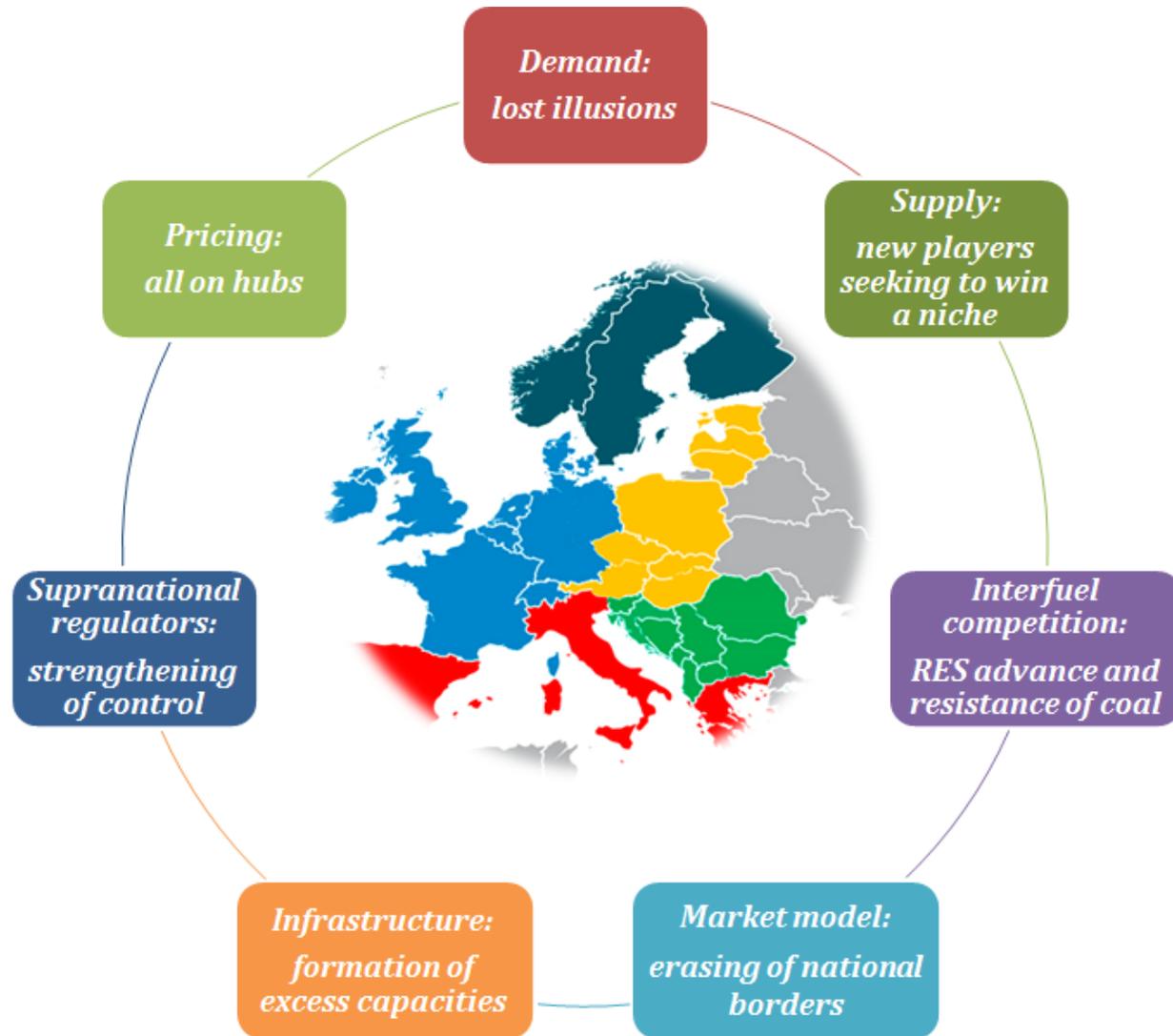
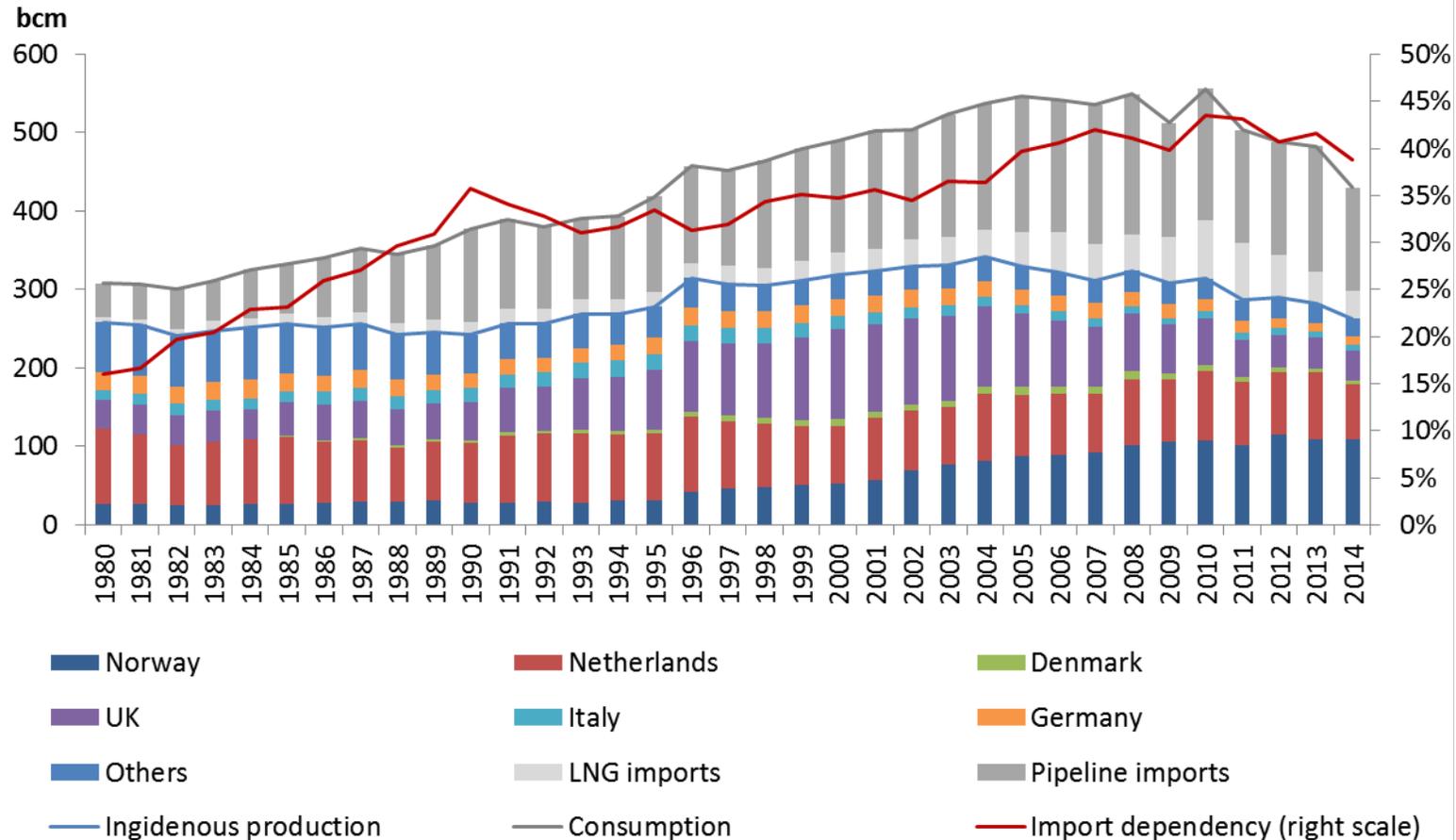


European gas market transformations



European gas balance: increasing import dependency, declining production and consumption

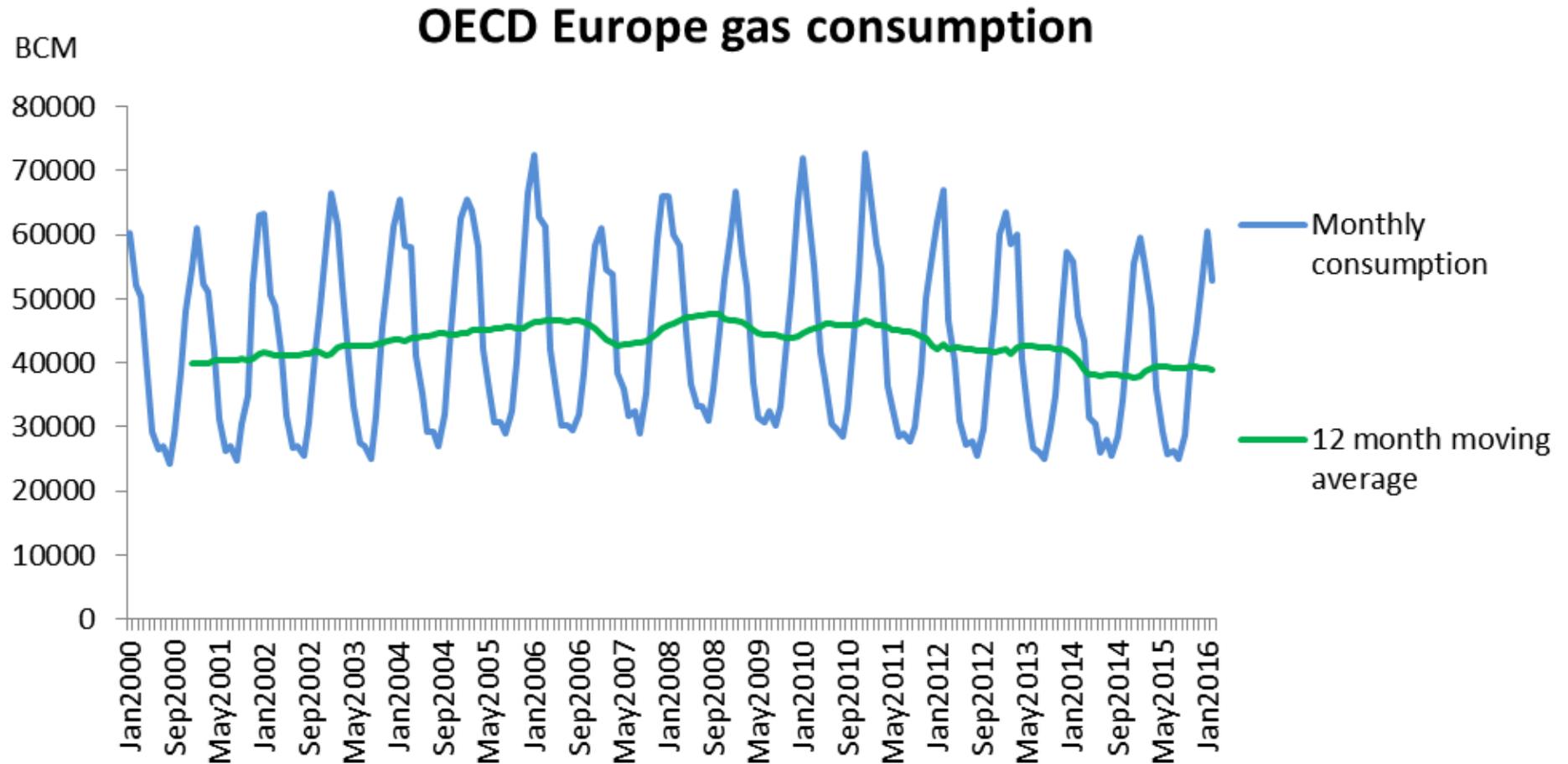
European gas balance



Notes: Turkey not included

Source: IEA World energy balances 2015, IEA Natural gas information 2015

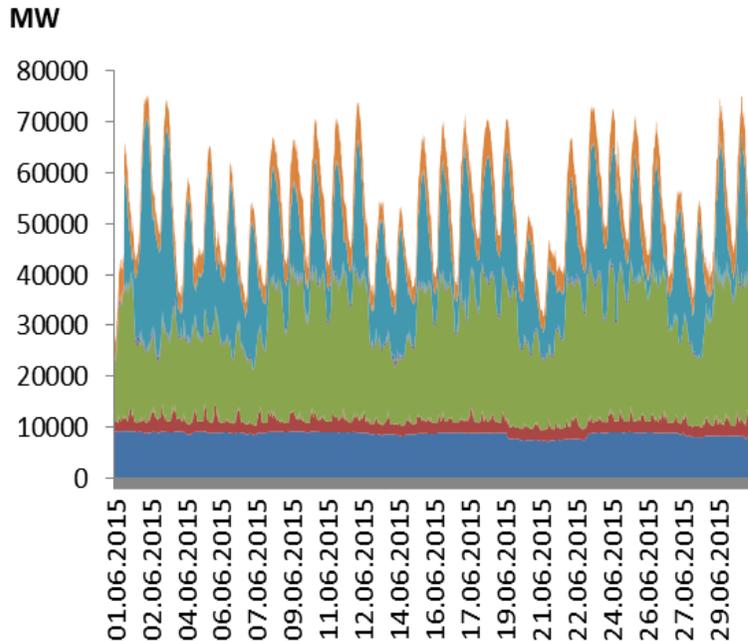
OECD Europe gas consumption has been flat for more than a decade



Source: IEA Natural gas monthly

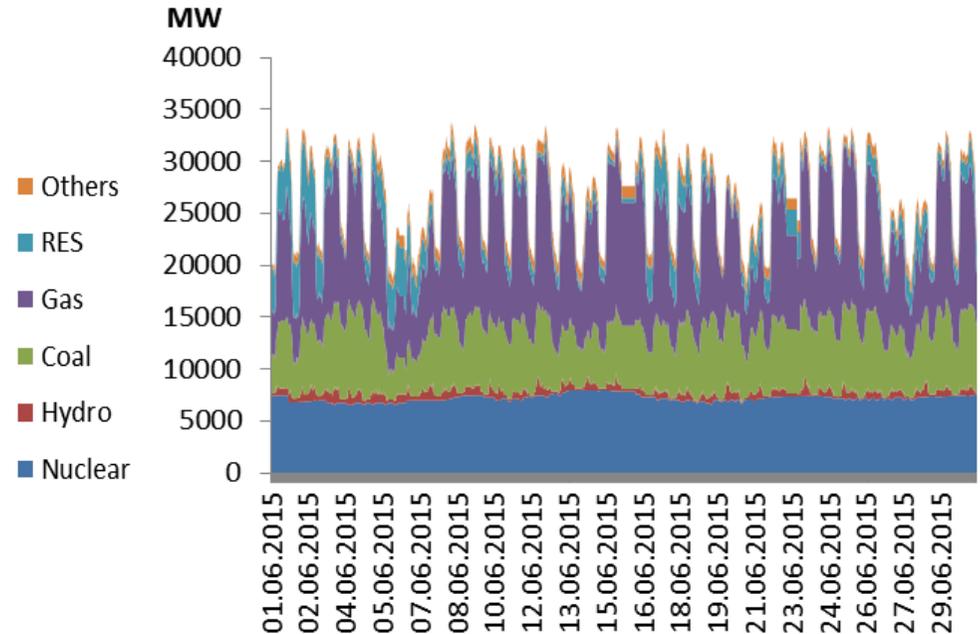
Gas in power sector: still not competitive

Structure of used power generation capacities in Germany in June 2015



Source: ENTSO-E

Structure of used power generation capacities in the UK in June 2015

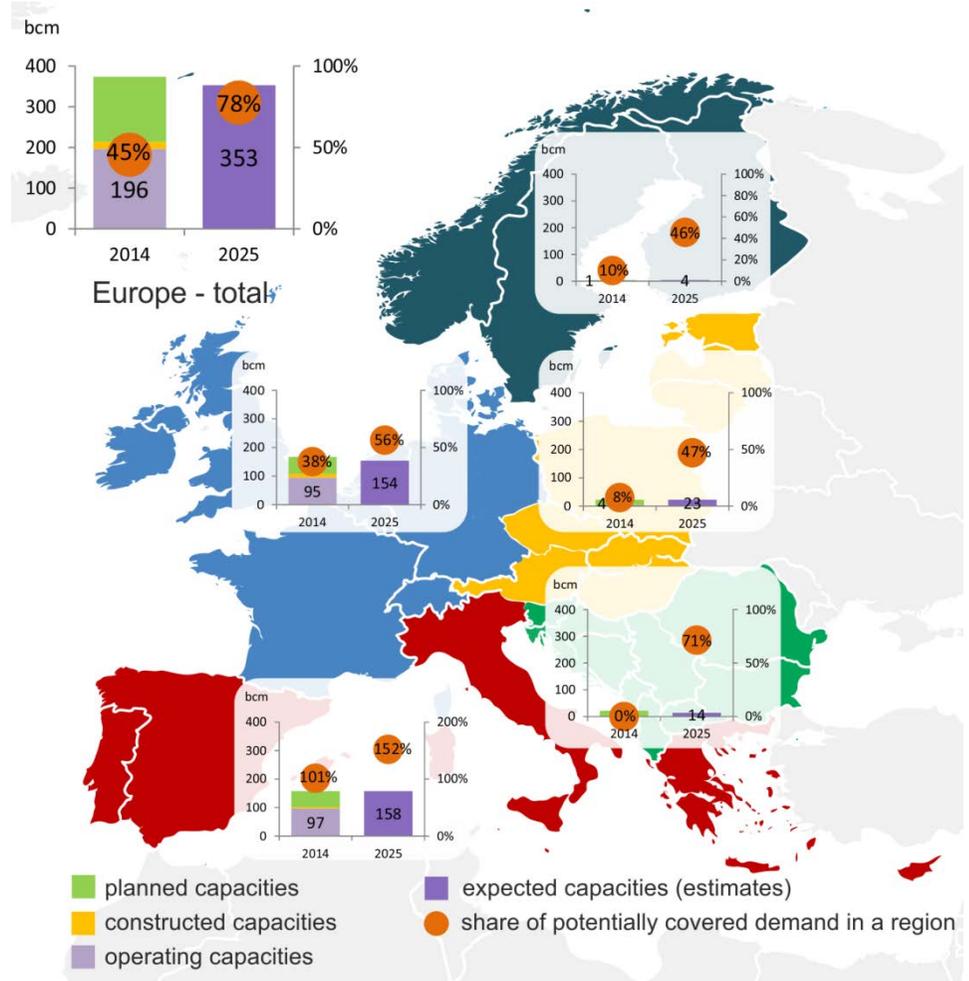
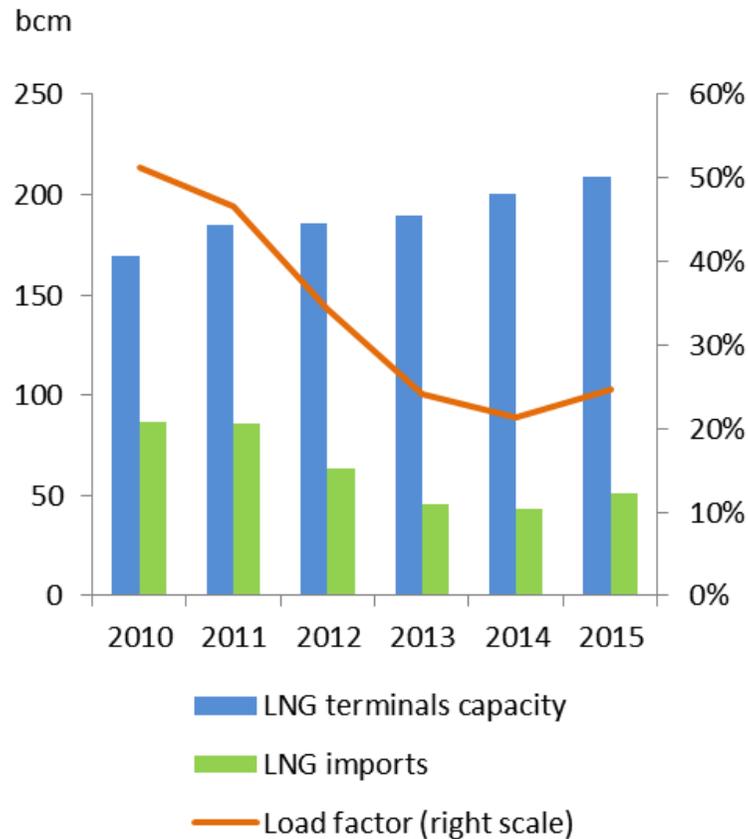


Source: Gridwatch based on Balancing Mechanism Reporting System data

Spark spreads for power generation from gas in most European countries has recently improved but still negative since 2012. Gas disappears from power generation balances of the European countries or becomes a back-up fuel.

LNG will claim more significant share of European gas demand as domestic production declines. Europe can import more LNG if it chooses, but it depends on the price it is willing to pay.

Capacities of the European LNG terminals and LNG imports



Source: IEA, Gas infrastructure Europe, Gas market of Europe: lost illusions, timid hopes, ERI RAS, HSE Energy Institute, September 2015 (in Russian)

Russian gas industry found itself in a completely new, quite unfavorable environment

Domestic challenges:

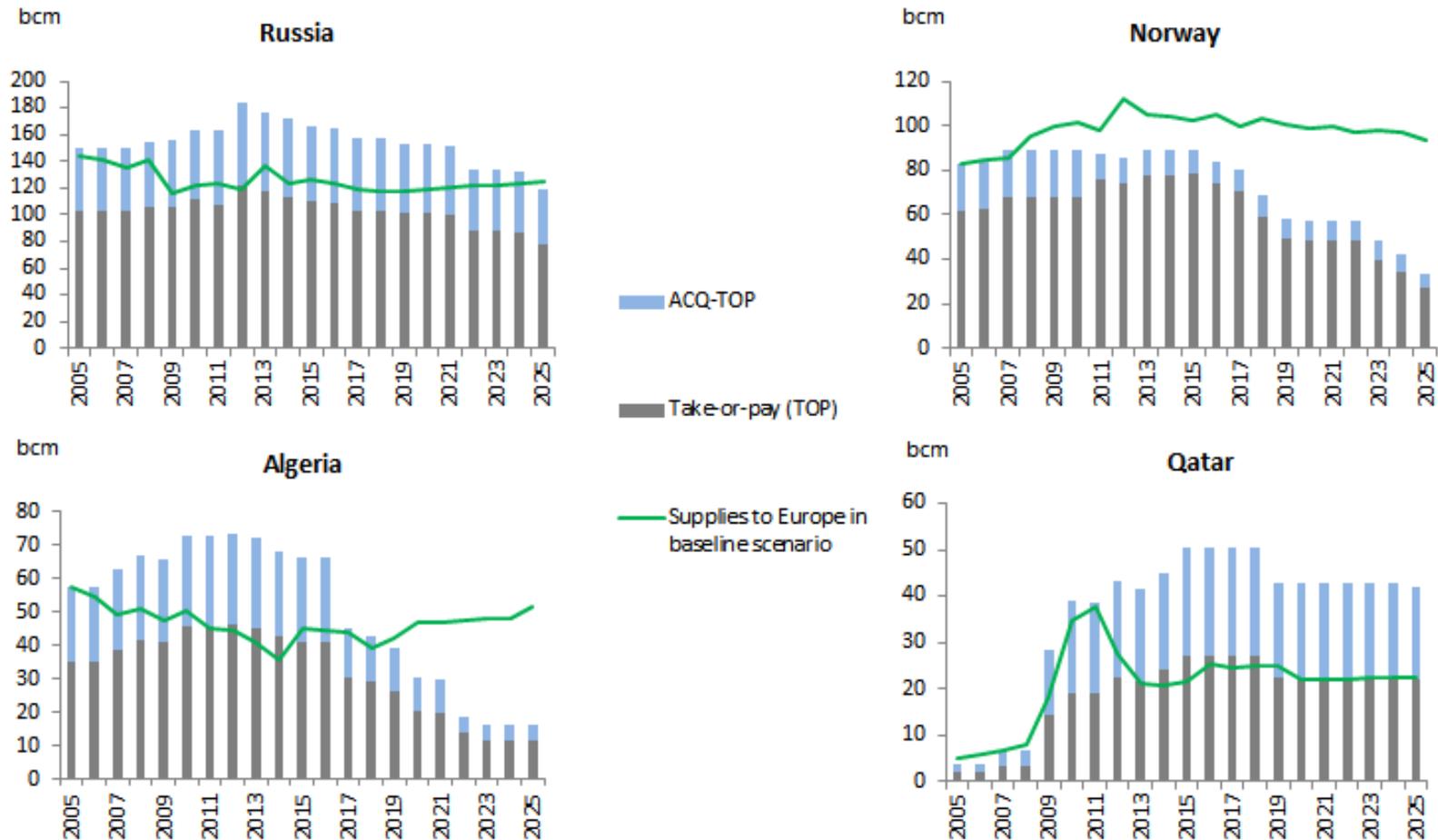
- Stagnation of the Russian economy slows down domestic gas demand.
- The market is oversupplied and competition between Gazprom, Rosneft and Novatek is becoming really severe, increasing the pressure to liberalize the Russian domestic gas market and to remove Gazprom's export monopoly for pipeline gas.
- Lower investment availability and frozen domestic prices together with lower export prices cut Gazprom's investment program.

Global challenges:

- Export revenues expectations are declining :
 - ❑ Stagnant gas demand, increasing tensions on the western markets for Gazprom, regulatory pressure.
 - ❑ Weak prospects in Asia, where Russian presence is very limited for the next 5-7 years.
 - ❑ Increasing competition with the new gas suppliers (shale from the U.S., Iran, Australia, East Africa, etc.).
 - ❑ Low oil and gas prices until 2022-2025.
- Geopolitical threats: sanctions.

**By 2025 in Europe 50% of the current contracts will expire.
Russia has the largest contract portfolio, which guarantee it at least 120 bcma exports; everything on top of that will be spot-based**

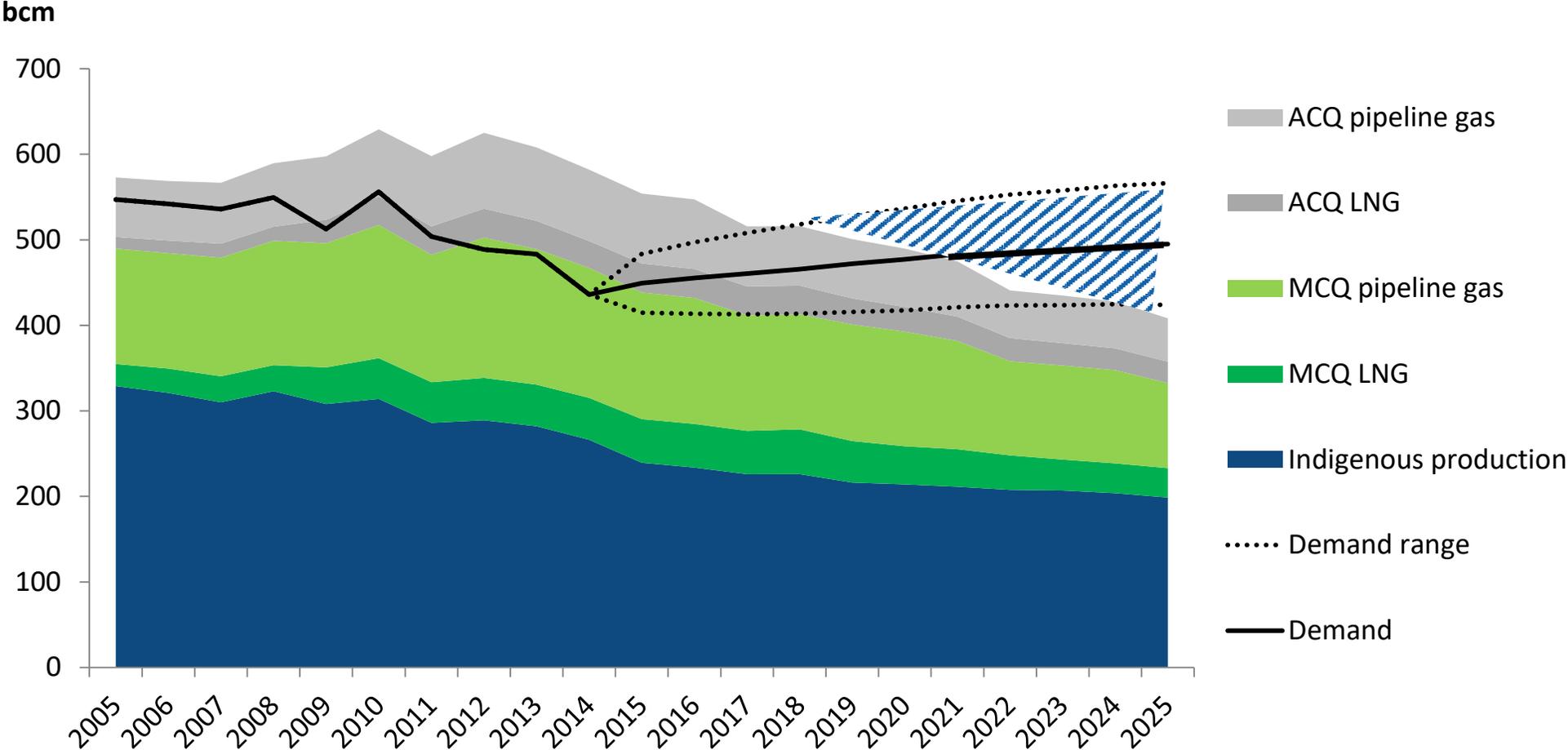
Contracted gas supplies to Europe by major suppliers up to 2025



Source: Gas market of Europe: lost illusions, timid hopes, ERI RAS, HSE Energy Institute, September 2015 (in Russian)

European gas market is locked in the TOP contracts. In all realistic scenarios Russia remains key supplier to the European market. However the perspectives of Russian exports growth to Europe are very limited

European* gas balance

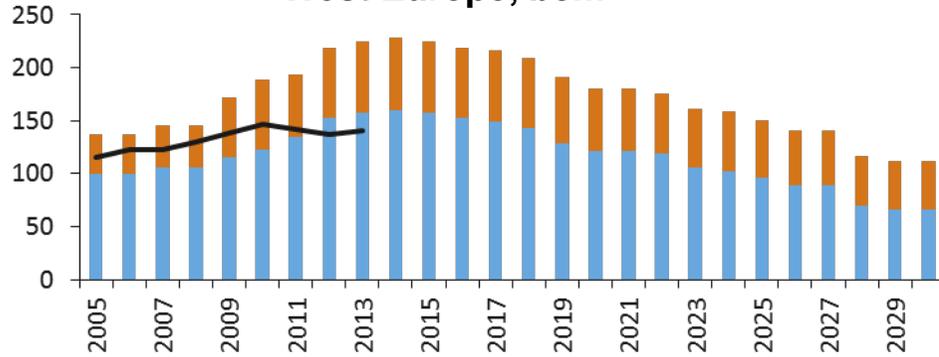


* Europe-41 without Turkey

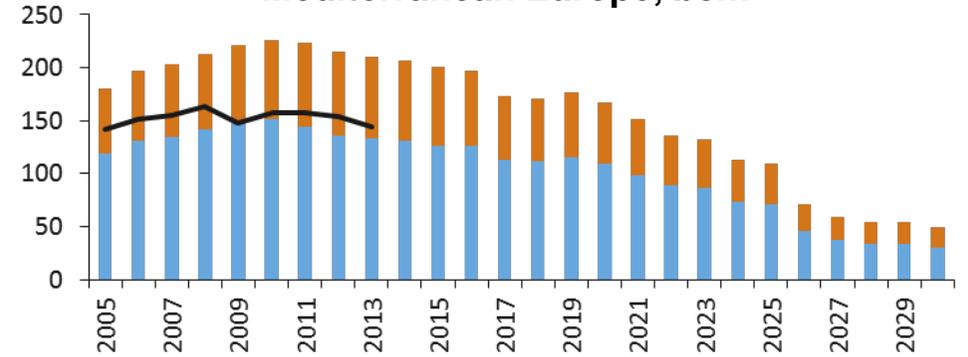
Source: ERI RAS

Existing long-term contracts to Europe leave little room for additional gas supplies up to 2020-2025

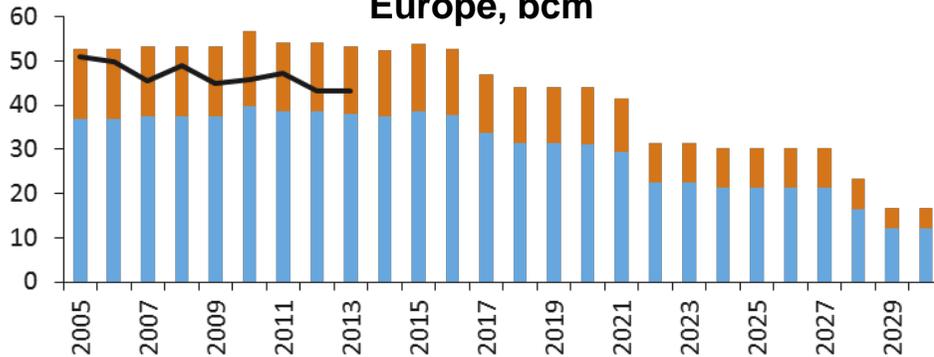
Gas supply contracts and net imports to North West Europe, bcm



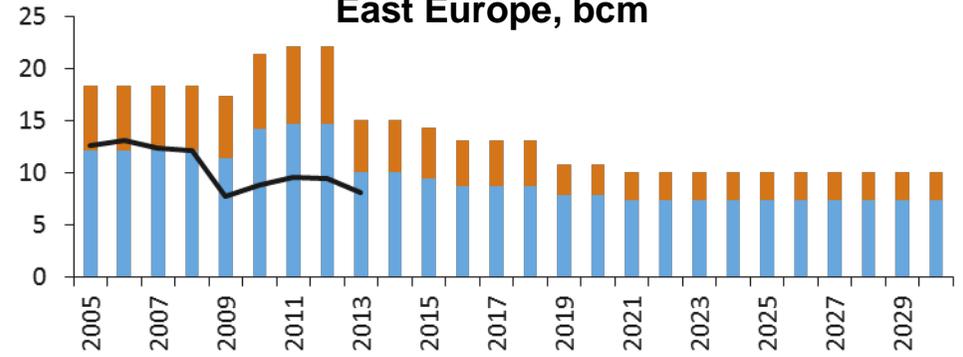
Gas supply contracts and net imports to Mediterranean Europe, bcm



Gas supply contracts and net imports to Central Europe, bcm



Gas supply contracts and net imports to South East Europe, bcm



Source: Nexant, IEA database

Contracts MCQ Contracts ACQ-MCQ Net Imports

Russian price strategy in Europe is in fact more flexible than declared

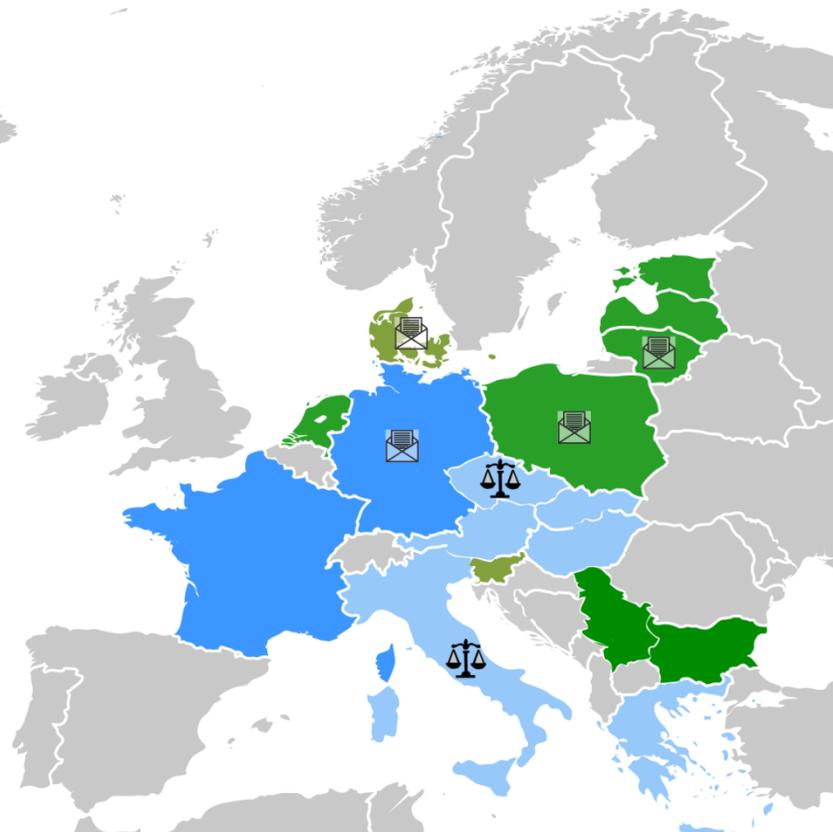
- ❑ Russia's policy with regard to contract review has been based on the principal of delaying for as long as possible before providing the minimum discount acceptable to each buyer.
- ❑ In 2013 Gazprom started to implement a new price discount model with so-called retroactive payments.
- ❑ Despite Gazprom's strident rhetoric in favor of traditional oil indexation, in actual fact numerous adjustments and contract reviews have already been made in the course of the last 6 years.
- ❑ Analysis of Gazprom's official reports demonstrates a much more flexible negotiating position than has commonly been thought to be the case. During the period 2009 – mid-2015 as many as 65 times gas supply contracts were reviewed with 30 clients, providing price discounts, easing of take-or-pay obligations and a certain introduction of a spot component.
- ❑ Calculations using Russian Customs Service statistics, Gazprom reports and the Nexant World Gas Model (which allows the assessment of contractual prices based on the prices of oil products), clearly show the increasing differential between actual sales prices and prices, calculated based on pre-crisis traditional oil-linked price formula. In fact, by 2014 Gazprom had already provided nearly on average 25% discount (or 90\$/mcm) to its European customers compared to its pre-crisis traditional oil-linked price formulas.

European buyers has been turning to Gazprom requesting to review long-term contracts since 2009

No	Country	Company	2009	2010	2011	2012	2013	2014	2015	revision of a contract requested
1	Austria	Centrex								
2	Austria	EconGas OMV								
3	Austria	Erdgas Import Salzburg								
4	Austria	Gazprom Austria (GWH Gashandel)								
5	Bulgaria	Bulgargaz								
6	Hungary	Centrex Hungary Zrt.								
7	Hungary	Panrusgas Gas Trading Plc.								
8	Germany	E.ON								•
9	Germany	Verbundnetz Gas AG								
10	Germany	WIEH								•
11	Germany	Wingas								•
12	Greece	DEPA								•
13	Denmark	DONG								•
14	Italy	Axpo Trading (EGL)								
15	Italy	Edison (Promgas)								
16	Italy	ENI								
17	Italy	ERG								
18	Italy	PremiumGas								
19	Italy	Sinergie Italiane								
20	Latvia	Latvijas Gaze								
21	Lithuania	Lietuvos Dujos								•
22	Netherlands	GasTerra								
23	Poland	PGNiG								•
24	Serbia	Srbijagas								
25	Slovakia	SPP								
26	Slovenia	Geopljin d.o.o.								
27	France	GDF SUEZ								•
28	Czech Republic	RWE Transgas (RWE Supply & Trading)								
29	Czech Republic	Vemex s.r.o.								
30	Estonia	Eesti Gaas								
		Number of reviewed contracts	6	10	12	14	8	11	4	

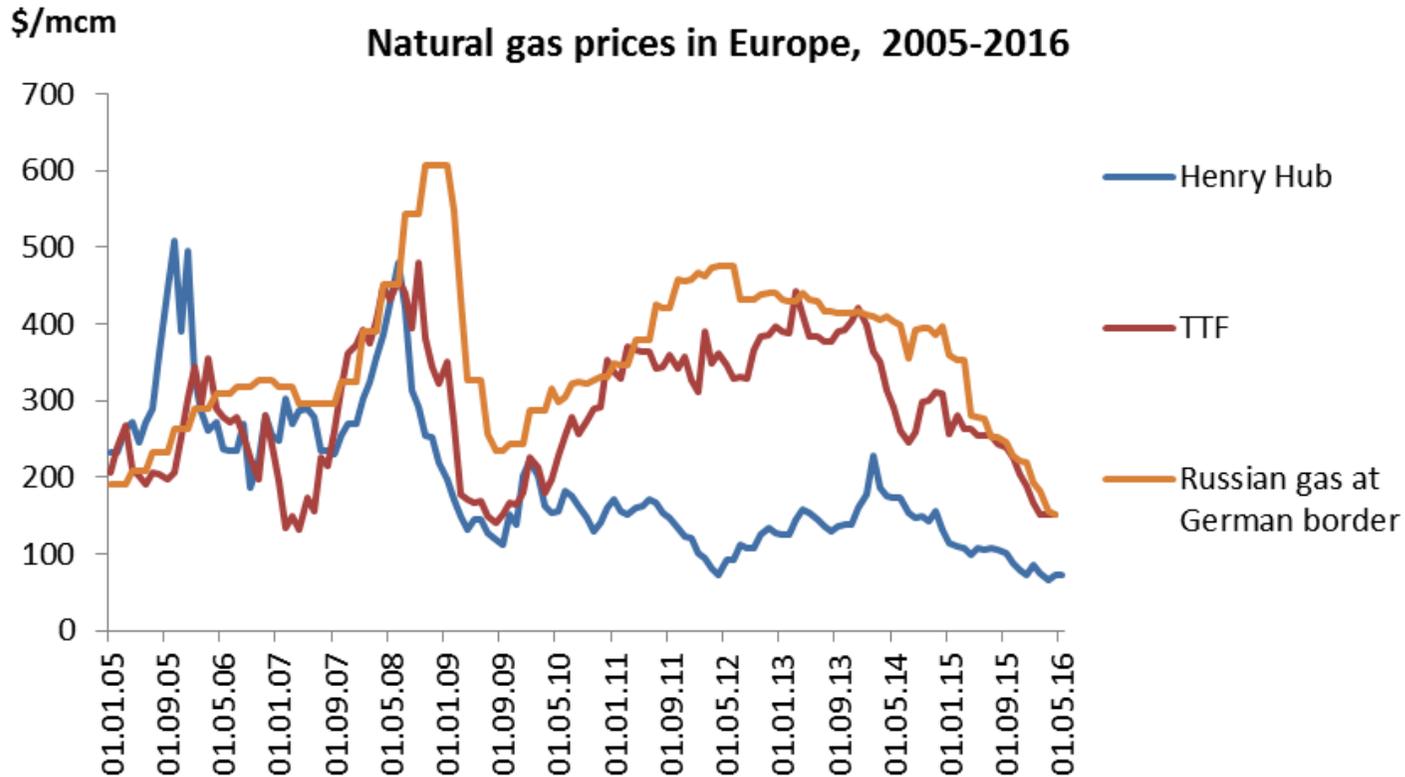
■ The contract is reviewed according to Gazprom's quarterly reports
■ The discount is provided according to Gazprom's officials, Gazprom clients, mass media, reports of analytical agencies

■ discount, take-or-pay lowered, spot indexation introduced
■ discount, take-or-pay lowered
■ discount made
■ the contract is reviewed, details are unknown
⚖️ the dispute resolved in court
✉️ valid claim



Source: Gas market of Europe: lost illusions, timid hopes, ERI RAS, HSE Energy Institute, September 2015 (in Russian)

The gap between oil-indexed and spot prices is narrowing, pressure from the consumer side is decreasing

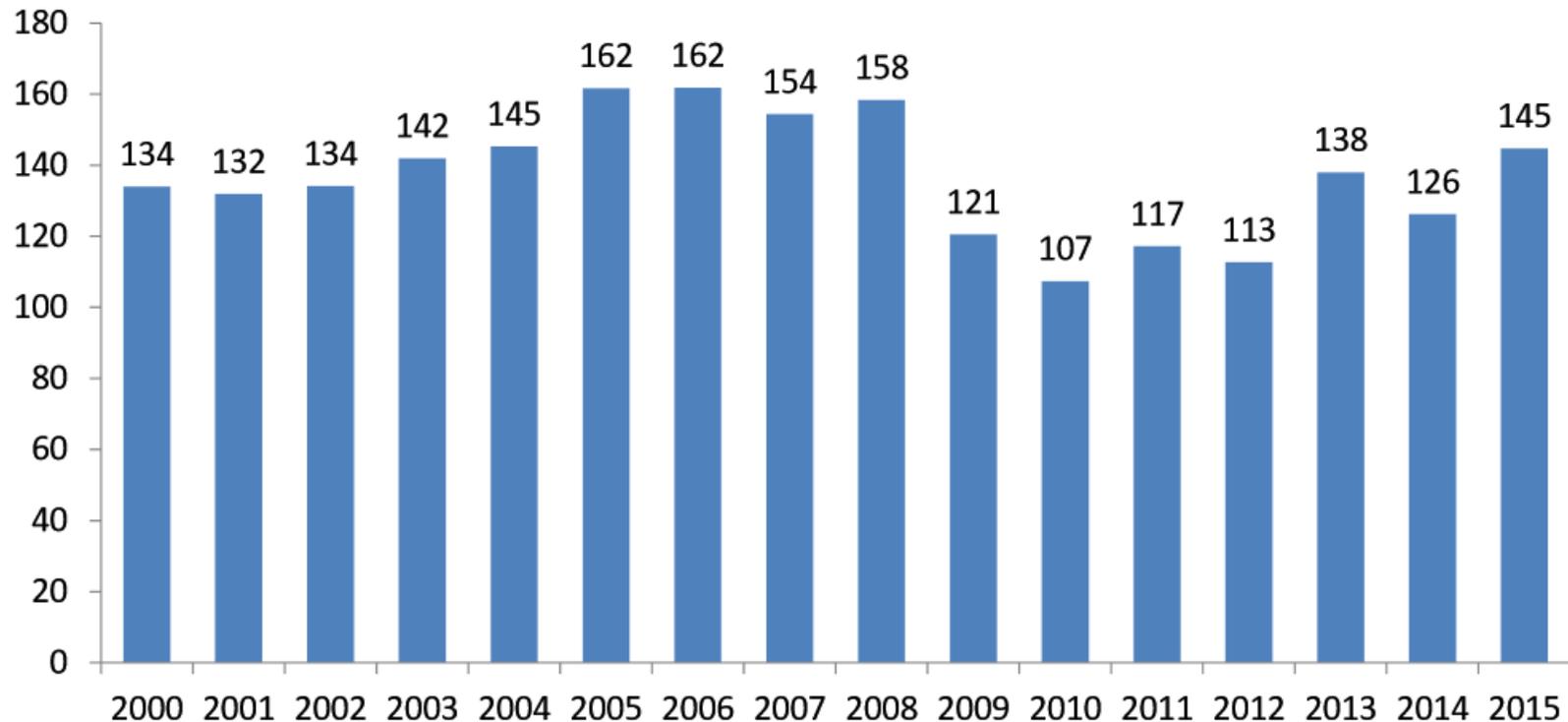


Sources: NCG, IMF.

Oil indexed natural gas prices in Europe are declining followed by oil price while becoming quite attractive compared to the levels of spot gas prices. The traditional Russian gas export strategy is being adapted to the new market conjuncture and regulatory framework

With the lower oil prices Russia's export volumes and market niche in Europe have almost recovered

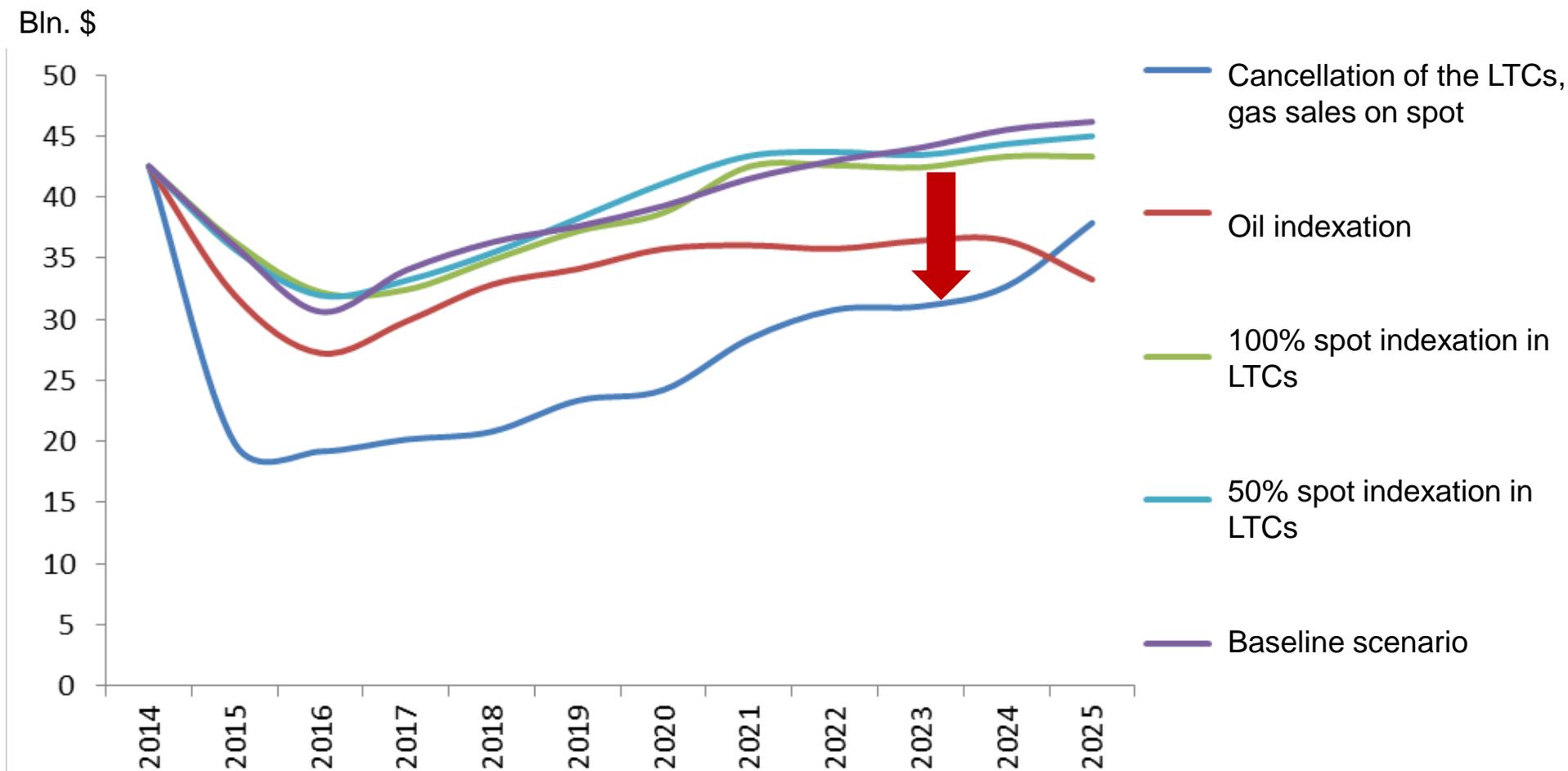
**Russian gas export to Europe
in 2000-2015, bcm**



Sources: Federal Customs Service, Russian Central Bank

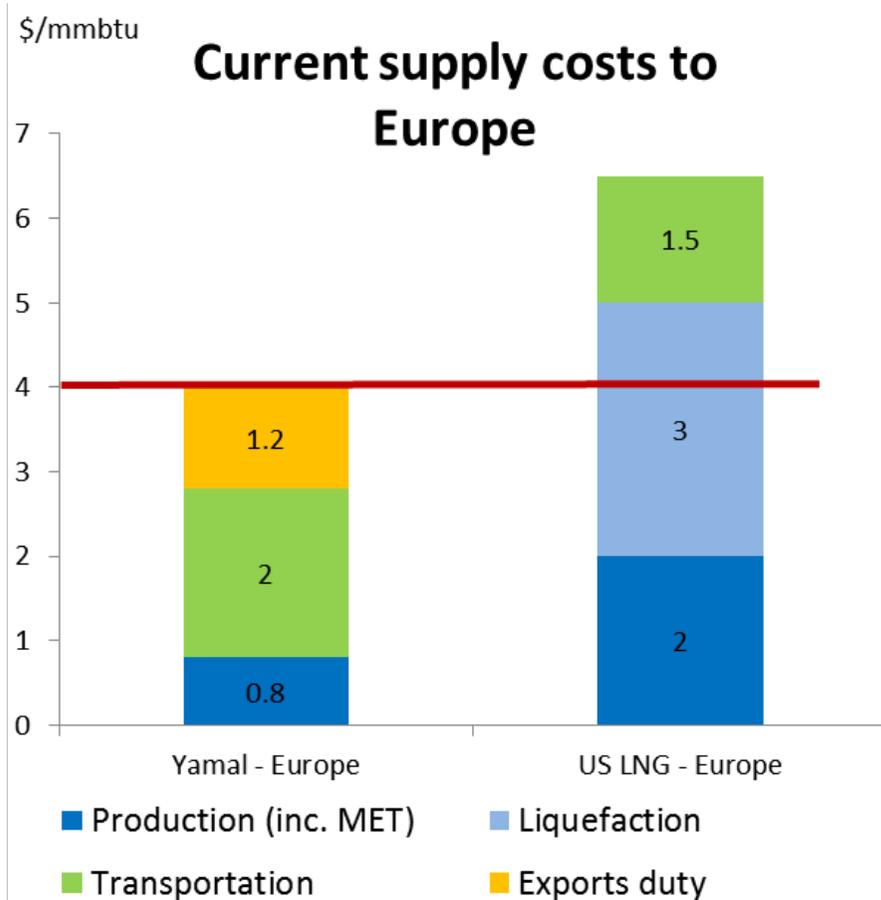
Russia would try to protect, modernize and prolong existing LTCs, as complete switching to spot sales is leading to significant loss in revenues, as well as protection of oil indexation

Russian gas export revenues under different scenarios



Source: Gas market of Europe: lost illusions, timid hopes, ERI RAS, HSE Energy Institute, September 2015 (in Russian)

Russia is well placed to defend its market share on European gas markets if needed



Source: Author

- ❑ The EU wants to diversify away from Russia, but there are few alternatives and the EU knows it. Little gas available through the Southern Corridor, limited capability by Norway to increase production, declining production in North Africa due to political unrest and mismanagement.
- ❑ The next fight for EU gas market share will therefore be a fight between Russian gas and LNG (first of all US LNG). If Russian gas will be threatened, Russia will no longer fight for high gas prices (as in 2009), but for market share, even if this means low prices.
- ❑ **Compared to most of its new competitors, Russia has a lower cost gas supply base and can thus engage on a price war if needed.**
- ❑ Nevertheless Russia would prefer to avoid price war with the US and Qatar LNG in order to maintain export revenues.

Russia started its historical gas shift Eastwards

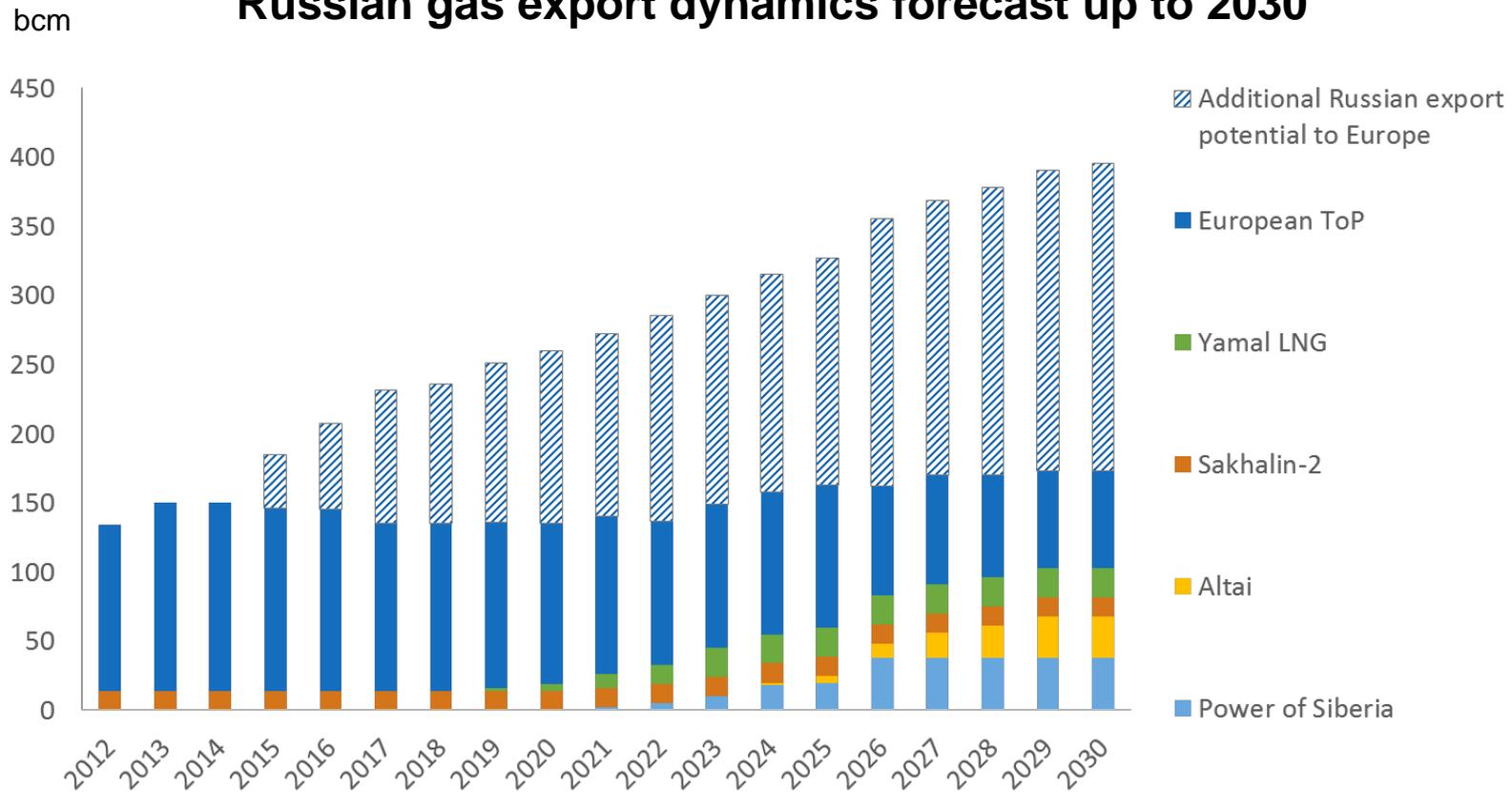
- ❑ Now there is clear urgent need for Russia to diversify its energy export markets:
 - There is no room for increase of Russian exports to Europe
 - Increasing competition (North American shale gas and oil, potential Iran, Iraq, Australia, Brazil entrance to the global markets)
 - For geopolitical reasons Europe is targeting to decrease dependence on Russian energy supplies
 - The sanctions target the finance and energy sectors, restricting some state firms' and banks' ability to raise financing
- ❑ North-East Asia seems to be the most attractive new energy market
 - Asian markets are demonstrating the highest growth rates even during the crises, and according to all projections, they will drive future global hydrocarbon demand growth
 - Lack of own energy resources (and problems with nuclear in Japan) make North-East Asian countries ideal, complimentary partners for Russia in the energy trade.
- ❑ Asian partners are regarded by Russia not only as a market, but also as a source of financing, technologies, equipment and even labor force.
- ❑ Creation of the new energy infrastructure in the Russian Eastern Siberia and the Far East is regarded as a tool to accelerate country`s economic growth, helping to form new industrial clusters based on the development of energy resource production and processing.

Russia is hardly able to provide for any visible increase of Asia-oriented gas export in 5-7 years, LNG exports are limited by the sanctions

- **Power of Siberia** construction has not really started, delays are already announced (May 2019 at earliest, May 2021 – the latest).
 - The project was hardly breaking even at 100 \$/bbl, but under the current prices it is completely unattractive for Gazprom
 - Chayanda gas field development (feed gas for the project) turned out to be much more challenging technologically
 - China did not provide the promised down payment
- **Altai pipeline** negotiations seem to be very complicated.
 - Chinese gas demand slows down considerably, the market is overcontracted until 2025
 - No need for gas in NW part of the country, where Altai would land
 - Difficult price negotiations
- **Russian LNG projects, targeting Asia**, are in limbo – no supply growth is expected before 2020.
 - Sachalin-2 expansion with Shell has recently got under direct US sanctions
 - Sakhalin-1 LNG faces tremendous difficulties because of the sanctions against Rosneft
 - Vladivostok LNG officially “postponed for an undefined period of time”
 - Yamal LNG struggling to attract financing
- **Sakhalin-China gas pipeline, announced recently**, does not have any feasibility study and might make China a monopsonic buyer of the Russian gas
- **7 Russian LNG projects are currently under consideration, all of them face commercial, technical or regulatory challenges, especially under the sanctions; only Yamal LNG looks realistic before 2025**

During the next decade Europe will remain the main market for the Russian gas exports, while in Asia Russian (and Central Asian) pipeline gas could set a floor price for LNG supplies

Russian gas export dynamics forecast up to 2030



The main increase in Russian gas exports (if LNG is allowed) will be to Asia, LNG export volumes are most uncertain. Russian gas export volume estimations are reviewed significantly downward (from 400 bcm to 250 bcm in the longer-term), but still remain the highest in the world.

Conclusions

- More competitive external environment and domestic challenges are creating less favorable conditions for the Russian energy sector.
- We do not foresee a radical shift away from dependency on Russian natural gas supplies to Europe. Most alternative supplies are only second best options and a substantial amount of natural gas supplies is tied up in long-term contracts.
- The perspectives of Russian exports growth to Europe are very limited due to overcontraction and low demand growth, however Russian gas industry still has a huge potential for production and export growth.
- Cooperation between Russia and Europe in the gas sector have moved from strategic partnership to a normal commercial interaction, burdened by political disputes.
- Asian and domestic markets are becoming more attractive than European market with weak demand and stronger competition

Contacts

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