

European Gas Balance

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1

CHANGING GLOBAL GAS MARKET: DEMAND

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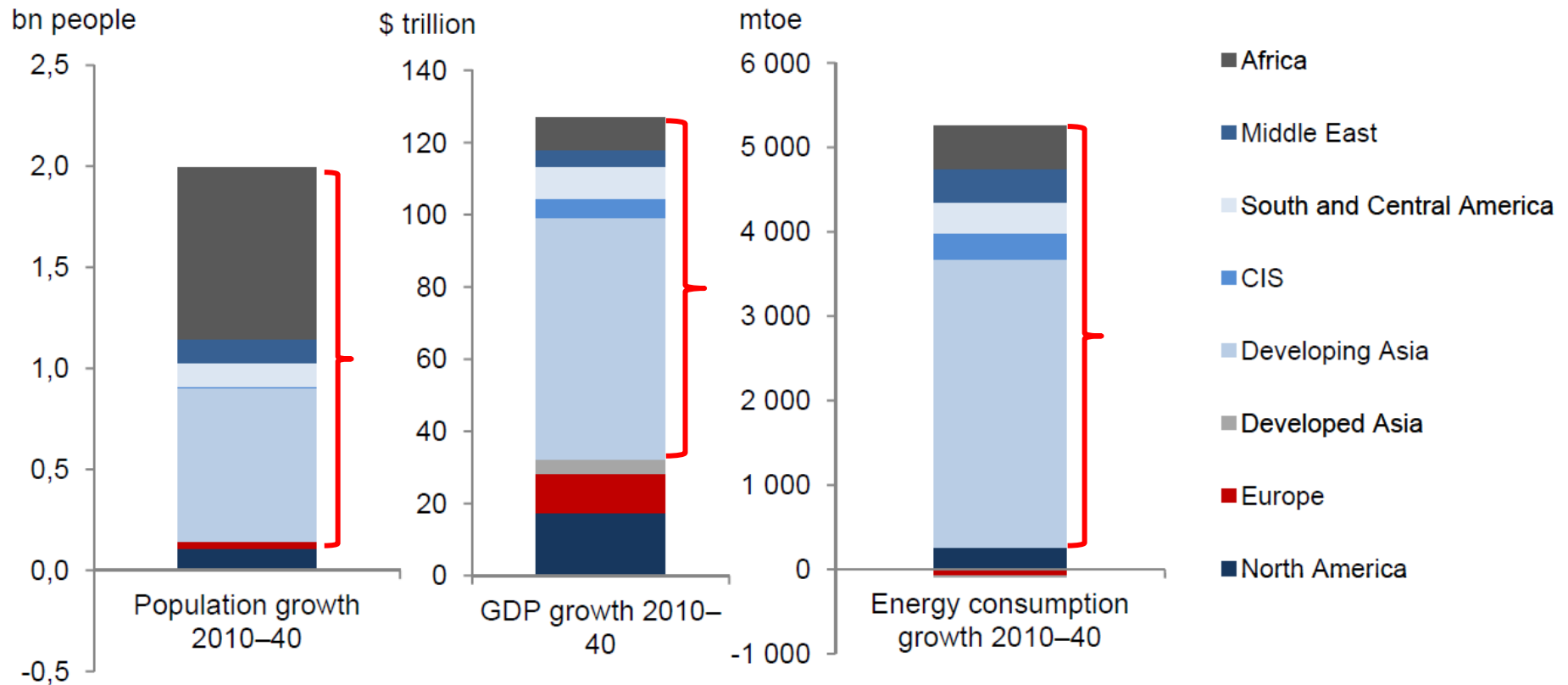
CHANGING GLOBAL GAS MARKET: SUPPLY

3

GAS PRICING IN EUROPE

Growth will be mainly provided by the developing countries

Population growth, GDP, and energy consumption by region

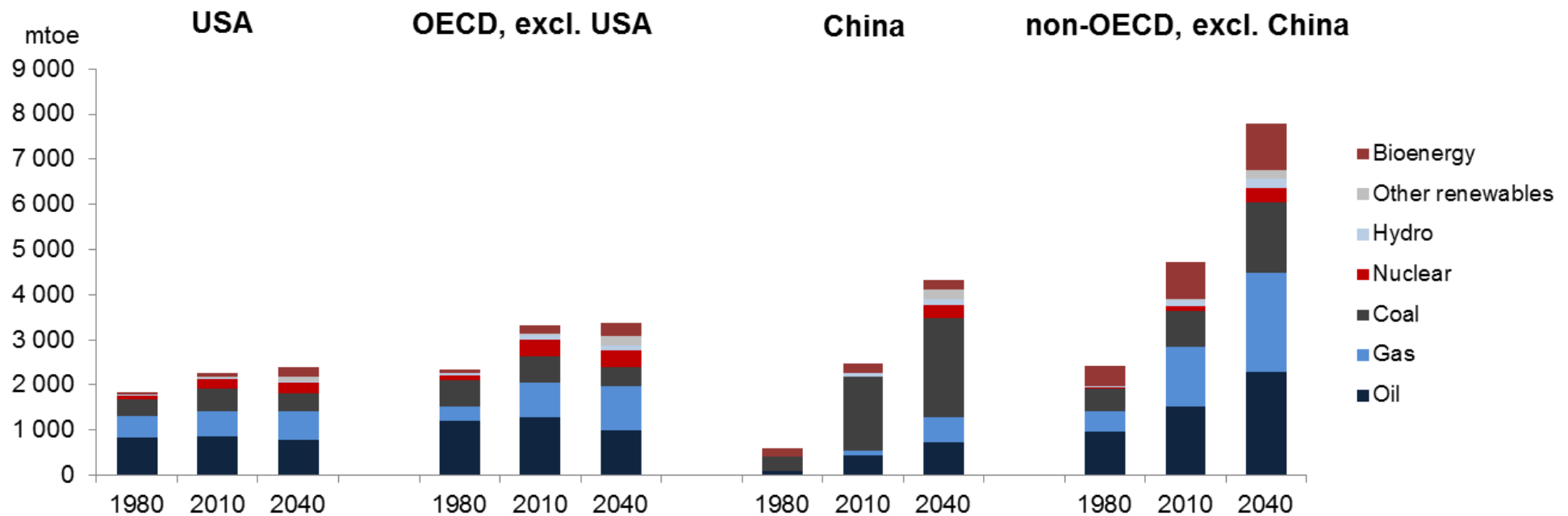


POPULATION GROWTH IN DEVELOPING COUNTRIES IS FOLLOWED BY AN INCREASING SHIFT IN THE CENTRE OF ECONOMIC AND ENERGY CONSUMPTION TOWARDS THESE COUNTRIES

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

Centres of energy consumption will notably change their location

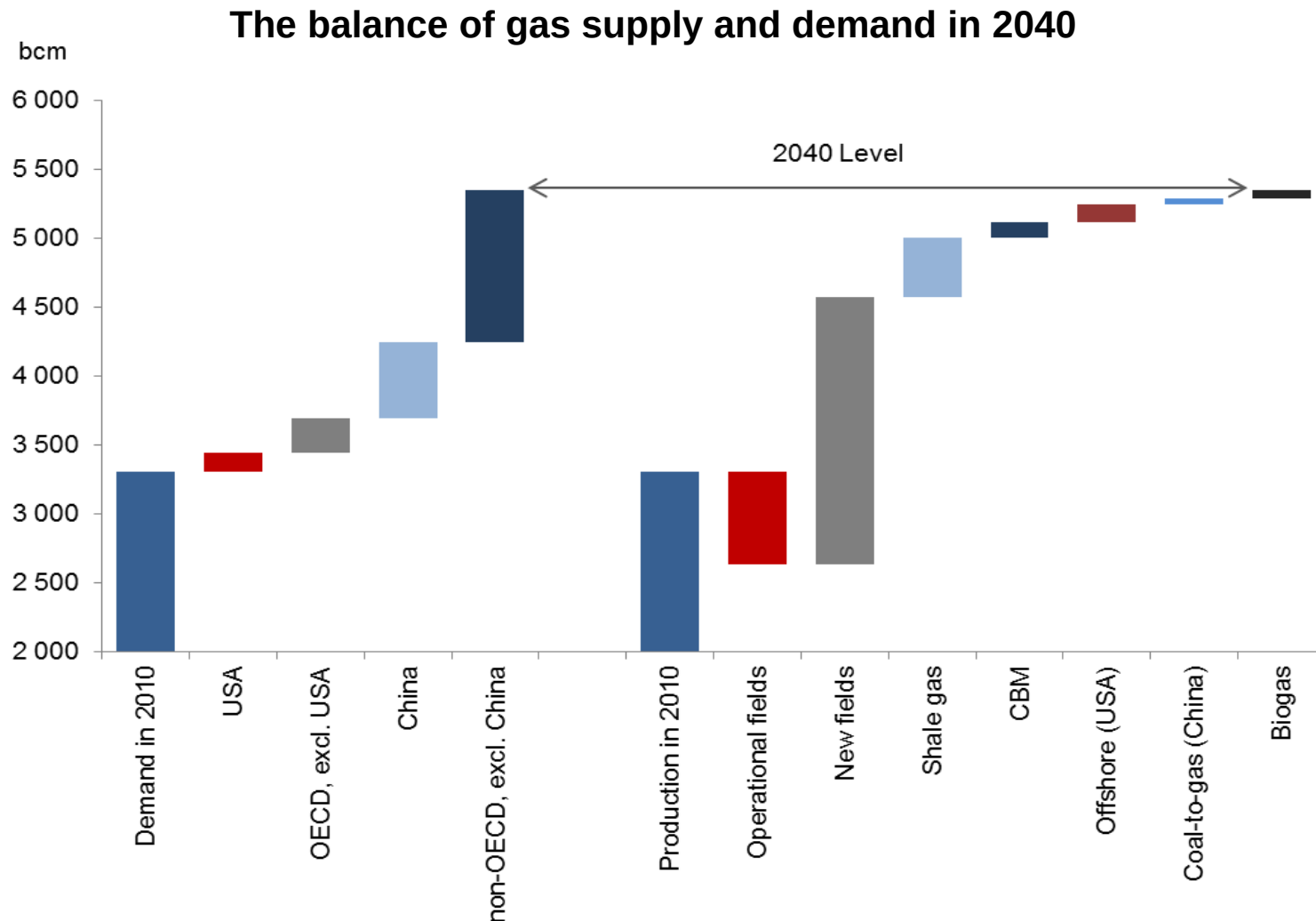
The growth of primary energy consumption by region and type of fuel



THE CONSUMPTION OF PRIMARY ENERGY IN THE WORLD WILL INCREASE BY 1.1% PER YEAR ON AVERAGE BETWEEN 2010 AND 2040, WHICH IS SIGNIFICANTLY SLOWER THAN THE GROWTH IN ENERGY CONSUMPTION SEEN FOR THE LAST 30 YEARS, WHILE DEVELOPED COUNTRIES WILL ONLY INCREASE THEIR ENERGY CONSUMPTION BY 3% BY 2040.

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

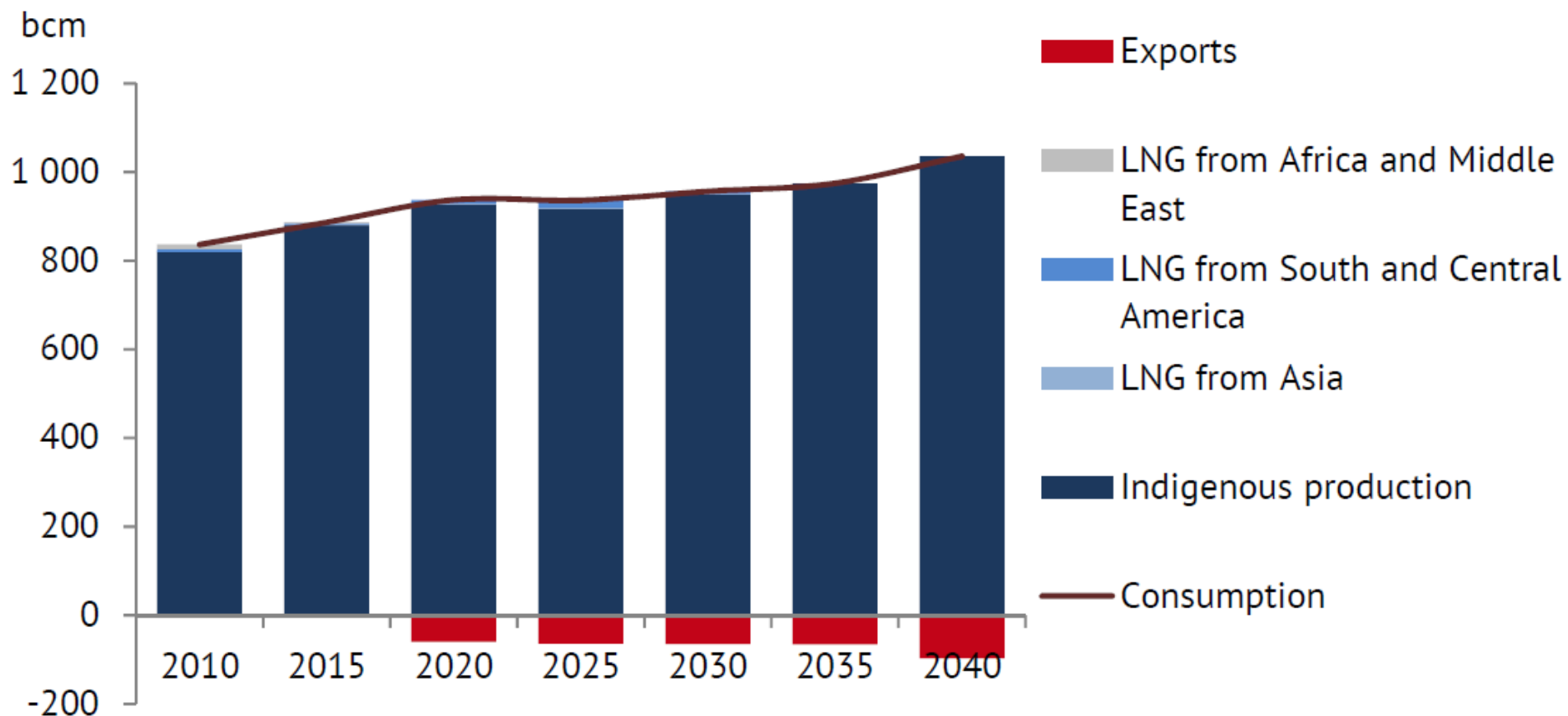
Global gas market development: less demand and more supply



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

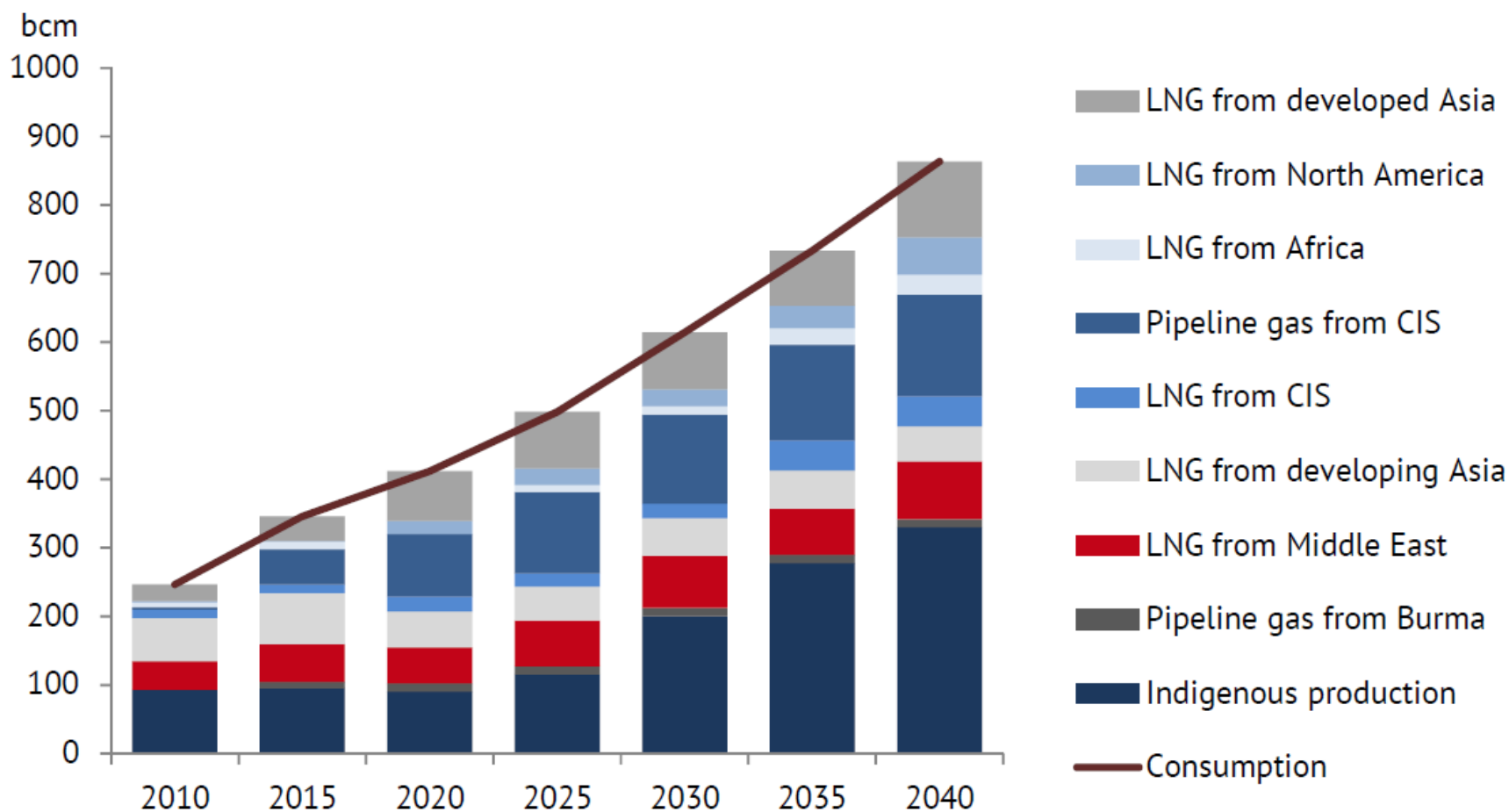
There is no market niche in North America any more

Gas balance in North America



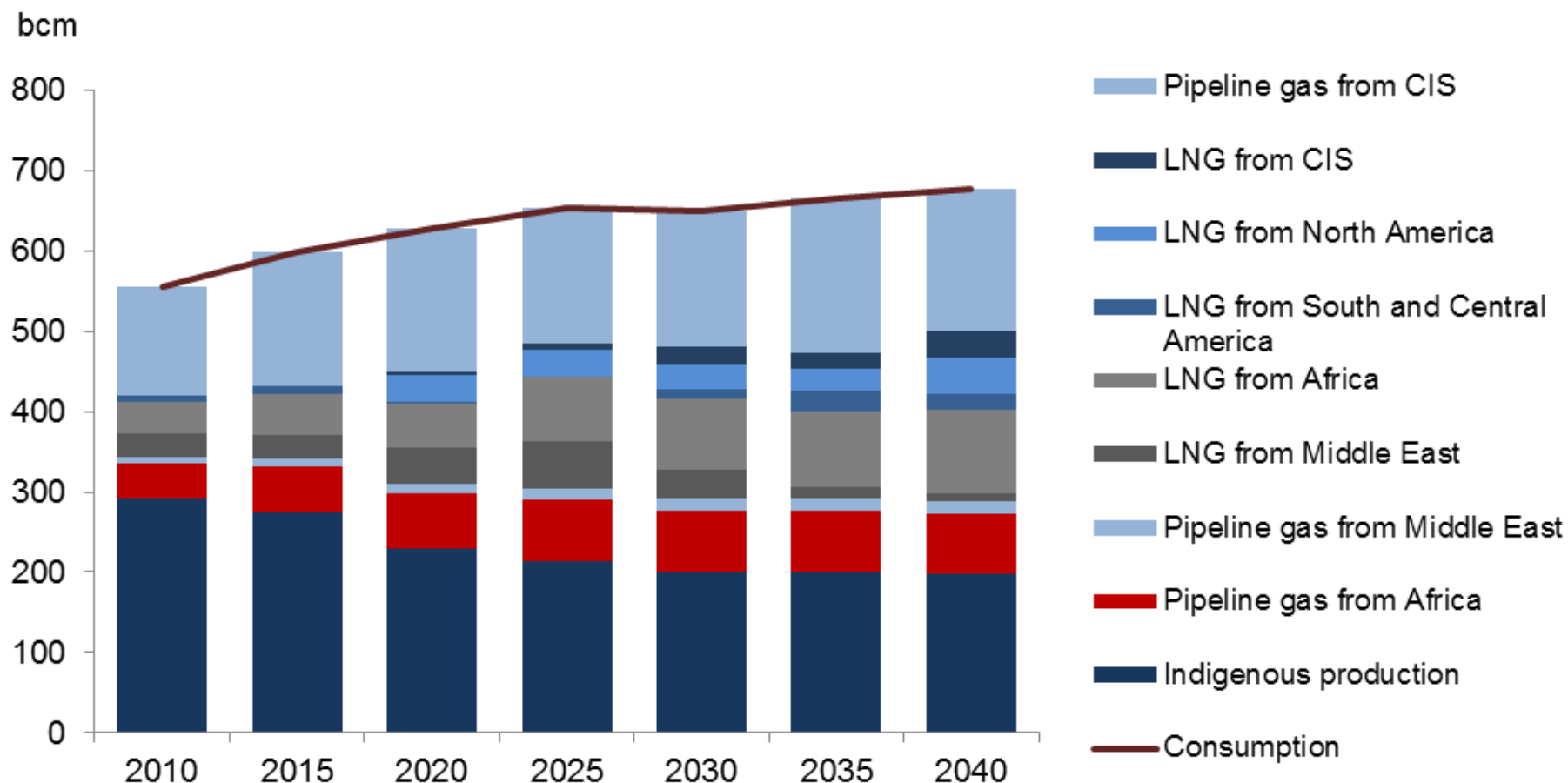
Growing market in Asia

Gas balance in North-East Asia

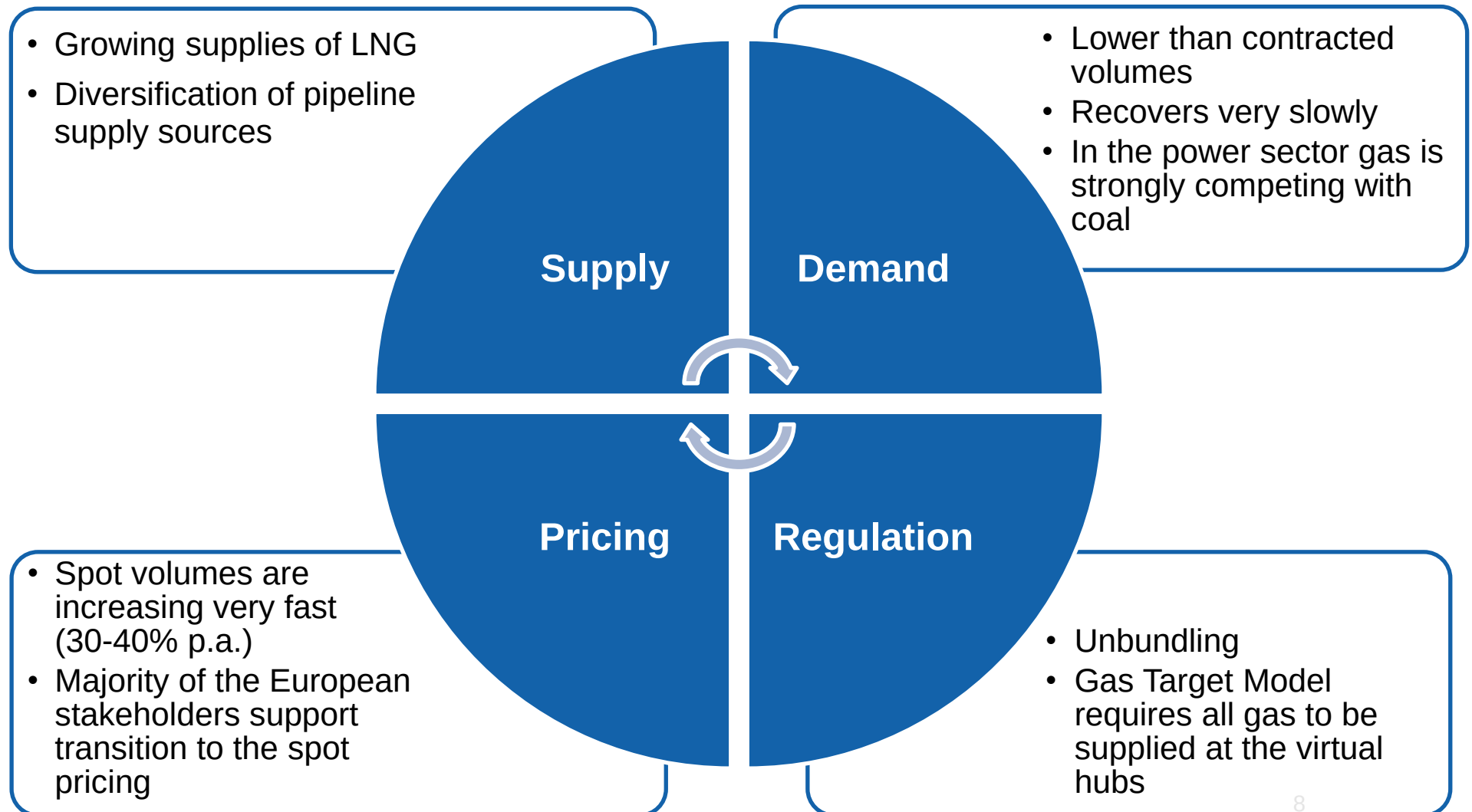


Market niche in Europe: strong competition in the future

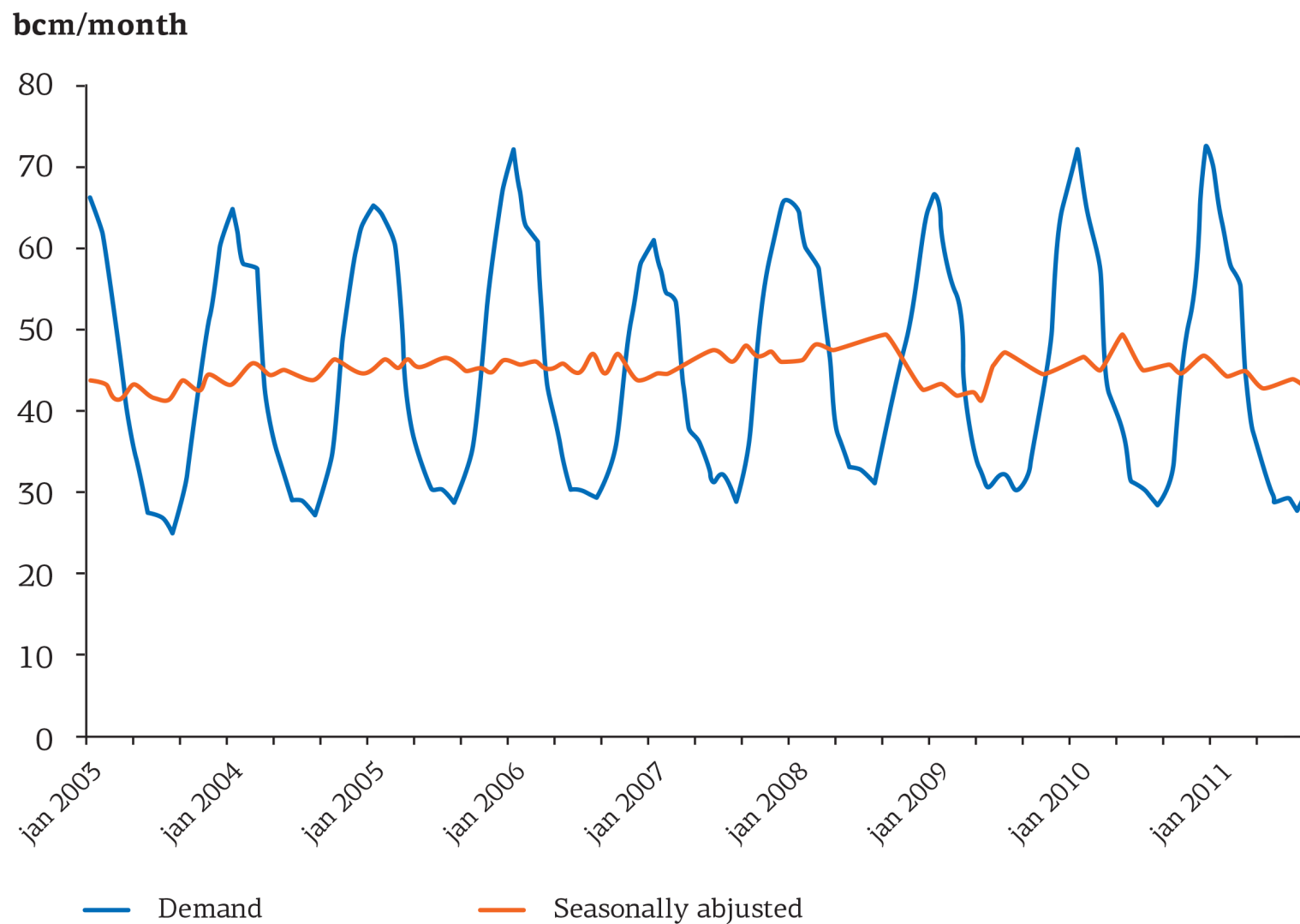
Gas balance in Europe



Situation on the European gas market does not favor suppliers

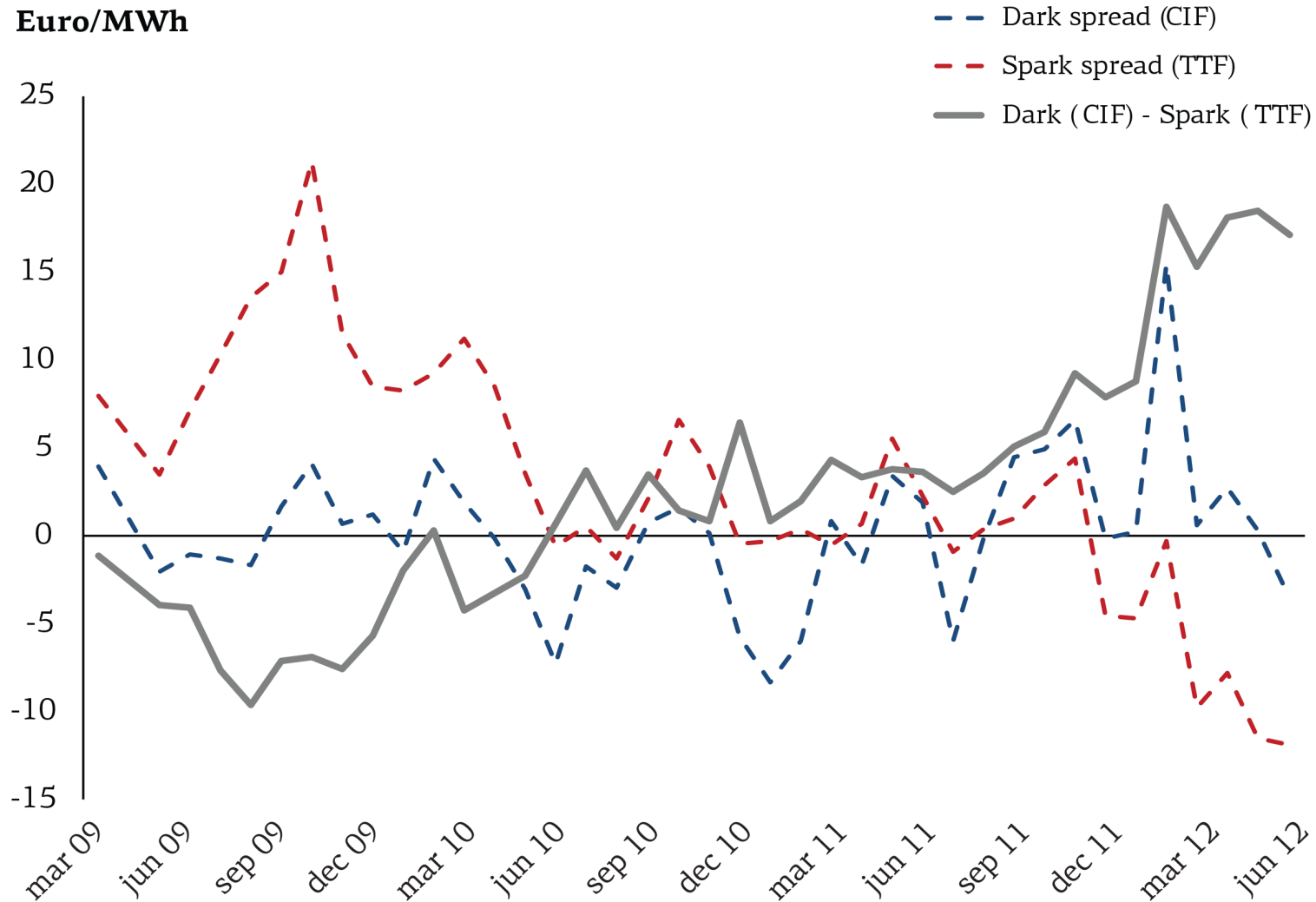


European gas demand is stagnating during the last decade



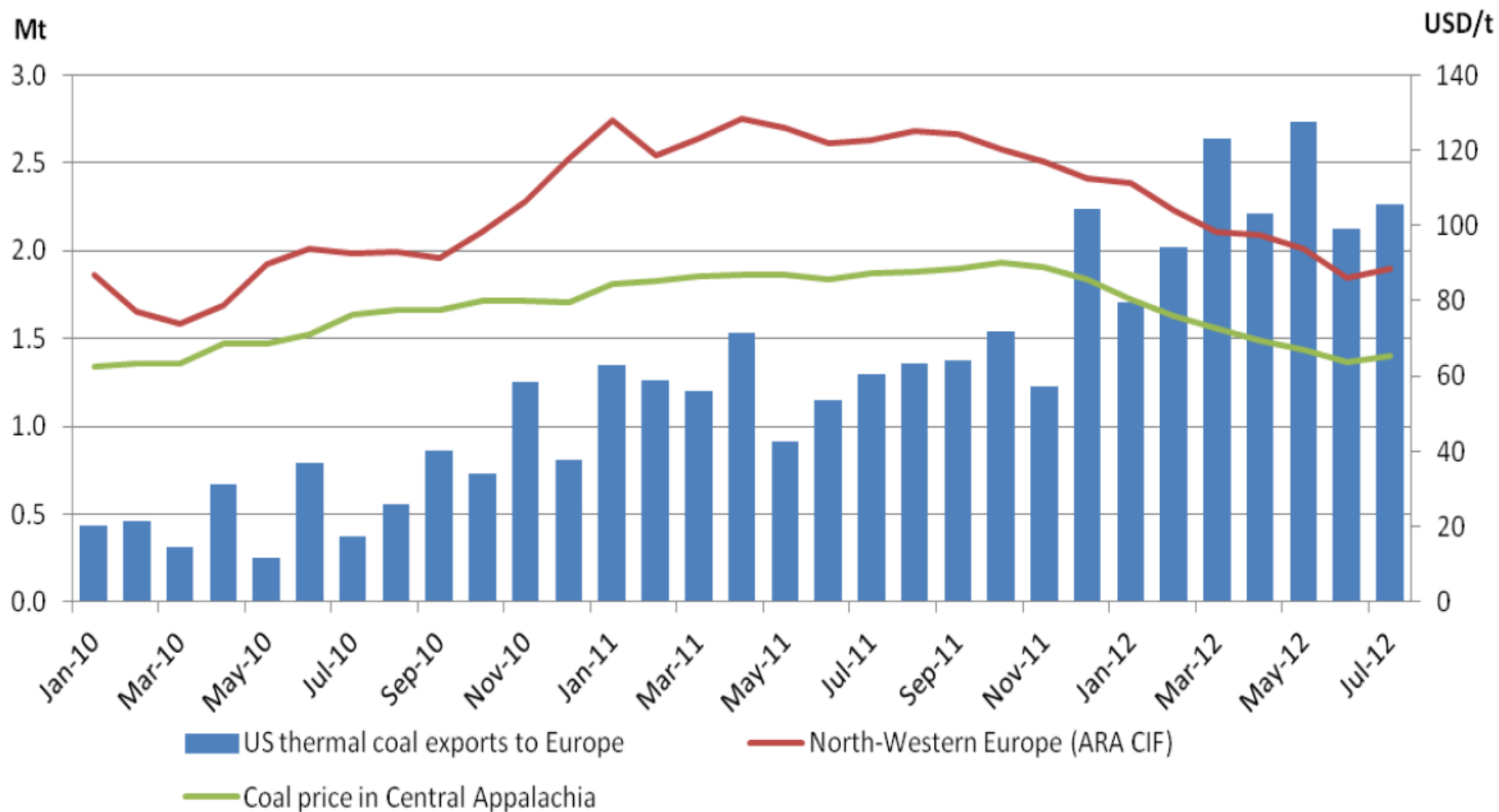
Source: Gas Medium-Term Market Report 2012. IEA.

High price of gas doesn't support gas use in power sector



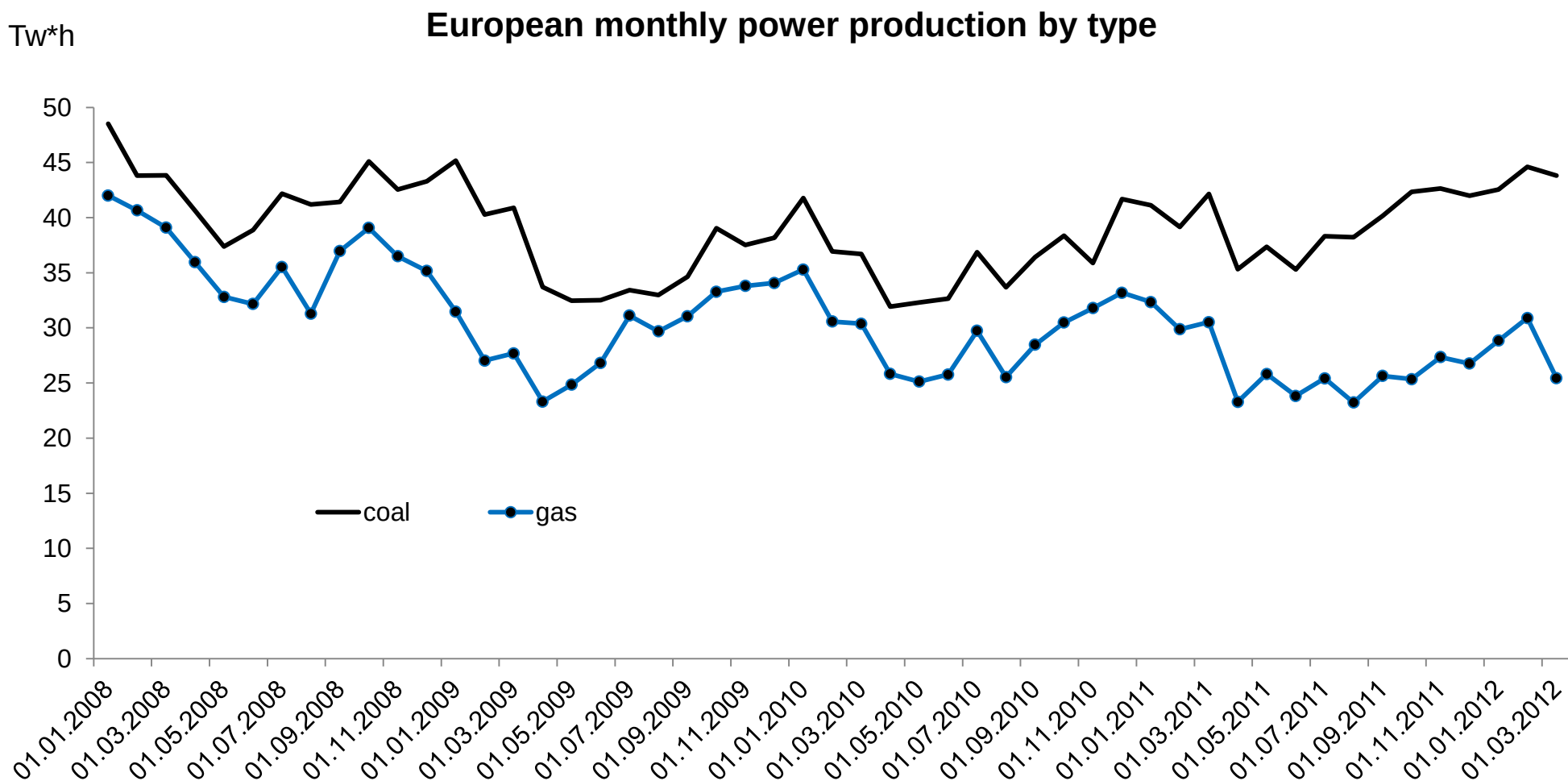
Source: Bloomberg.

Indirect impact of the US shale gas: redirecting coal to Europe



Source: IEA

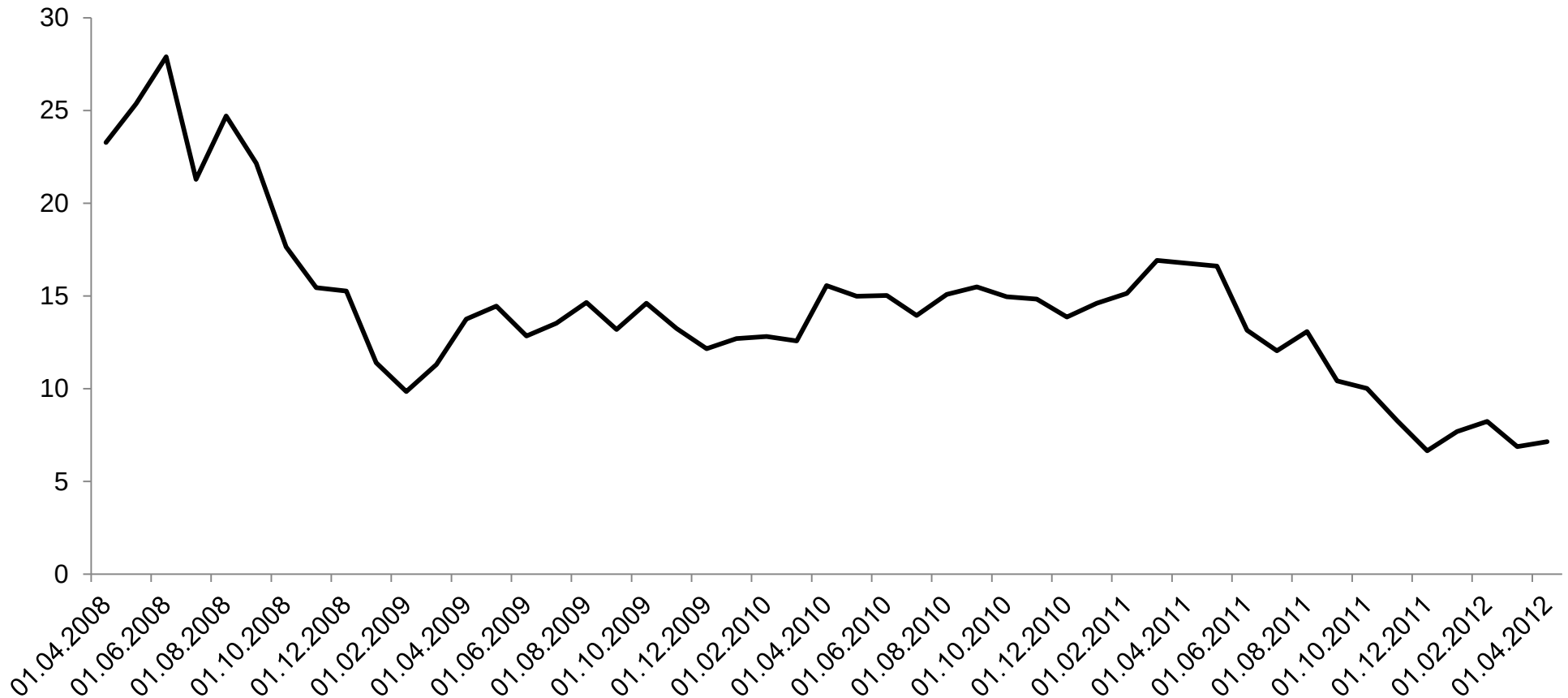
Cheap American coal is squeezing gas from the European thermal generation



Source: ENTSO-E

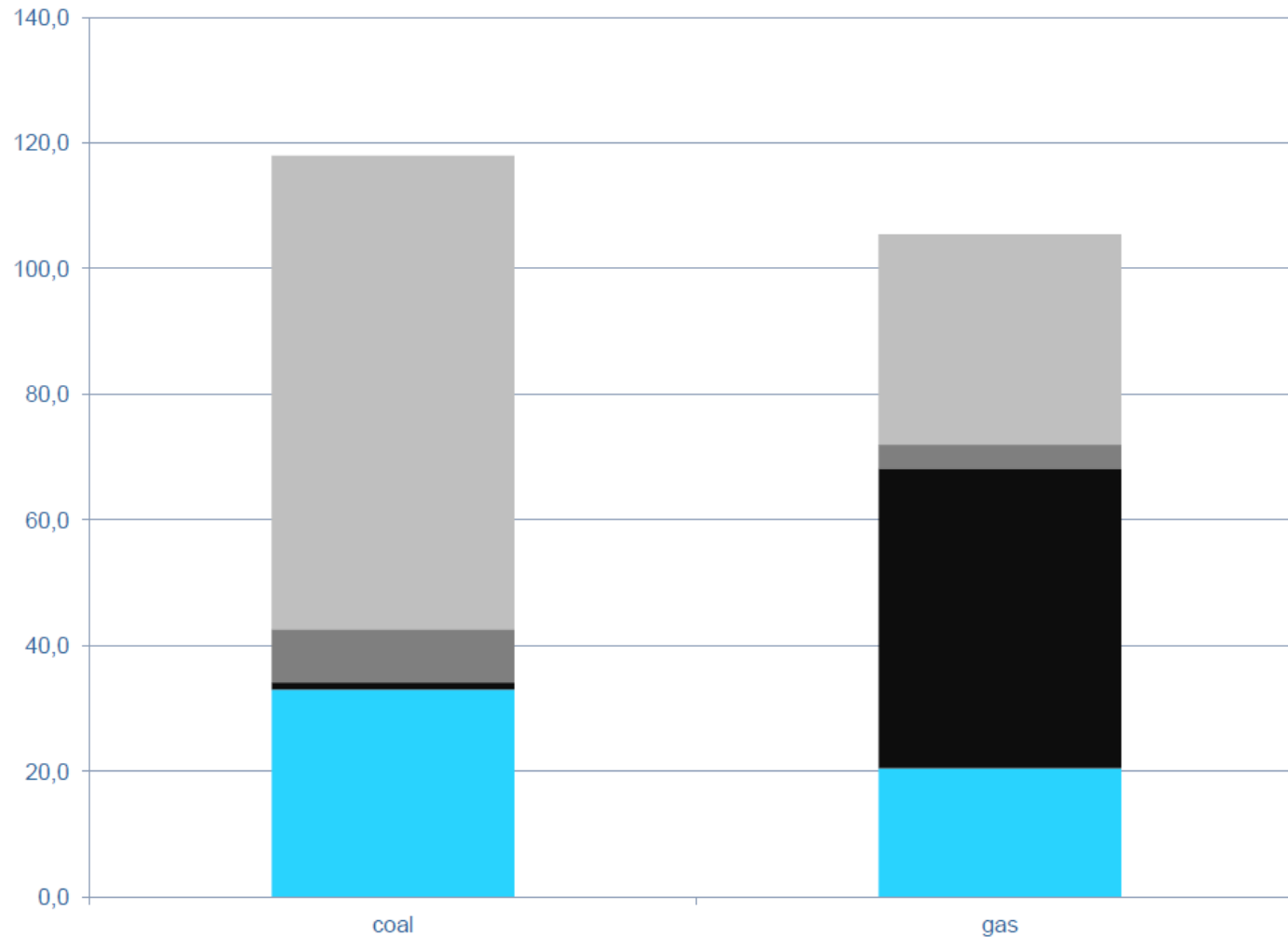
CO2 prices are extremely low and cannot support gas demand

EUA spot prices, Euro/ton CO2 - (EU allowances)



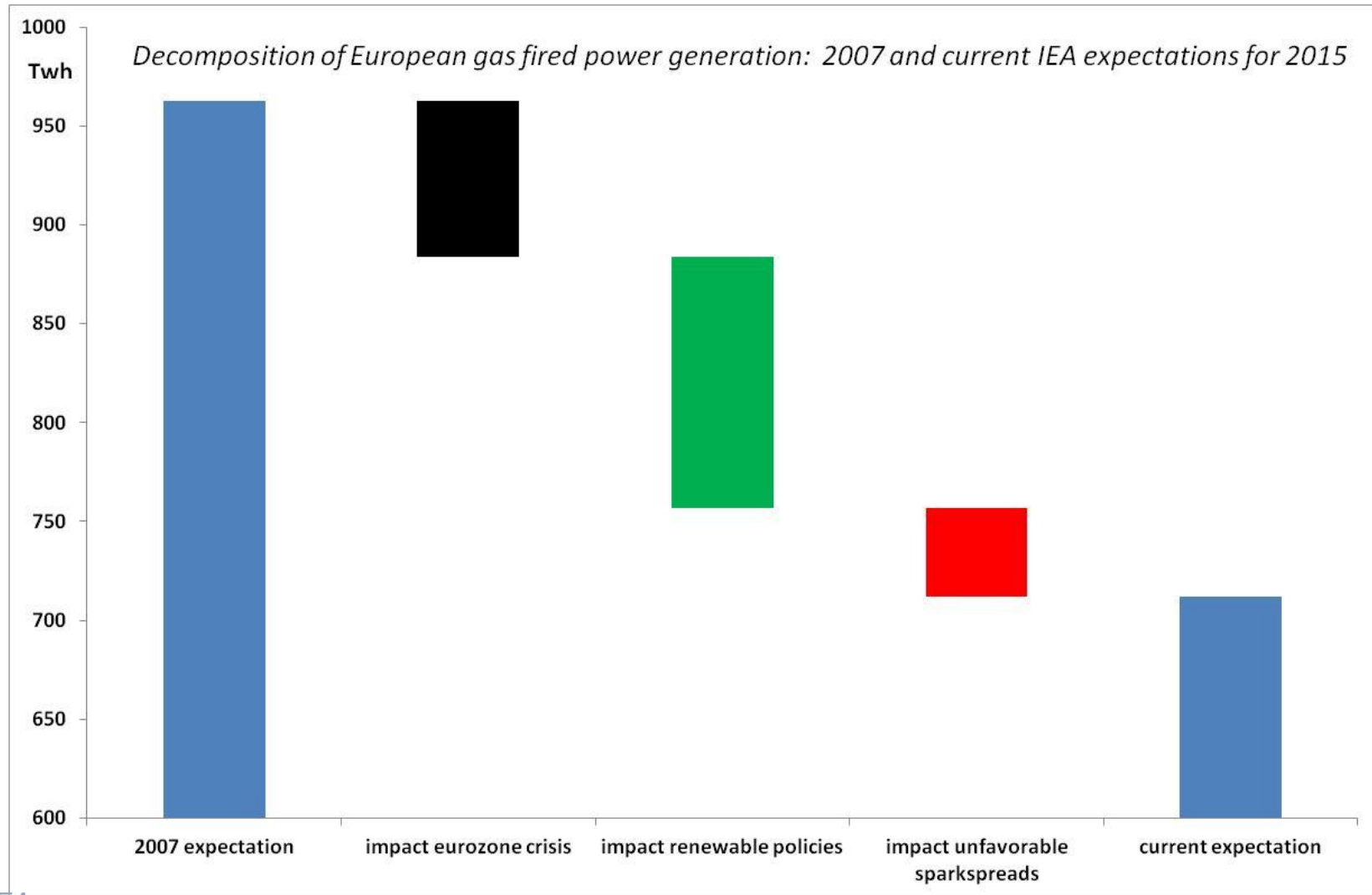
Source: Bloomberg

“Golden age of coal” in Europe: CO2 price has to increase more than 10 times to make gas competitive again



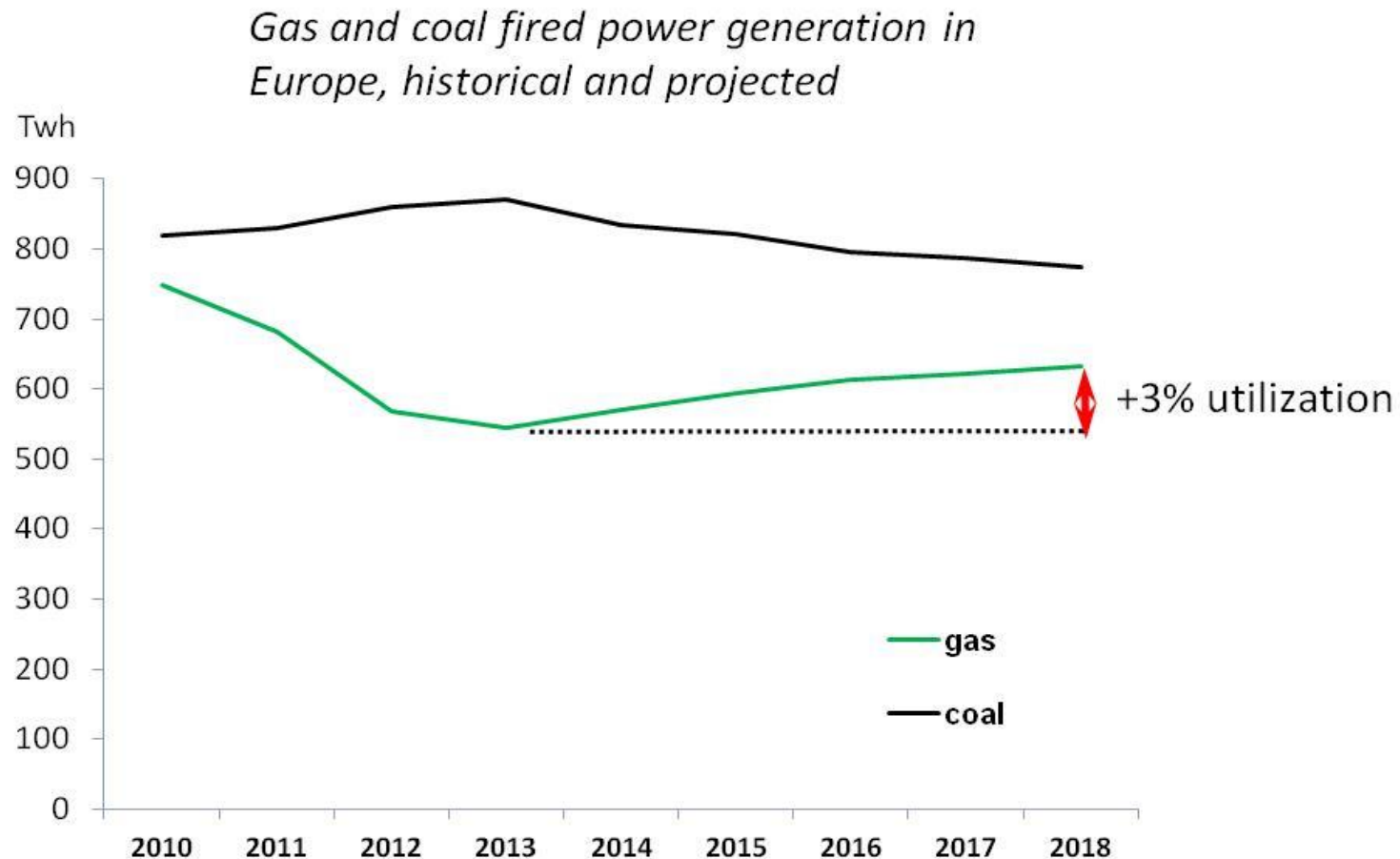
Source: IEA

The factors leading to low gas plant utilization are largely irreversible



Source: IEA

Policy-driven decommissioning of old coal plants will enable gas to recover slightly by the end of this decade, but gas plant utilization will remain below the level expected at the time of investment



Source: IEA

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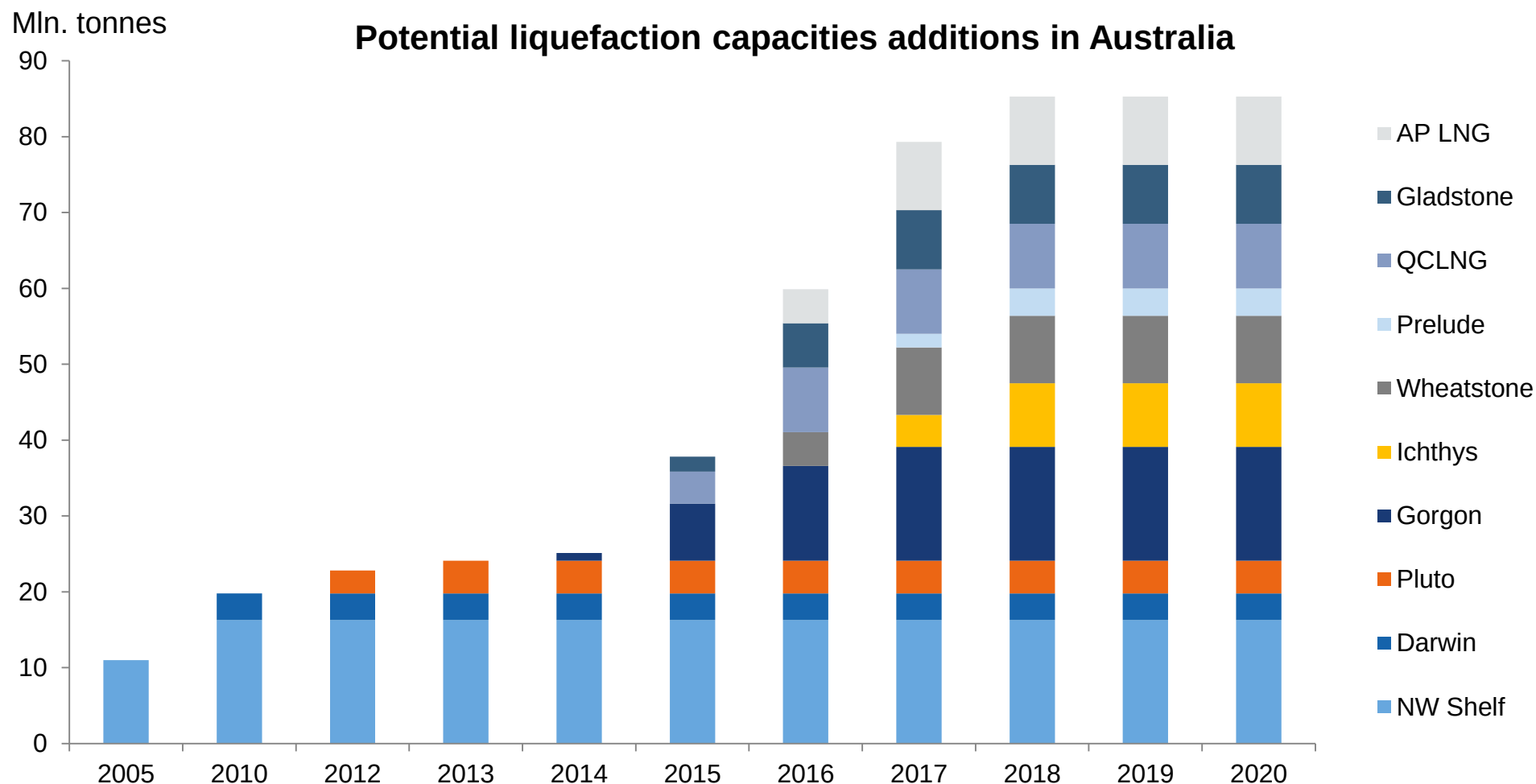
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GAS PRICING IN EUROPE

New projects will make Australia LNG producer #1 by 2018

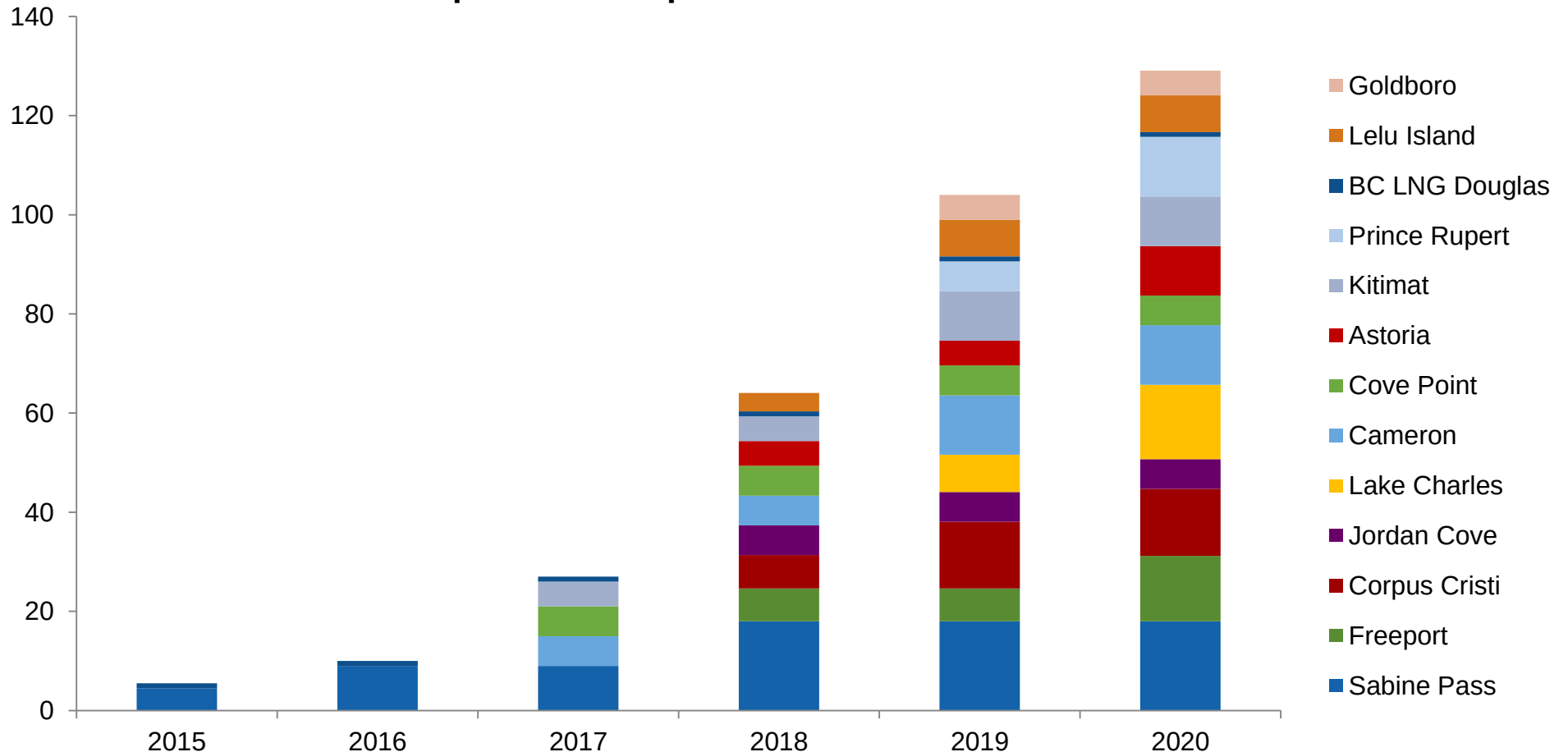


Source: ERI RAS

We don't know the future US (and Canadian) LNG export volumes

Mln. tonnes

Potential liquefaction capacities additions in the US and Canada

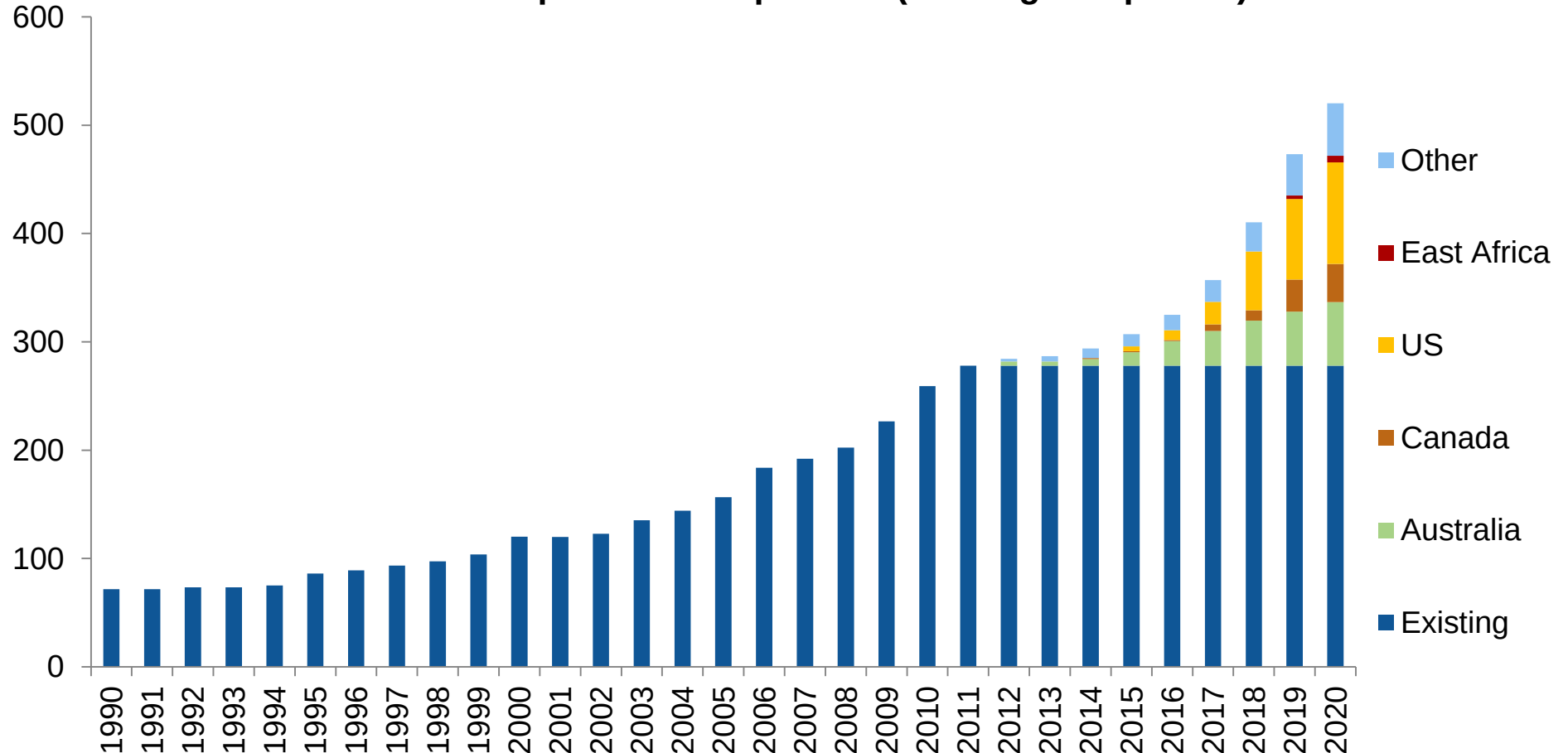


Source: ERI RAS

Global LNG supply is expected to boom during the next decade

Mln. tonnes

Global liquefaction capacities (existing and planned)



Source: ERI RAS

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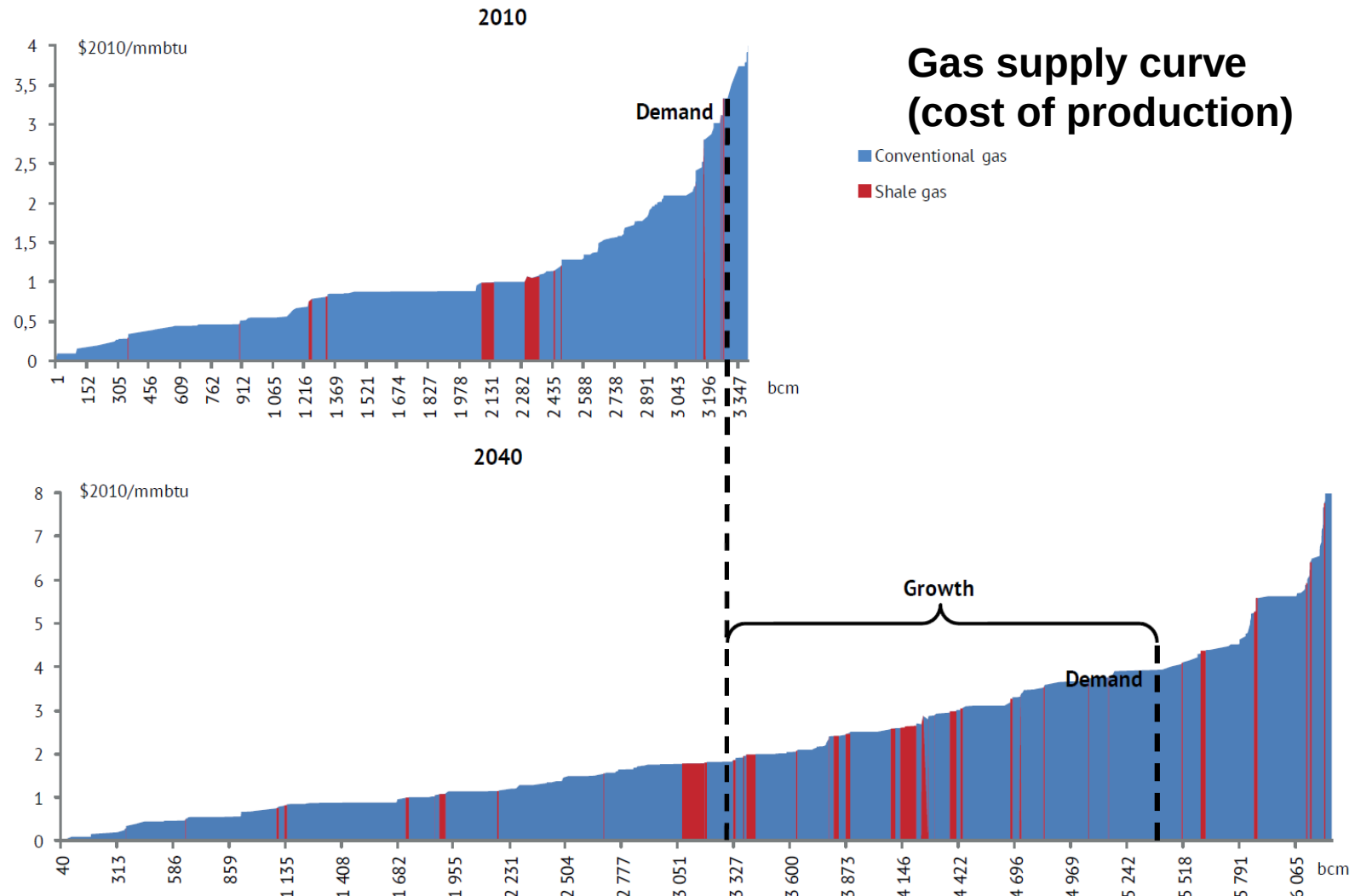
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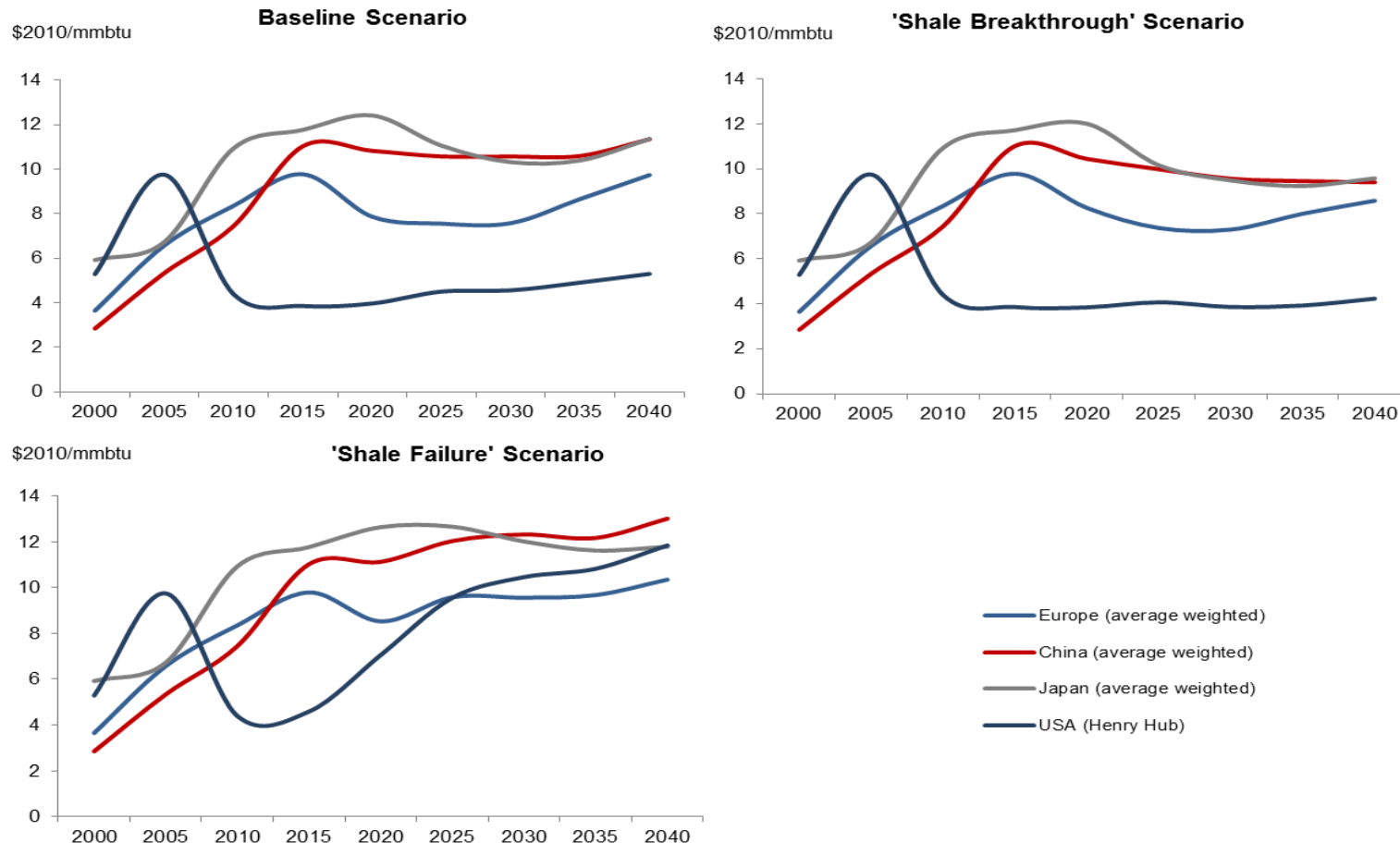
GAS PRICING IN EUROPE

There is enough gas to expand gas production by 2 tcm by 2040 at the production costs below 4 \$/MBtu



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

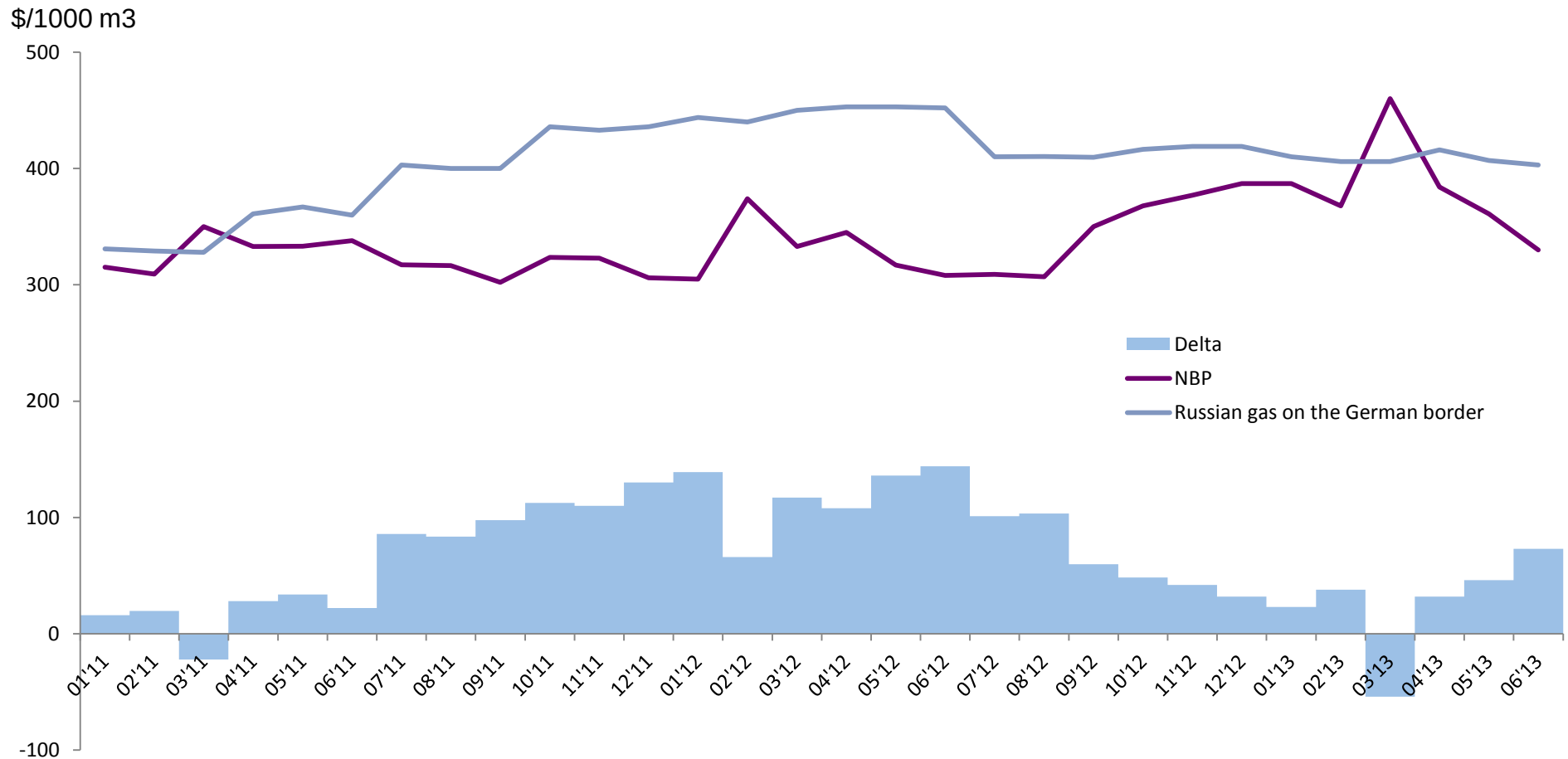
Equilibrium gas prices in the three scenarios



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

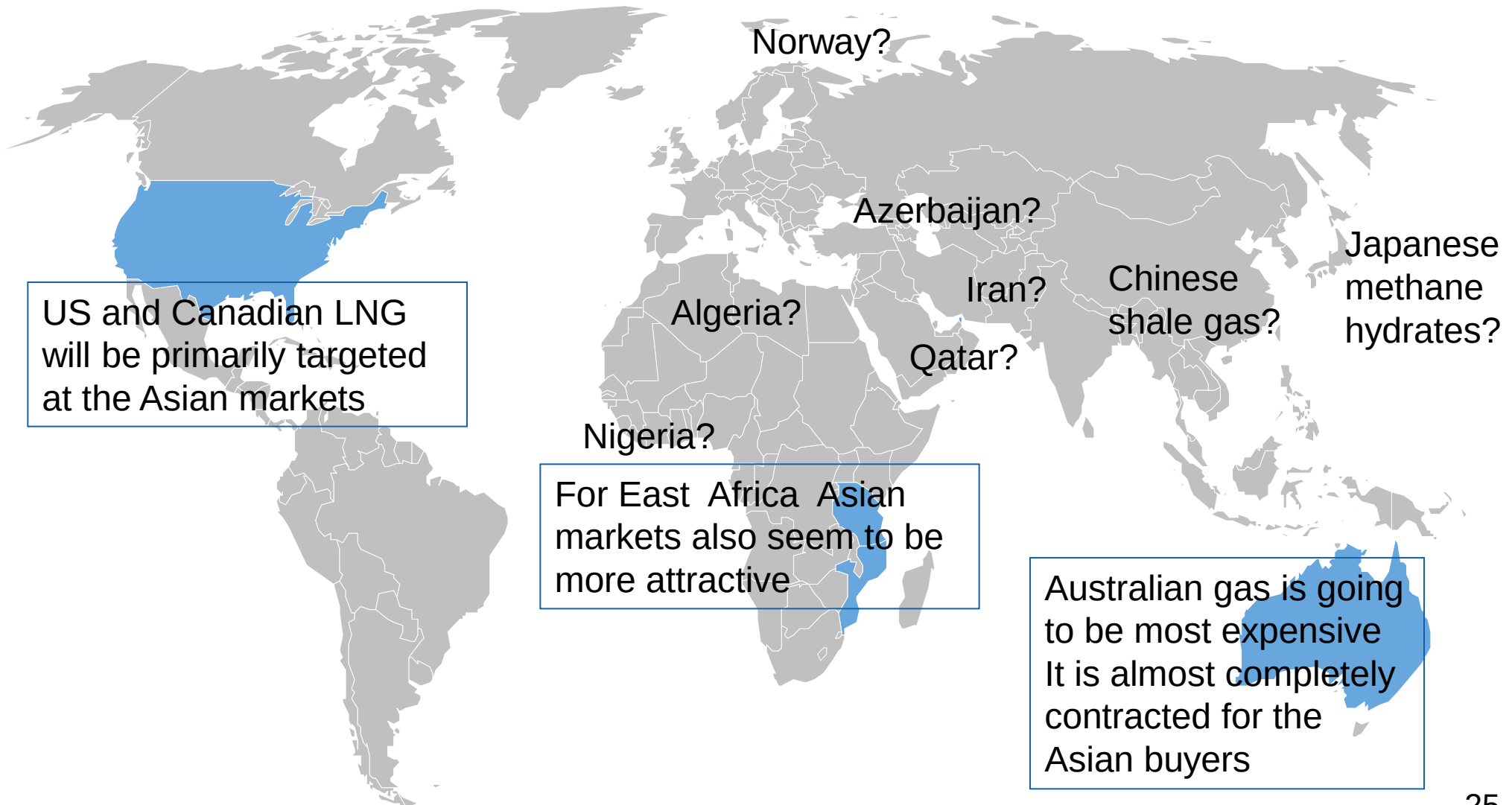
Traditional “Groningen” model is questioned now, as even renegotiated oil-linked contract prices are higher than spot-based

European spot and oil-linked gas prices

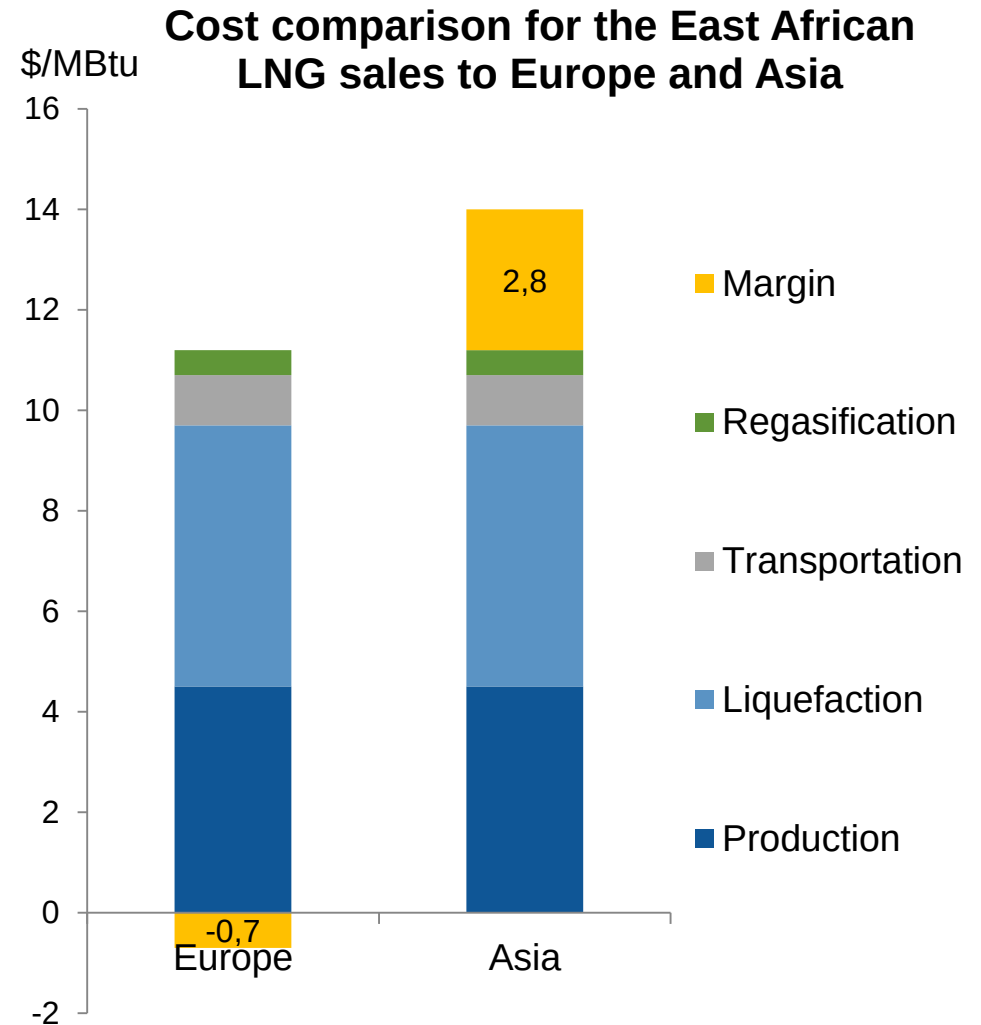
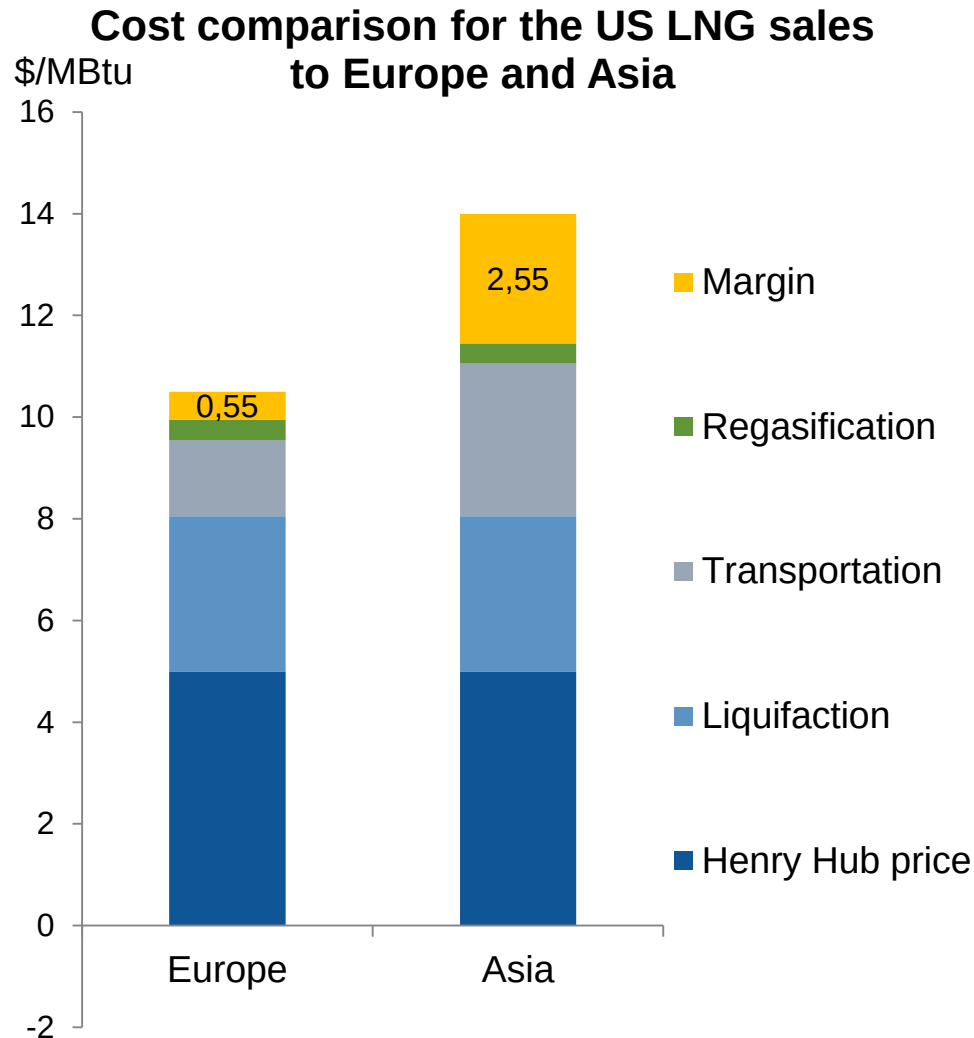


Source: Bloomberg; ERI RAS.

Devil is in the details: new additional gas to Europe - where will it come from?



Both for the North American and for East African LNG Asia seems to be much more attractive market



Source: ERI RAS

Is there any "plan B"? What if...

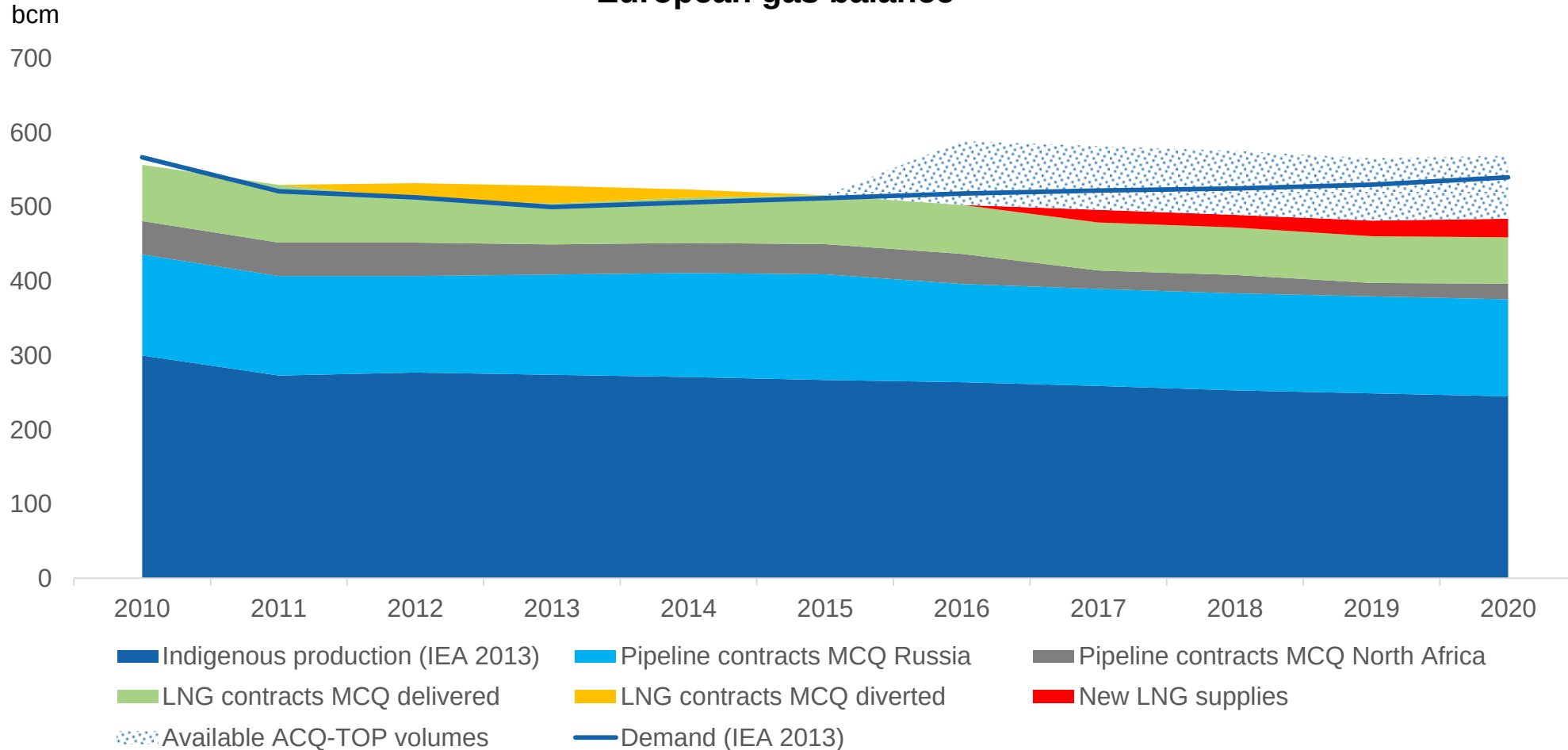
- » Economic recovery will be faster than expected?
- » Energy efficiency targets are not achieved?
- » Indigenous production will decline faster than expected (like in the UK)?
- » Offshore wind and nuclear plans will fail?
- » Under-investment in gas production during the crisis increases?
- » There will be rapid demand growth in Asia and Europe will not be able to propose prices competitive with the Asian market in order to attract LNG volumes?
- » Domestic demand will be expanding even faster in MENA?
- » CCS is not commercial by 2020?
- » Alternatives (Southern Corridor, LNG including US, domestic shale gas) will not come in time and at lower price than Russian imports?



THERE ARE POTENTIALLY NUMEROUS GAS SUPPLY SOURCES TO EUROPE, BUT BY THE END OF THE DAY ONLY FEW OF THEM WILL WORK. RUSSIAN LONG-TERM CONTRACTS ARE INSURANCE IN CASE "IF SOMETHING GOES WRONG" – IT WILL BE CALLED UPON AFTER SOME OTHER OPTIONS HAVE NOT MATERIALIZED. IT`S BETTER TO HAVE YOUR OPTIONS OPEN, JUST IN CASE...

**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.

Gazprom's strategic choice



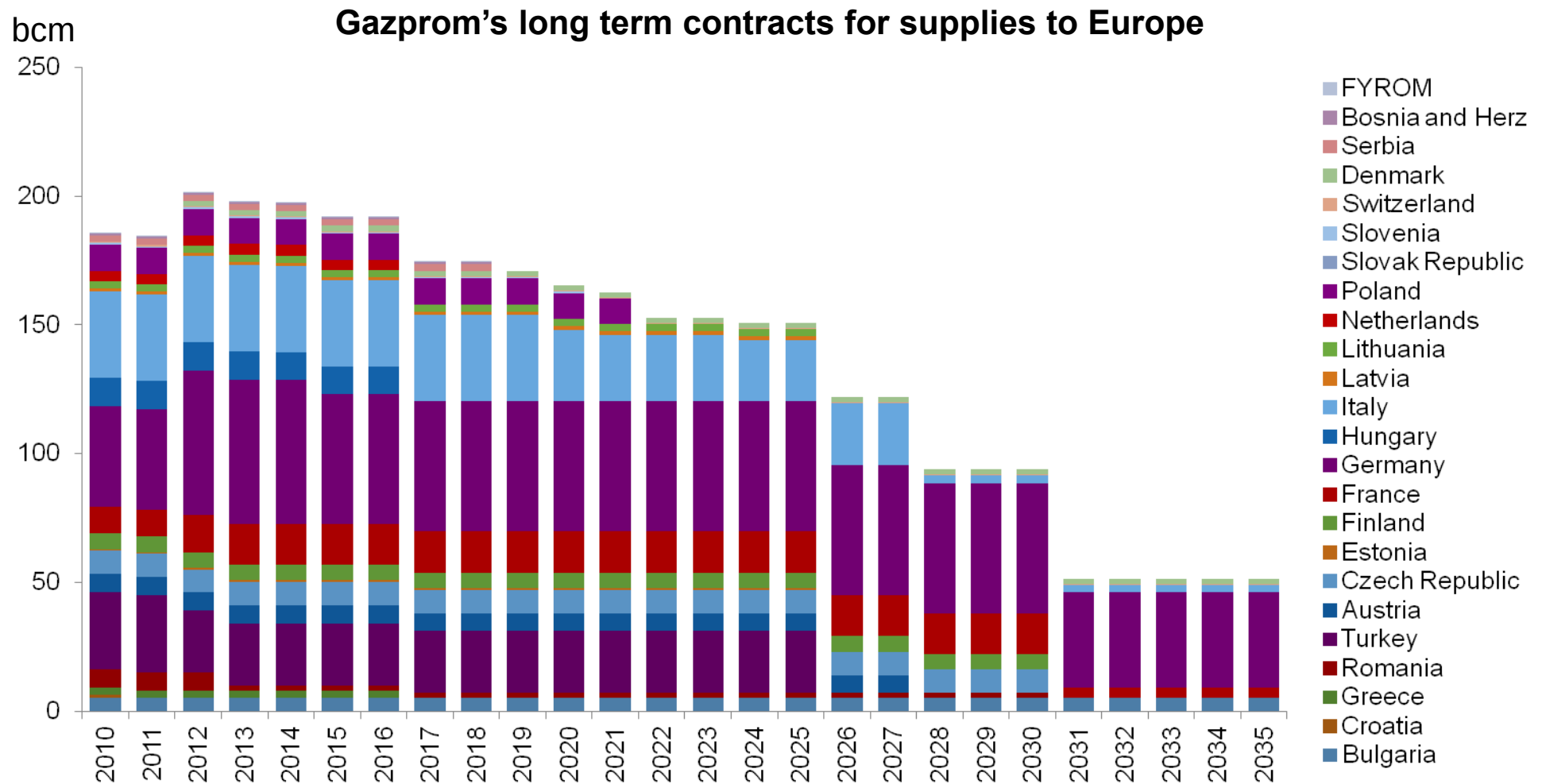
We were faced with the choice of whatever was **to maintain the supply volumes and the market share, or make the profit our high priority.**

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.



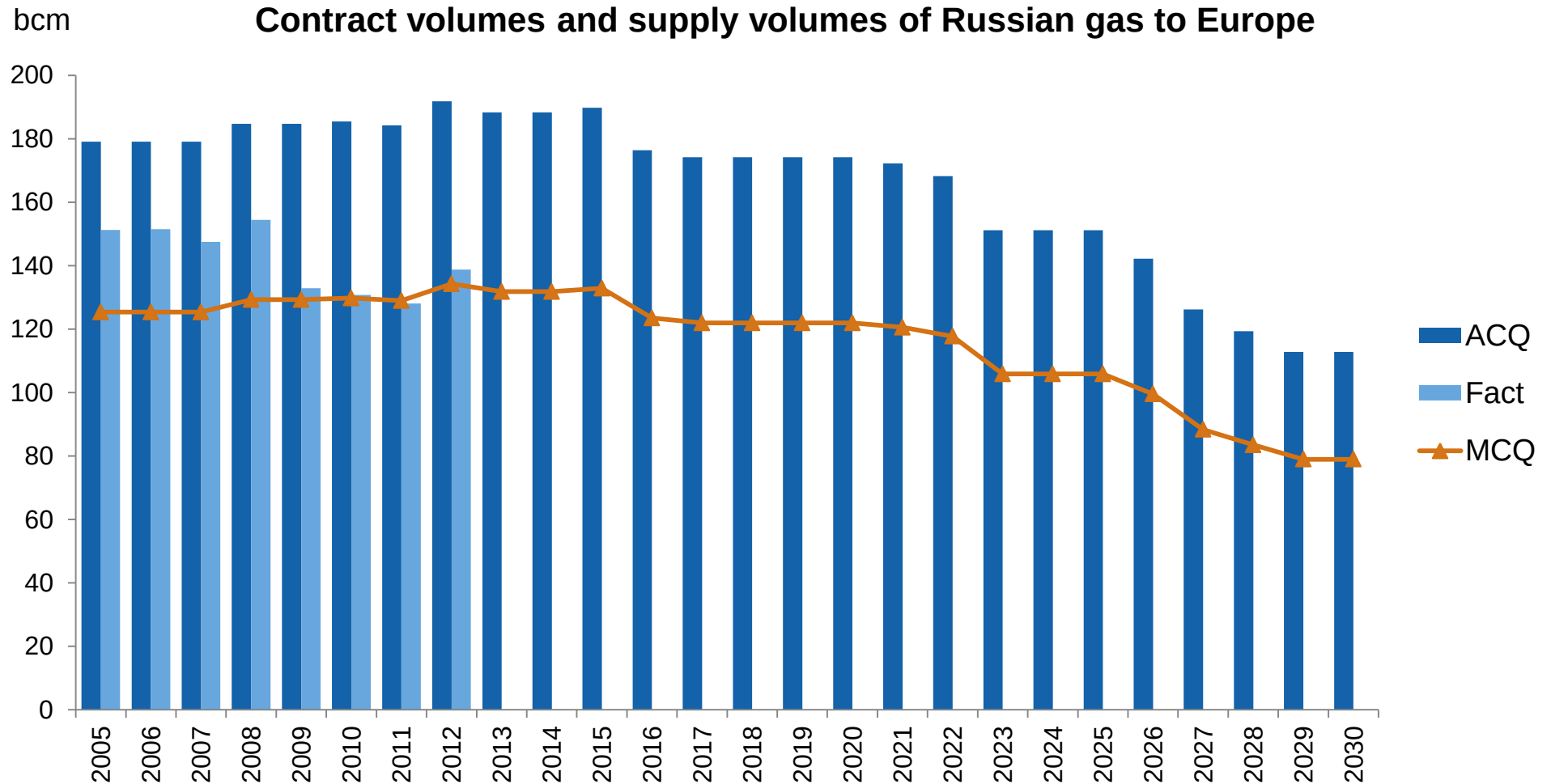
*Alexander Medvedev,
Gazprom Export*

Gazprom has a huge portfolio of oil-linked long term contracts for supplies to Europe for the next 25 years and longer



Source: Enerdata, ERI RAS..

Existing long-term contracts guarantee stable sales volumes for Russia until at least 2022



Sources: Cedigaz, Gazprom, ERI RAS.

Arguments: oil indexation vs. gas indexation

Oil indexation

- Disappearing gas glut on the European gas market in the medium term – gap between oil-indexed and spot prices will narrow
- Arbitration lasts for several years
- Gazprom will face price reopening and contract expiration only after 2015
- With high oil prices even lower sales volumes are providing high revenue
- New projects need high prices
- Oil indexation is needed for the project financing

Spot indexation

- Strong pressure from the customer side
- 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 dictating prices at the spot market by changing its supply volumes

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

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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