1 share, Mitsui (Japan) – 12.5%, Mitsubishi (Japan) – 10%.
- The project provides for production from Piltun-Astokhskoye oil field and Lunskoye natural gas field
- The first floating oil and gas rigs in Russia.
- The first Russian LNG plant.
- The first Russian gas shipments to Asia-Pacific Region and American north coast.
- Proved oil reserves ABC1+C2 – 170 Mt, gas reserves – more than 600 bcm
- Gas production in 2014 – 17.6 bcm
The state develops the energy infrastructure in Eastern Russia (gas sector)

- Eastern gas program is intended for establishing of 4 gas production centers (Yakutsk, Irkutsk, Sakhalin and Krasnoyarsk). Following the implementation these centers will be technologically connected to each other and with the Unified Gas Supply System of Russia.
- Major development of gas production in Eastern Siberia and Far East is firstly relating with providing of gas supplies via constructed transmission gas pipeline Power of Siberia. The basis of raw material source for the gas pipeline will be unique in their reserves Chayandinskoe and Kovyktinskoe fields.
- In accordance with a contract, which was signed in May 2014, export volume of Russian gas to China will amount to 38 bcm yearly for 30 years.
“Eastern vector” of Russian energy policy assumes significance

TARGETS OF RUSSIAN ENERGY POLICY EASTWARD:

- **Further energy export diversification**
  - Increase of energy export eastwards in 2.5-3 times and growth of APR share in Russian energy export to the level of 36-39% by 2035
  - Increase of LNG share in gas export from 7 to 17% by 2020 and to 23% by 2035

- **Increase of hydrocarbons production in Eastern Siberia and Far East**
  - Doubling liquid hydrocarbons production share of Eastern Siberia and Far East from 11% (2014) to 22% (2035)
  - Doubling gas production share of Eastern Siberia and Far East from 6.5% (2014) to 13% (2035)

- **Development of hydrocarbons deep conversion in the region**
  - Construction of Eastern Siberia and Far Eastern petrochemical clusters
THANK YOU FOR YOUR ATTENTION!

Prepared by «CDU TEK»
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