



Russian Gas Exports to Europe

A Discussion of Commercial and Geopolitical Drivers

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PART ONE: THE 'RUSSIAN STREAMS'

FROM SOUTH STREAM TO TURK STREAM

PROSPECTS FOR REROUTING OPTIONS AND FLOWS
OF RUSSIAN GAS TO PARTS OF EUROPE AND TURKEY

LUCA FRANZA

01.12.2014: Putin announces South Stream's cancellation



From South Stream to Turk Stream: why?

- Main triggers:
 - Regulatory issues (compliance with Third Energy Package provisions)
 - Geopolitical issues (stagnating EU-Russia dialogue due to Ukraine crisis)

- Additional reasons:
 - Financing increasingly difficult
 - Changed outlook for European gas demand
 - Russia's willingness to safeguard position in Turkish market



What is the current status of Turk Stream?



Frozen, not cancelled, since jet downing incident

IGA repeatedly delayed

Only a non-binding MoU

100% Gazprom ownership of offshore section

Route is agreed see map

\$9 billion in sunk costs from SS

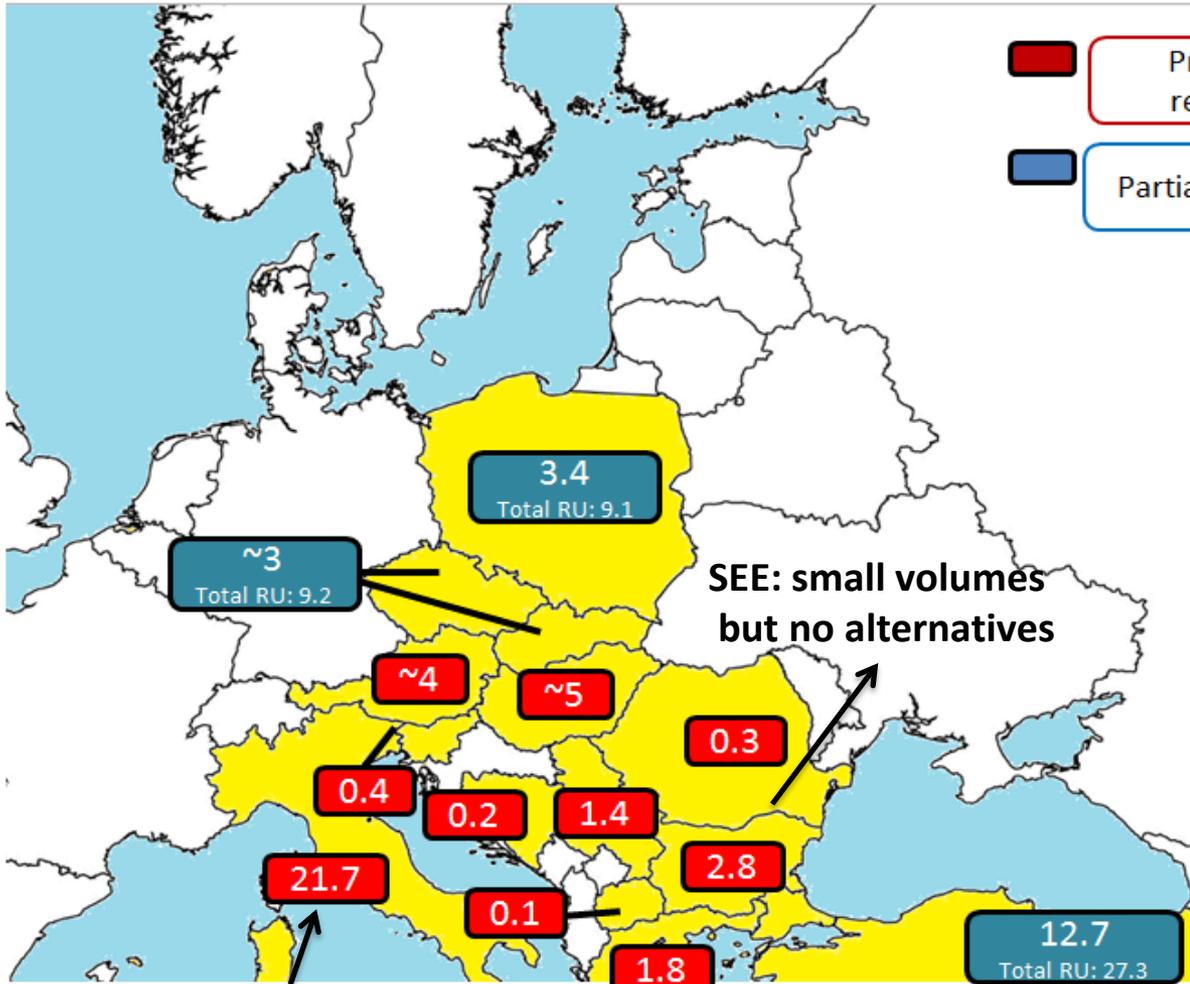
Pipes purchased for two lines, maritime survey only needed on final leg

Saipem contract (offshore work) cancelled – causing delays

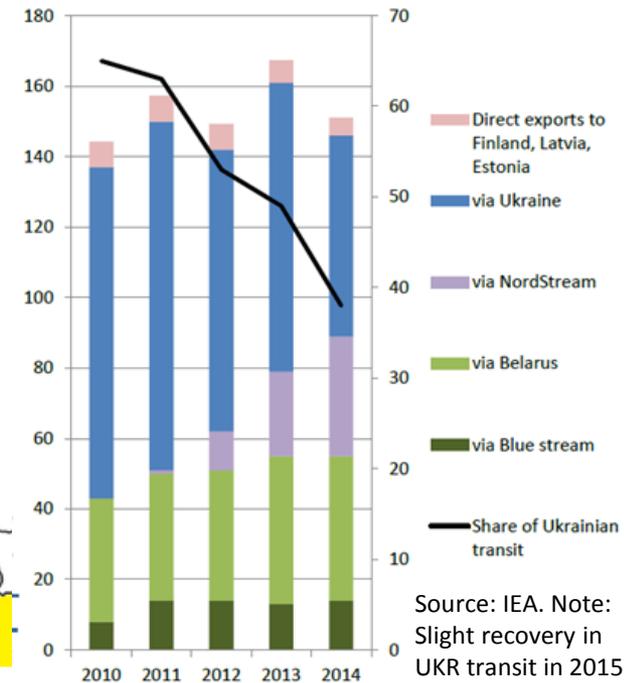
Original plan: 15 Bcm to be delivered to buyers in Turkey, 47 Bcm at a new “hub” located on the Turkish-Greek border. Summer 2015: decision to build only 2 lines (31 Bcm).

What countries still depend on Ukraine transit?

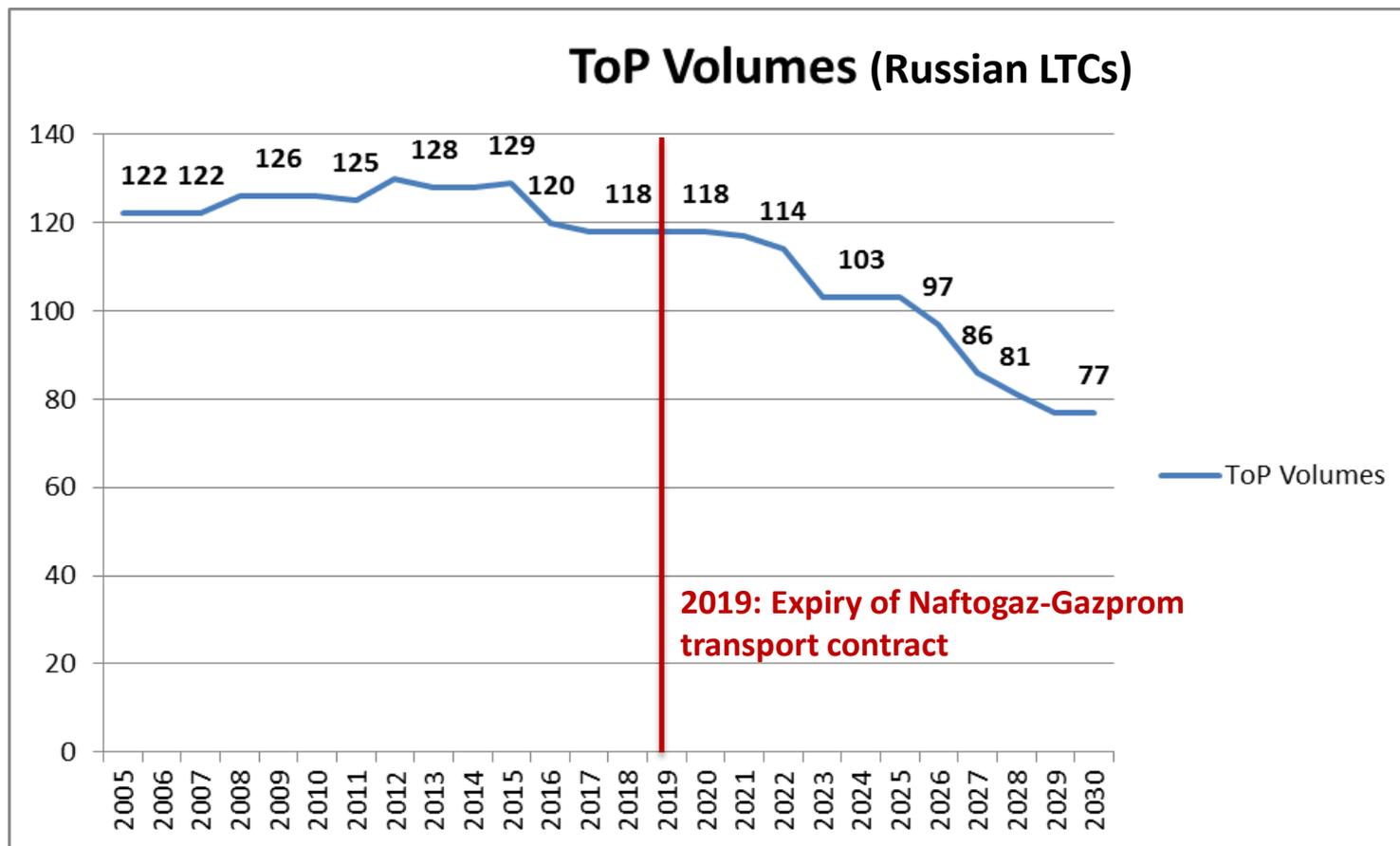
Map by CIEP
Data: Gazprom, IEA, Itar Tass (Bcm)



Russian gas exports to Europe & share of Ukrainian transit



In 2019, at least 118 Bcm of Russian gas will be sold to Europe under LTCs, which state specific points of delivery



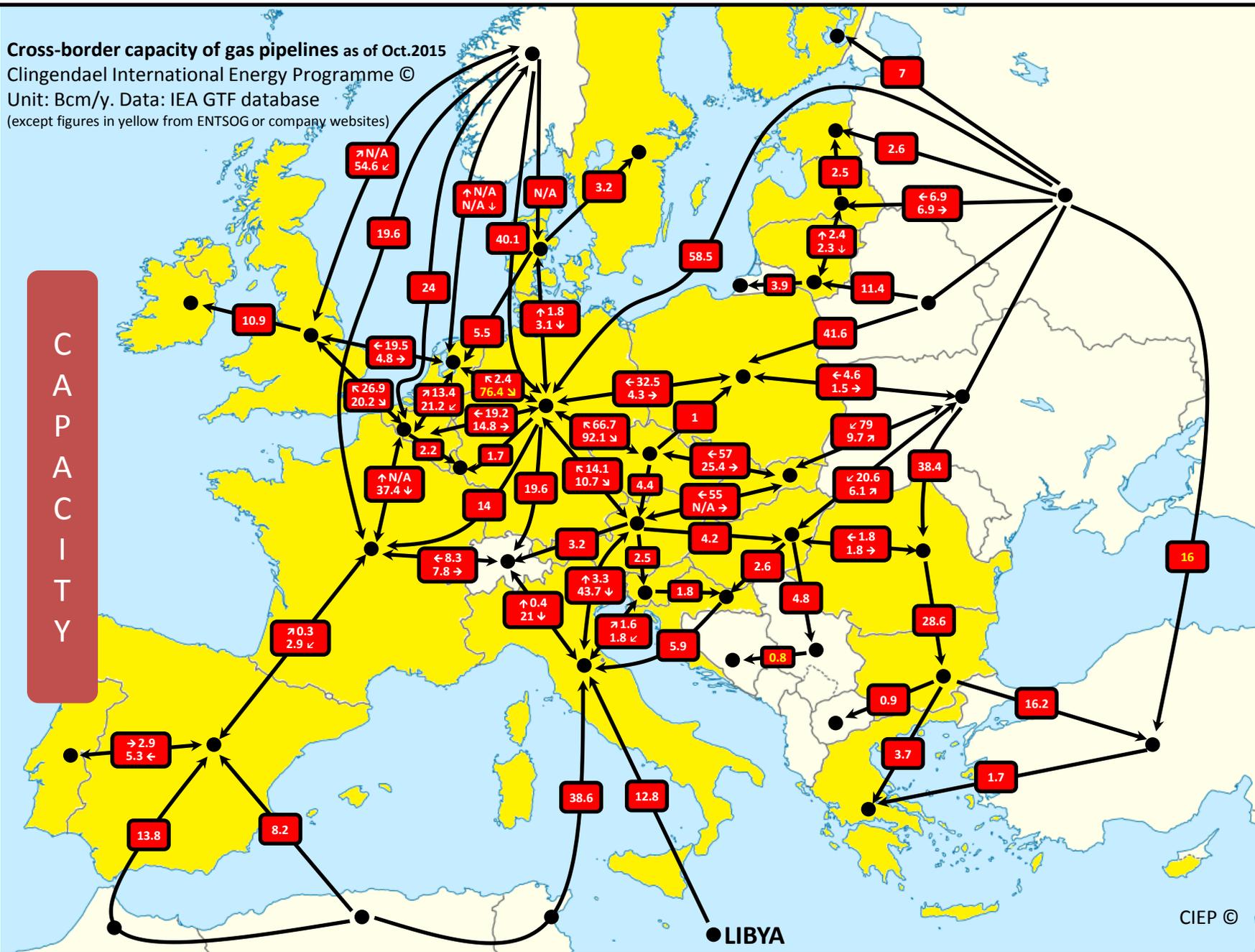
Cross-border capacity of gas pipelines as of Oct.2015

Clingendael International Energy Programme ©

Unit: Bcm/y. Data: IEA GTF database

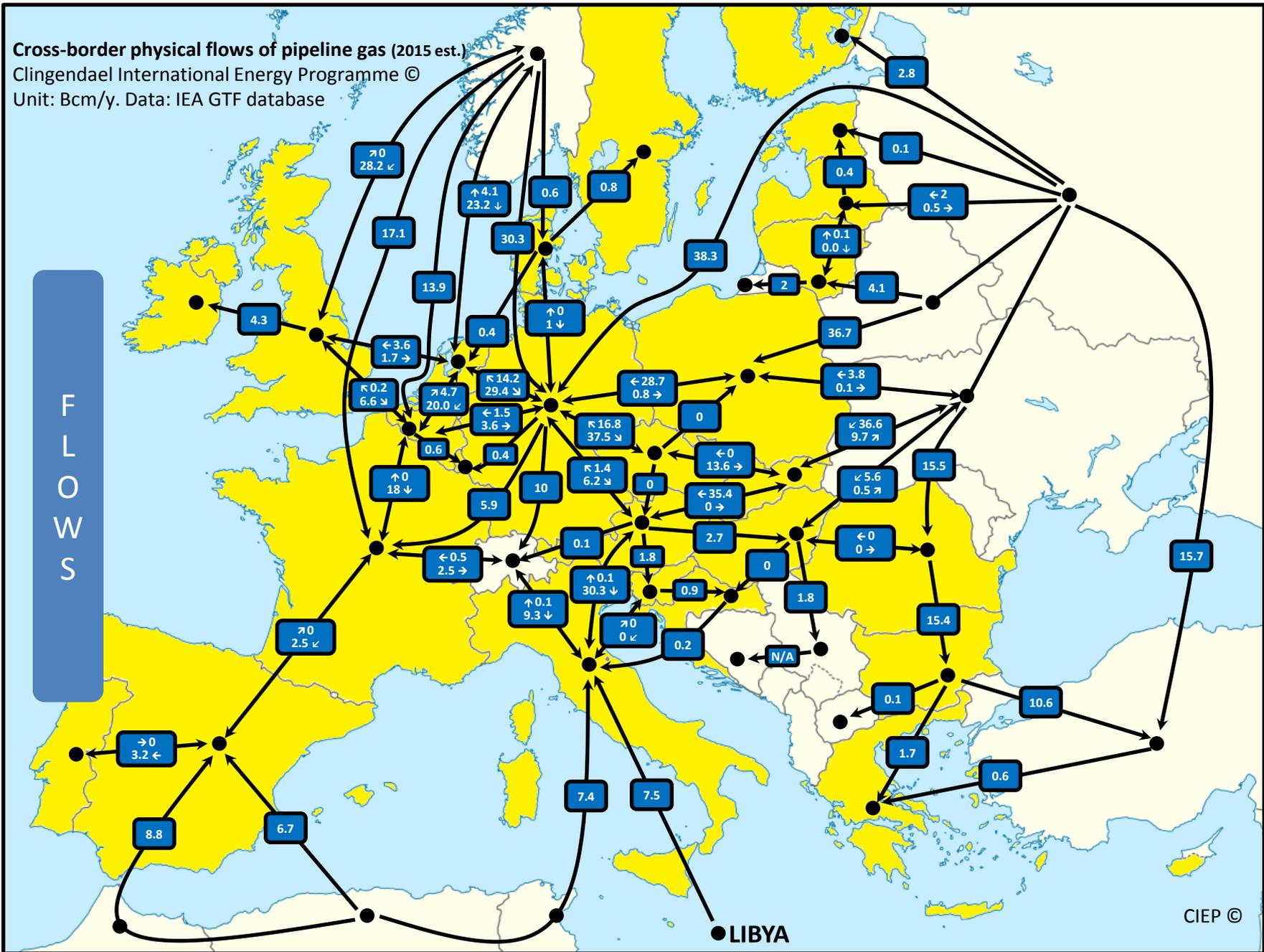
(except figures in yellow from ENTSO-G or company websites)

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Cross-border physical flows of pipeline gas (2015 est.)
 Clingendael International Energy Programme ©
 Unit: Bcm/y. Data: IEA GTF database

F L O W S



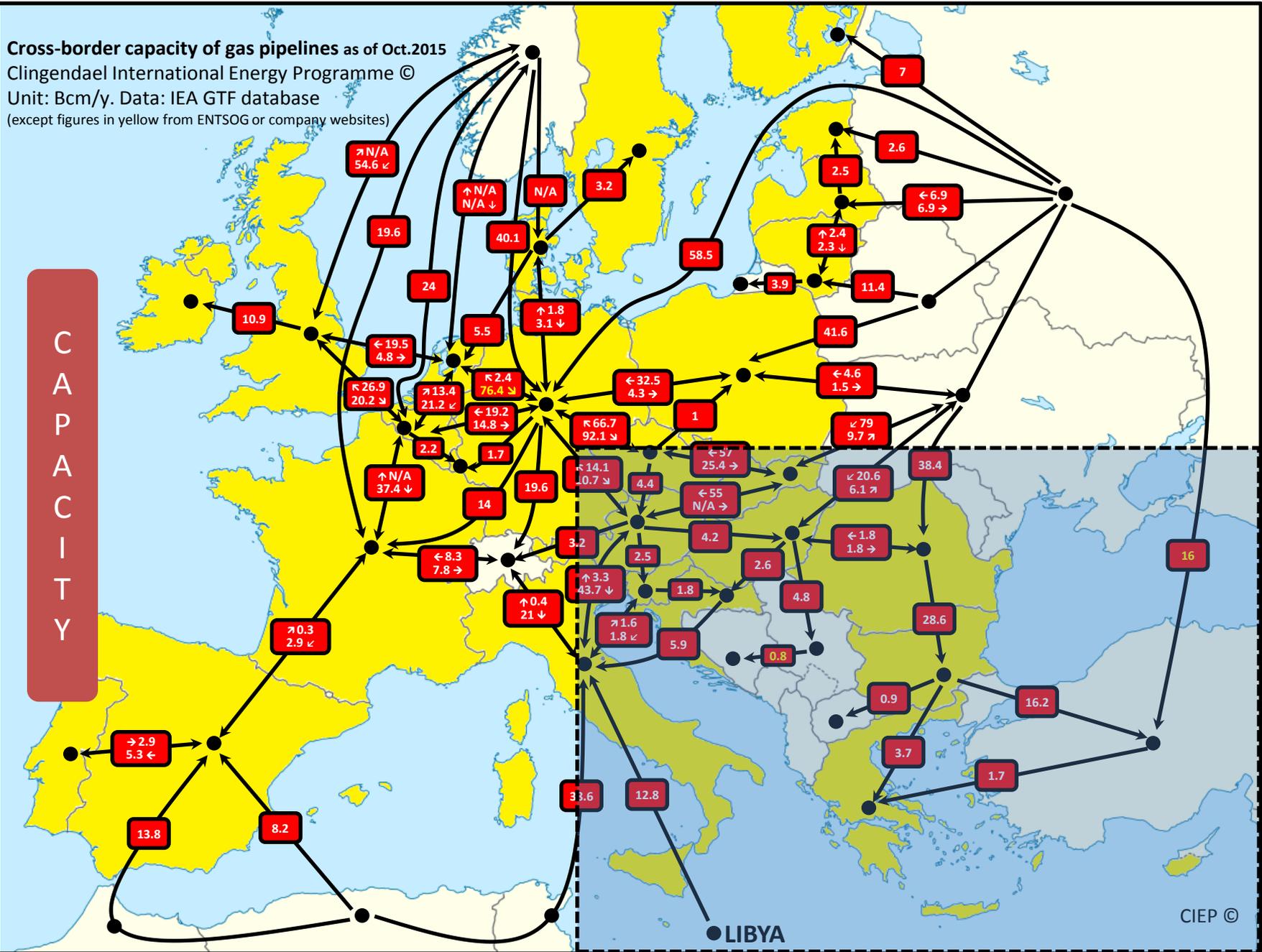
Cross-border capacity of gas pipelines as of Oct.2015

Clingendael International Energy Programme ©

Unit: Bcm/y. Data: IEA GTF database

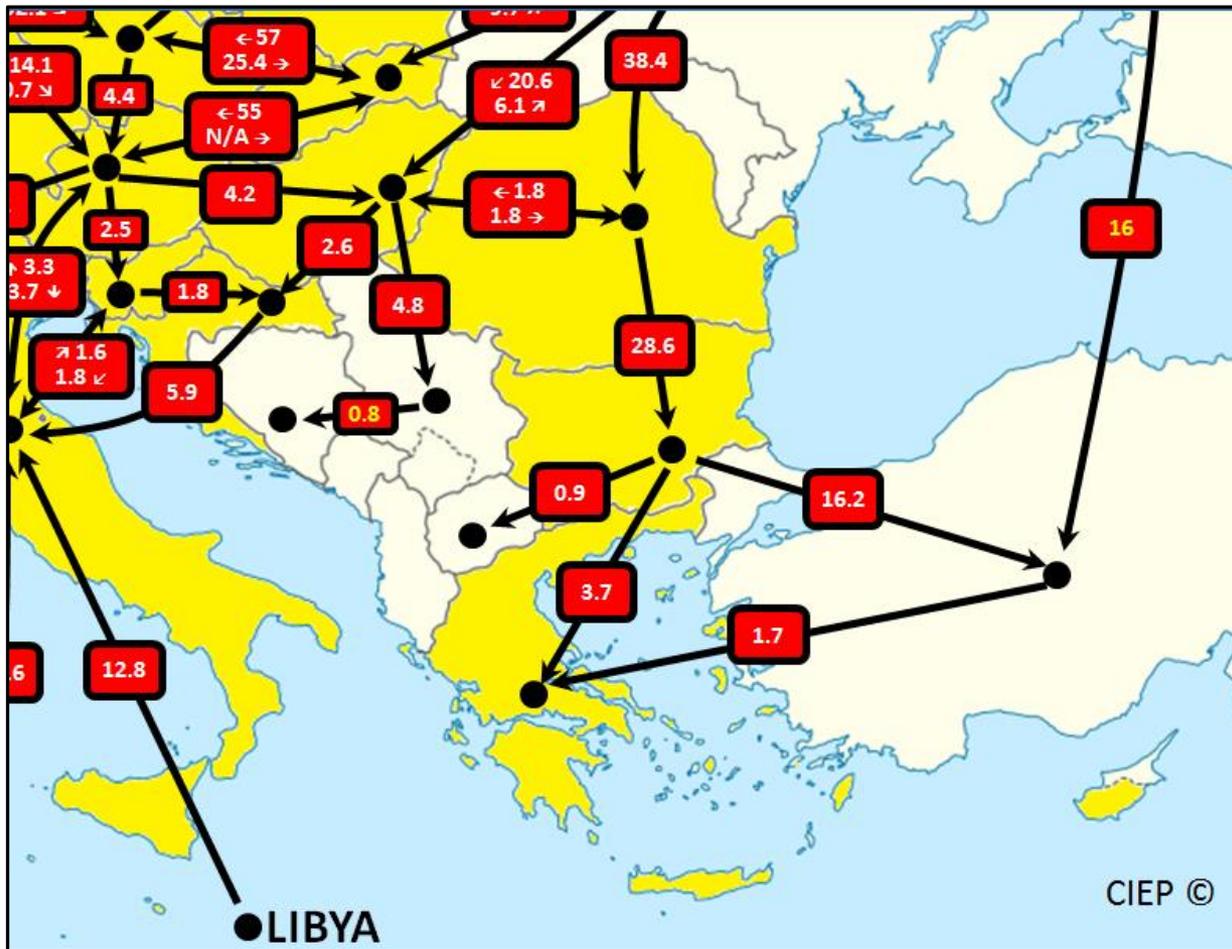
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Limited cross-border capacity in Southeastern Europe make it difficult to eliminate Ukraine transit risk

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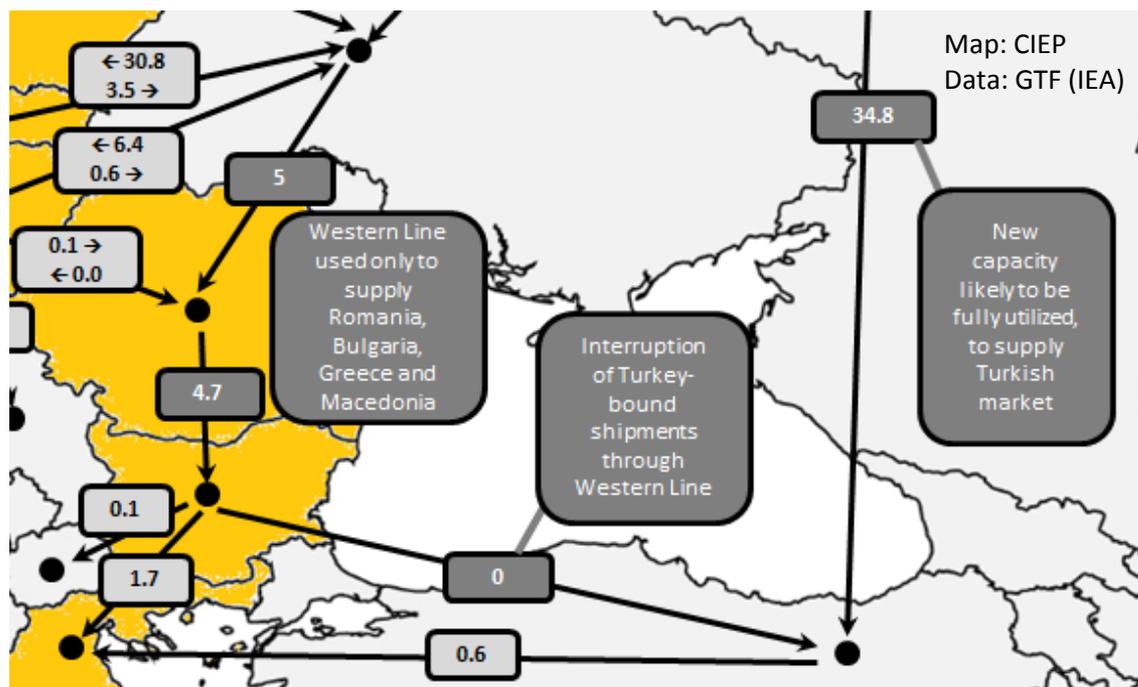
(Assuming Russia-Turkey talks resume)

Option A

Construction of one line of Turk Stream

Option A – impact on rerouting options

- Mostly a rerouting of volumes from Western Line (12-13 Bcm)
- Takes into account small incremental demand around Istanbul (2-3 Bcm)
- Together with higher Blue Stream offtake, averts gas shortage in Turkey in 2016
- Price discounts to Turkey
- Target date of December 2016 will be missed (Saipem contract cancelled)
- No big financing headaches (sunk costs), no regulatory complications
- No impact on other flows



(Assuming Russia-Turkey talks resume)

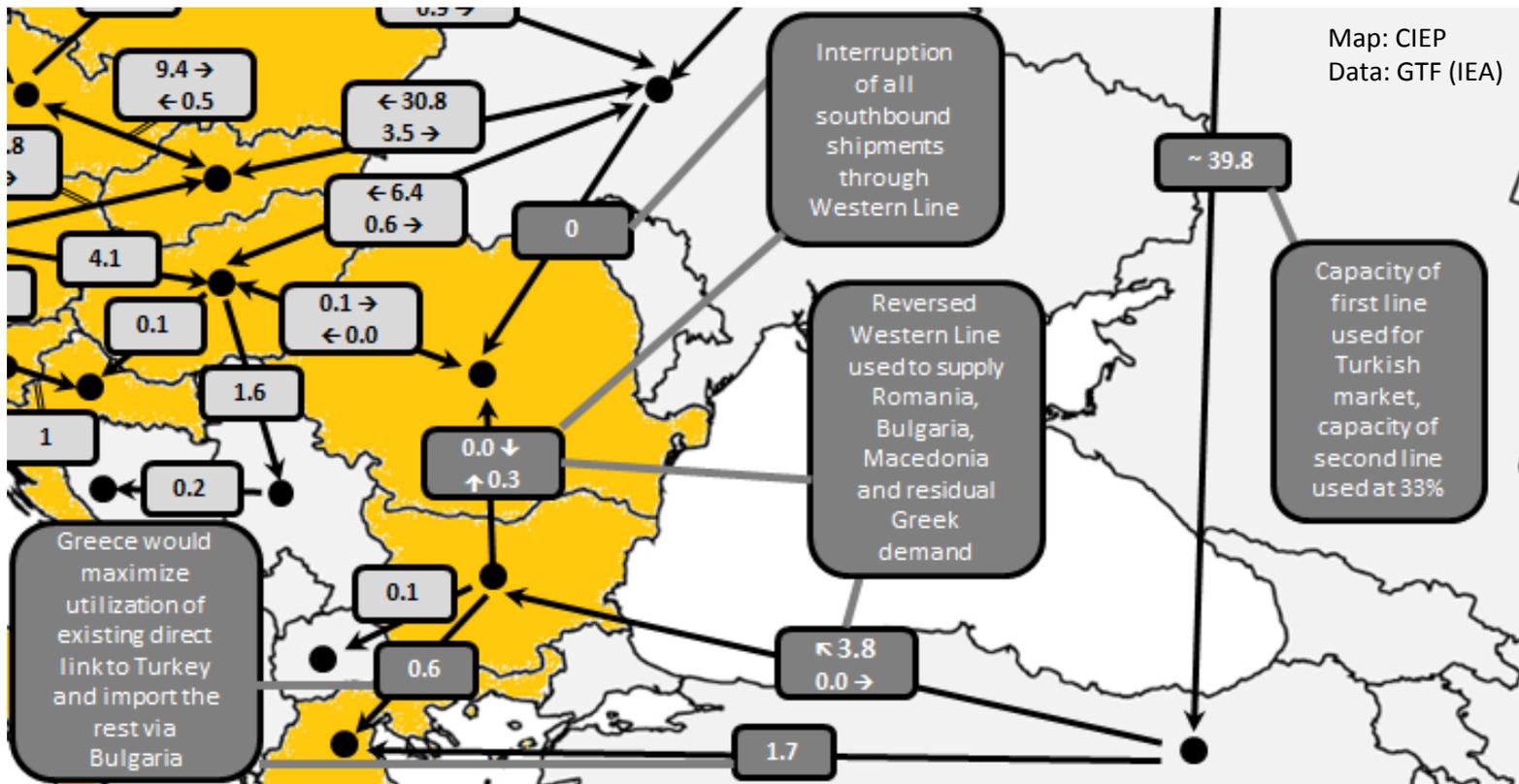
Option B

Construction of two lines of Turk Stream

Direction of Western Line reversed

Option B – impact on rerouting options

- Romania, Bulgaria, FYROM and Greece freed from Ukraine transit
- Turk Stream 2nd Line underutilized in our static scenario



(Assuming Russia-Turkey talks resume)

Option C

Construction of two lines of Turk Stream

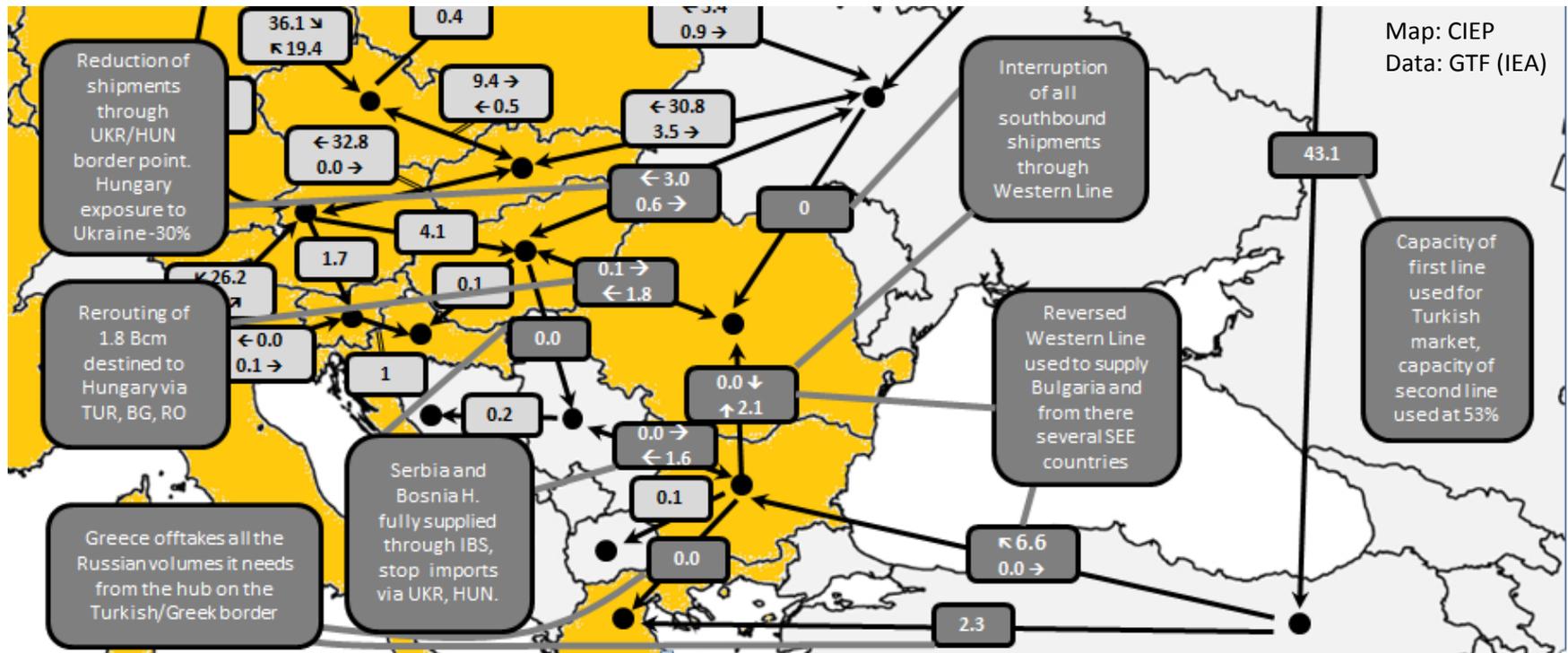
Direction of Western Line reversed

Construction of minor infrastructure in SEE:

- Interconnector Bulgaria-Serbia (Kalotina-Dimitrovgrad)
- Reverse flow Romania-Hungary (Csanadpalota)
- Connection of hub on Turkish/Greek border with Greek network

Option C – impact on rerouting options

- This scenarios includes small interventions, all included in list of PCIs
- Romania, Bulgaria, FYROM, Greece, Serbia and Bosnia H. freed from Ukraine transit
- Hungary can reduce exposure to Ukraine transit by 30%
- 50% utlization of Turk Stream 2nd Line in our static scenario



(Assuming Russia-Turkey talks resume)

Option D

Construction of two lines of Turk Stream

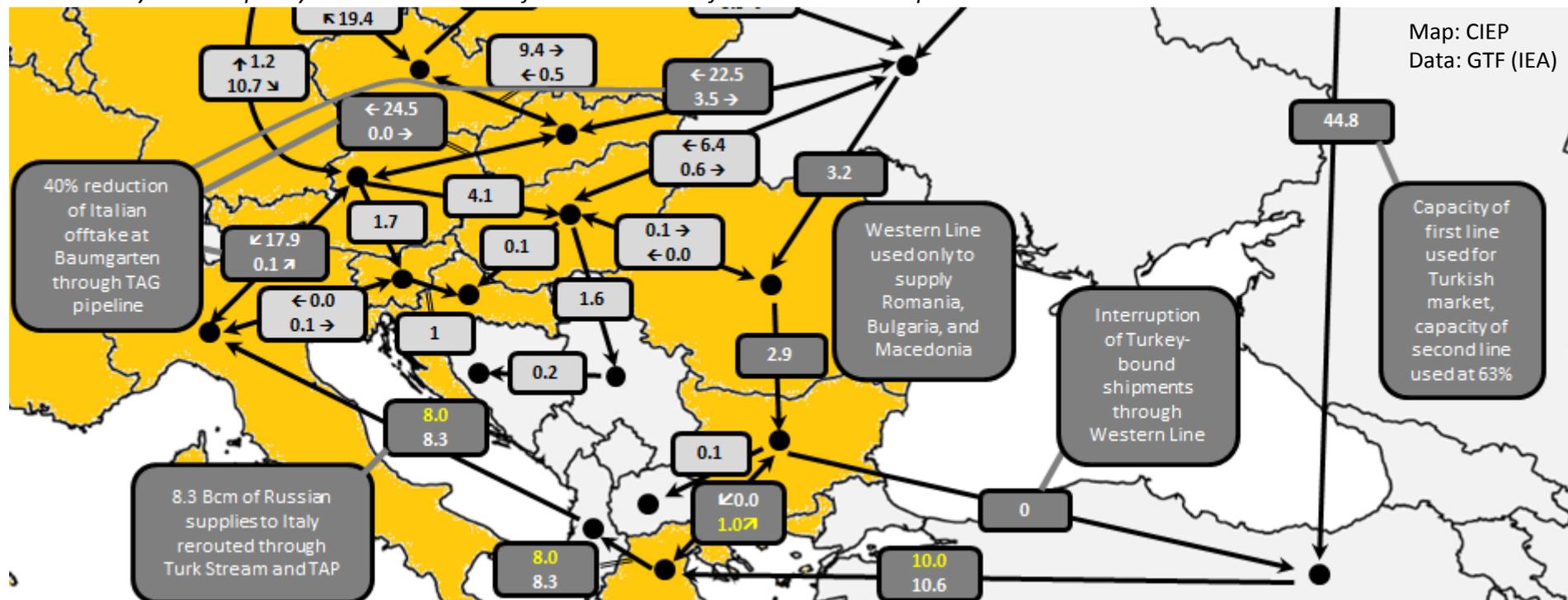
Expansion of TAP to 20 Bcm

- And construction of ancillary infrastructure IGB (Interconnector Greece-Bulgaria) to allow contracted Azeri deliveries to Bulgaria

Option D – impact on rerouting options

- Russia could use TAP+ to supply Greece and reroute 8 Bcm of shipments to Italy, reducing Italy's exposure to Ukraine by 40%
- Alternative rerouting: 3 Bcm to Bulgaria and FYROM through IGB and 5 Bcm to Italy
- 2/3 of Turk Stream 2nd Line utilized in our static scenario

Numbers in yellow: capacity reserved to Azerbaijan on the basis of the TPA rule exemption

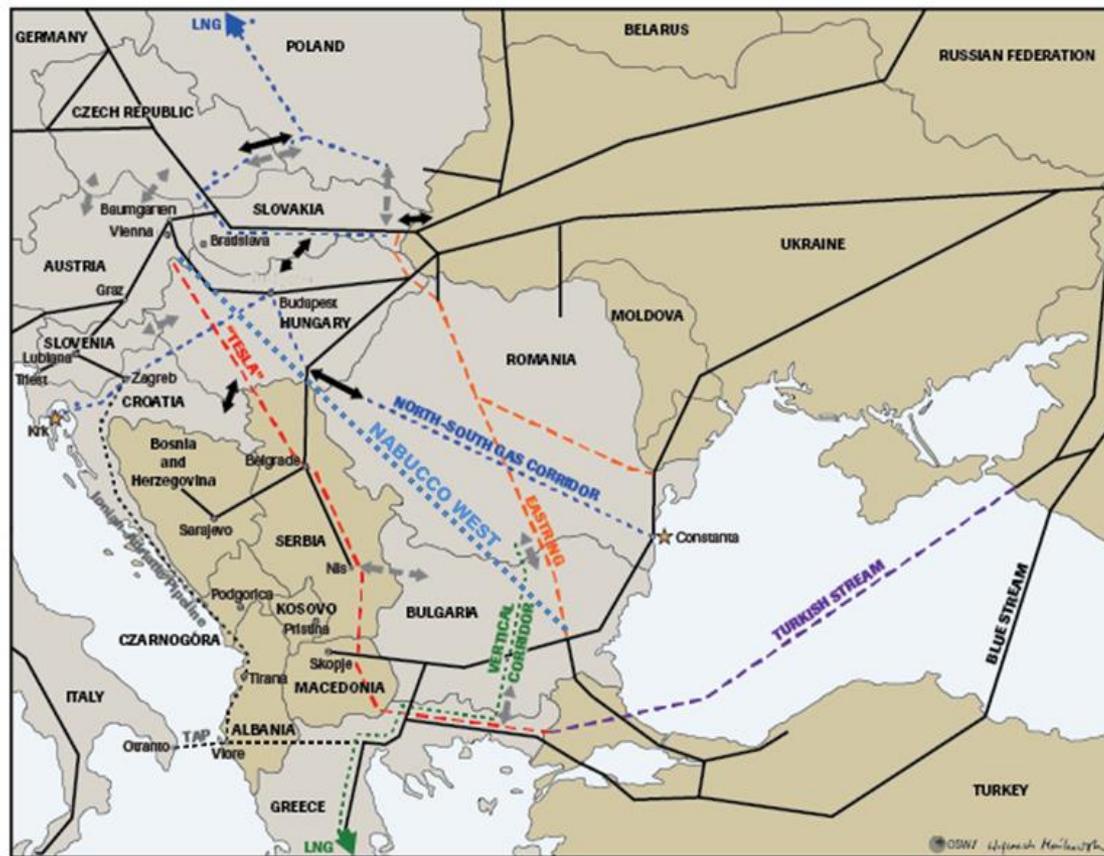


(Assuming Russia-Turkey talks resume)

Option E

Full-fledged Turk Stream

Construction of new pipelines inside the EU



- main gas pipelines
- planned gas pipelines
- ★ planned LNG terminals
- ↔ existing interconnectors
- ↔... interconnectors under construction
- ↔... planned interconnectors

Source: OSW

Even if talks between Russia and Turkey resume, there are regulatory and financial obstacles

Regulatory issues include:

- 1) Can Russia unilaterally change delivery points stated in LTCs?
- 2) Is the Western Line's reversal compatible with the Third Energy Package?
- 3) Can Russian gas be transported through TAP?
- 4) Will the EC grant TPA to the proposed long-haul pipelines that will carry RU gas?
- 5) Can the current antitrust probe have an impact on Russian plans?

Financing issues include:

- 1) Can Gazprom afford to build all the lines of Turk Stream?
- 2) Who can fund all the proposed pipelines within EU?
 - TSOs invest using public money – exempted from TPA, but can they afford?
 - Private investment (merchant model) – not automatically exempted from TPA
- 3) Would cooperation among regional TSOs help?
- 4) EC unlikely to grant funding, given political support to Ukraine transit upgrade

Recent evolutions to take into account

- Nord Stream expansion (Nord Stream-2)
- Softening of Russia's stance on Ukraine transit post 2019

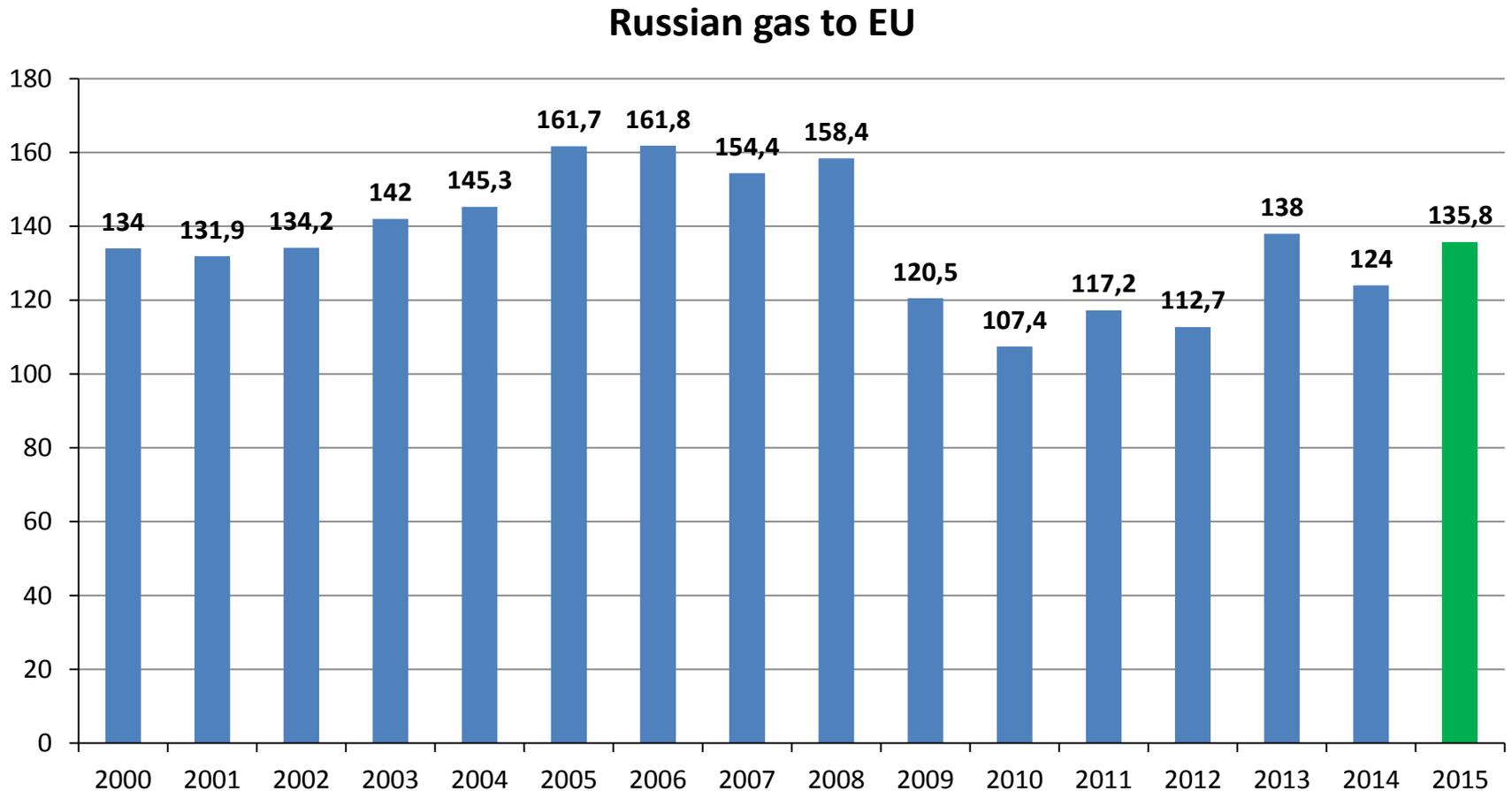
PART TWO: THE BIGGER PICTURE

Three decisive trends affect Russia's commercial position in Europe:

- Recent decline in EU gas demand and uncertainty on future demand
- Profound changes to EU gas market and way in which gas is traded
- Renewed geopolitical tensions

Clear downward trend in Russian gas exports to the EU...

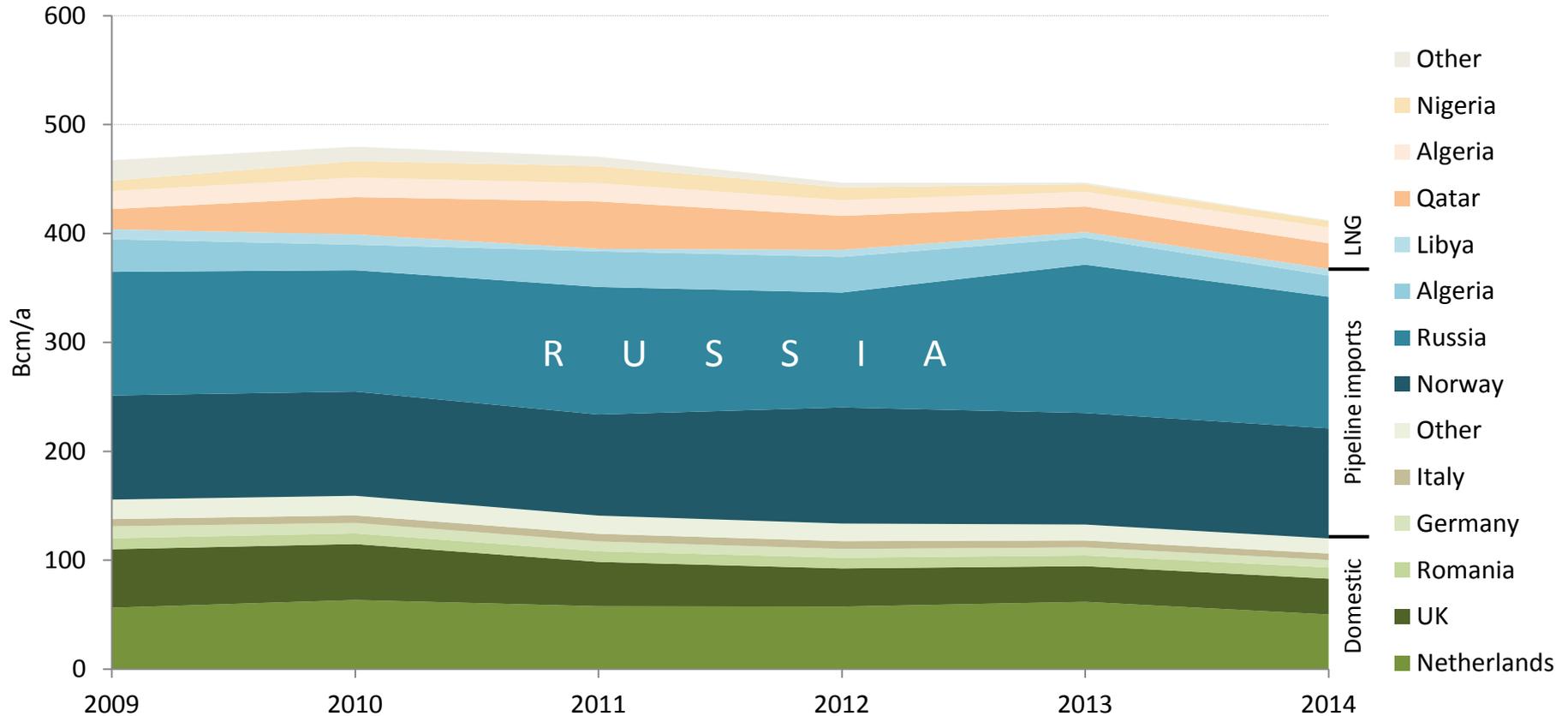
Compensated (and often hidden) by higher exports to Turkey



Source: CIEP Graph on Russian Central Bank and Gazprom data

...but, overall, Russia maintained its market share...

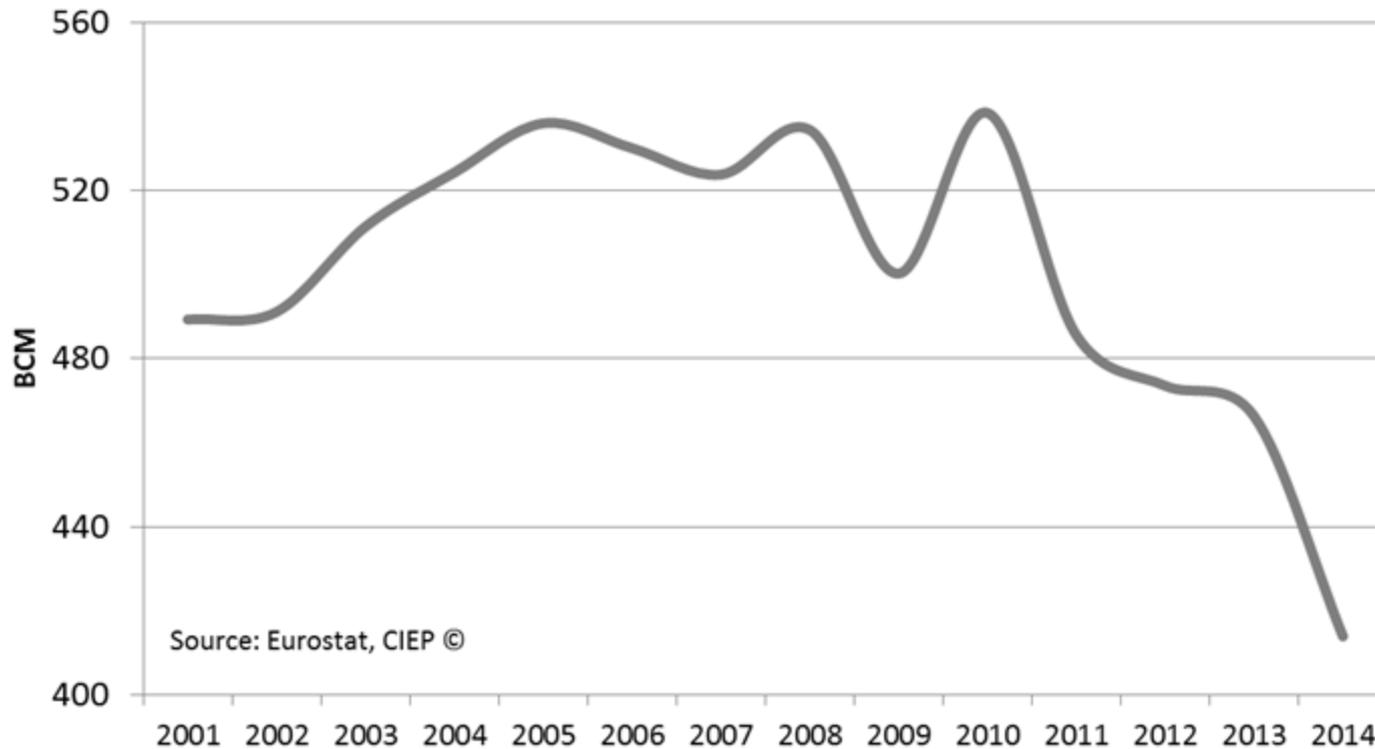
Stable around 30% of EU gas consumption and 40% of imports



Source: CIEP Graph on BP data

...as European¹ gas demand also fell

-120 Bcm since economic and financial crisis

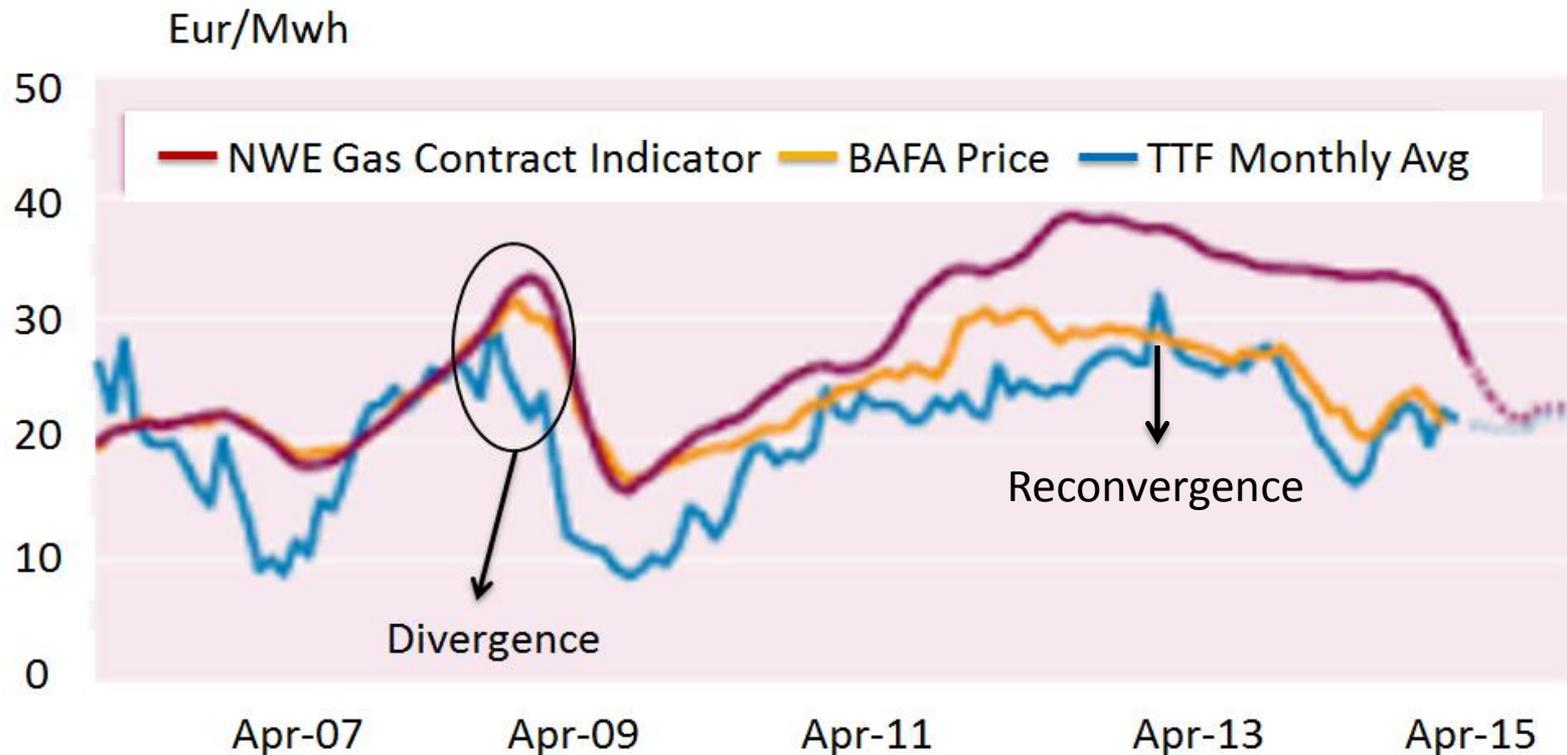


1 = here including Turkey and EFTA

2009-2012: Russian gas under LTCs not competitive

Midstreamers launching renegotiations and arbitrations

Comparison of price indicators in Northwest Europe



Source: Platts, BAFA

Long-term gas contract renegotiations (since 2010)

Facing the threat of arbitration, European gas suppliers:

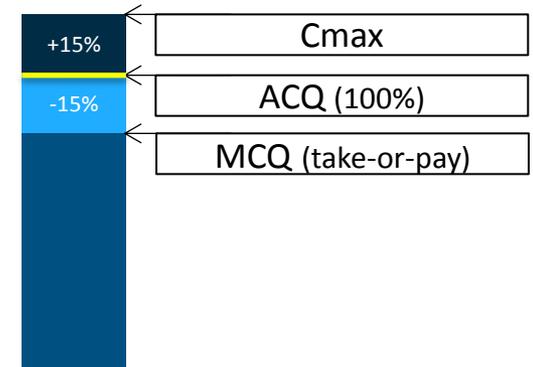
1. Fiddled with traditional formulae without changing them structurally

$$P_t = P_o + \alpha \times a_1 \times b_1 (Go_t - Go_o) + (1-\alpha) \times a_2 \times b_2 (HFO_t - HFO_o)$$

- One-off price discounts
- Frequent adjustments to P_o , α , b_1 , b_2

2. Accepted lower off-take from customers

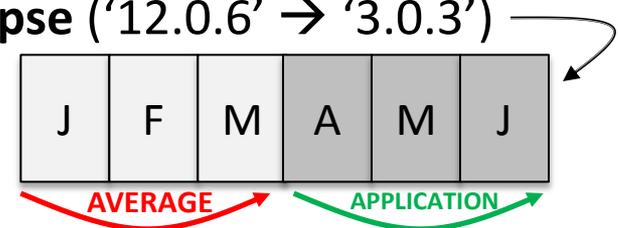
- One-off derogations to meeting ToP requirements
- Structural reduction of MCQ (lower ToP requirements)
- Structural reduction of ACQ (rare)



3. Offered more opportunities for renegotiations ('joker' clauses)

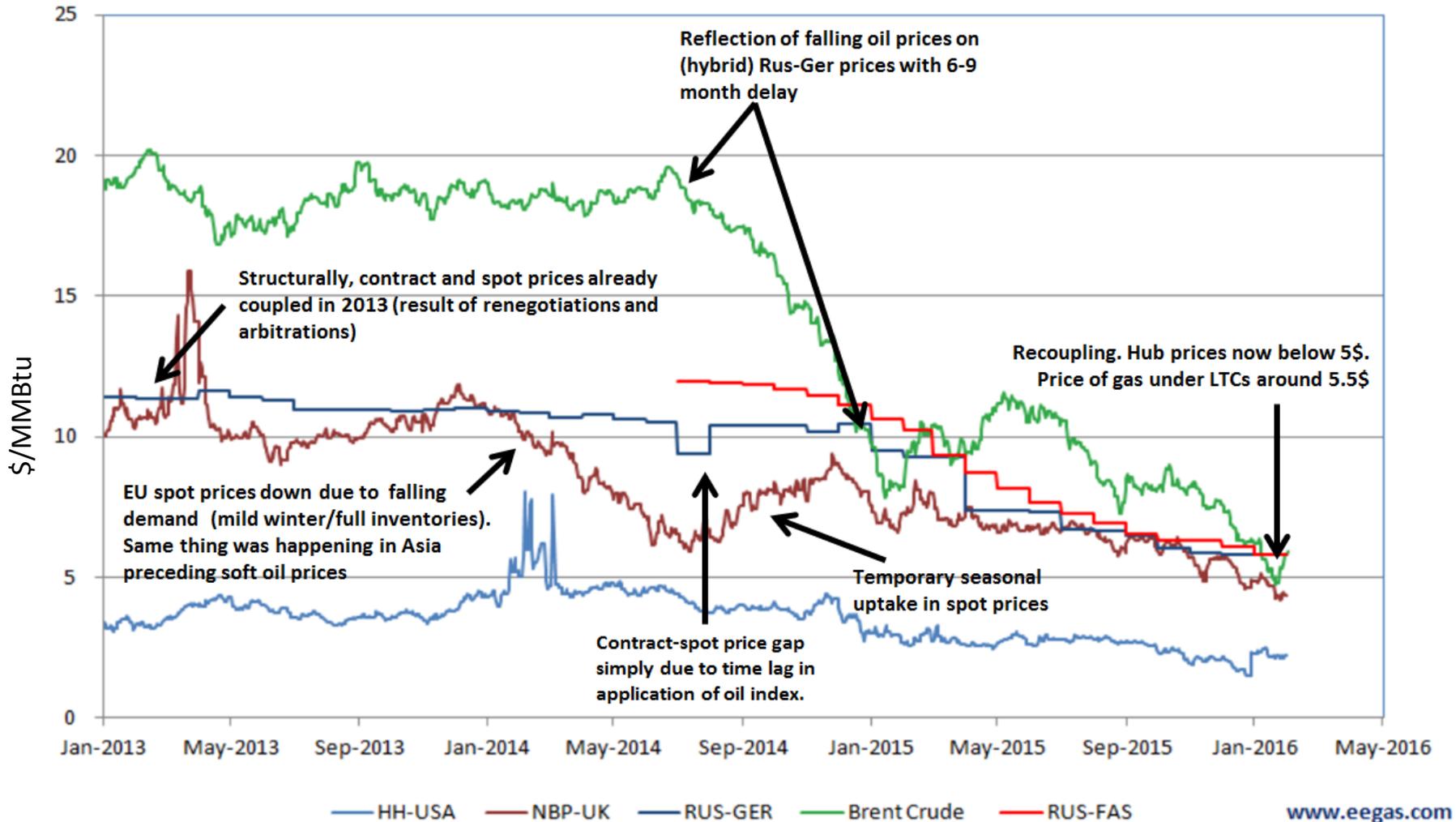
4. Shortened the backward indexation time lapse ('12.0.6' → '3.0.3')

5. Introduction of hub indexation



Recent evolution in European gas prices

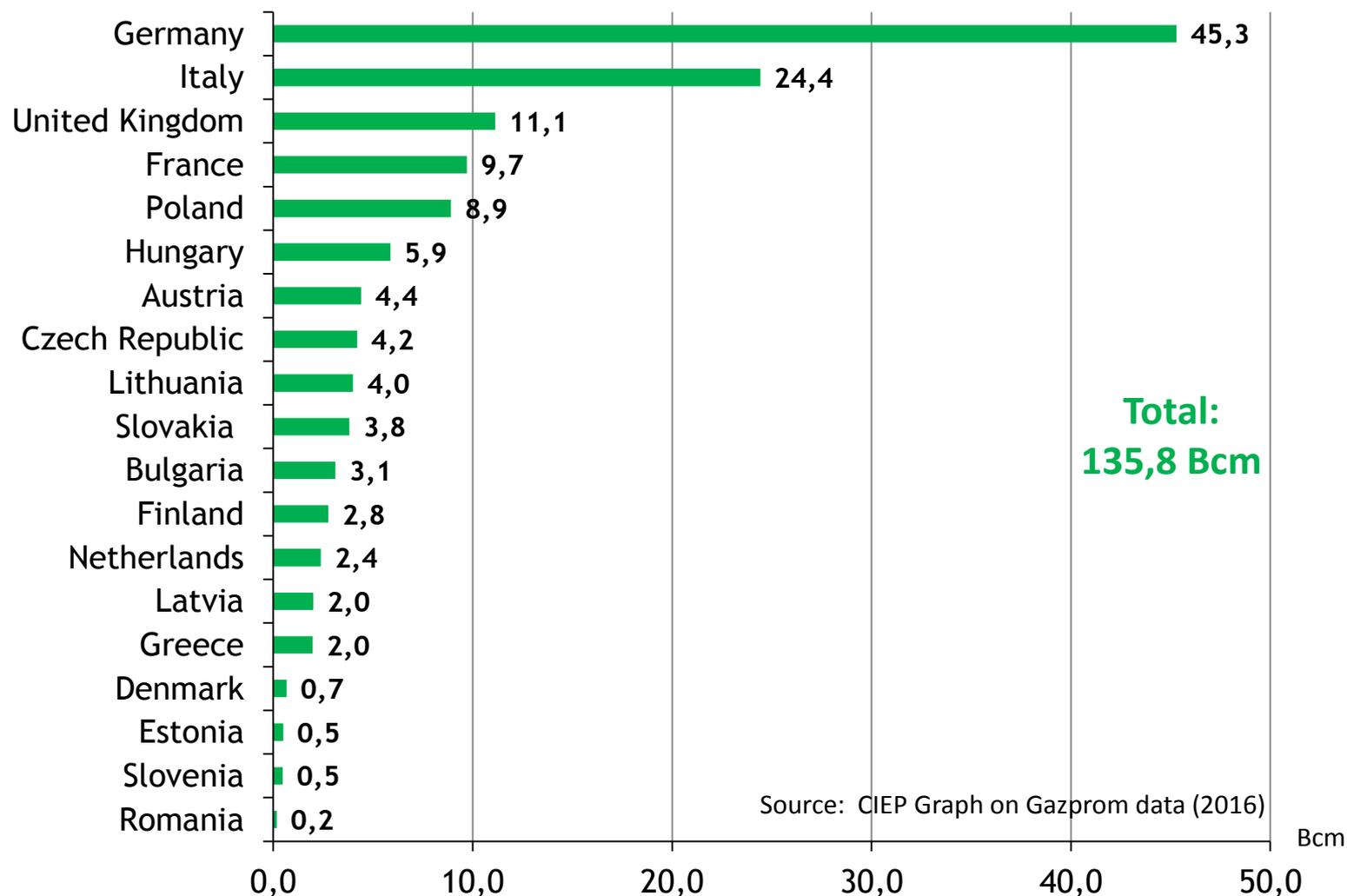
(notably Russian contract prices vs spot)



Source: EEGAS (graphically adapted)

2015 was a relatively good year for Gazprom in the EU

Record sales to Germany, Italy. Increased activity on NBP in the UK.

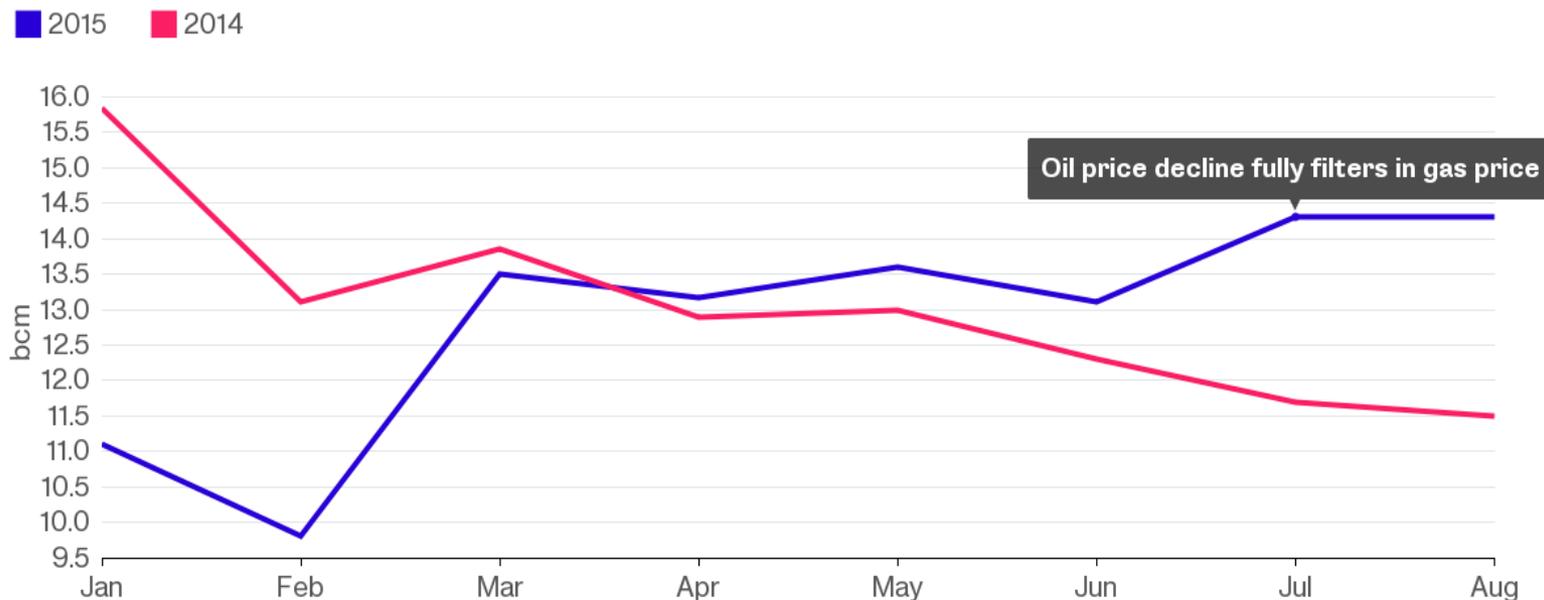


LNG vs Russian gas competition dynamics at play in 2015

Deliberate Russian gas purchase minimization in Q1

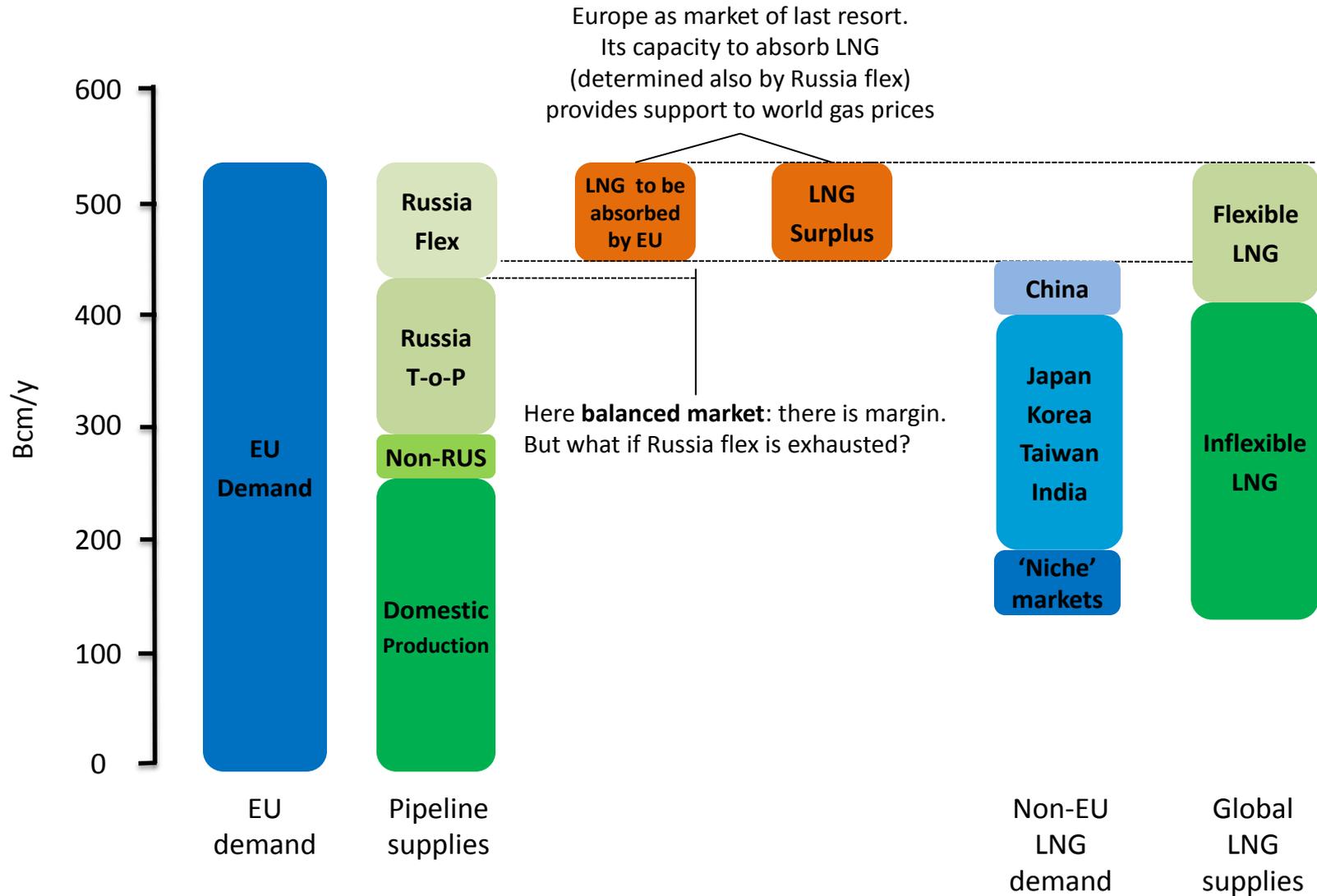
Russian Gas Exports Climb

Gazprom's supplies to Europe excluding Baltic States, including Turkey

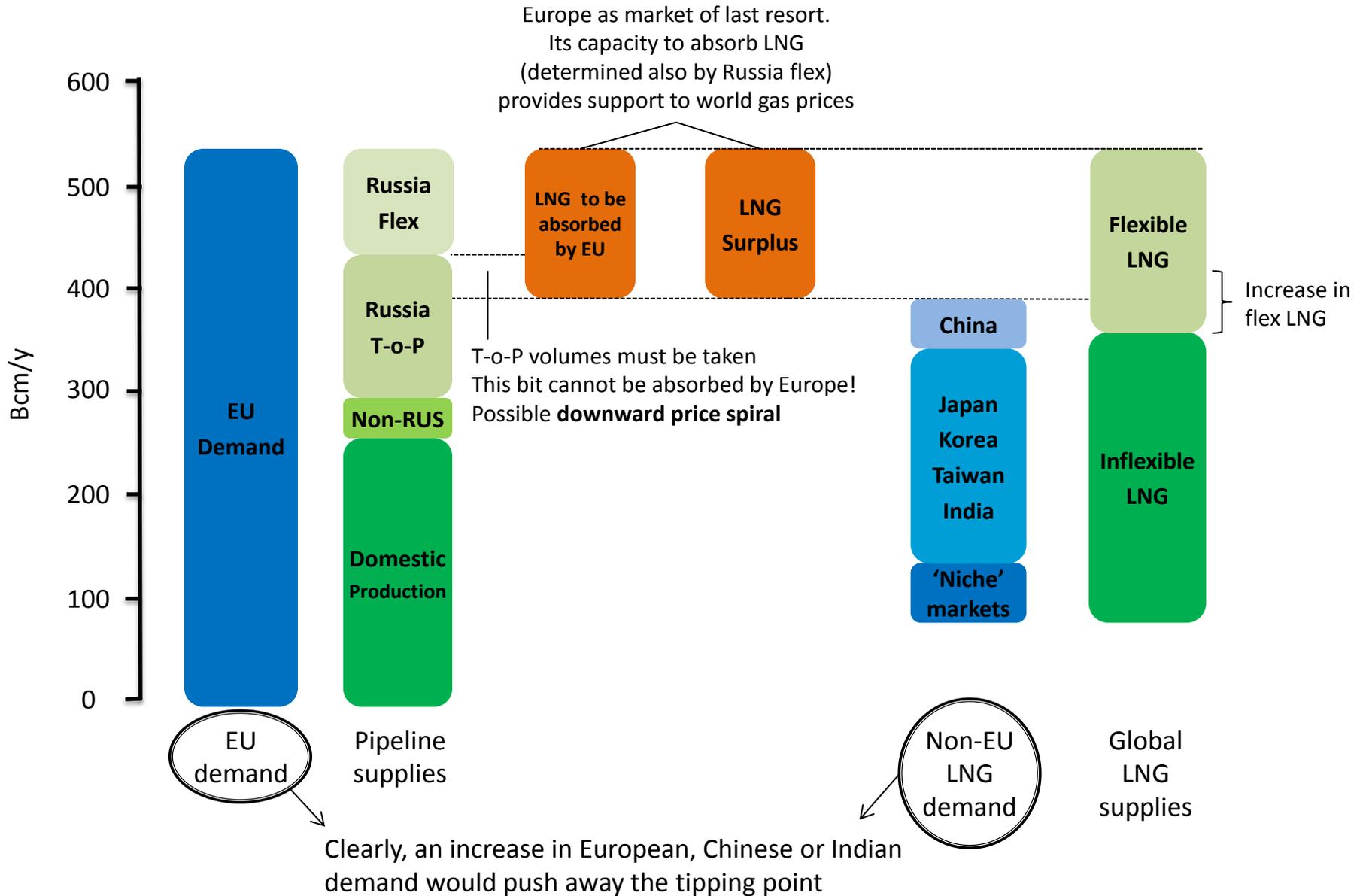


Sources: Gazprom, Russian Energy Ministry's CDU-TEK unit, Bloomberg calculations

Global market balance hinging on Russia-LNG dynamics



Global market balance hinging on Russia-LNG dynamics

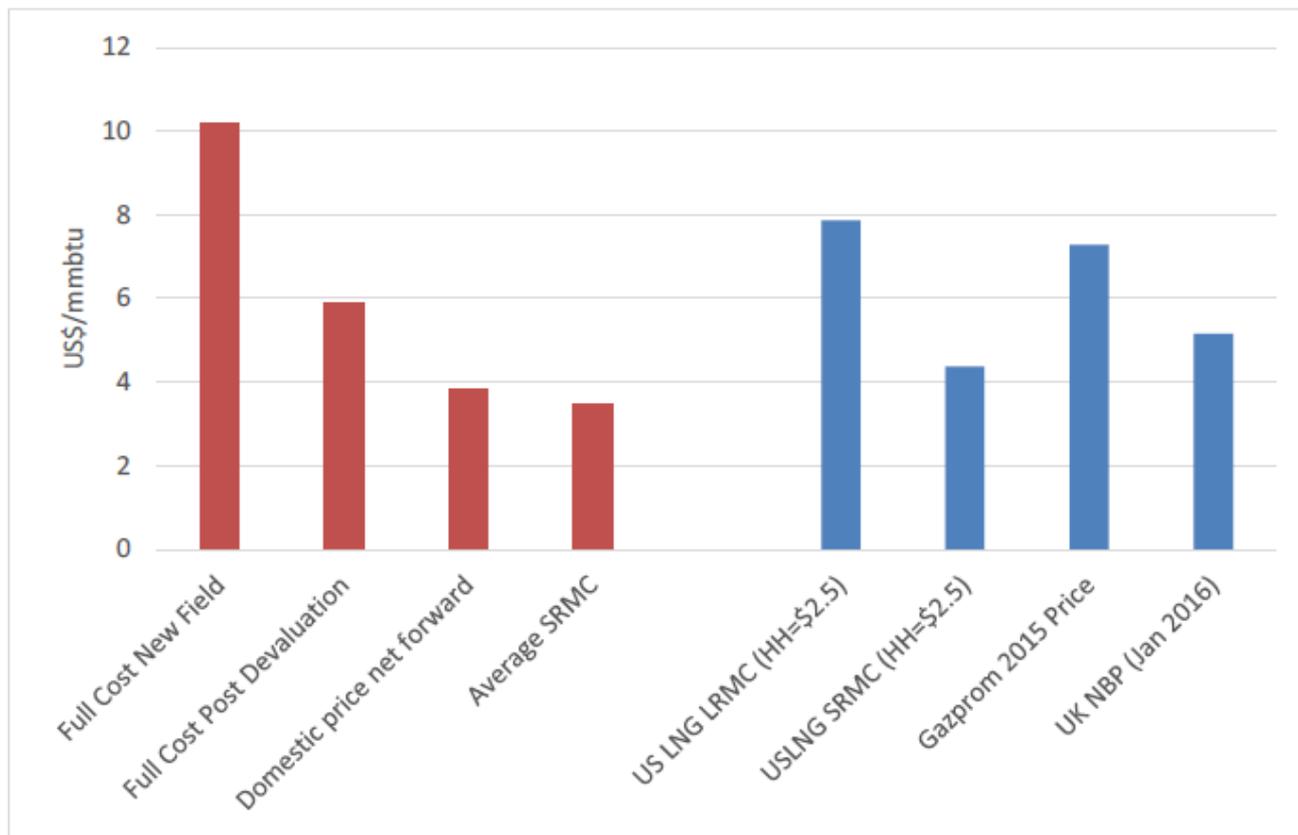


Russia's positioning in European and global gas markets

- Russian contracts support EU hub prices (see CIEP December 2014 study)
- EU hub prices support Asian prices
- So Russian contracts provide support to global gas prices
- Russia is thought to have >100 Bcm of spare capacity ready to land in Europe for ~3\$/Mmbtu, LNG can also come in cheaply (~4\$/Mmbtu)
- Unable to protect value in last years, Russia may go for volume to deter further FIDs – particularly on LNG projects
- Europe trying to complete internal market, diversify away from Russia and maintain Ukraine route
- Russia considering new ways of doing business (e.g. hub deliveries), trying to diversify away from Europe and get rid of Ukraine route

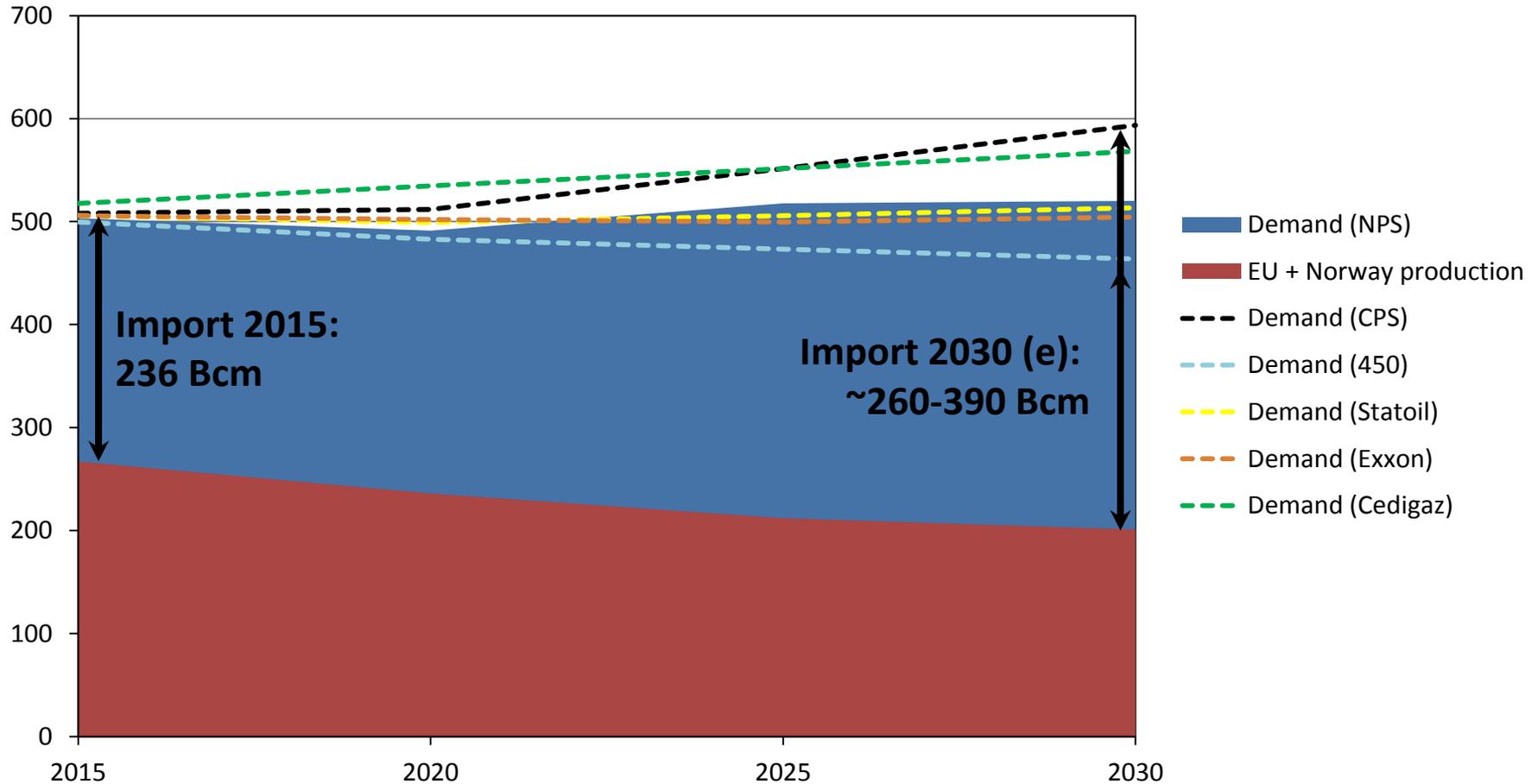
Russian gas appears competitive with US LNG

Figure 4: Cost of Russian gas versus US LNG (delivery to Europe)



Source: Howard Rogers (Oxford Institute for Energy Studies)

Even in low gas demand growth scenarios, Europe's gas import needs are expected to increase



Graph by CIEP. Sources: WEO 2015 (IEA), Statoil, ExxonMobil, Cedigaz

So who could fill the gap?

- Not EU producers, Norway and Algeria because declining or flat.
- Azerbaijan, but limited volumes
- Turkmenistan, but obstacles to TCP and commercial misalignments
- East Mediterranean, but high local demand and geopolitical risk
- Iraqi Kurdistan, but high perceived regulatory and geopolitical risk
- Iran, but very high local demand and LNG more likely
- Flexible LNG, notably from US and Qatar, but not a guaranteed flow
- Russia, but against goal of diversification

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