

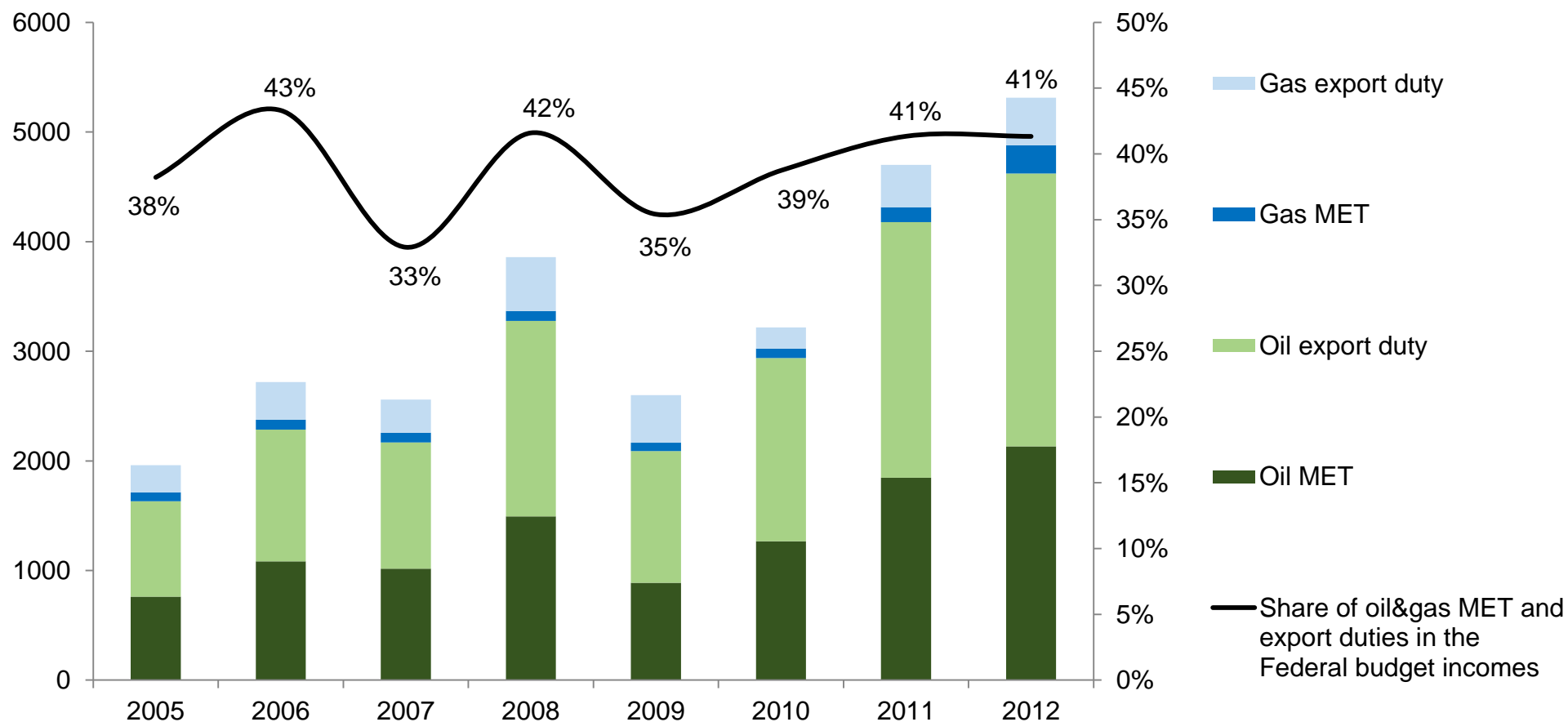
Russian Energy Sector At The Crossroad: New Challenges

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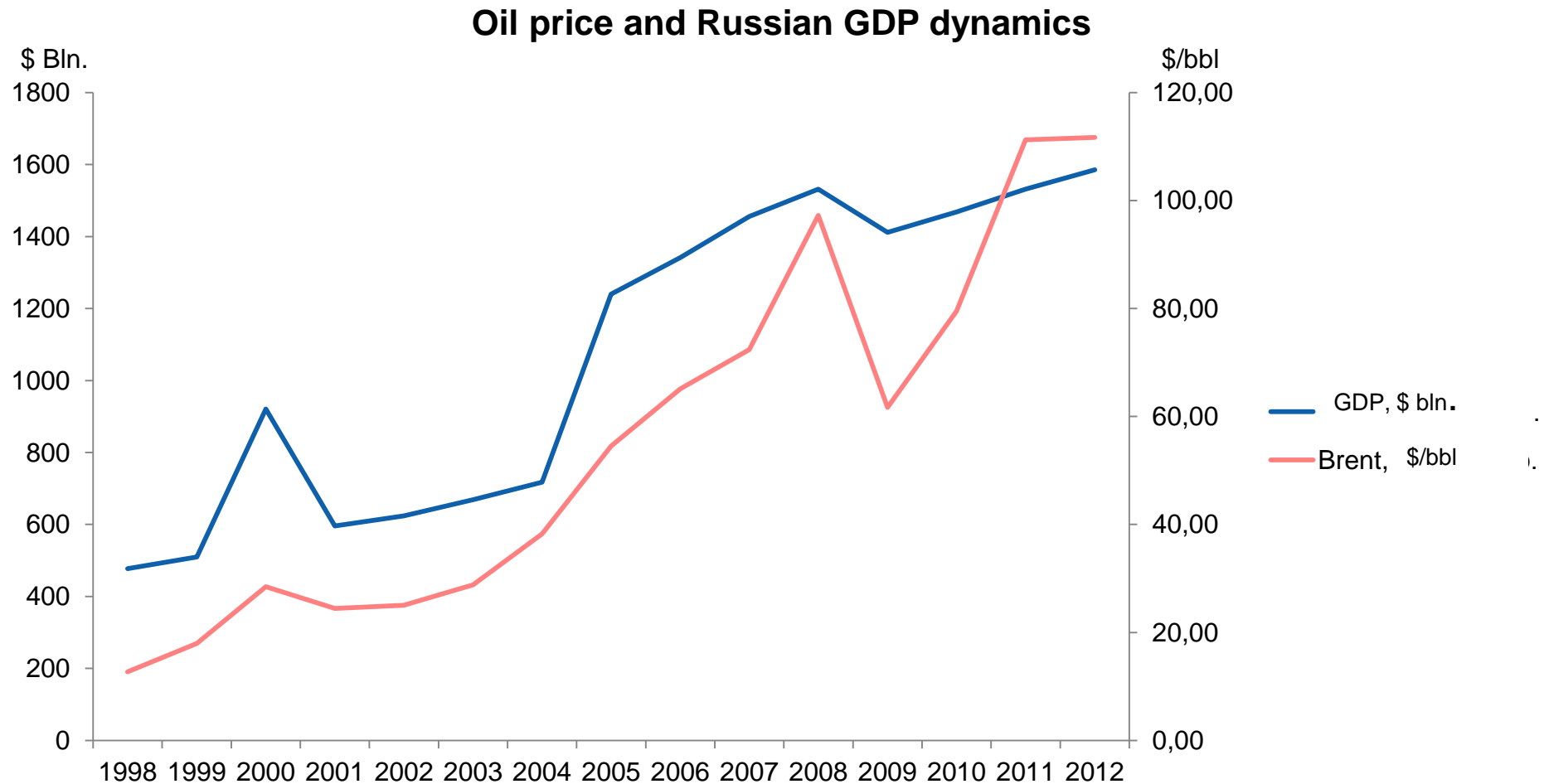
The role of oil and gas for the Russian Federal budget is huge

Oil and gas taxes and duties in the Federal budget



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

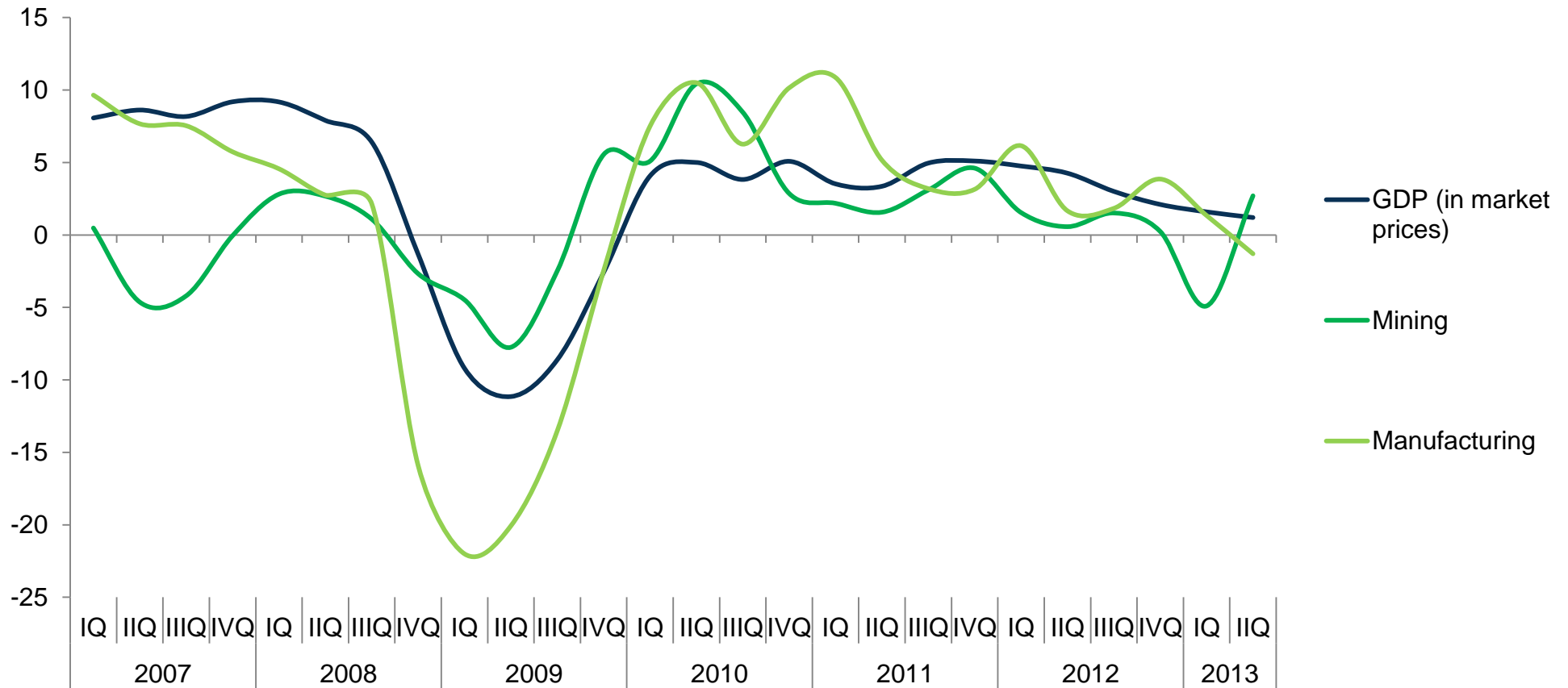
Not only energy sector, but the whole Russian GDP growth is based on the oil prices



Sources: ERI RAS, BP Statistical Review of the World Energy 2013.

Russian economy is facing recession

GDP and industrial value added growth (as % to the corresponding quarter of the previous year)



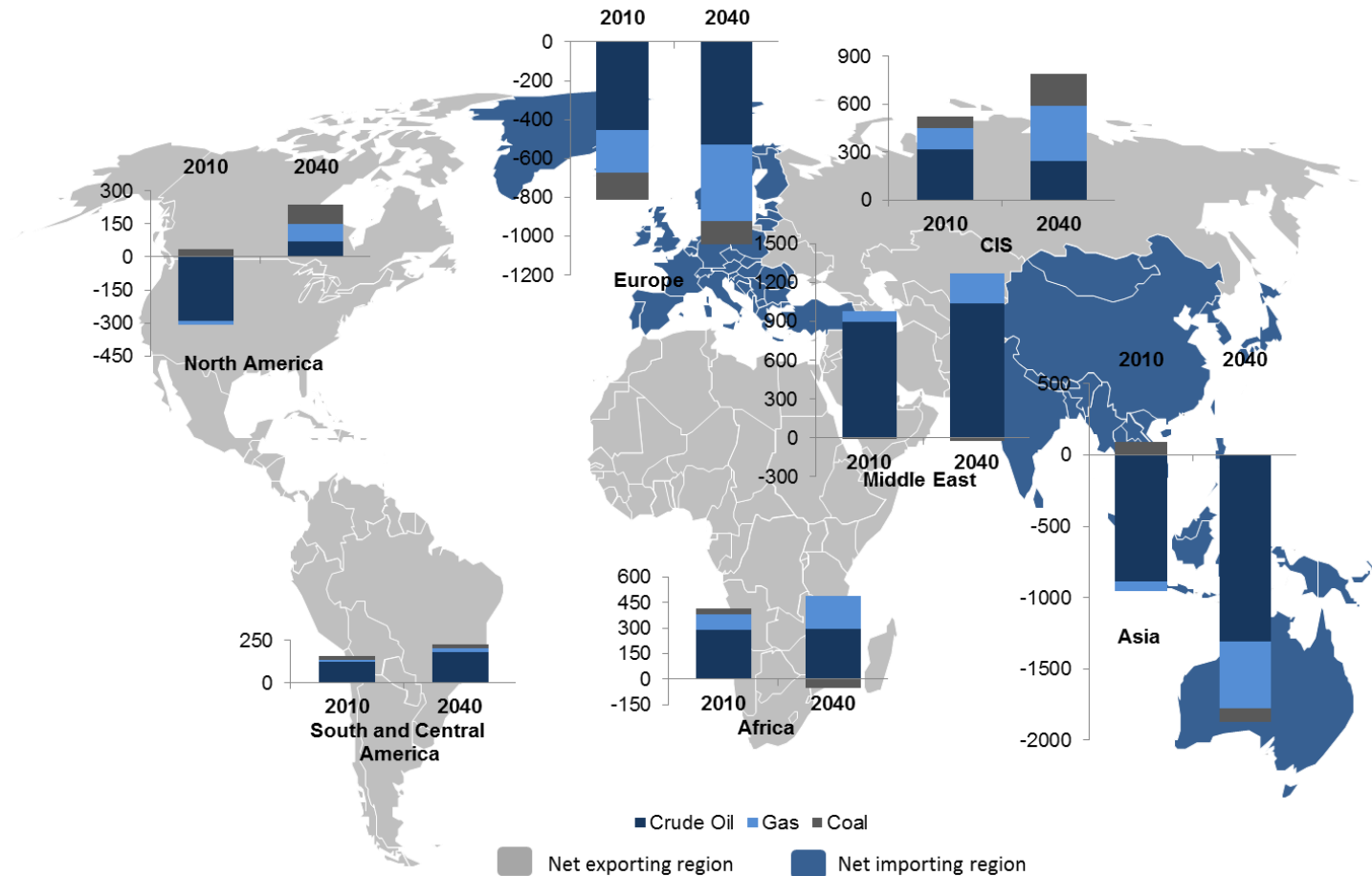
Source: Rosstat

Global markets transformations are unfavorable for Russia

- ❑ **Slowing demand** (crises, structural changes, energy efficiency) **and shrinking market niches for the traditional suppliers** (shale revolution, new market participants).
- ❑ **Growing supply and increasing competition** with Australia, Brazil, East Africa and North America, which will target Russian core markets in Europe and Asia.
- ❑ **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.

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.

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

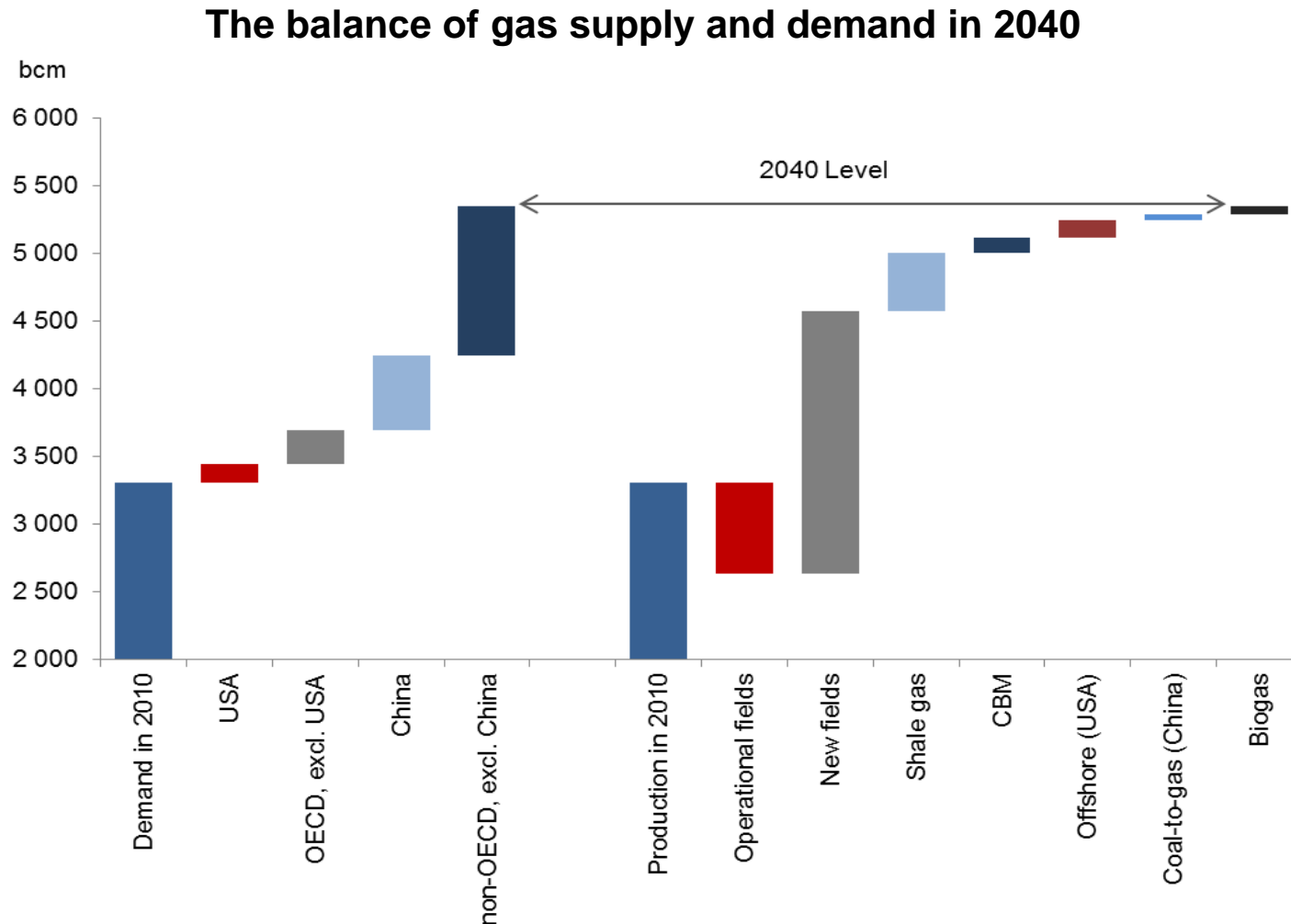
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HOW TO BREAK THE DEADLOCK?

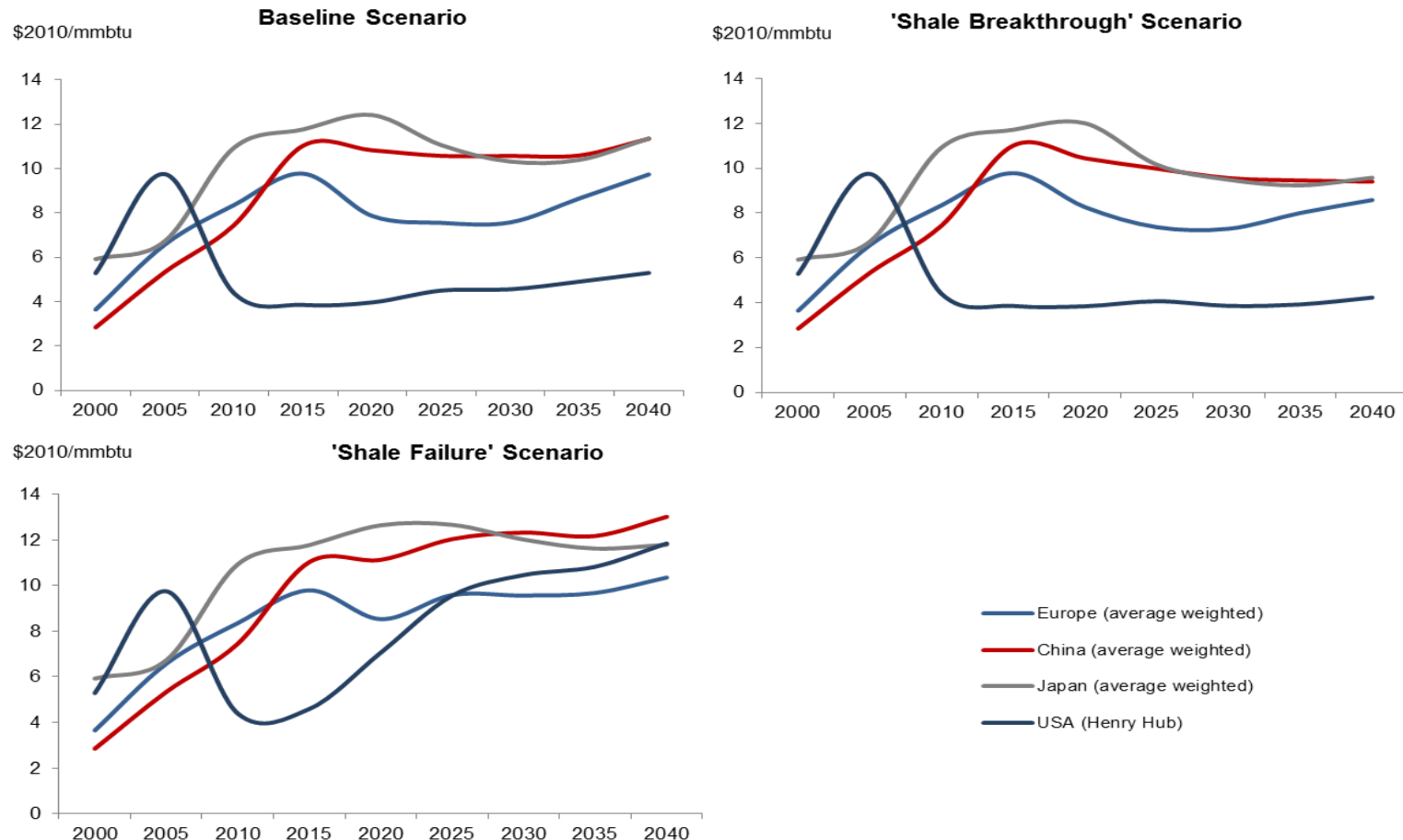
Global gas market development: incremental demand will be concentrated in the non-OECD countries



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 on the Russian main export markets

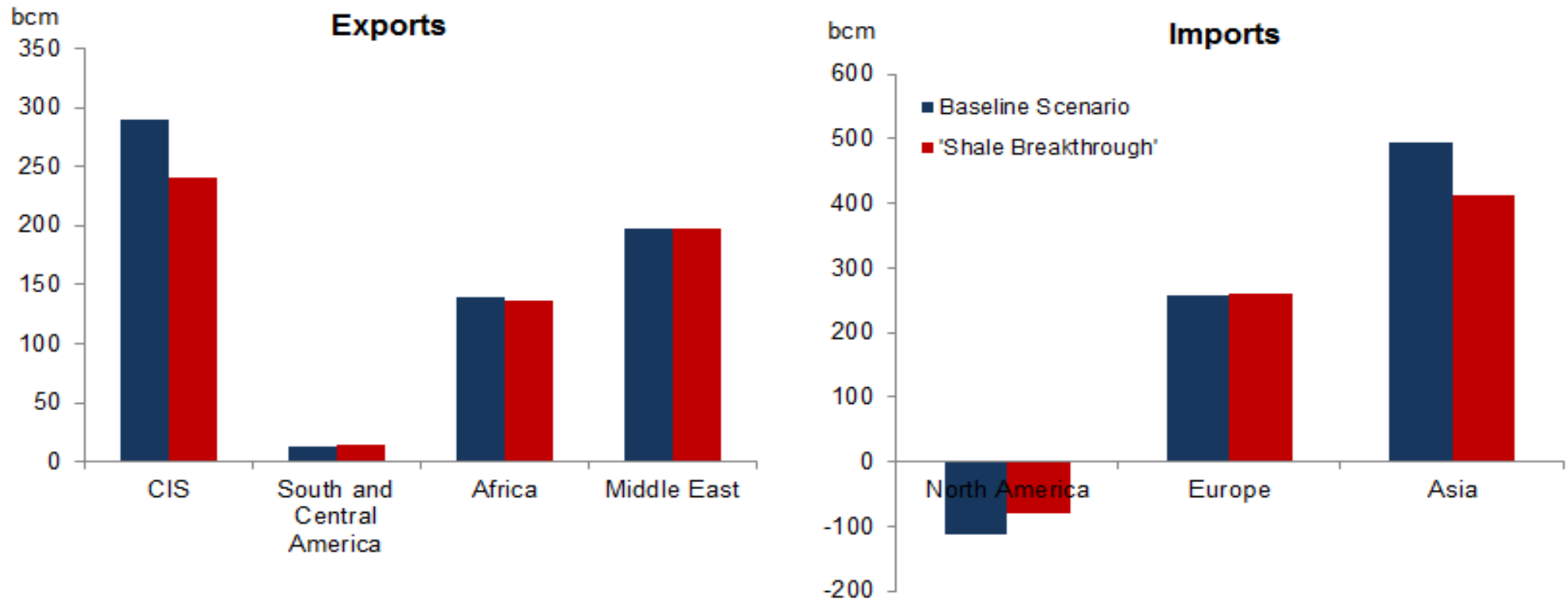
Equilibrium gas prices in the three scenarios



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

Russian gas export might be 70 bcma lower if there would be new breakthroughs in the shale technologies

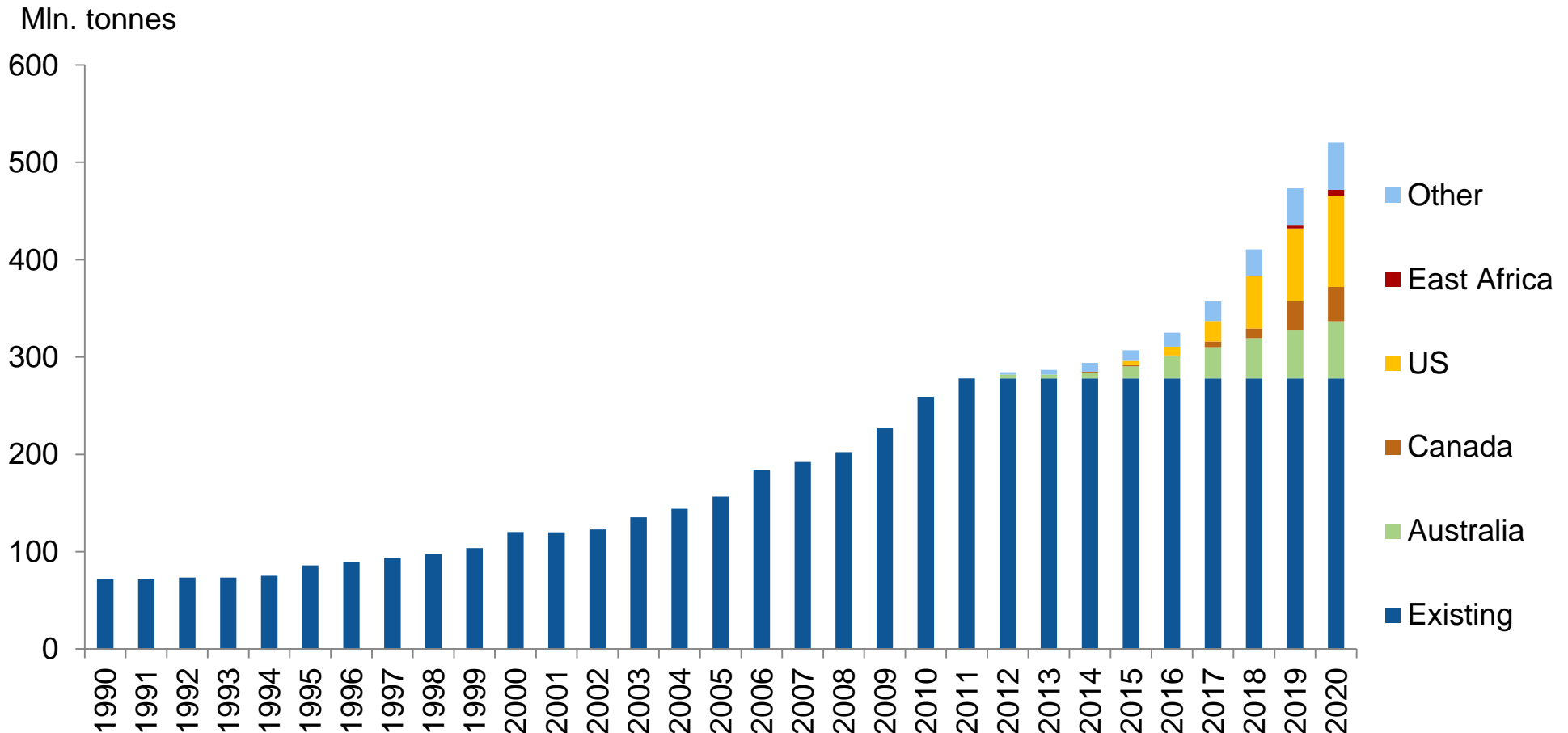
Changes of gas net export and import volumes in 2040 relative to 2010, Baseline and 'Shale Breakthrough' Scenarios



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

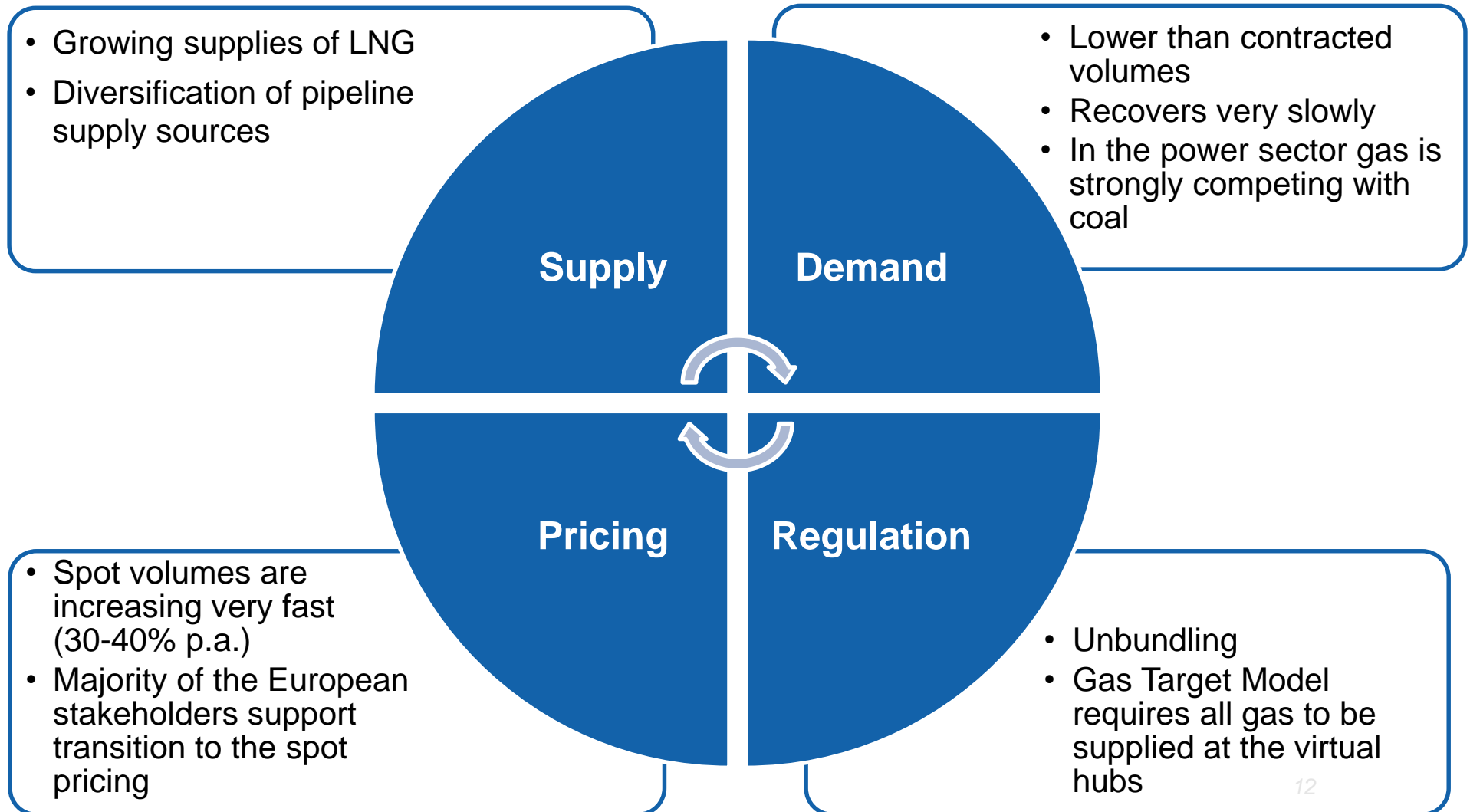
Global LNG supply is expected to boom by the end of this decade with Australia, USA and Canada becoming the largest market players

Global liquefaction capacities (existing and planned)



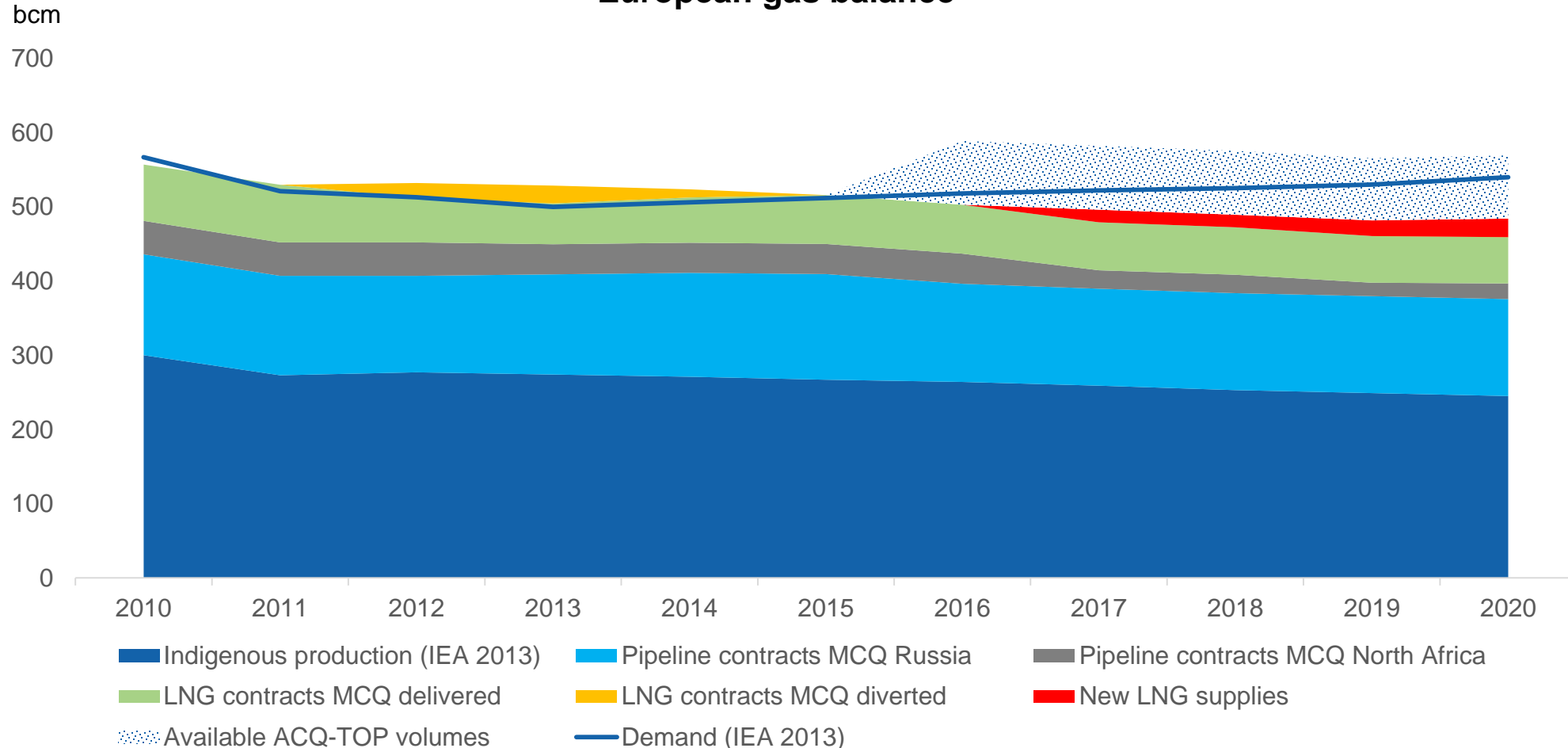
Source: ERI RAS

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**

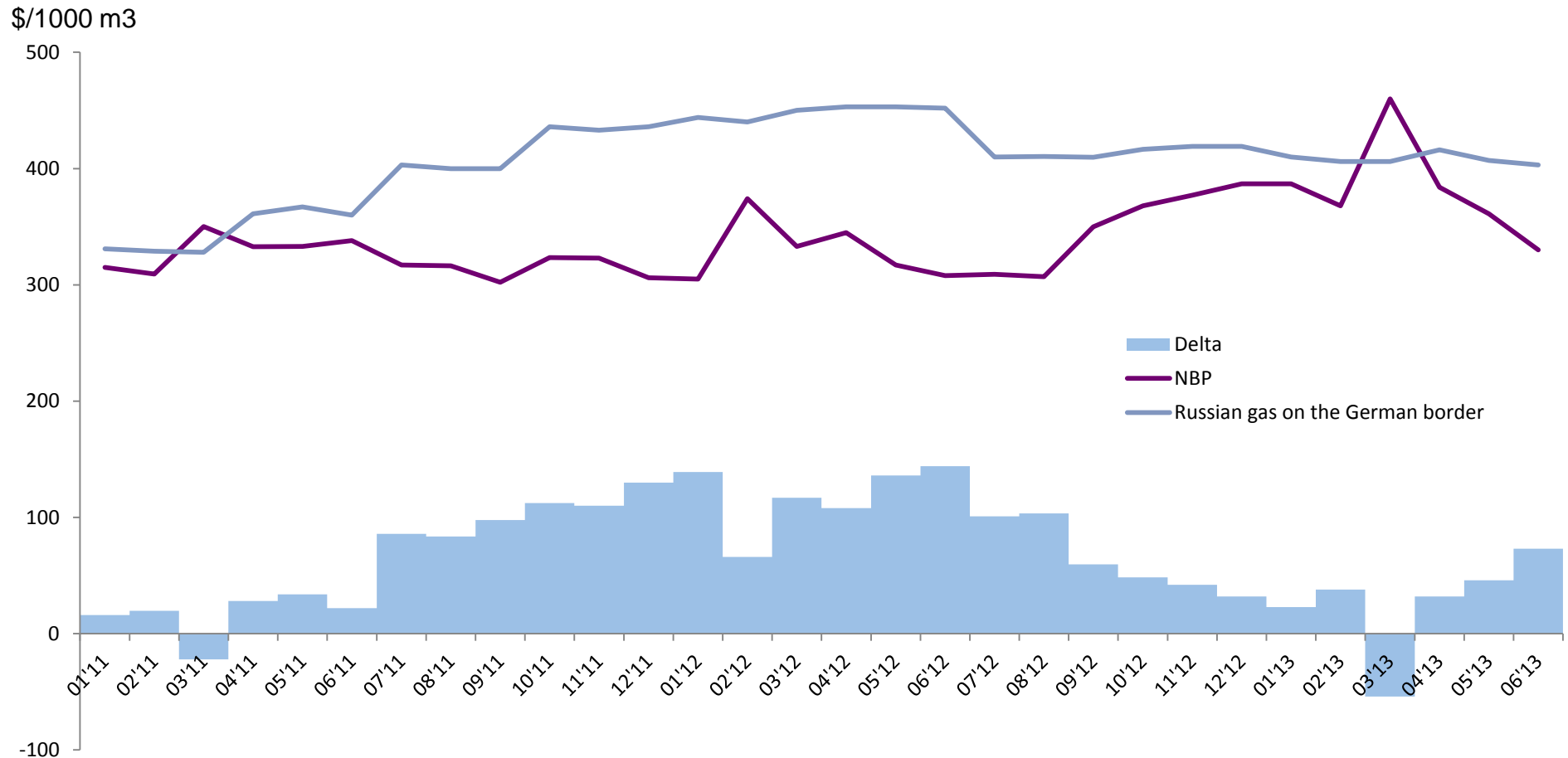
European gas balance



Source: WEO2011, IEA; Cedigaz; ERI RAS.

Russian position in Europe will largely depend on gas pricing: traditional “Groningen” model is questioned now, as even renegotiated oil-linked contract prices are higher than spot-based

European spot and oil-linked gas prices



Source: Bloomberg; ERI RAS.

Gazprom could give further price discounts and increase its market share, but Russia's strategic choice is in favor of the short-term profit maximization...



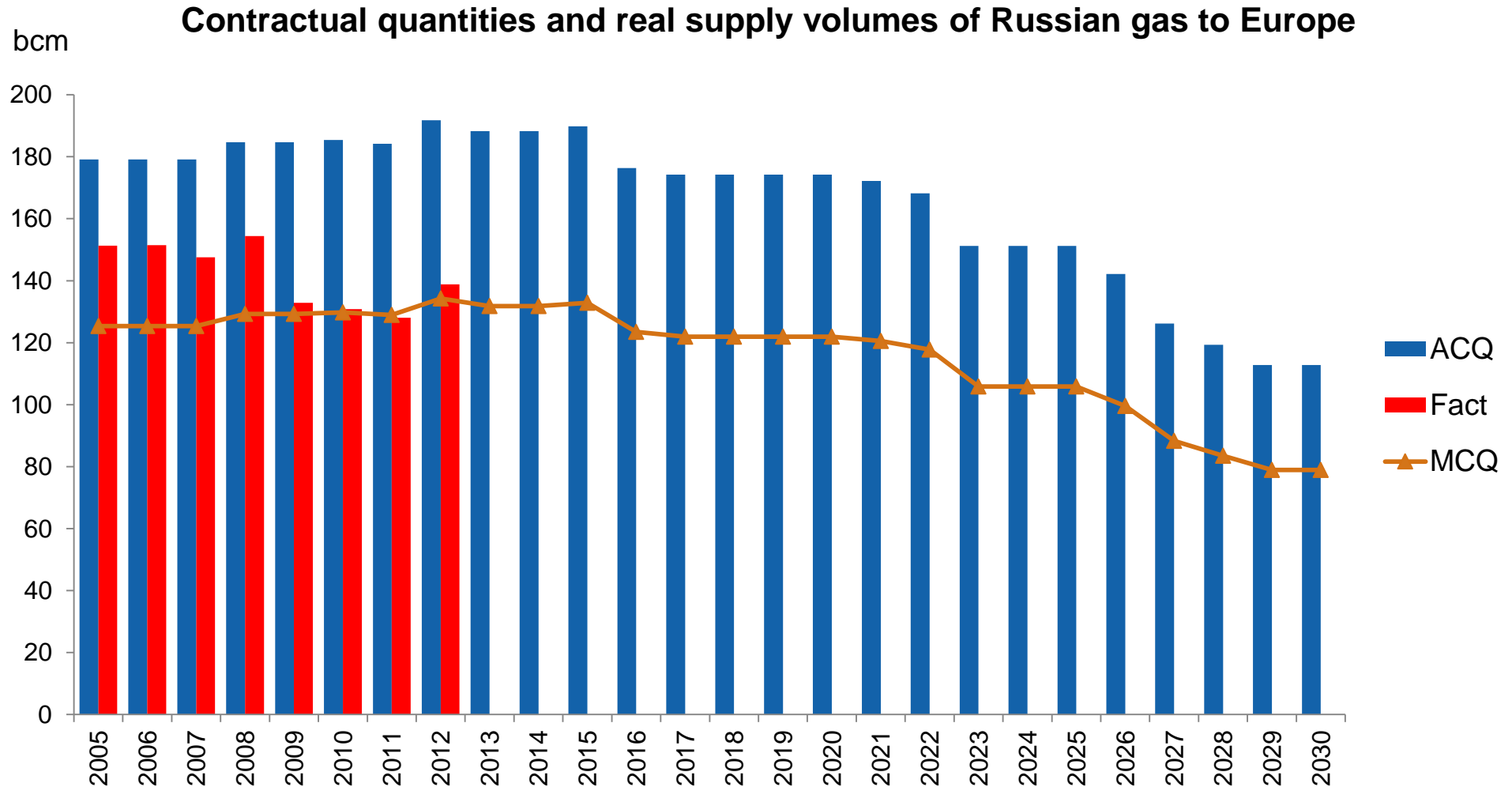
We were faced with the choice of whatever was **to maintain the supply volumes and the market share, or make the profit our high priority.**

As a public and commercially oriented company, Gazprom is interested in increasing profits to provide income to shareholders. Therefore, **the choice was made, the correct one, in favor of the revenues,** and the year results confirmed that.



*Alexander Medvedev,
Gazprom Export*

...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.

Oil indexation vs. gas indexation: "a bird in hand is worth two in the bush" approach

Oil indexation

- Disappearing gas glut on the European gas market in the medium term – gap between oil-indexed and spot prices already started to narrow
- Gazprom will face next price reopening only after 2015, and contract expiration – only by 2022
- With high oil prices even lower volumes are providing high revenue
- New projects demand high prices (they have negative margins under spot prices, given that they have to pay export duties) and oil indexation is more convenient for the project financing
- Russian Government needs the money right now

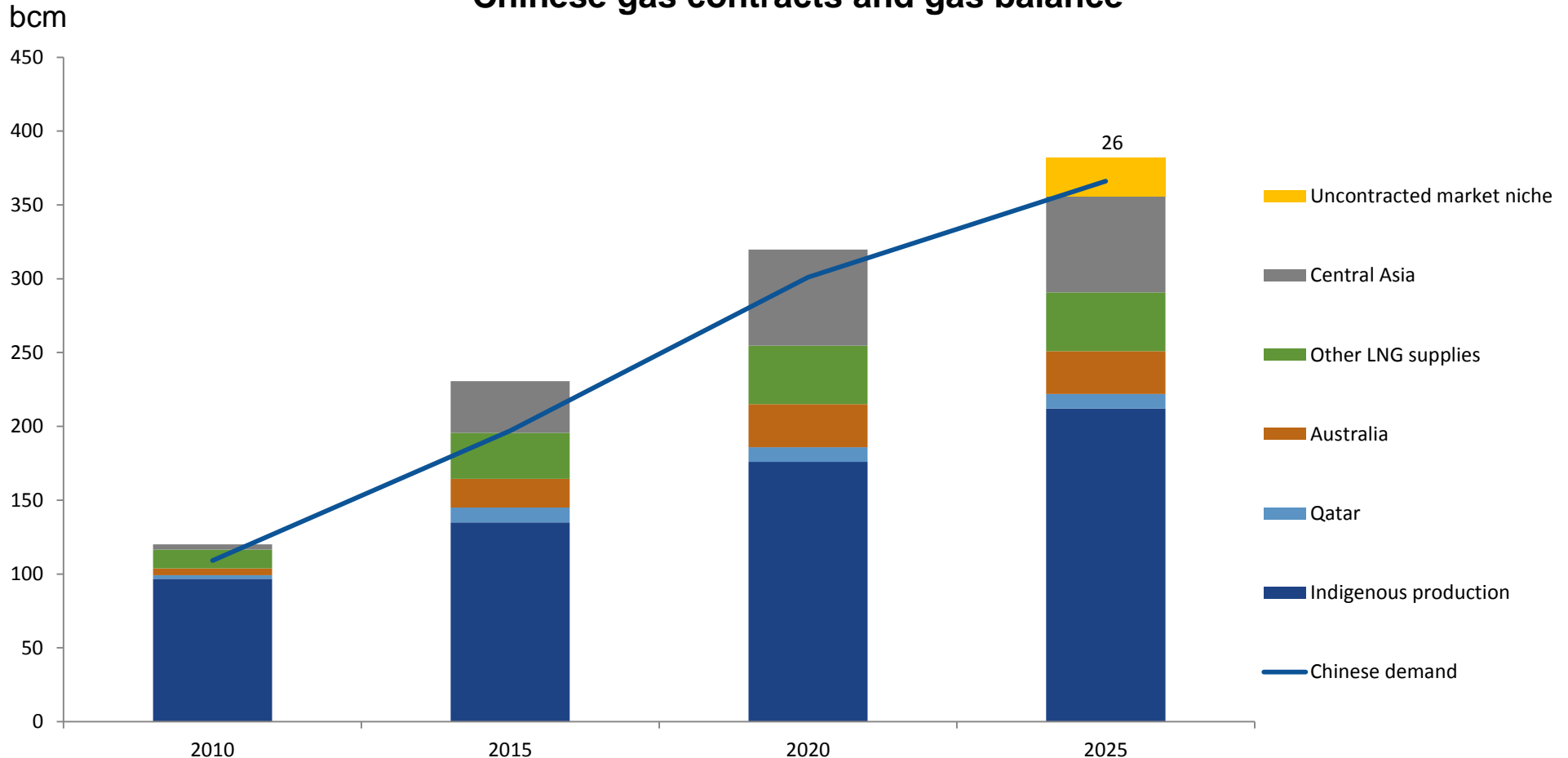
Spot indexation

- Strong pressure from the customers side
- Investigation of the European Commission against Gazprom's pricing
- Gazprom could demand financial compensation for contract review + 3rd Package exemption for the South Stream and NEL + transitional period for price adjustments + European-level financial support for its mega-projects (like EBRD and other European financial institutions)
- Gazprom could become a dominant player manipulating the spot market by adjusting its supply volumes

There are strong commercial reasons for Gazprom to protect the oil indexation at least during the next 3-5 years

Everybody is expecting new opportunities on the booming Asian gas markets, but by 2020 there is already no market niche in China...

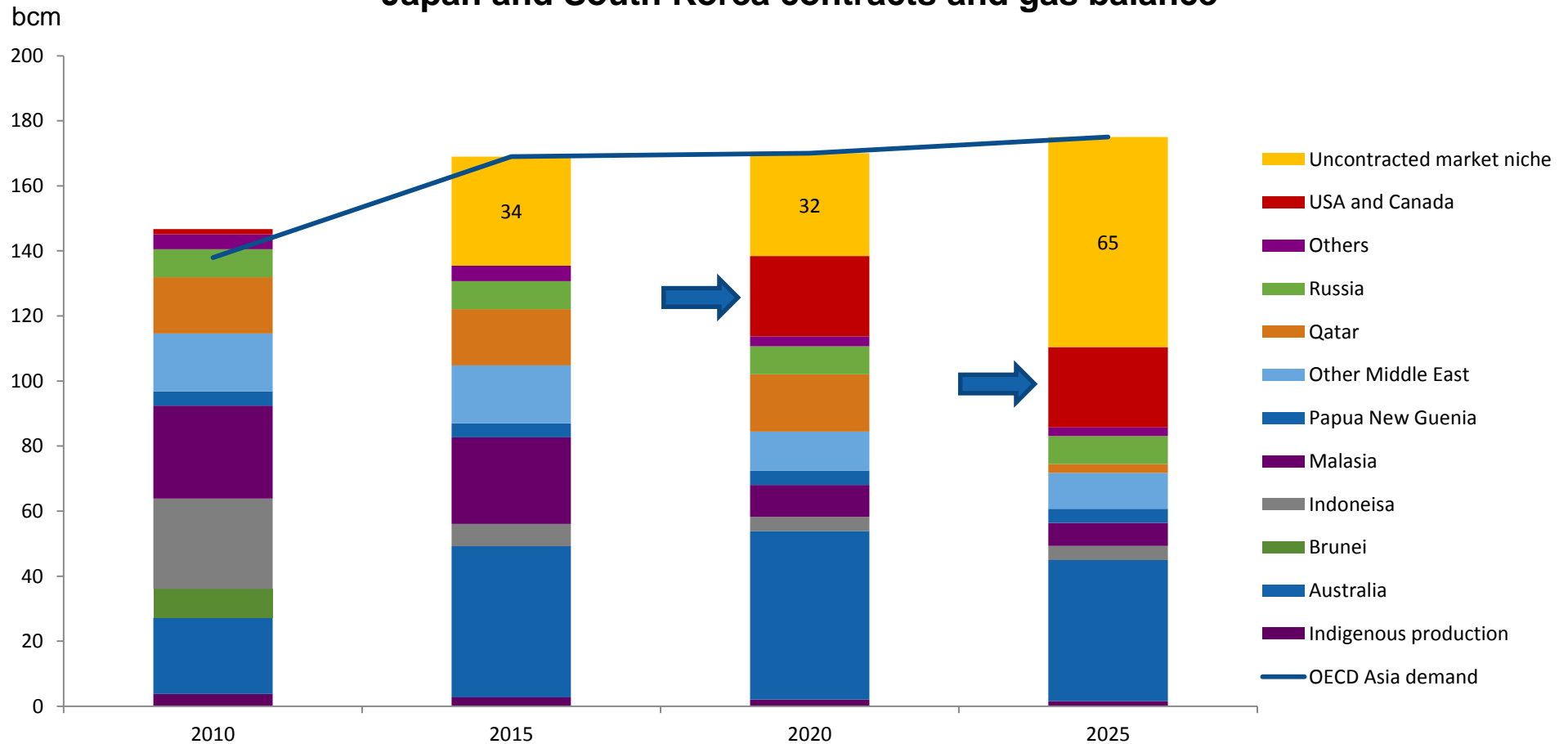
Chinese gas contracts and gas balance



Sources: IEA, Cedigaz, Enerdata, ERI RAS.

...and OECD Asia is quickly contracting the North American LNG

Japan and South Korea contracts and gas balance



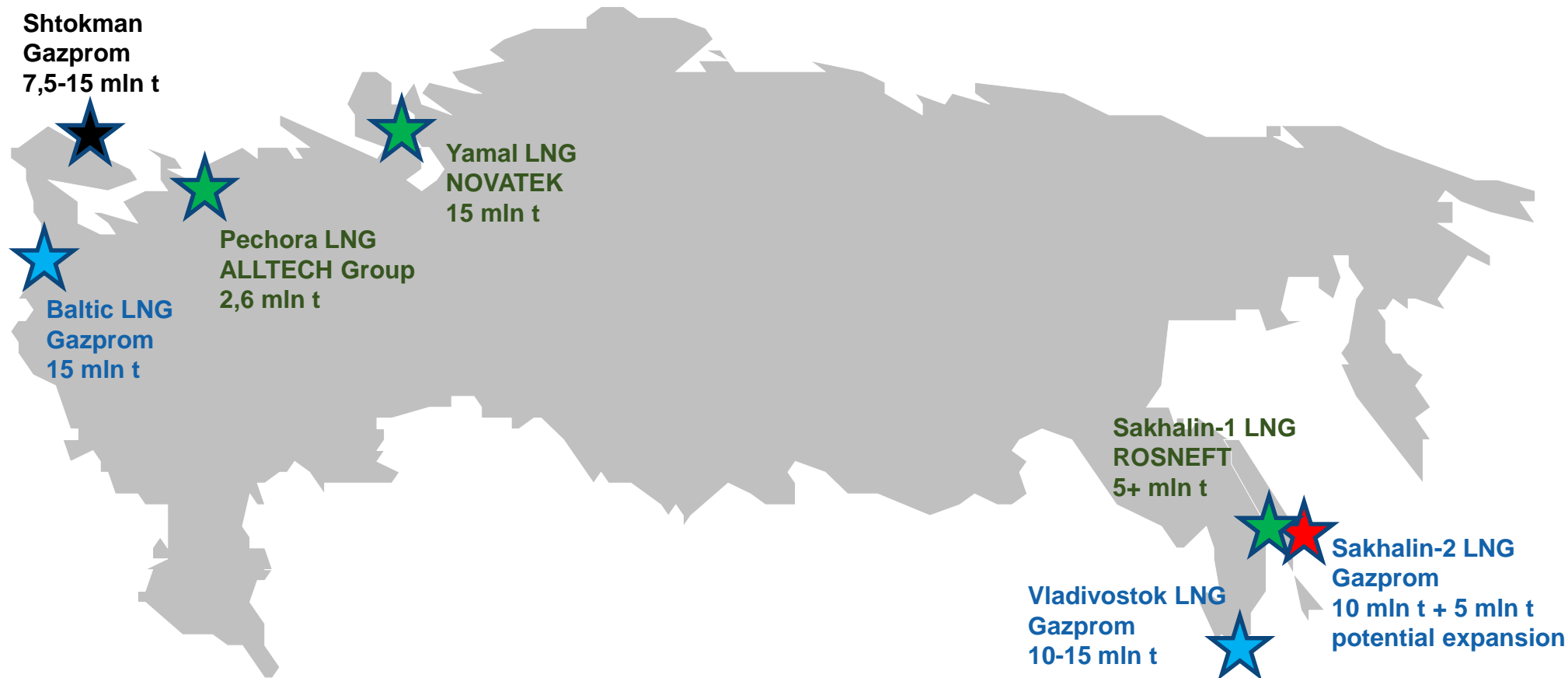
Sources: IEA, Cedigaz, Enerdata, ERI RAS.

Russian “Eastern Gas Program” is moving on, but as there are still no SPAs, the window of opportunities is becoming smaller and price negotiations have now to take into account Henry Hub pricing of the potential US LNG



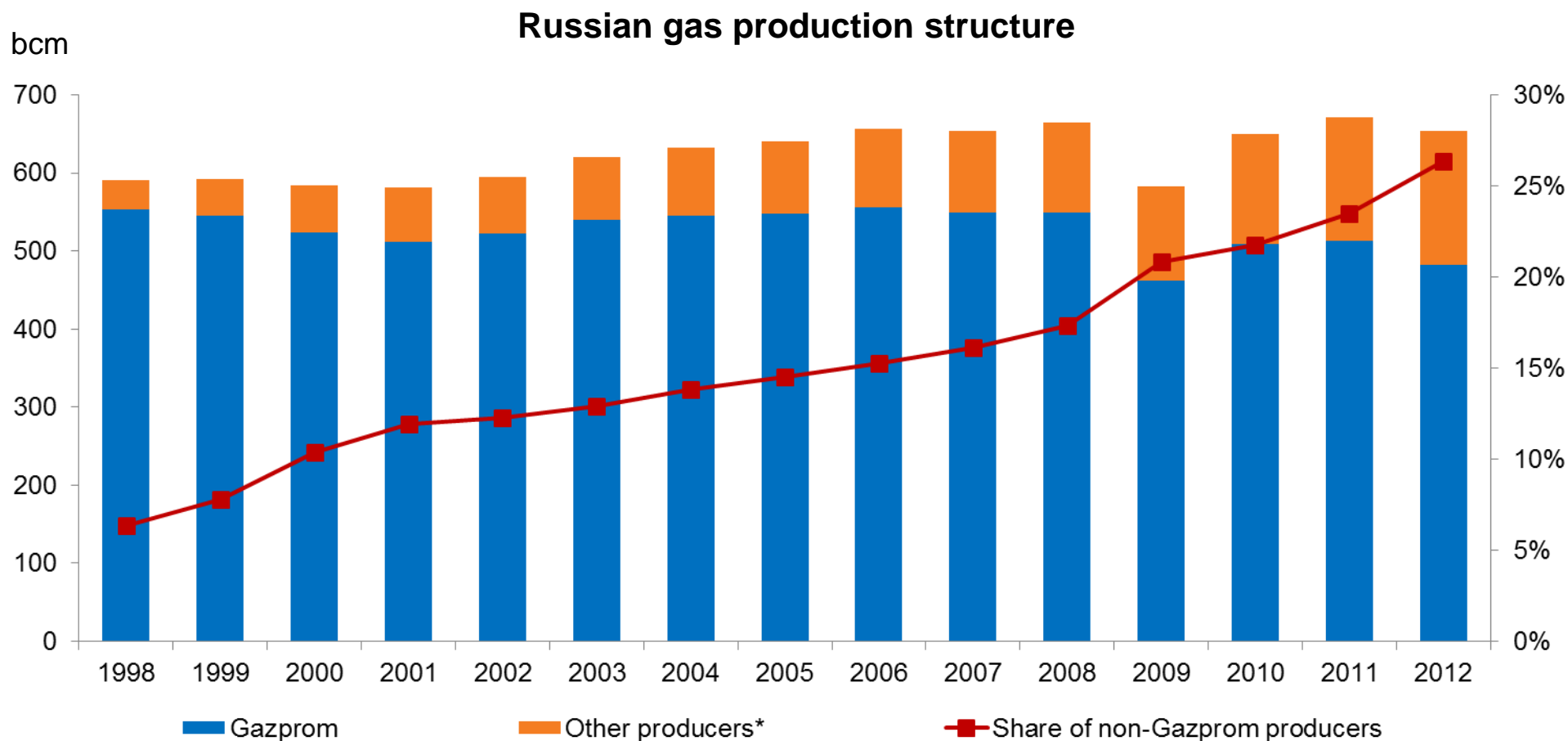
Sources: Gazprom

There are 7 Russian LNG projects under consideration currently, but all of them face commercial, technical and regulatory challenges



LNG export permissions might be approved only for special cases and only under very strict control of the State. Due to the limited volumes and long lead time these LNG projects will not significantly affect Russian and global balance during this decade. In the longer term Russian LNG export could reach up to 50-70 bcma.

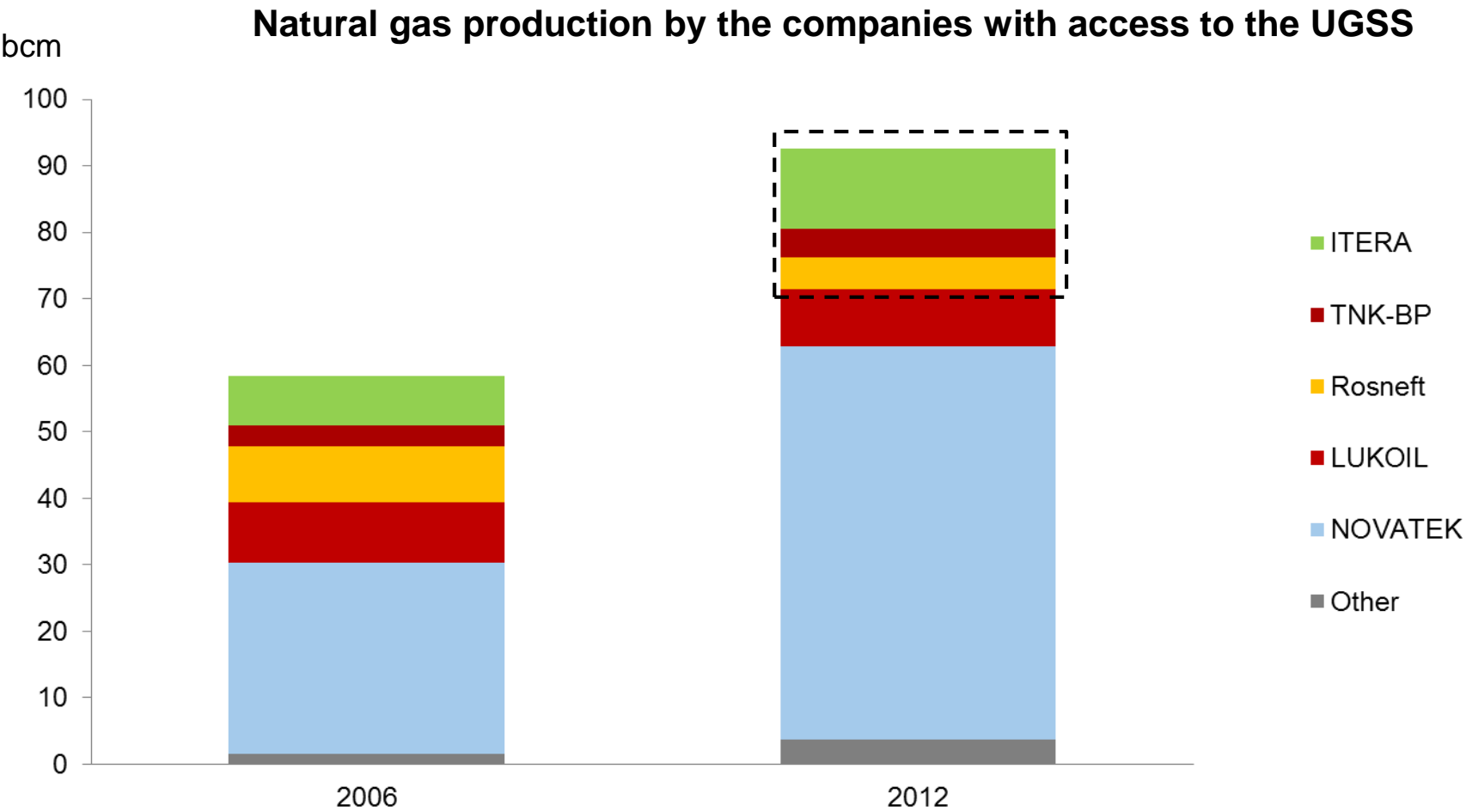
Independents are improving their positions on the domestic market, though complete market liberalization and Gazprom's ownership unbundling are not currently under discussion



* Other producers include PSA and APG

Sources: CDU TEK, ERI RAS

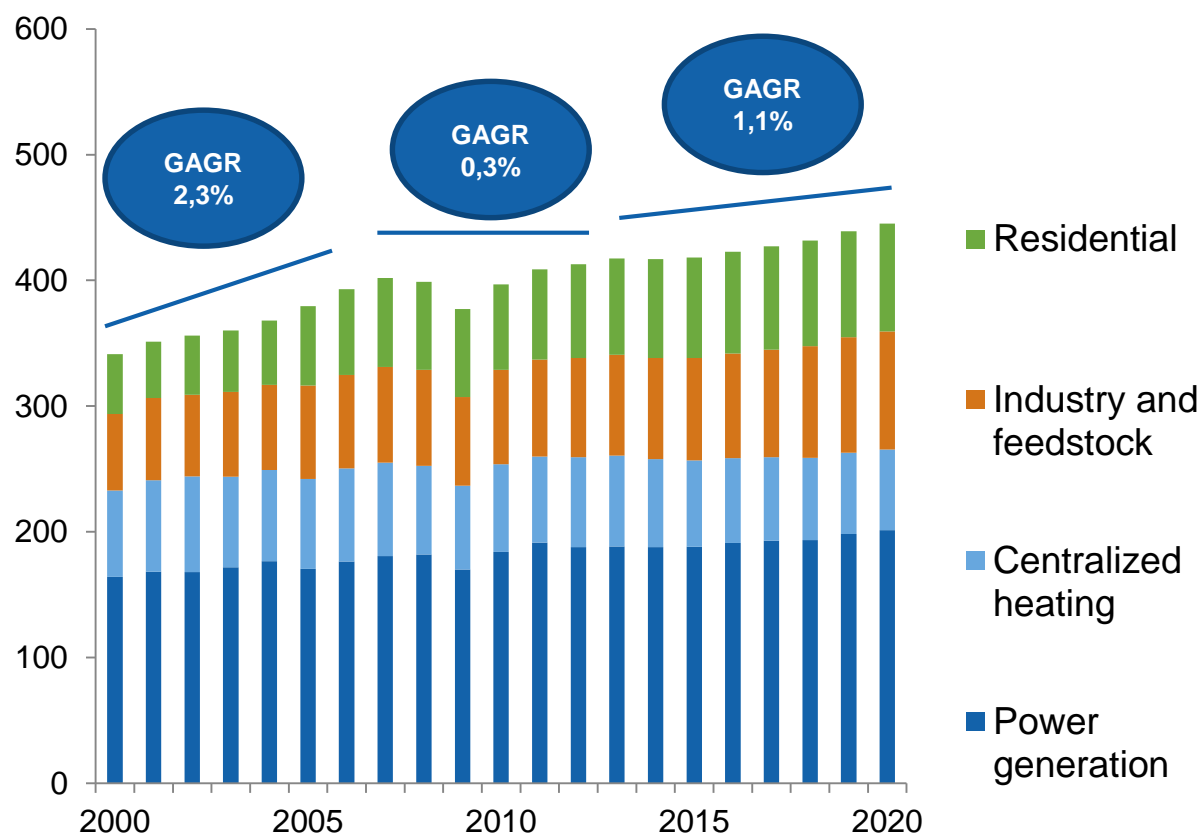
But at the same time the industry is consolidating, now there are only three major non-Gazprom players left on the market: NOVATEK, Rosneft and LUKOIL



Sources: CDU TEK, ERI RAS

Limited demand growth on the domestic market enforces competition between major players for the most attractive market segments

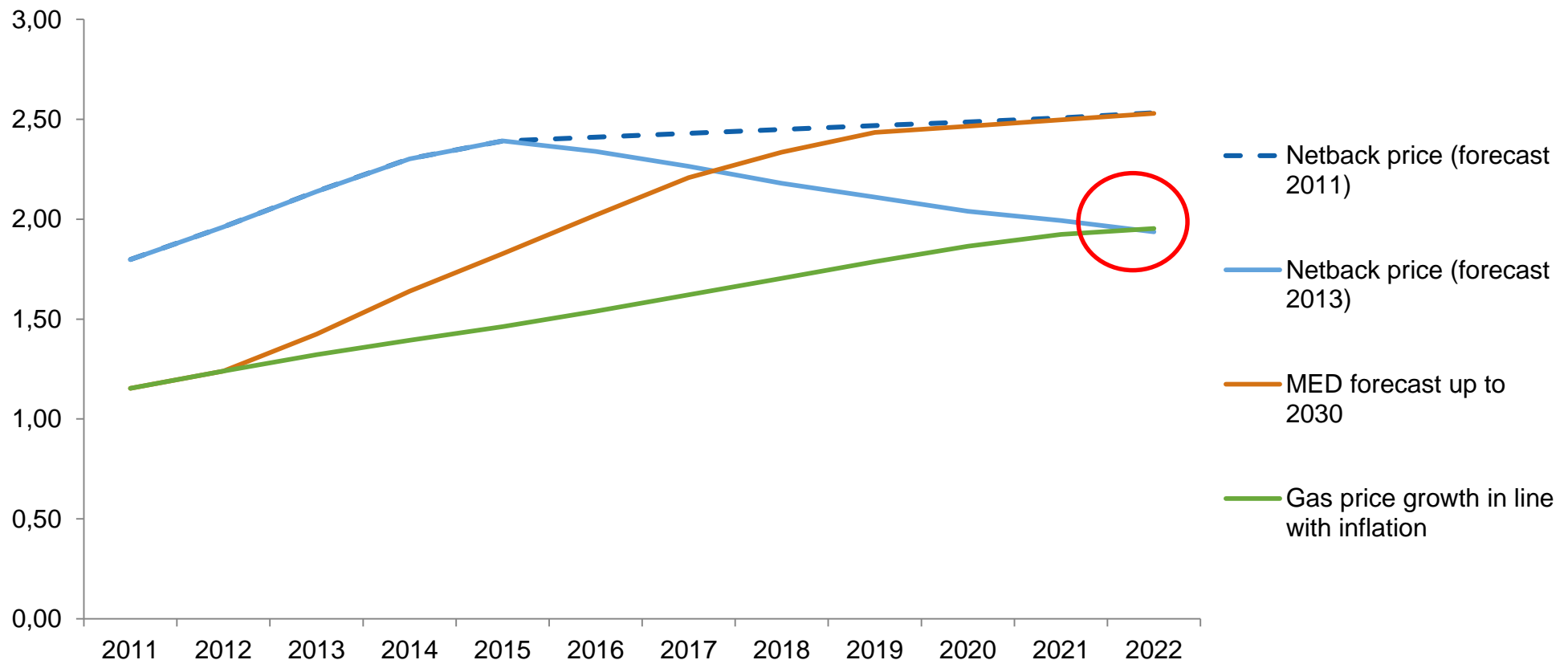
Russian gas demand by sector until 2020 (optimistic scenario)



	2012	2020	Δ	AGR 2012-2020
Total consumption	428	468	40	1,12%
Power generation	188	201	14	0,88%
Centralized heating	72	64	-7	-1,36%
Industry and feedstock	79	94	15	2,17%
Residential	75	86	11	1,78%

At the same time the Government frightened by the industrial output decline is ready to slow gas prices growth down to the rate of inflation, which is justified by lower European prices and weak domestic demand

Different proposed dynamics of the domestic gas price increase (compared to 2010 = 1)



Sources: MED, ERI RAS.

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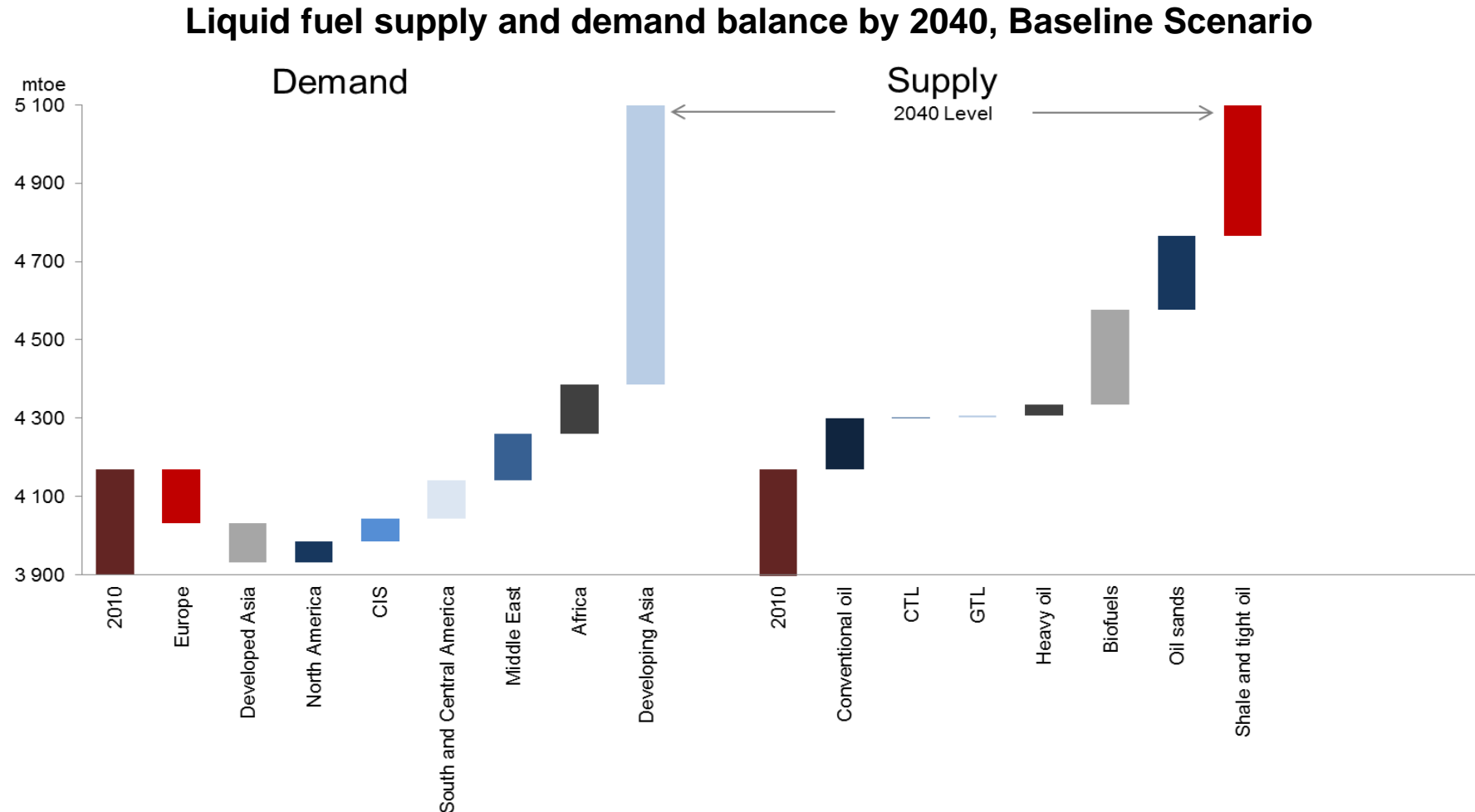
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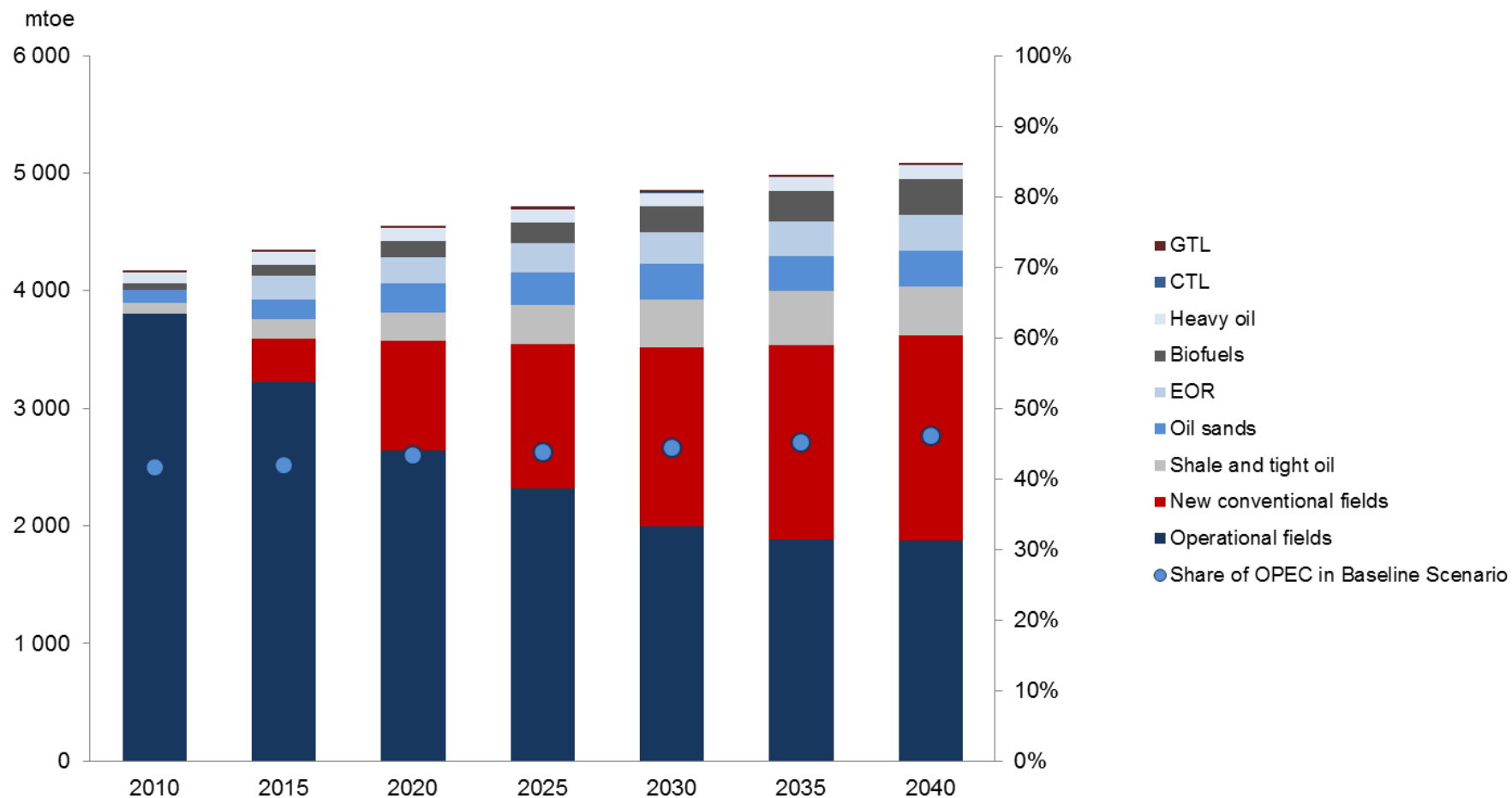
There are tremendous shifts expected on the liquid fuels market, with declining demand in OECD and booming unconventional liquids production



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

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

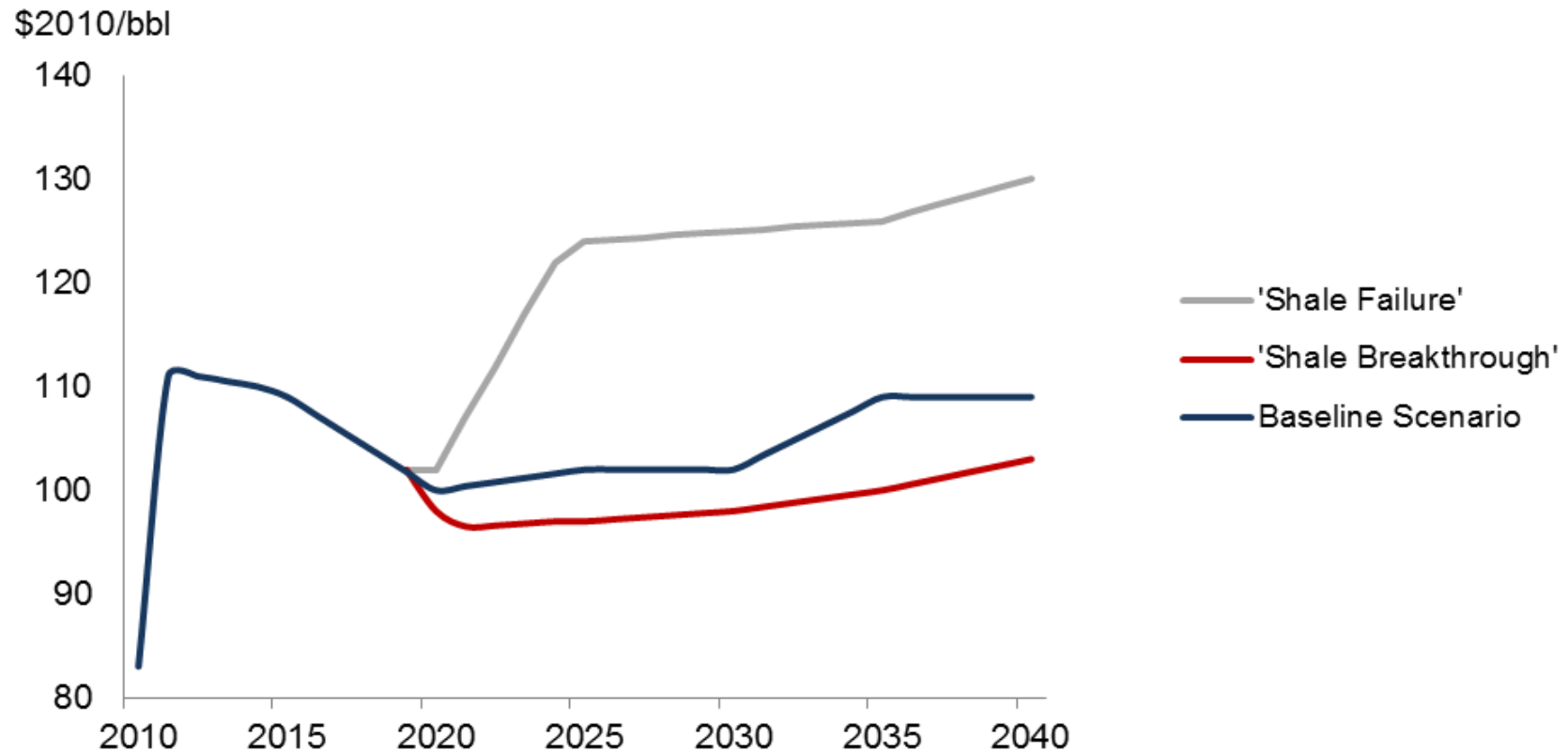
Dynamics of liquid fuels supply structure, Baseline Scenario



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

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

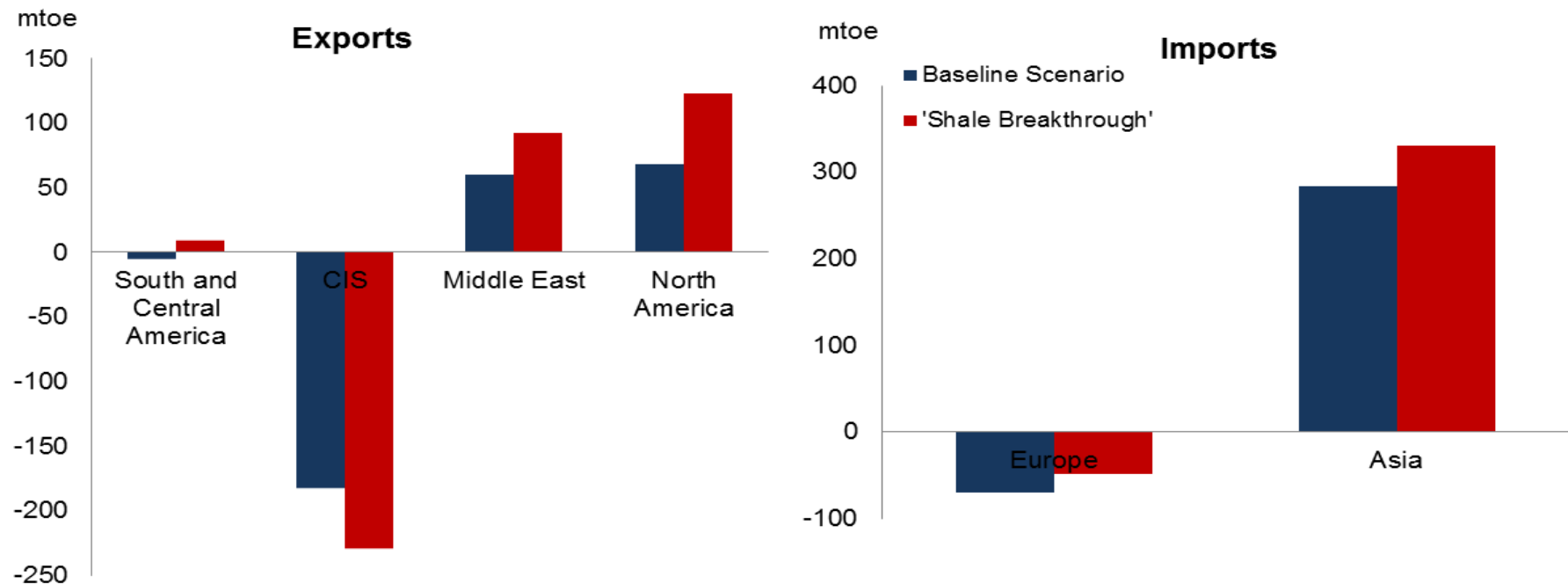
Equilibrium oil prices in the three scenarios



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

Russian oil export could decrease even stronger than expected – by additional 50 mln. tonnes per annum - if there would be new breakthroughs in the shale technologies

Changes of oil net export and import volumes in 2040 relative to 2010, Baseline and 'Shale Breakthrough' Scenarios



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

Taking into account global environment changes dramatically expectations for the Russian energy and economy

Official MED scenario and Outlook-2013 scenario of Russian economy and energy development, %

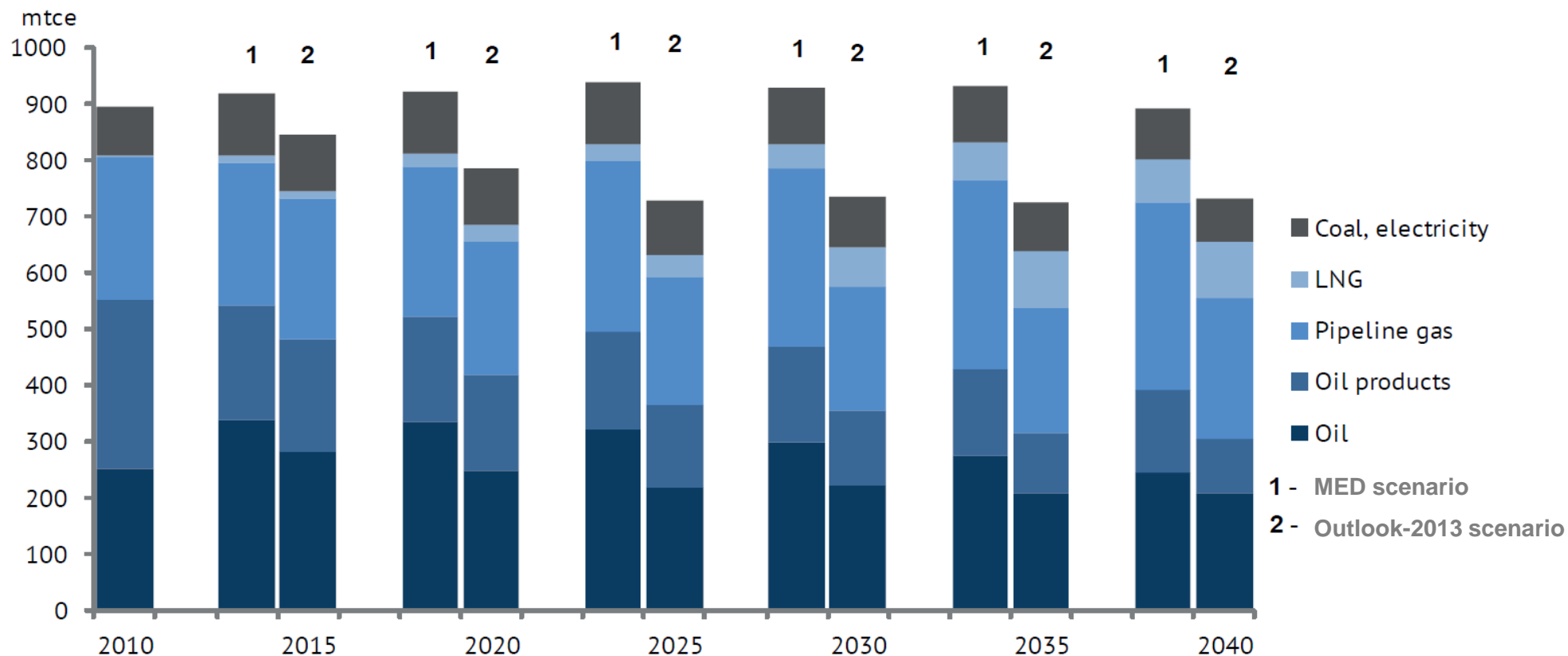
	2010 г.	2015 г.		2020 г.		2025 г.		2030 г.		2035 г.		2040 г.	
		1	2	1	2	1	2	1	2	1	2	1	2
GDP	100	121	119	150	143	185	168	222	192	266	219	316	248
Share of the energy sector in GDP	28,5	25,6	25,5	22,9	23,1	20,0	20,4	18,4	18,8	17,0	17,3	15,6	15,9
GDP energy intensity	100	87	88	74	77	64	69	56	62	49	57	43	52
Energy consumption	100	106	105	112	110	118	115	125	120	131	125	137	129
Energy export	100	103	95	103	89	105	84	104	85	104	86	100	87
Investments in the energy sector as a share of GDP	5,0	5,9	7,2	5,0	4,7	4,5	4,1	4,9	4,8	3,8	3,7	3,4	3,5

1 – official MED scenario, 2 – Outlook-2013 scenario

Source: ERI RAS.

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

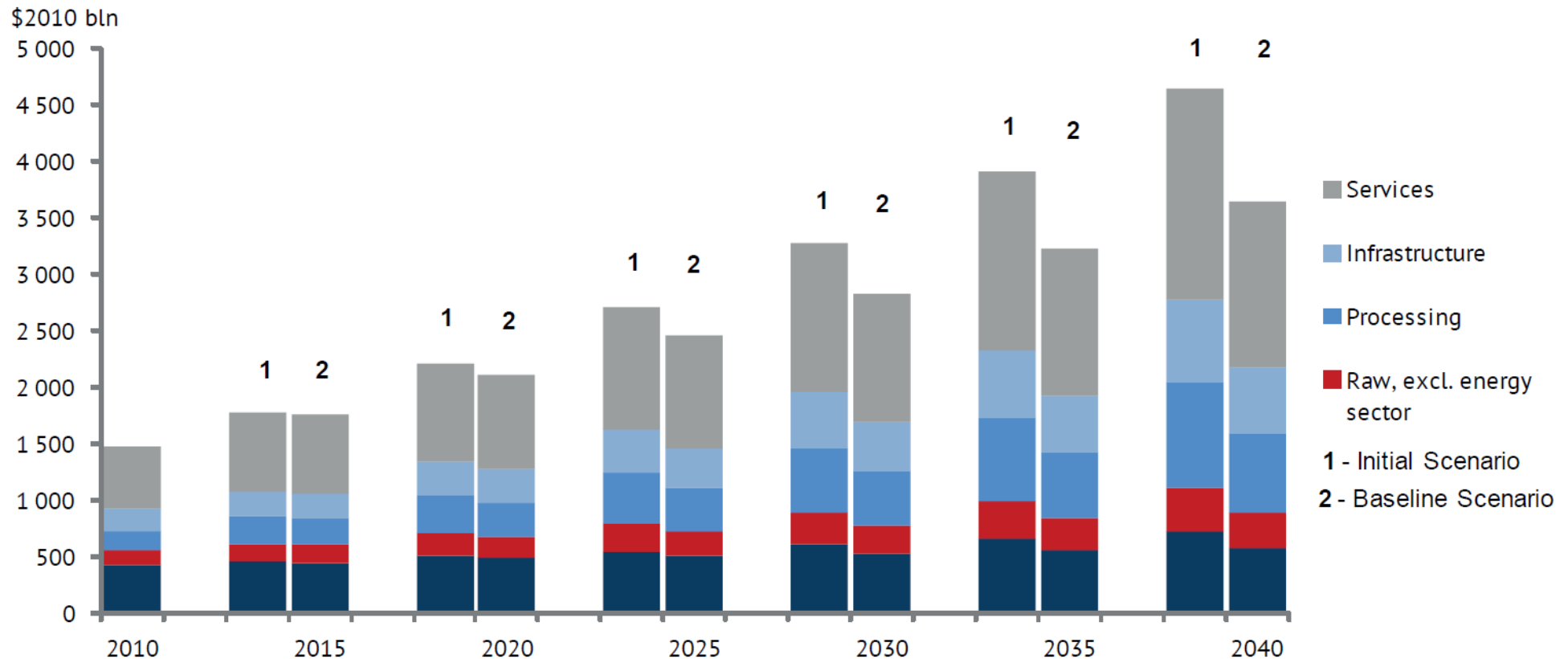
Russian energy export by fuel in the official MED scenario and in the Outlook-2013 scenario



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

Limited export opportunities might reduce Russia's economic growth by 1% per annum compared to the official scenarios: the economy cannot any longer count on the hydrocarbons-driven growth

Russian GDP 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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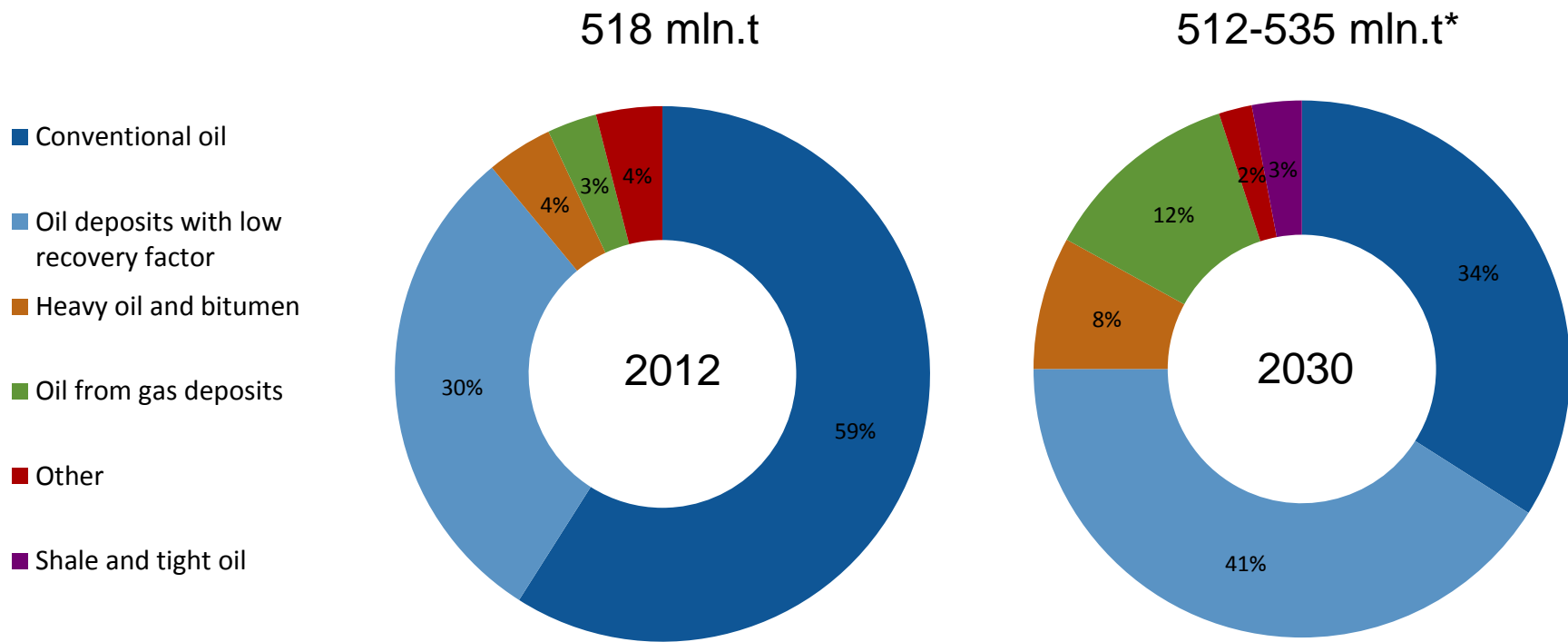
HOW TO BREAK THE DEADLOCK?

Main measures to support competitiveness of the Russian energy resources

- ❑ **Cost control together with a thorough evaluation of cost-effectiveness of the new projects and their potential risks.** It is advisable to rank investment projects and reject or postpone the implementation of inefficient ones. This is confirmed by the results of work done by foreign and Russian experts, who analysed the cost of domestic energy projects, showing that they were typically several times more expensive compared to existing analogous projects found elsewhere, while those projects that were completed were underutilized for years.
- ❑ **Taxation system reform:** currently an efficient break-even point for the Russian upstream oil projects is fixed at 25 \$/bbl due to outdated volume-based taxation.
- ❑ **International consortia development** – attracting foreign partners into the consortia engaged in resource development (this refers especially to the eastern part of the country, the coastal shelf, and deposits of unconventional hydrocarbons). If properly managed, it would enable the country to:
 - attract foreign investment and apply advanced technology;
 - develop types of business activities with potential, under new conditions;
 - ensure tight control over costs and other business results;
 - obtain additional assurances for product sales; and
 - facilitate access to logistics and adapt to the rules of international markets.
- ❑ **Energy saving.** Russia has a huge potential, but it is limited by inappropriate regulatory framework and lack of access to financing

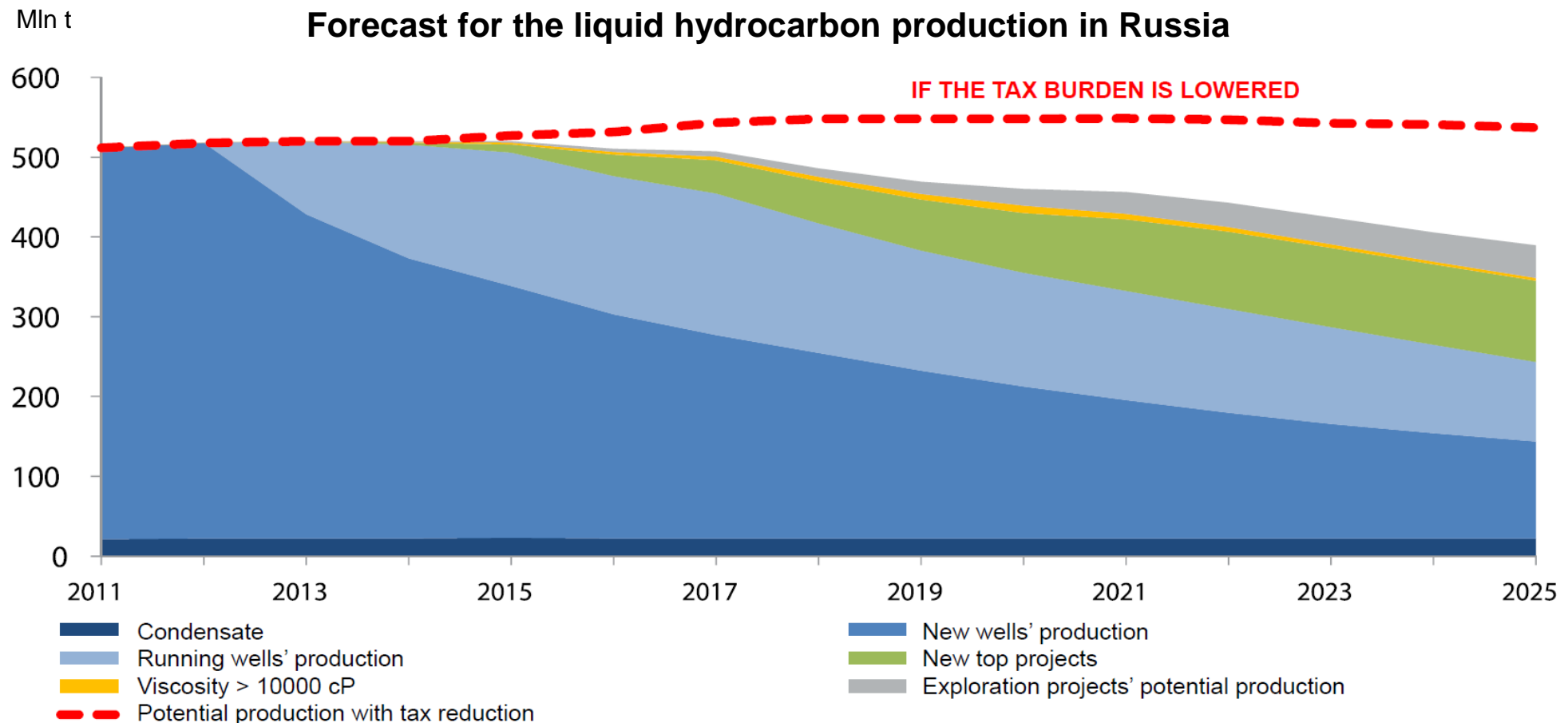
Main part of the Russian conventional oil is concentrated in the declining Soviet-time fields

Structure of the Russian oil production



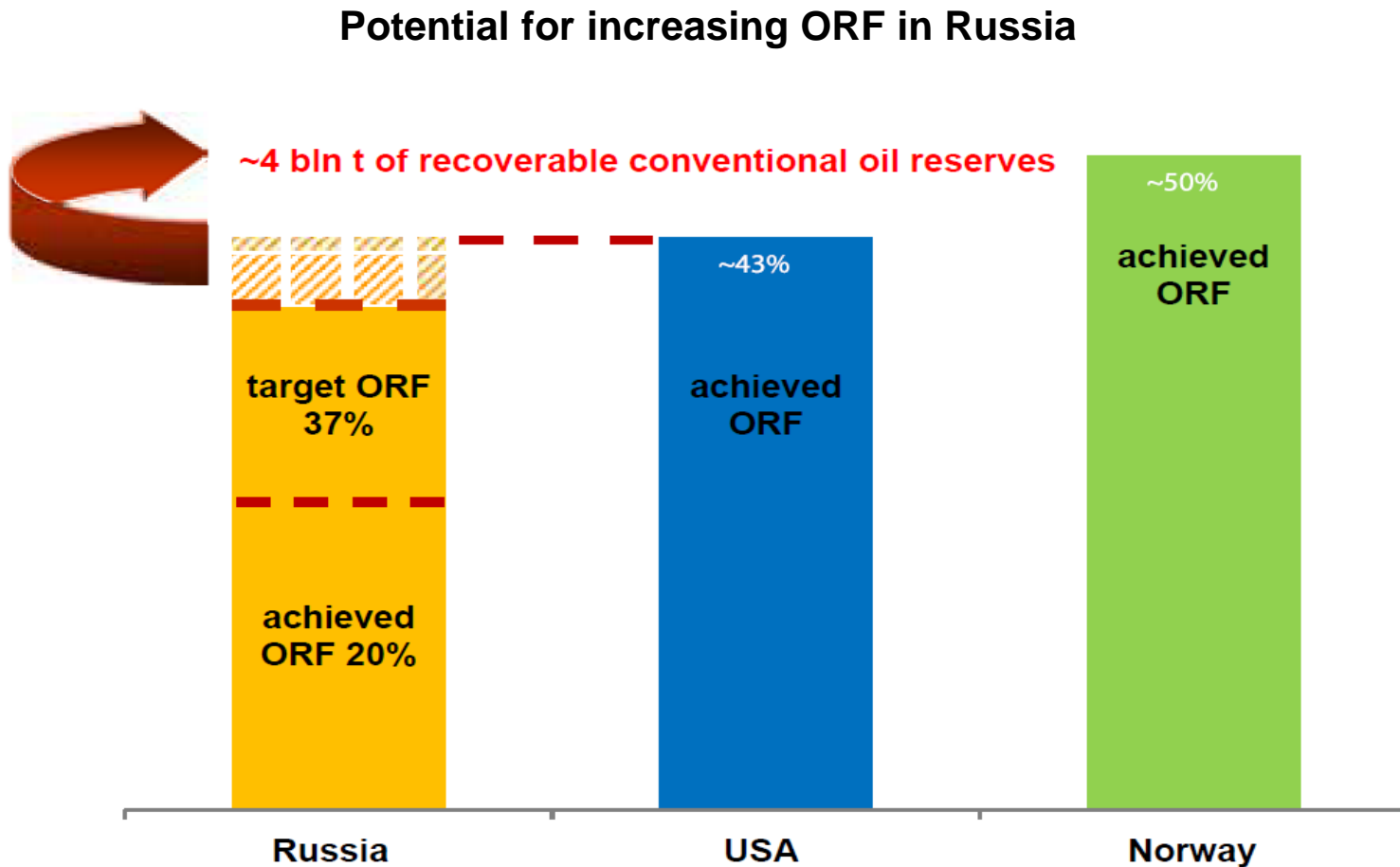
* According to the Energy Strategy-2030 and Social-Economical Development Forecast Up To 2030

In order to sustain production, Russia needs to develop new fields, which, however, are not competitive under the current tax regime. Higher production estimates are justified by the vast resource base, but require completely different taxation system



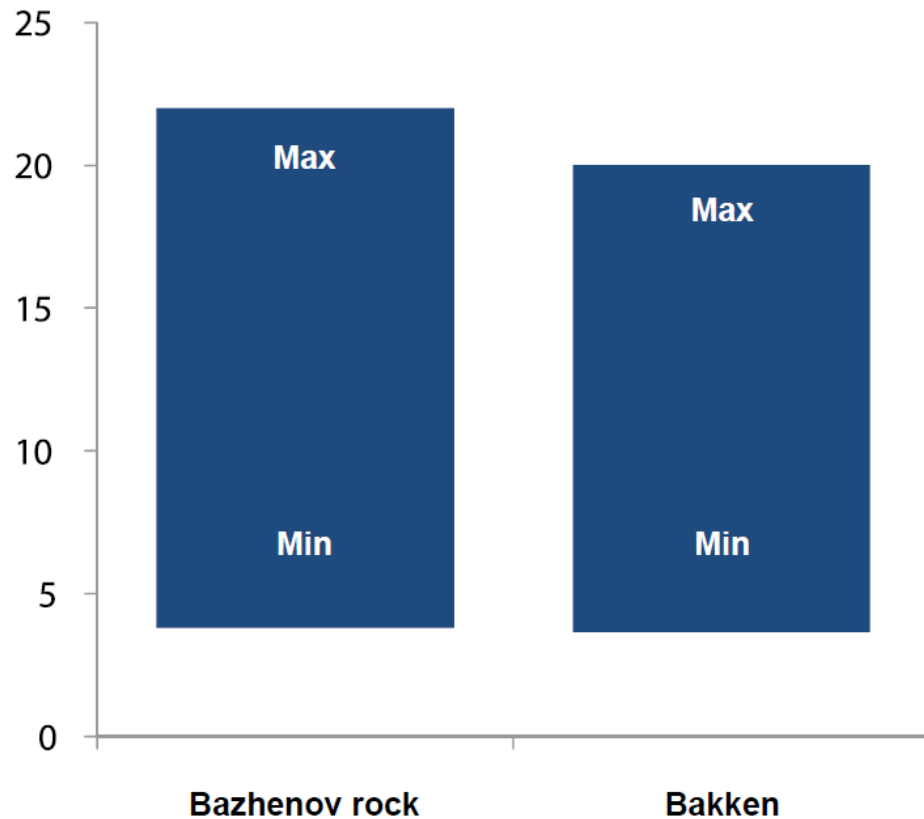
Sources: CDU TEK, LUKOIL.

Russia has a huge potential for Enhanced Oil Recovery: best practices would provide additional 4 bln t without the need to build new infrastructure, but adjustments of the tax regime are the must

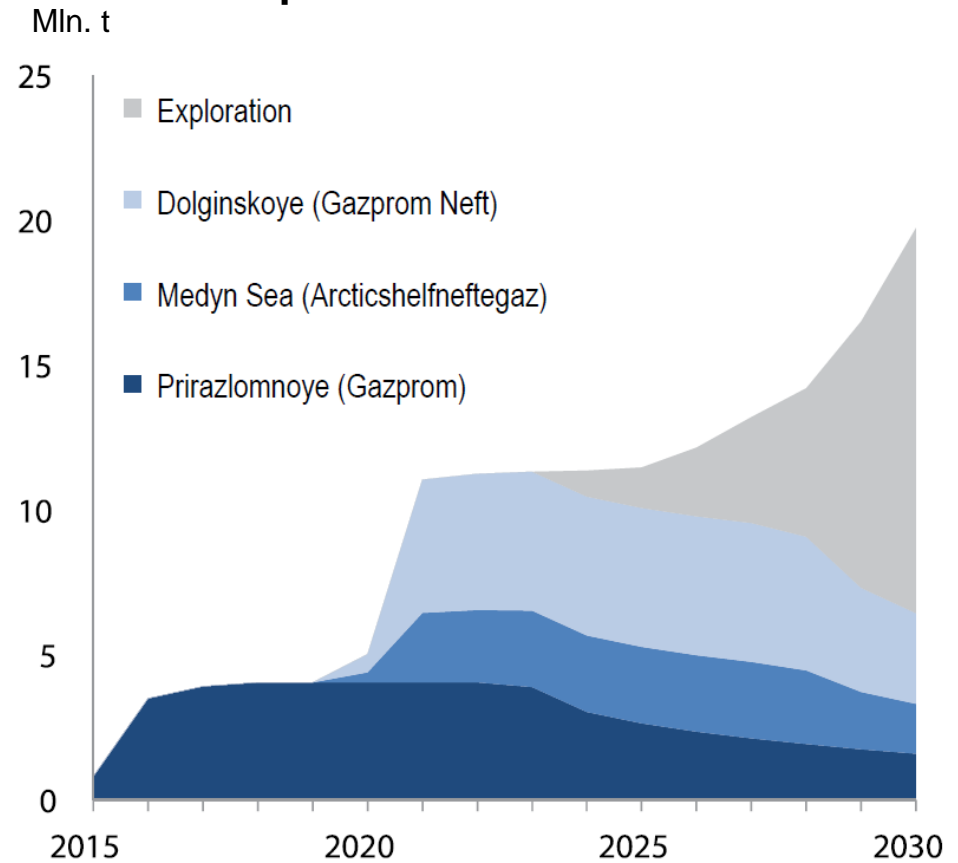


Unconventional oil and Arctic: huge potential, but high costs and lack of technologies make these projects marginal under the current taxation

Unconventional oil reserves

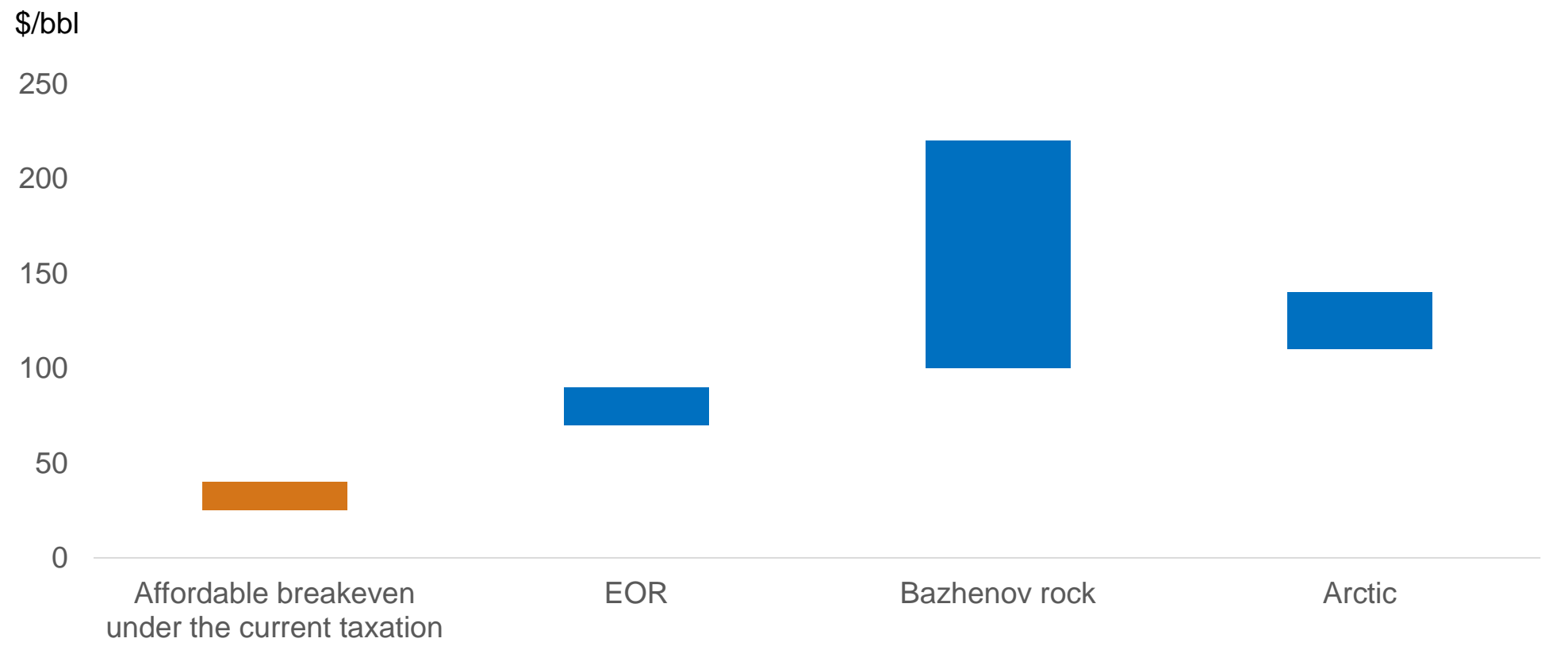


Arctic production volume forecast



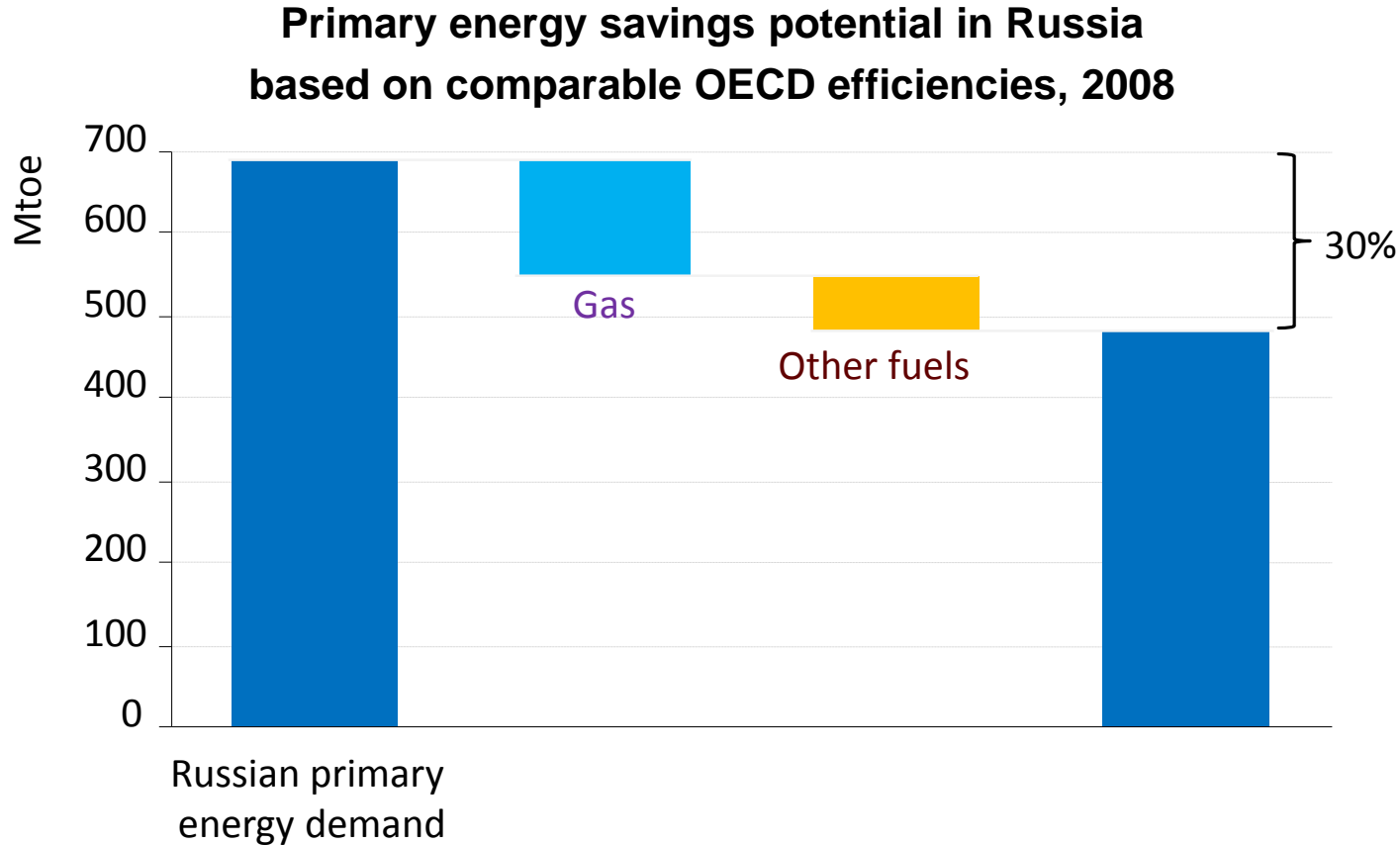
Sources: Energy Ministry, LUKOIL.

The normal Mineral Extraction Tax and export tax require much lower breakeven costs, then all sources of new supply have; the Government is not ready to change the system for profit-based taxation, therefore all the exemptions are currently adjusted in the manual regime



Source: ERI RAS.

Russia has huge potential to use energy more efficiently: energy consumption could be decreased by 30%



Source: WEO 2011. IEA.

***Raising Russia's energy efficiency to the levels of comparable OECD countries
would save the amount of primary energy used in a year by the UK***

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 without strict costs control, cautious evaluation of the export projects and more flexible pricing system these opportunities could be lost.
- ❑ Under current conditions, 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

But to develop these areas, the Government has to change the whole taxation system, not just to give few exemptions.

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

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