Long-term Prospects of the international hydrocarbon Trade Development: The Role of LNG

Долгосрочные перспективы развития международной торговли углеводородами: роль СПГ
Directions of the international energy trade are changing considerably

International energy trade, mtoe

Source: ERI RAS
Tremendous shifts on the liquid fuels market

Liquid fuel supply and demand balance by 2040, Baseline Scenario

Source: ERI RAS
Liquids demand in the developing countries is supported by subsidies for the petroleum products prices.

Regulation of petroleum products prices by country

Source: ERI RAS
Unconventional oil will reach 16% of total production (840 m tons by 2040)

Dynamics of liquid fuels supply structure, Baseline Scenario

Source: ERI RAS
The gap between oil markers is widening, reflecting continued regionalization of the oil market

Historical WTI and Brent price dynamics

Source: ERI RAS
By 2040, the supply of oil will increase by 1 bn tons.
There are no fundamental reasons for significant growth of oil prices at the forecasted levels of demand.

Oil supply curve (cost of production)

Source: ERI RAS
Equilibrium oil prices will remain within the price range corridor, defined as the possible deviation of local oil markers in European, North American, and Asian markets.

Projected price range of equilibrium oil prices

Source: ERI RAS
Trade flows in the oil market will change fundamentally by 2040: export market niches will narrow by 275 m tons for key producers, in comparison to 2010

Main directions of oil flows, million tons

Source: ERI RAS
Shale technologies create the greatest uncertainty

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<th>‘Shale Breakthrough’</th>
<th>‘Shale Failure’</th>
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<td>By 2020, the new waterless technology for the production of oil and gas from low-permeability formations will be fully developed. As a result, oil and gas fields located in China, Jordan, Israel, Mongolia, and other countries will enter into operation.</td>
<td>Significant cost increase for new production projects.</td>
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<td>Environmental restrictions on oil and gas production from shale plays would be removed.</td>
<td>No confirmation of large resource base.</td>
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<td>Global shale oil production costs would equal the levels of US production costs (less than $80/bbl of oil and $150/1000 m3 for gas).</td>
<td>Introduction of strict environmental constraints.</td>
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<td>Shale oil production in the world by 2040 will reach 745 m tons, and shale gas - 825 bcm.</td>
<td>New waterless and heat extraction technologies for shale oil and gas production are inappropriate, for economic and/or environmental reasons.</td>
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<td>Starting from 2020, shale oil and gas production in the USA begins to decline rapidly, and practically stops by 2025.</td>
<td>Production of shale oil and gas continues only in countries where it has already commenced and rapidly reduces to zero.</td>
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‘Shale Breakthrough’ and ‘Shale Failure’ Scenarios: oil prices

Equilibrium oil prices in the three scenarios

Source: ERI RAS
‘Shale Breakthrough’ and ‘Shale Failure’ Scenarios: gas prices

Equilibrium gas prices in the three scenarios

Source: ERI RAS
Gas market development

The balance of gas supply and demand in 2040

Source: ERI RAS
There will be a need to expand gas production by 2 tcm by 2040

Gas supply curve (cost of production)

Source: ERI RAS
For the next three decades, the main focus of the international gas trade will be Asia which will increase its net imports by nearly 500 bcm by 2040.

Inter-regional gas trade in 2040, bcm

Source: ERI RAS
We don`t know the future US (and Canadian) LNG export volumes

Potential liquefaction capacities additions in the US and Canada

Source: ERI RAS
New LNG projects will make Australia LNG producer #1 by 2018, but they face delays and cost overruns

Potential liquefaction capacities additions in Australia

Source: ERI RAS
Global LNG supply is expected to boom during the next decade, but this growth is associated with great uncertainties.
Devil is in detail: where will new LNG to Europe come from?

Australian gas is going to be most expensive. It is almost completely contracted for the Asian buyers.

US and Canadian LNG exports will be limited by the domestic industrial lobby and will be primarily targeted at the Asian markets.

For East Africa, Asian markets also seem to be more attractive.
Energy Research Institute of the Russian Academy of Sciences

"Global and Russian Energy Outlook up to 2040"

"Прогноз развития энергетики России и мира до 2040 года"