

Global and Russian Energy Sector at the Crossroad: New Challenges

Dr. Tatiana Mitrova
Head of Oil and Gas Department
Energy Research Institute of the Russian Academy of Sciences



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GLOBAL SHIFTS

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CHANGING GLOBAL OIL MARKETS AND IMPLICATIONS FOR THE RUSSIAN OIL EXPORTS AND ECONOMIC GROWTH

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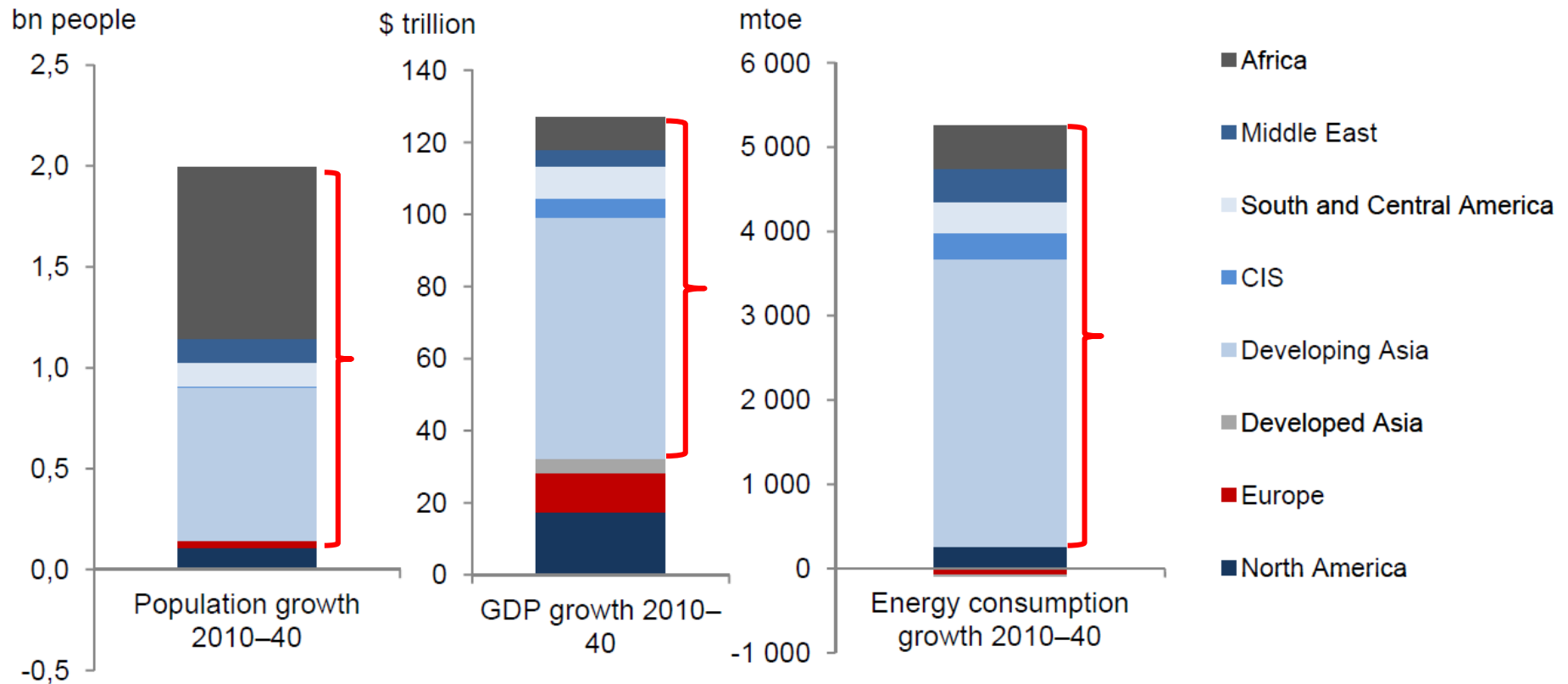
CHANGING GLOBAL GAS MARKETS AND IMPLICATIONS FOR THE RUSSIAN GAS EXPORTS AND DOMESTIC GAS MARKET

Global markets transformations

- ❑ **Slowing demand in the OECD** (crises, structural changes, energy efficiency) **and shrinking import market niches for the traditional suppliers** (shale revolution).
- ❑ **Demand shifts to non-OECD Asia**, which will become more and more important player
- ❑ **Growing supply and potentially increasing competition** with Australia, Brazil, Iraq, Iran, East Africa and North America.
- ❑ **Stagnant prices:** shale revolution has already decreased prices in North America and Europe, additional shale oil will limit oil prices growth. In all scenarios oil prices do not exceed 100-130 \$/bbl, gas prices stay at the current levels.
- ❑ **Changing contractual structures** (more spot indexation in Europe, long-term bilateral contracts in Asia)

Growth will be mainly provided by the developing countries

Population growth, GDP, and energy consumption by region

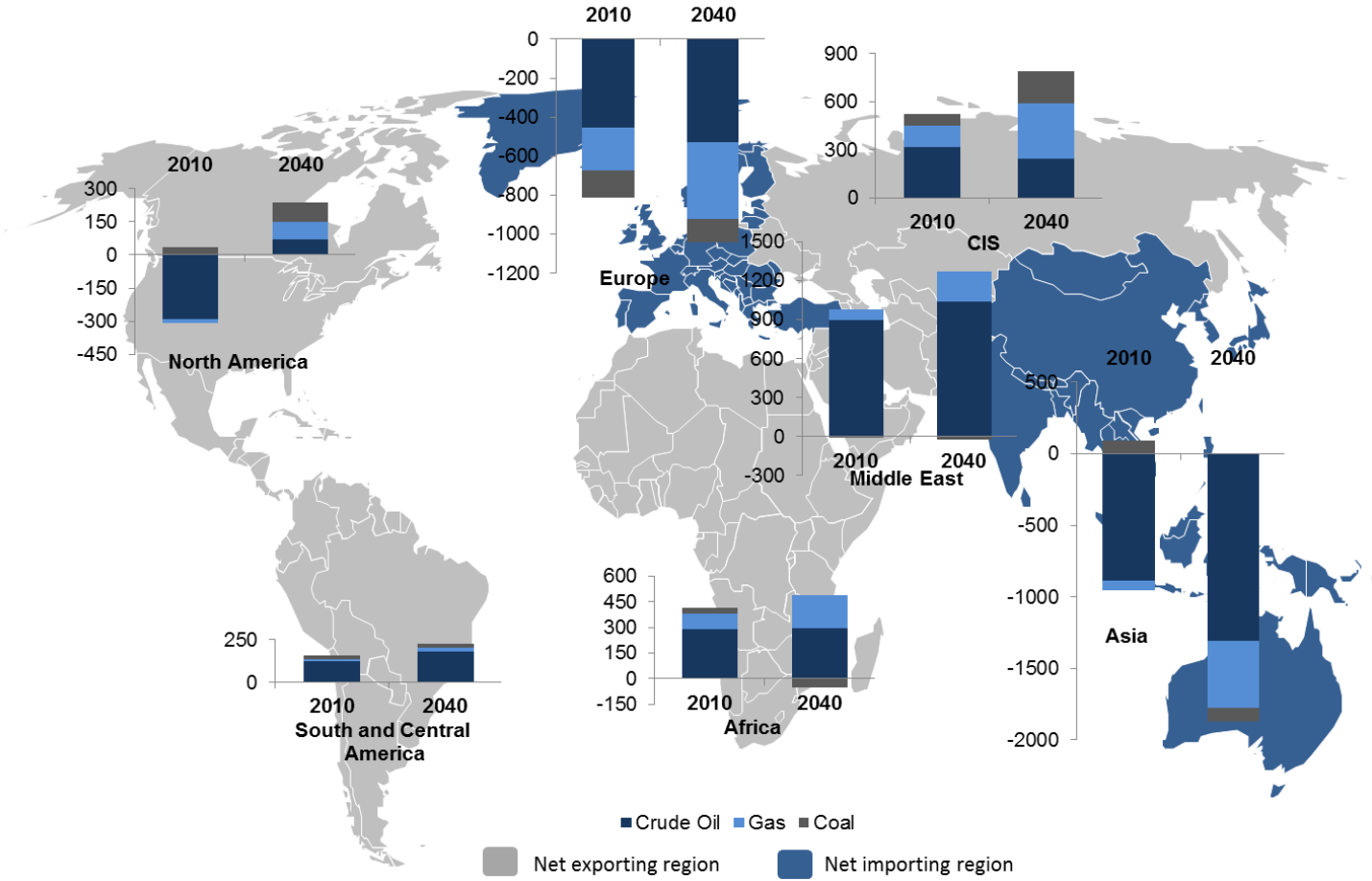


Source: ERI RAS

POPULATION GROWTH IN DEVELOPING COUNTRIES IS FOLLOWED BY AN INCREASING SHIFT IN THE CENTRE OF ECONOMIC AND ENERGY CONSUMPTION TOWARDS THESE COUNTRIES

Directions of the international energy trade are changing considerably

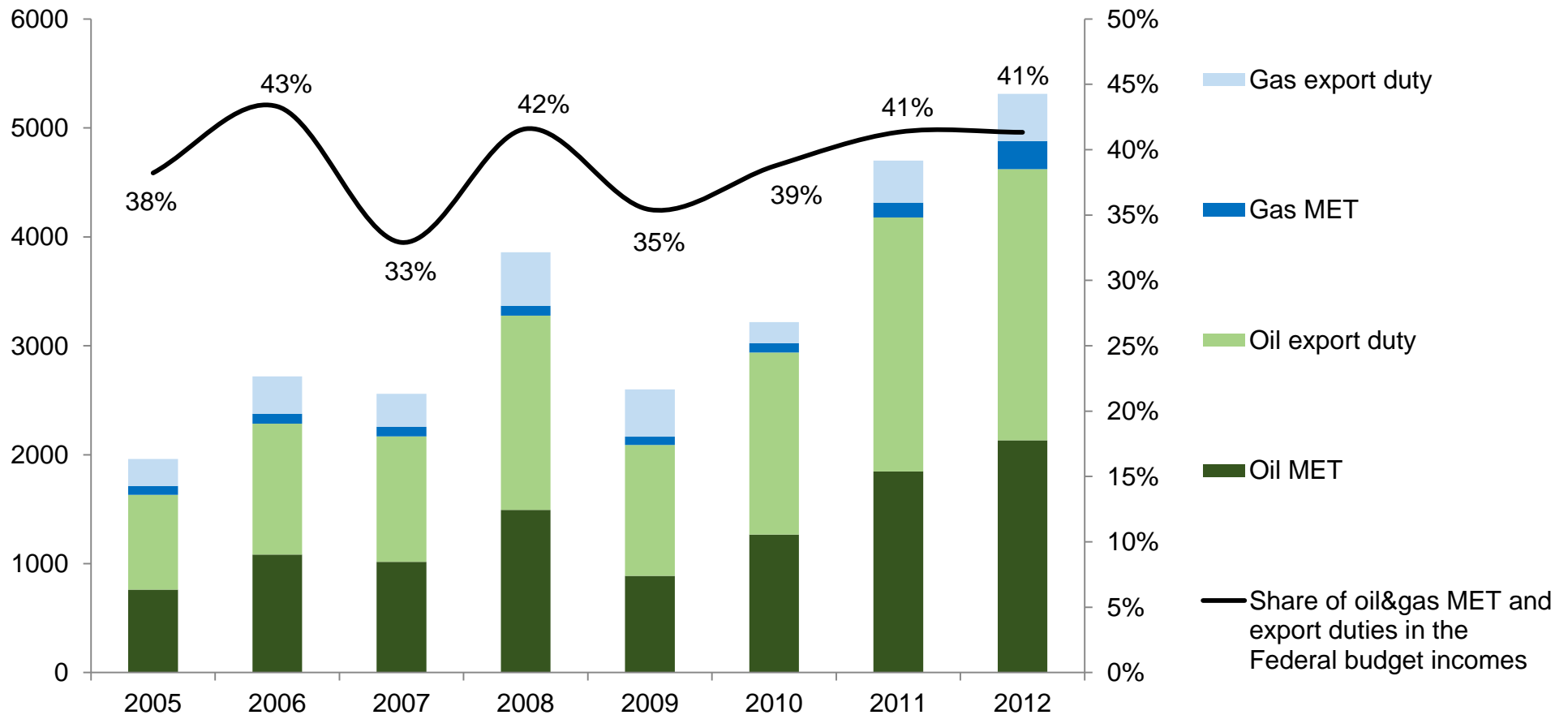
International energy trade, mtoe



Source: Global and Russian Energy Outlook up to 2040. ERI RAS-AC. 2013.

The role of oil and gas for the Russian Federal budget is huge

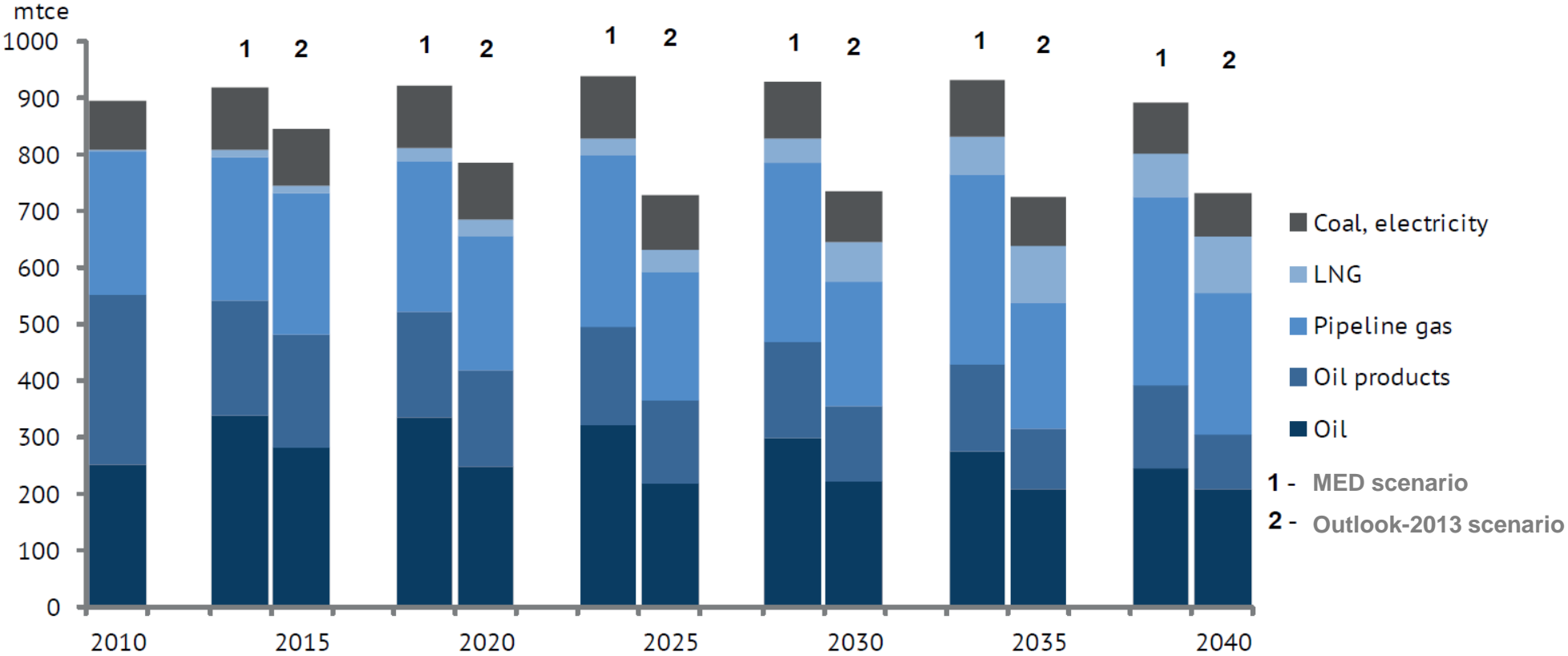
Oil and gas taxes and duties in the Federal budget



Source: <http://www.roskazna.ru/reports/fb.html>

Decreasing competitiveness of the Russian energy resources due to depletion of the old fields and tax system makes Russia most sensitive to the market changes among all the suppliers

Russian energy export by fuel in the official MED scenario and in the Outlook-2013 scenario



Source: Global and Russian Energy Outlook up to 2040. ERI RAS-AC. 2013.

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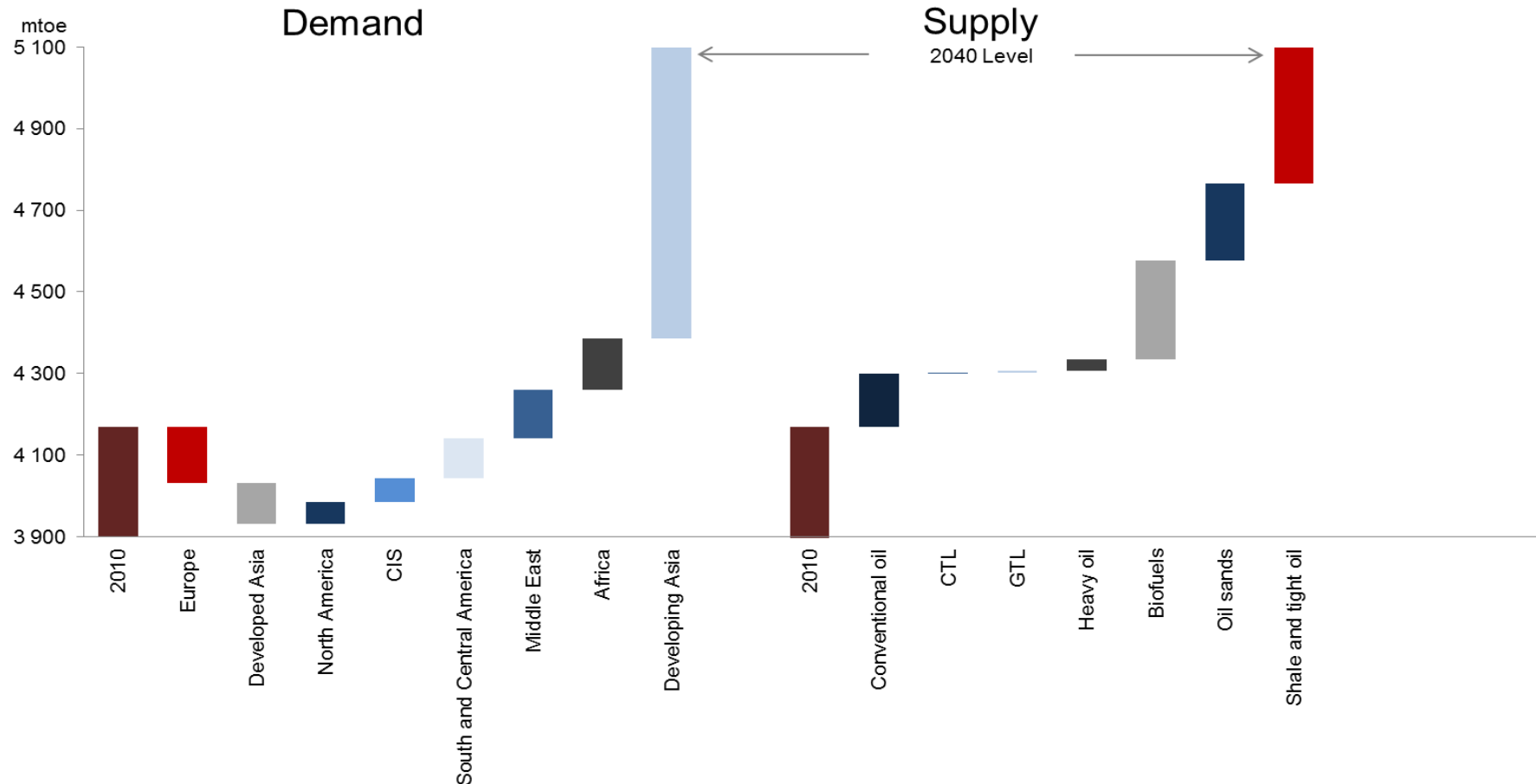
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There are tremendous shifts expected on the liquid fuels market, with declining demand in OECD and booming unconventional liquids production

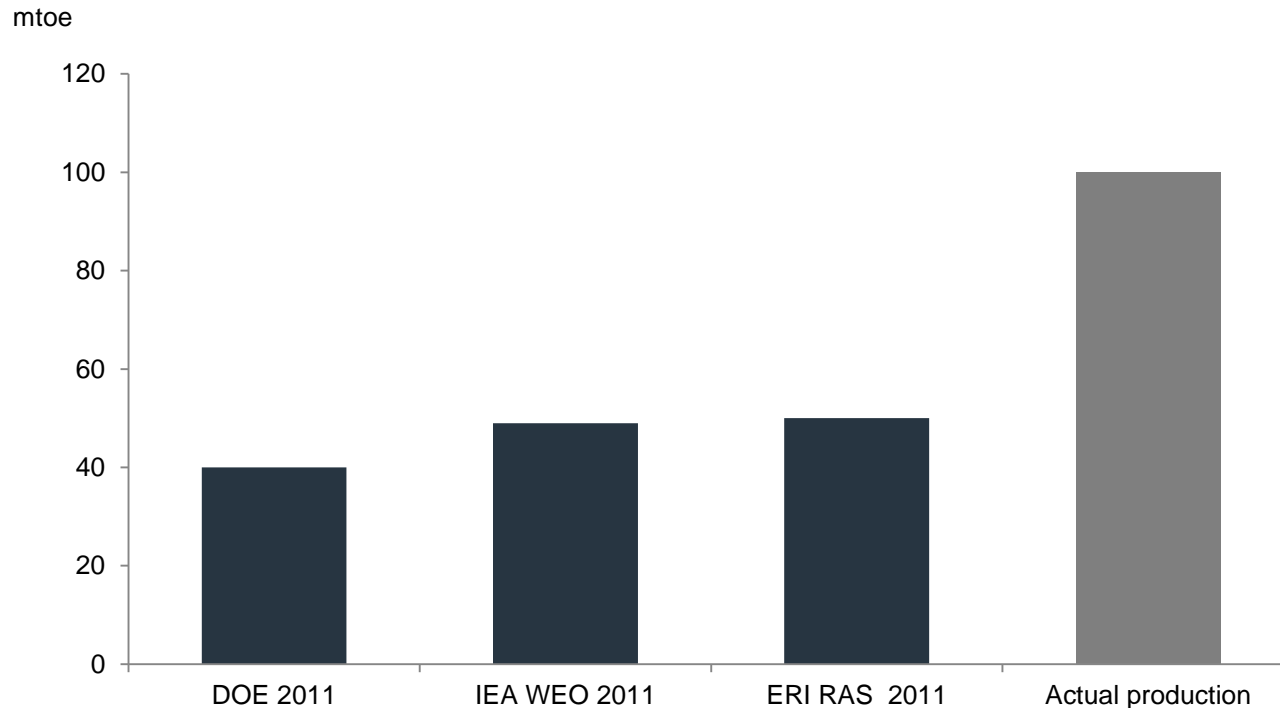
Liquid fuel supply and demand balance by 2040, Baseline Scenario



Source: Global and Russian Energy Outlook up to 2040. ERI RAS-AC. 2013.

Unconventional oil potential, especially for low-permeability of US shale formations, has been evidently underestimated

Evaluated and actual oil production from shale formations in the USA in 2012

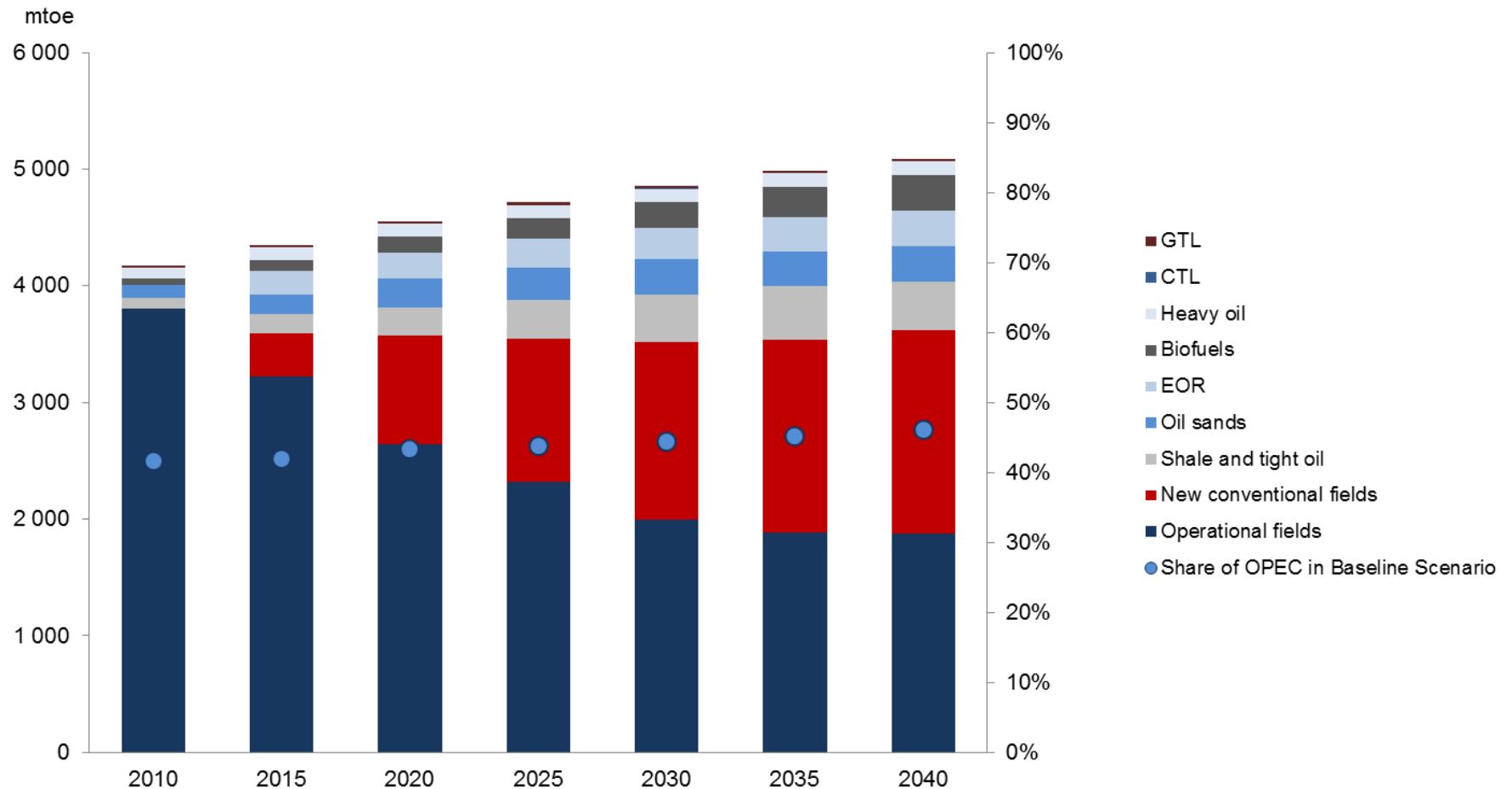


Source: ERI RAS

OIL PRODUCTION FROM SHALE PLAYS HAS INCREASED FROM 8M TONS IN 2007 TO 100M TONS PRODUCED IN 2012. SUCH A PACE IN THE DEVELOPMENT OF UNCONVENTIONAL OIL TURNS THE YESTERDAY'S "SHALE" SCENARIOS IN THE TODAY'S "BASELINE" ONES. IN OUR BASELINE SCENARIO, THE GLOBAL OIL PRODUCTION FROM THE SHALE PLAYS IS ESTIMATED TO REACH 420M TONS BY THE END OF THE FORECAST PERIOD AND IT WILL BE MOSTLY PROVIDED BY THE NORTH AMERICAN PLAYS.

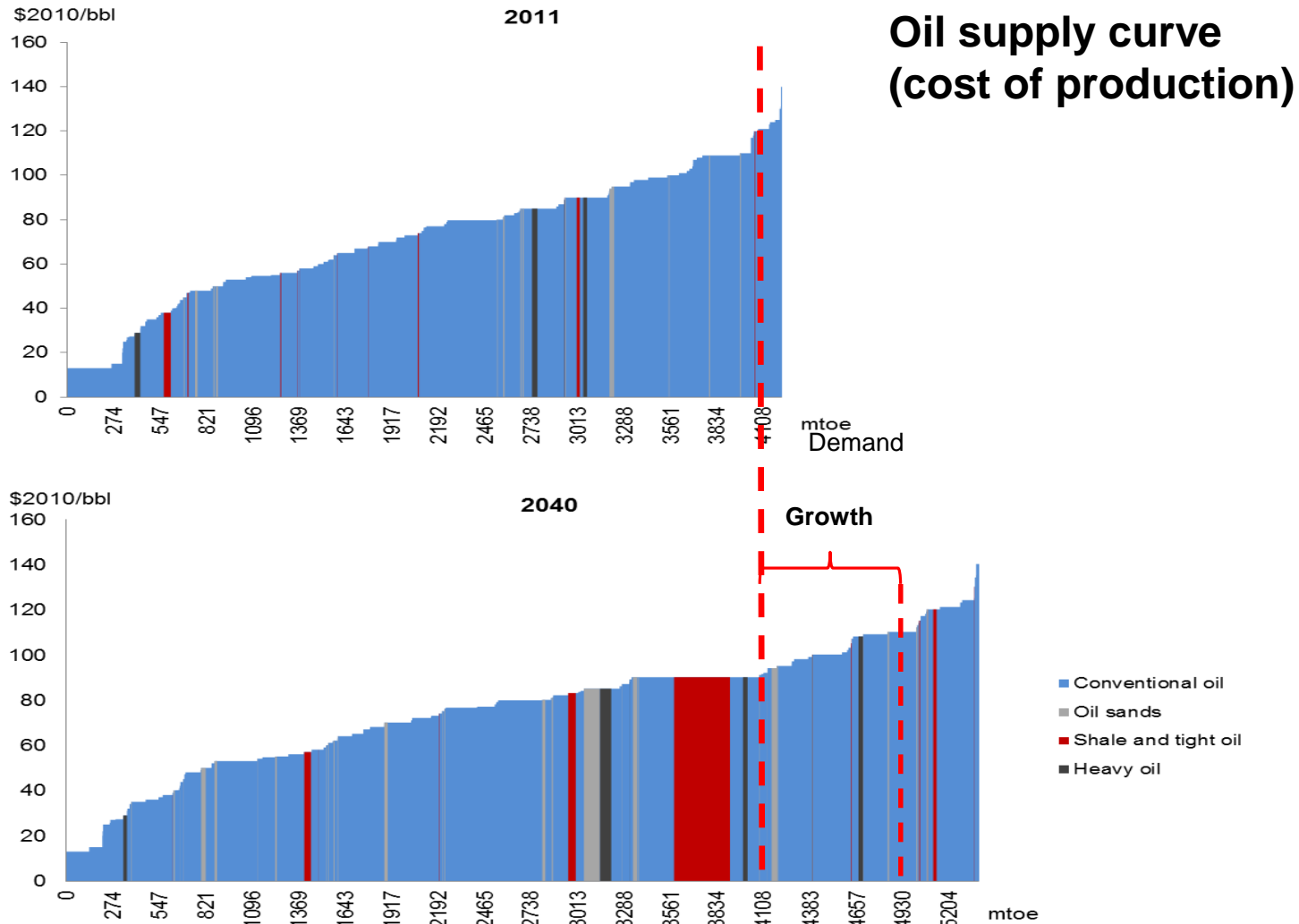
Unconventional oil will reach 16% of total liquids production by 2040

Dynamics of liquid fuels supply structure, Baseline Scenario



Source: Global and Russian Energy Outlook up to 2040. ERI RAS-AC. 2013.

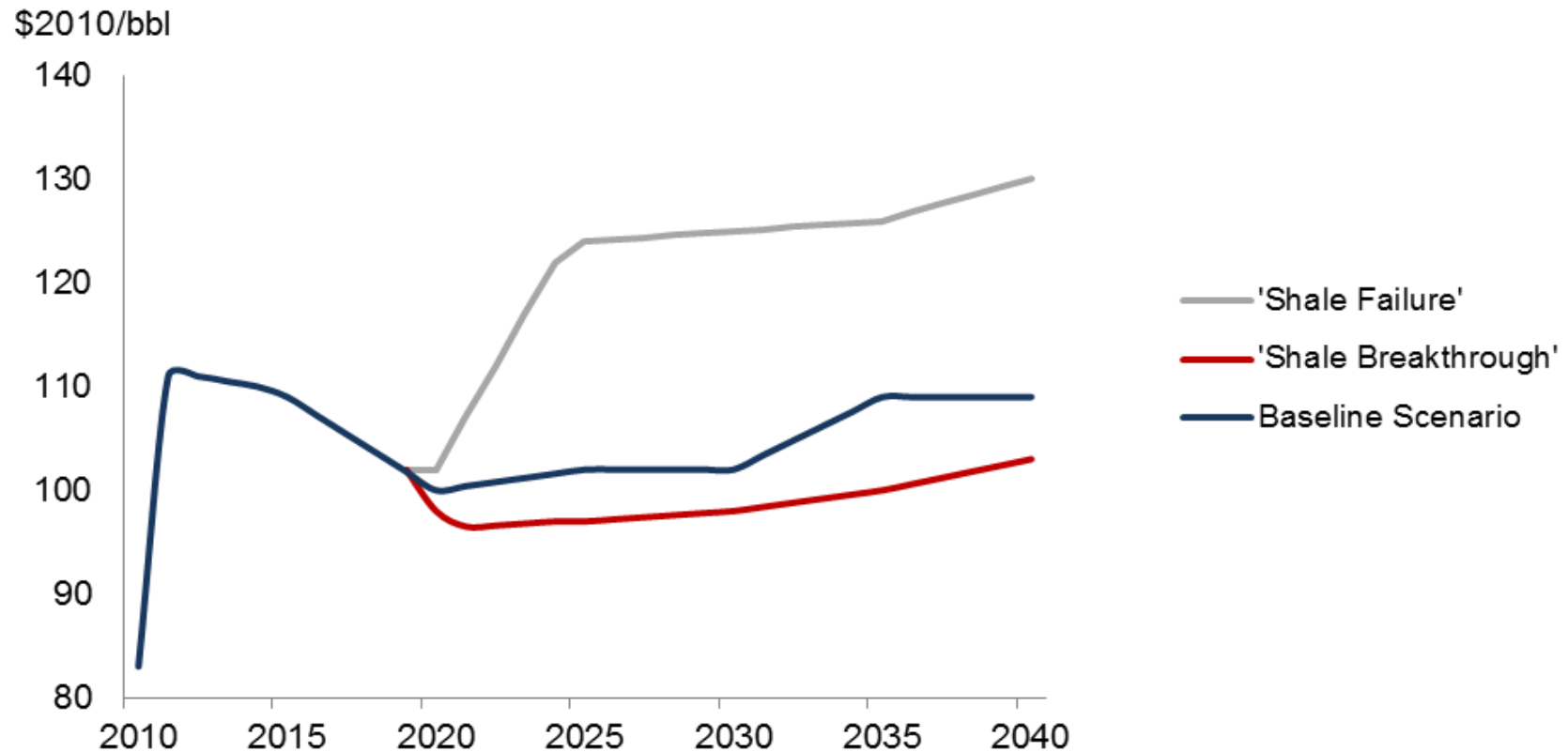
By 2040, the supply of oil will increase by 1 bn tons
There are no fundamental reasons for significant growth of oil prices at the forecasted levels of demand



Source: ERI RAS

Equilibrium oil prices decrease up to 2020 and afterwards do not exceed 130 \$/bbl

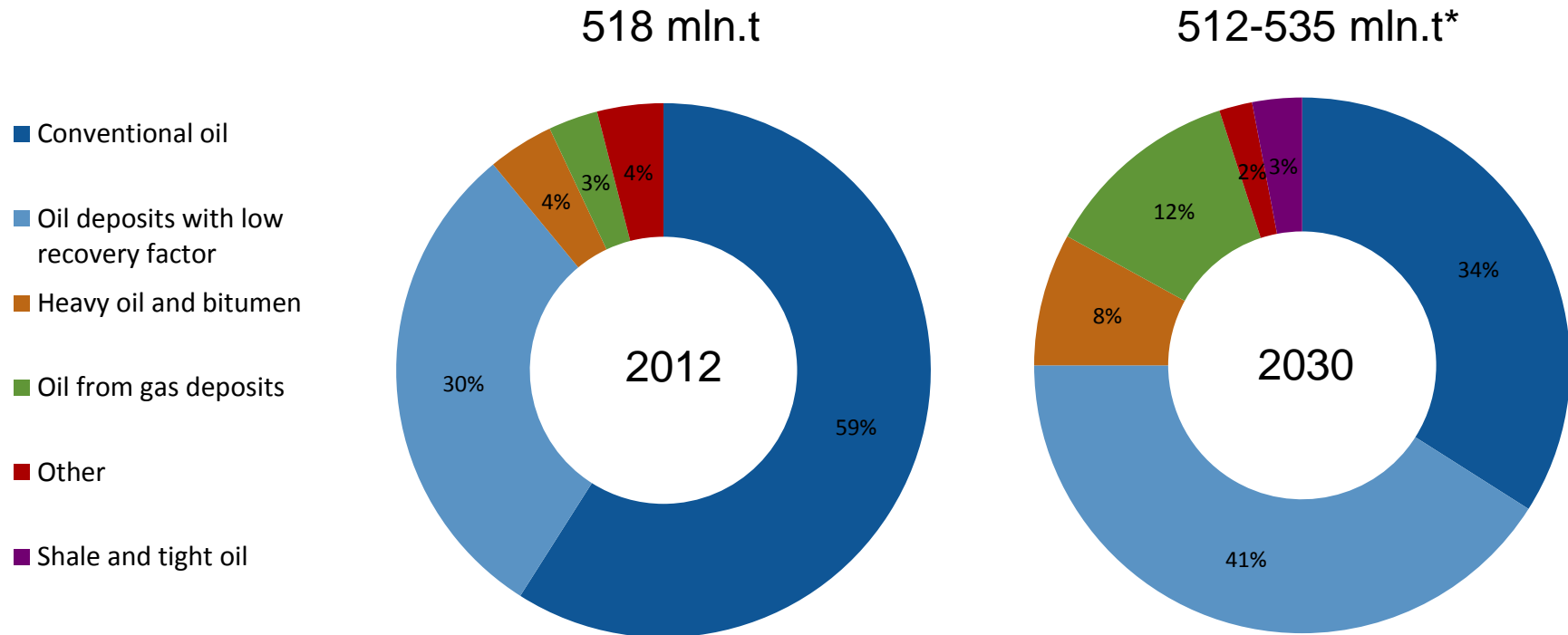
Equilibrium oil prices in the three scenarios



Source: Global and Russian Energy Outlook up to 2040. ERI RAS-AC. 2013.

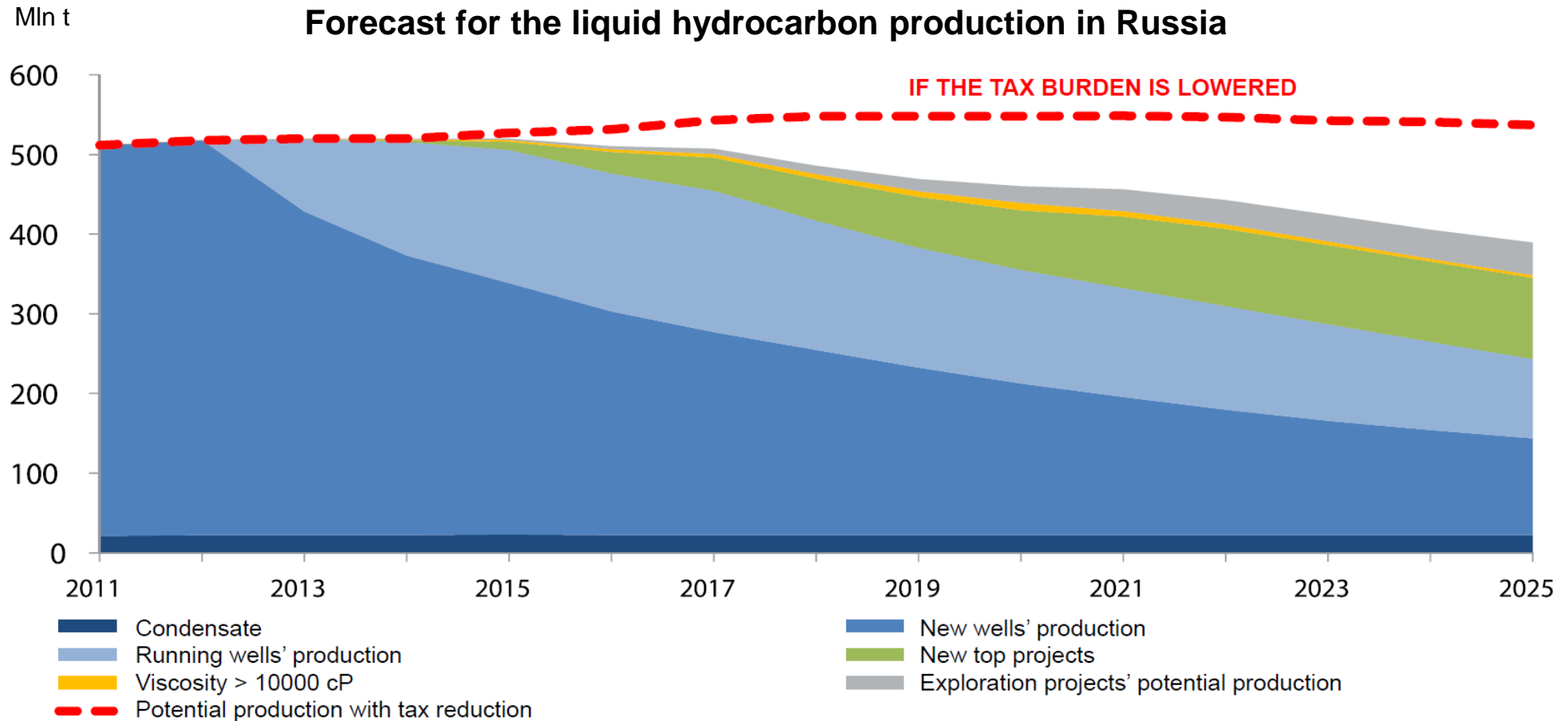
Main part of the Russian conventional oil is concentrated in the declining Soviet-time fields

Structure of the Russian oil production



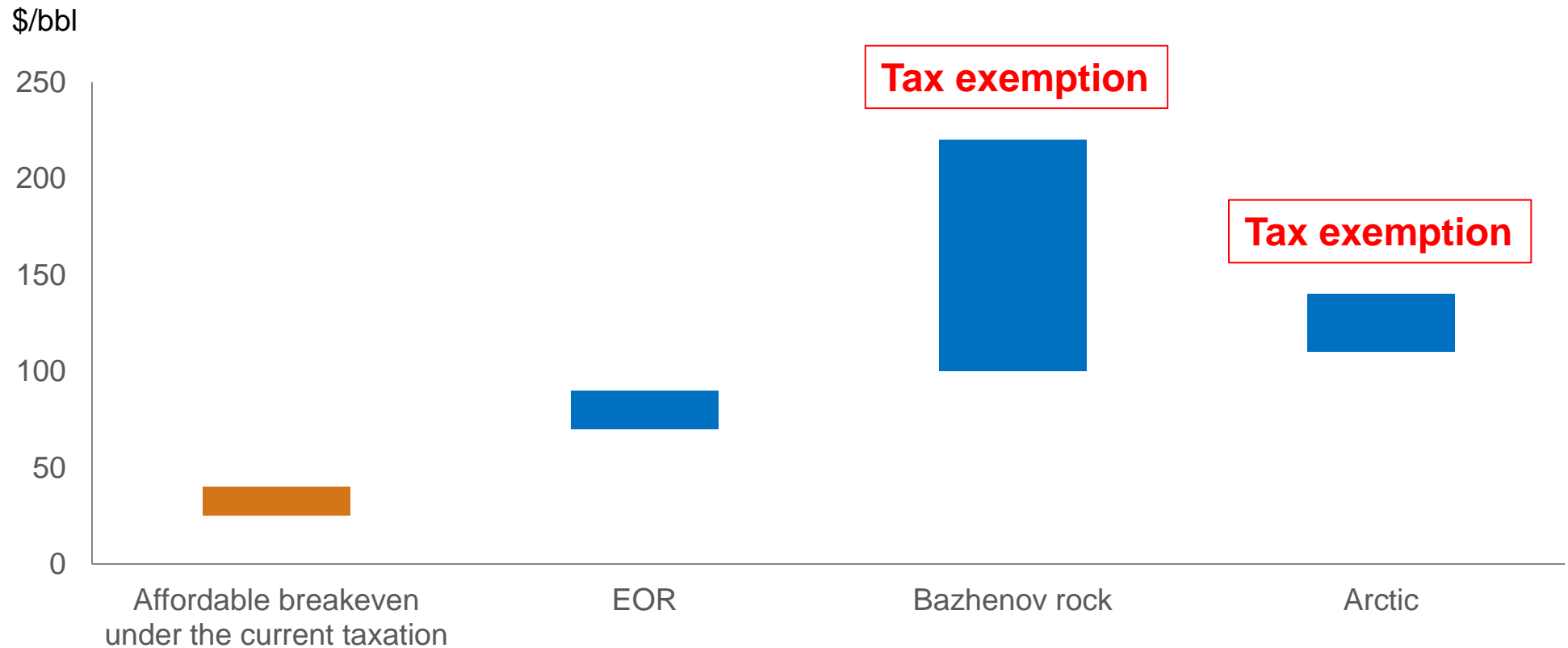
* According to the Energy Strategy-2030 and Social-Economical Development Forecast Up To 2030

In order to sustain production, Russia needs to develop new fields, which, however, are not competitive under the current tax regime



Sources: CDU TEK, LUKOIL.

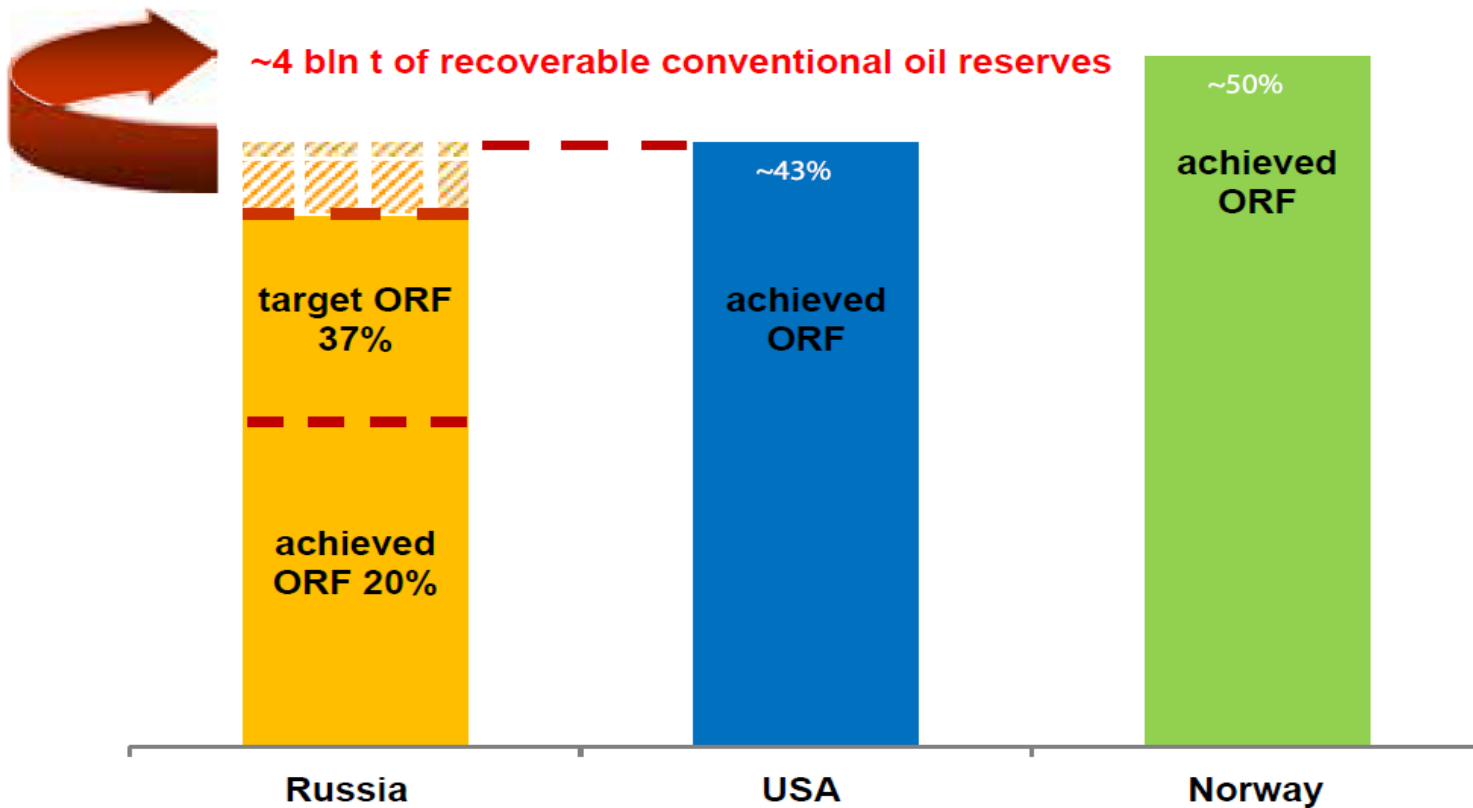
The Mineral Extraction Tax and export tax require much lower breakeven costs



Source: ERI RAS.

Russia still has a huge potential for Enhanced Oil Recovery, but adjustments of the tax regime are necessary

Potential for increasing ORF in Russia



Sources: Energy Ministry, LUKOIL.

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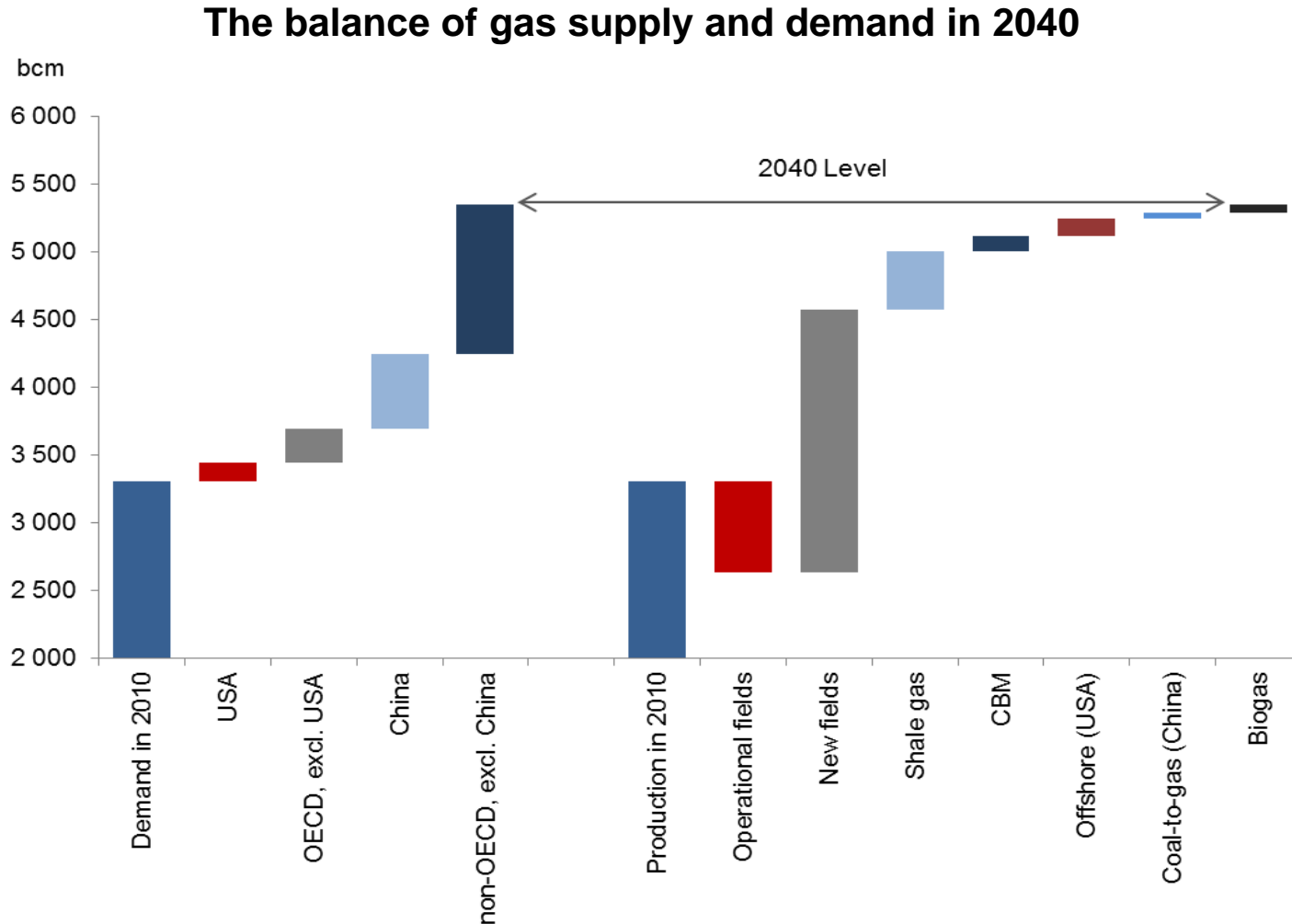
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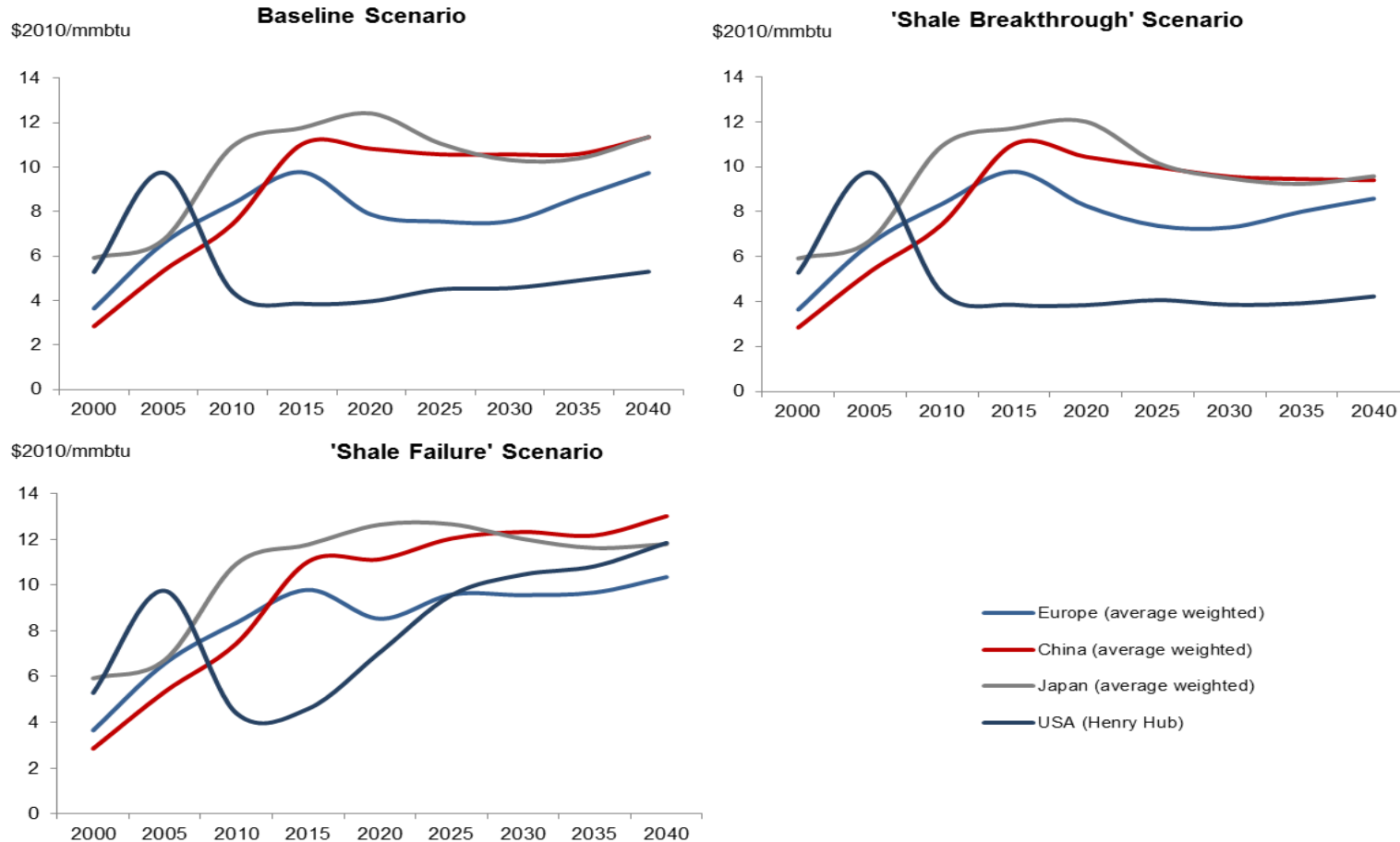
Global gas market development: incremental demand will be concentrated in the non-OECD countries



Source: Global and Russian Energy Outlook up to 2040. ERI RAS-AC. 2013.

In the long-term average weighted regional gas prices are not expected to increase significantly

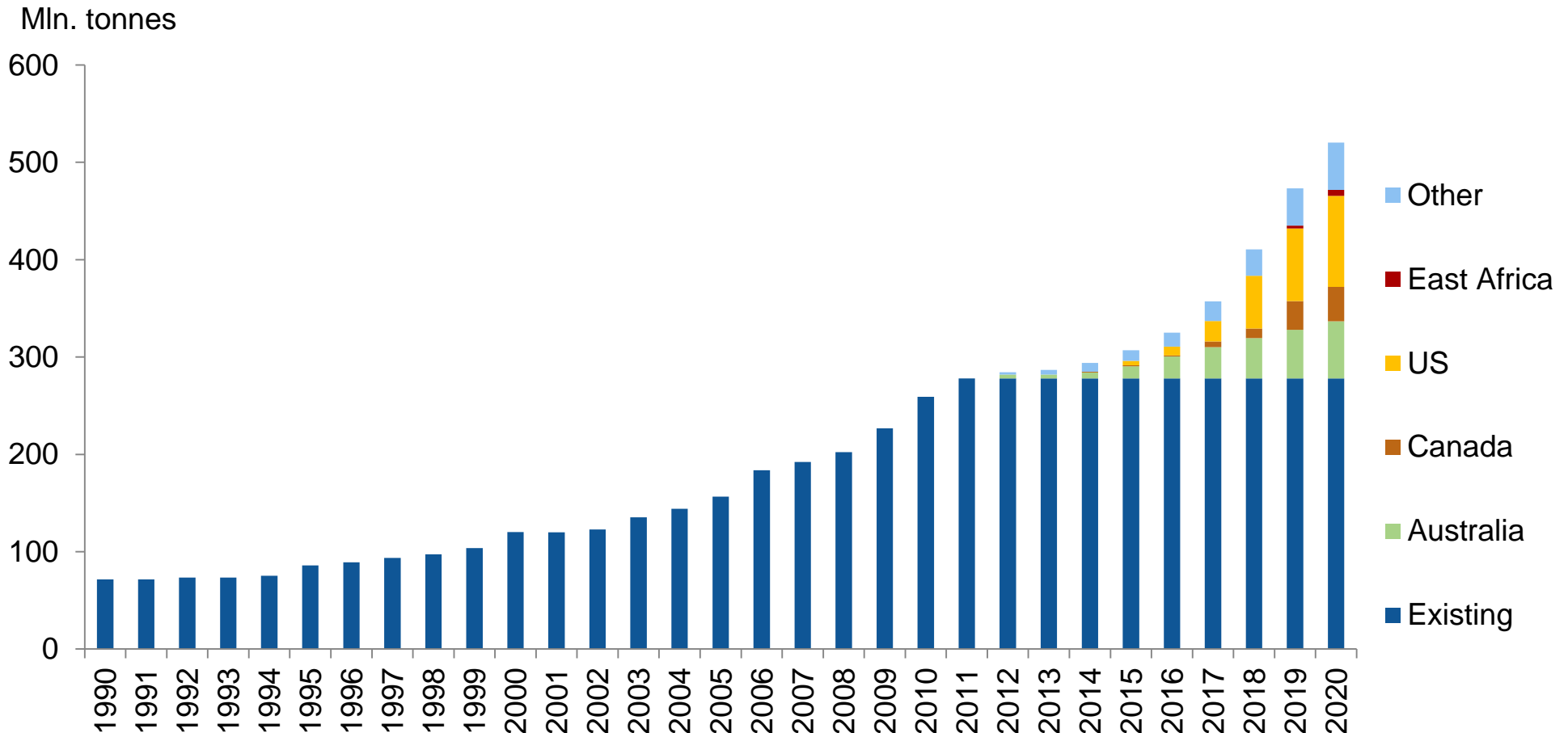
Equilibrium gas prices in the three scenarios



Source: Global and Russian Energy Outlook up to 2040. ERI RAS-AC. 2013.

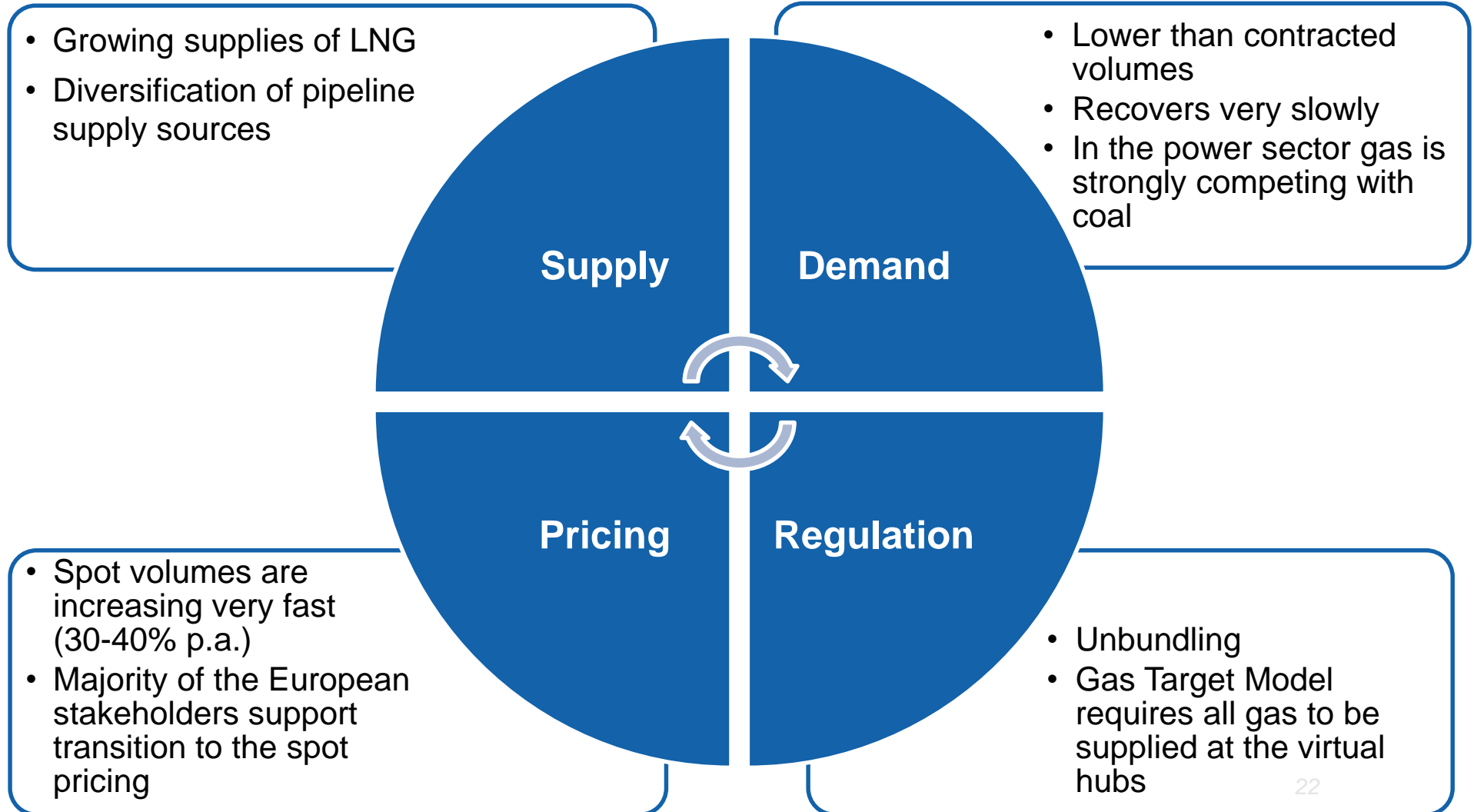
Global LNG supply is expected to boom by the end of this decade with Australia, USA and Canada becoming the largest market players

Global liquefaction capacities (existing and planned)



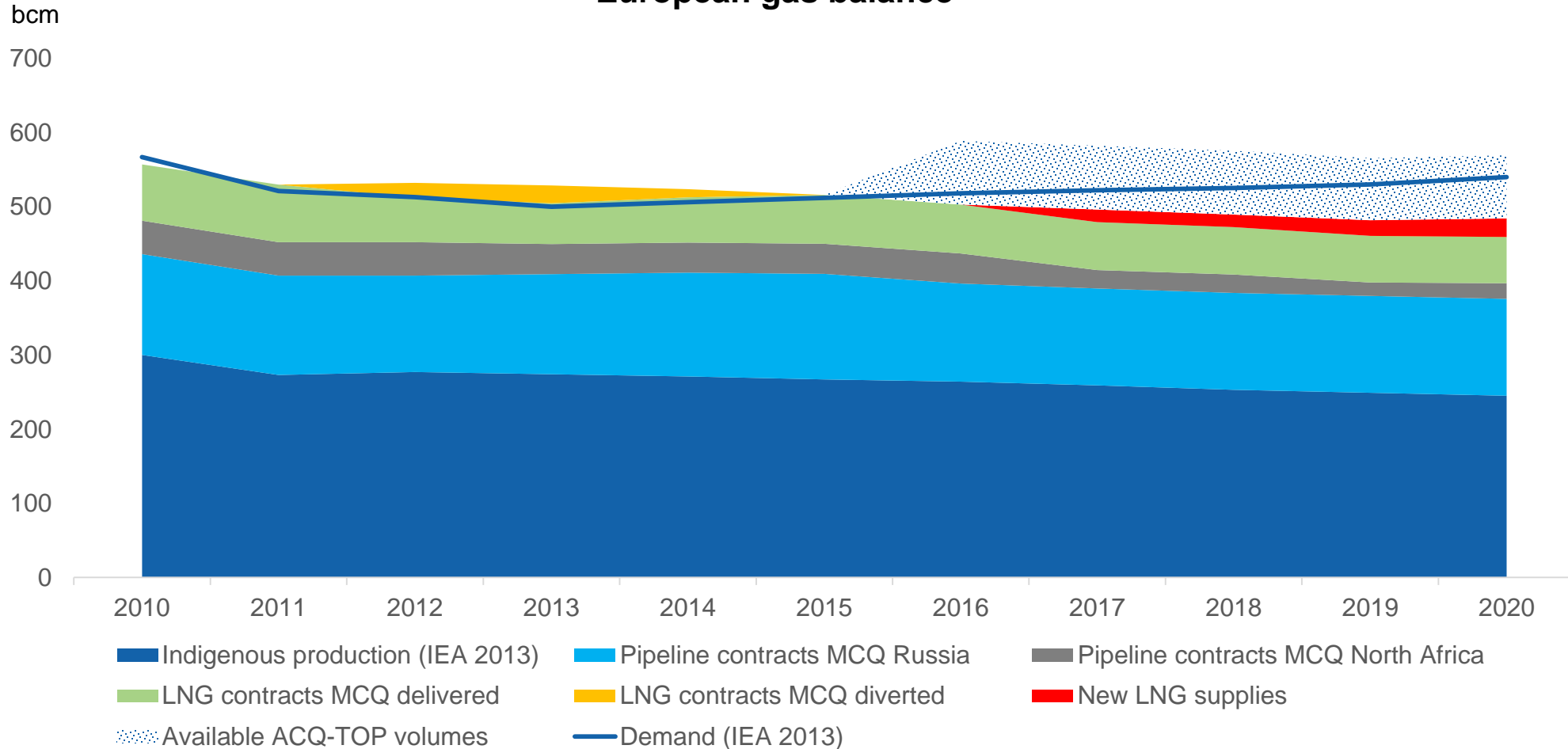
Source: ERI RAS

Situation on the European gas market during the last years did not favor Russian exports...



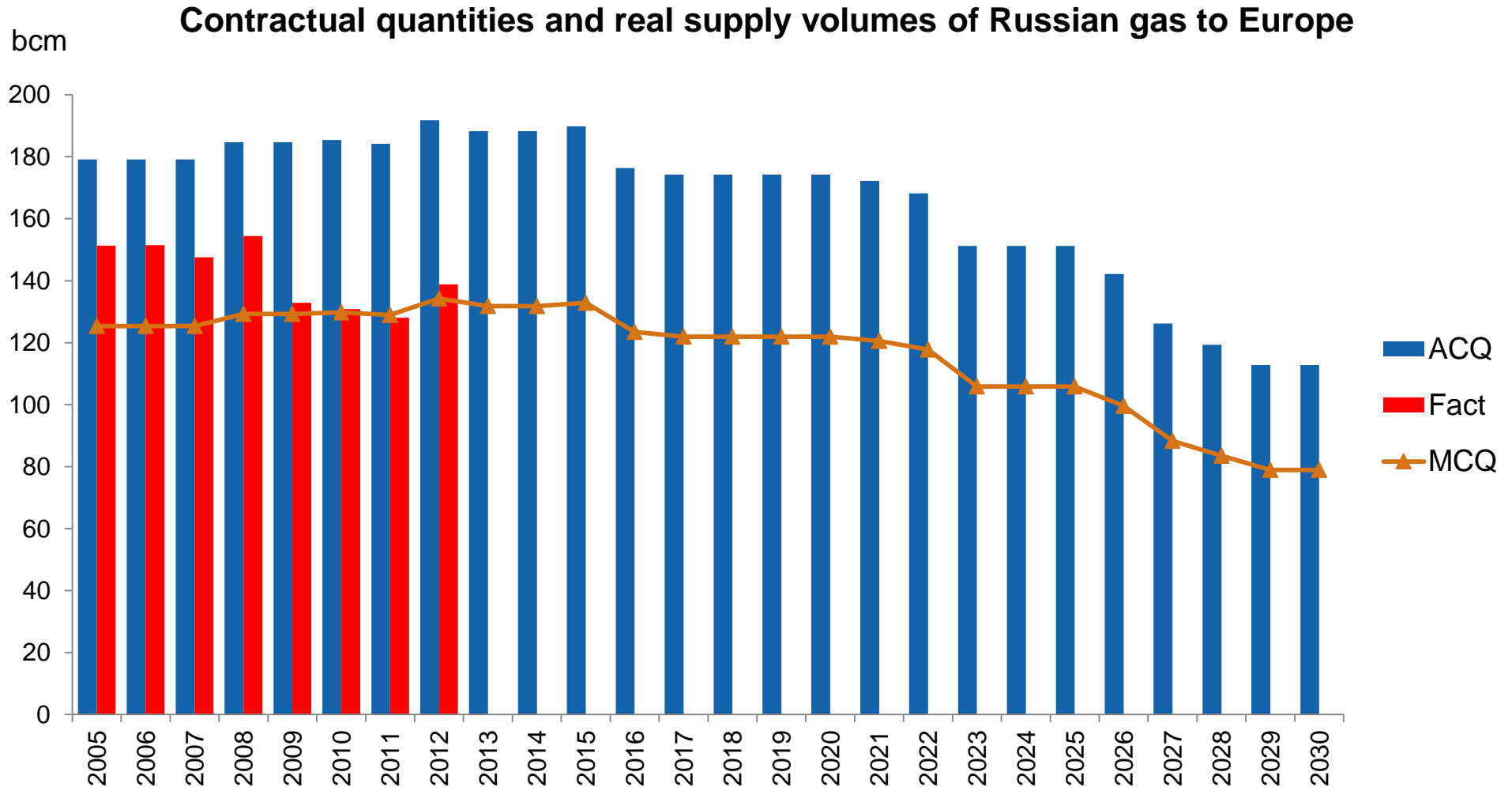
**...but European gas market is going to be tight until 2015-2016
as LNG is diverted to Asia; post 2016 very limited new supplies will become
available and there will be an additional call on the over-take-or-pay
volumes: good opportunity for Russia to enhance its position**

European gas balance



Source: WEO2011, IEA; Cedigaz; ERI RAS.

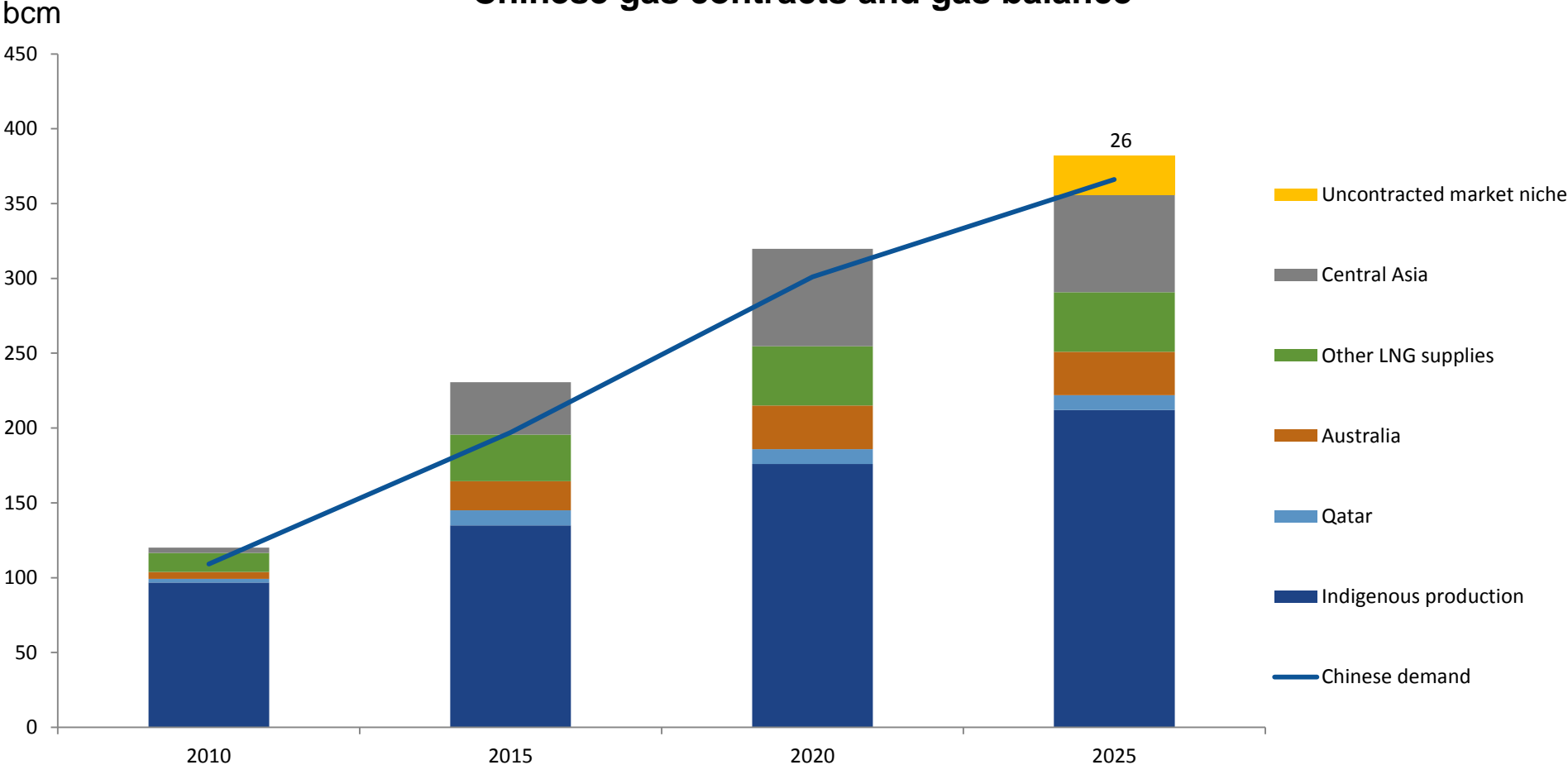
...ensured by the existing portfolio of the long-term contracts, which guarantees stable sales volumes for Russia until at least 2022



Sources: Cedigaz, Gazprom, ERI RAS.

There is still market niche for Russian gas in in China post 2020

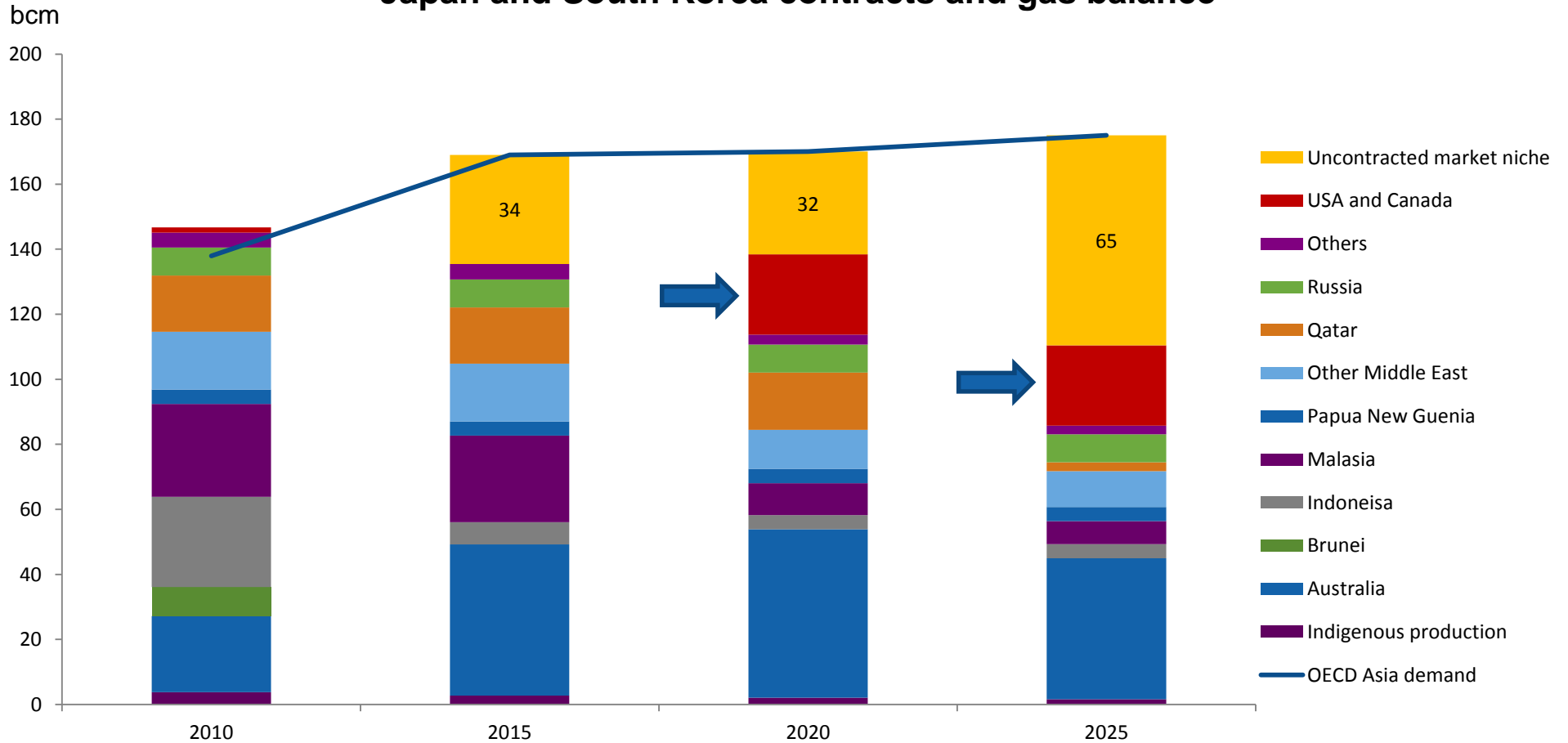
Chinese gas contracts and gas balance



Sources: IEA, Cedigaz, Enerdata, ERI RAS.

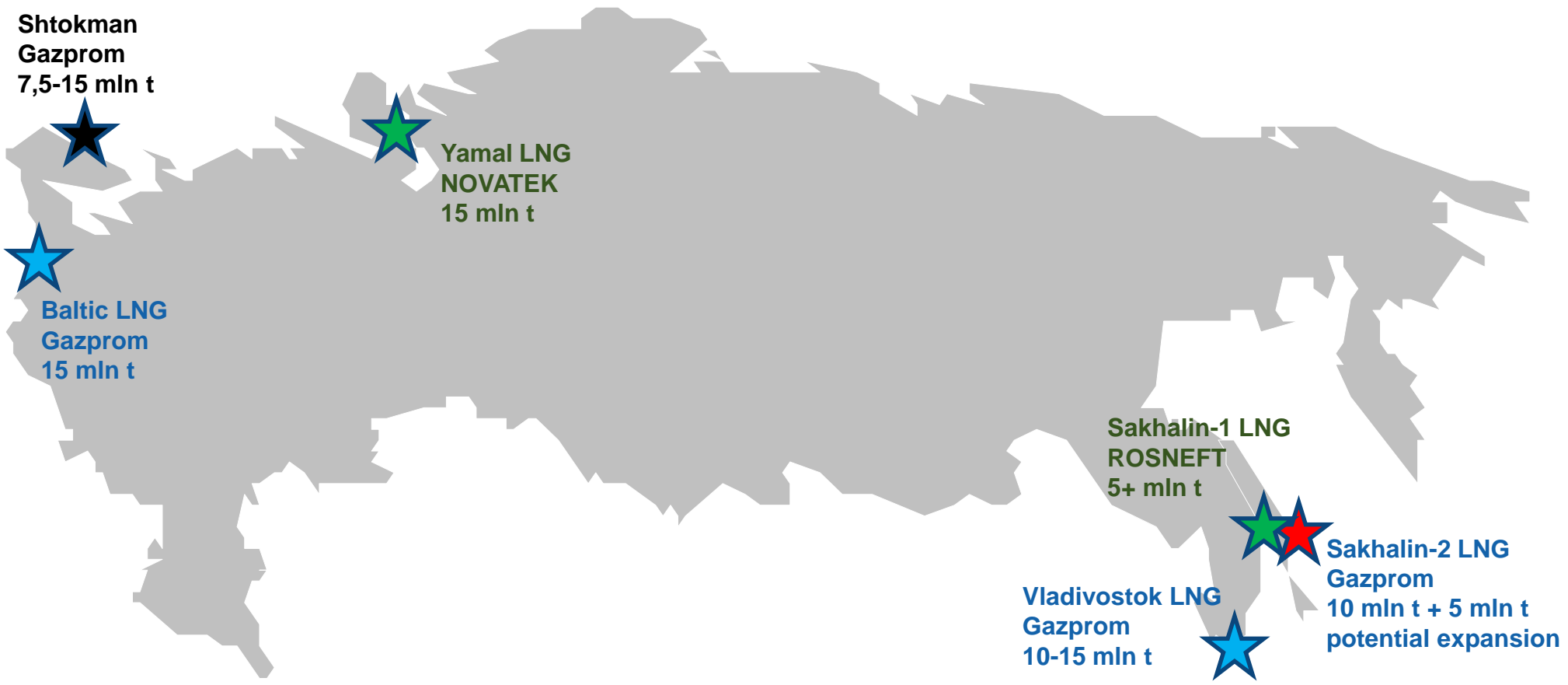
and OECD Asia is looking for Russian gas (though quickly contracting the North American LNG as well)

Japan and South Korea contracts and gas balance



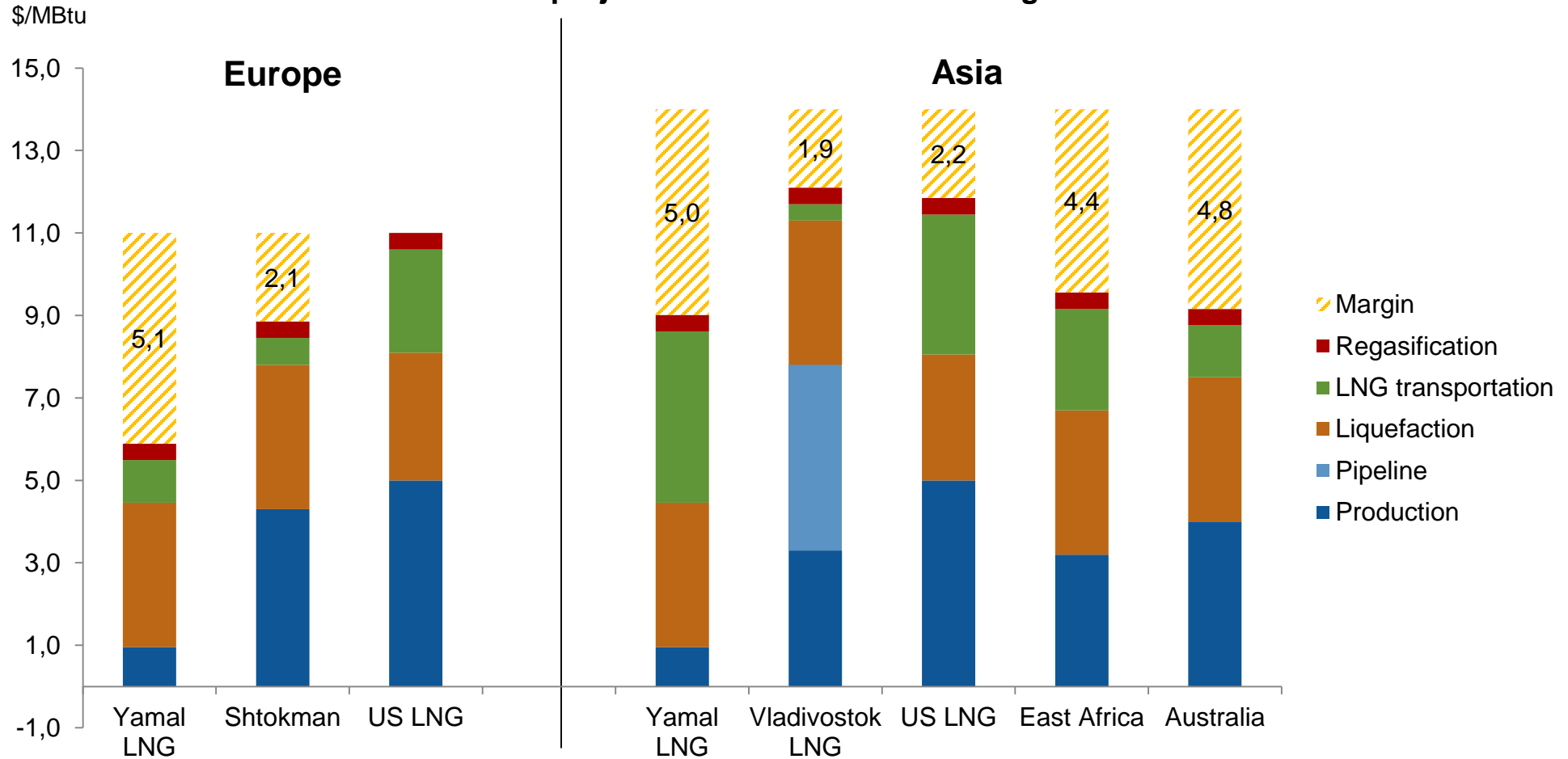
Sources: IEA, Cedigaz, Enerdata, ERI RAS.

Law in LNG export liberalization opens new opportunities for monetization of the Russian gas reserves



Despite challenging conditions, Russian LNG projects are competitive, though they require strict cost management

LNG projects delivered costs and margins



Source: NEXANT, ERI RAS..

Conclusions

- ❑ More competitive external environment and domestic challenges are creating less favorable conditions for the Russian oil and gas industry. It will hardly be able to provide the same high share of the budget incomes in the future. ERI RAS estimates show, that unfavorable situation on the export markets could lead to lower export volumes and slow down Russian GDP growth by 1% p.a.
- ❑ Russian **gas industry still has a huge potential for export growth**, but it requires strict costs control, cautious evaluation of the export projects and more flexible pricing system.
- ❑ **Oil production in Russia can be maintained** through development of the following areas:
 - enhanced oil recovery at existing fields
 - development of unconventional reserves
 - development of the new frontiers: new provinces in the Eastern Siberia and Arctic offshore
- ❑ **International consortia** could enable the Russian oil and gas industry to:
 - attract foreign investment and apply advanced technology;
 - ensure tight control over costs and other business results;
 - access new markets for product sales; and
 - facilitate access to logistics and adapt to the rules of international markets.
- ❑ **Energy saving**. Russia has a huge potential (energy consumption could be decreased by 30% based on comparable OECD efficiencies)

Contacts

Energy Research Institute of the Russian Academy of Sciences

"Global and Russian Energy Outlook up to 2040"

http://www.eriras.ru/files/Global_and_Russian_energy_outlook_up_to_2040.pdf

Nagornaya st., 31, k.2, 117186, Moscow,
Russian Federation

phone: +7 985 368 39 75

fax: +7 499 135 88 70

web: www.eriras.ru

e-mail: mitrovat@rambler.ru