

Russia-EU-Ukraine-Turkey: opportunities, risks & economic rationale for development of new gas infrastructure for Russian gas supplies to the EU (difficult adaptation to new realities)

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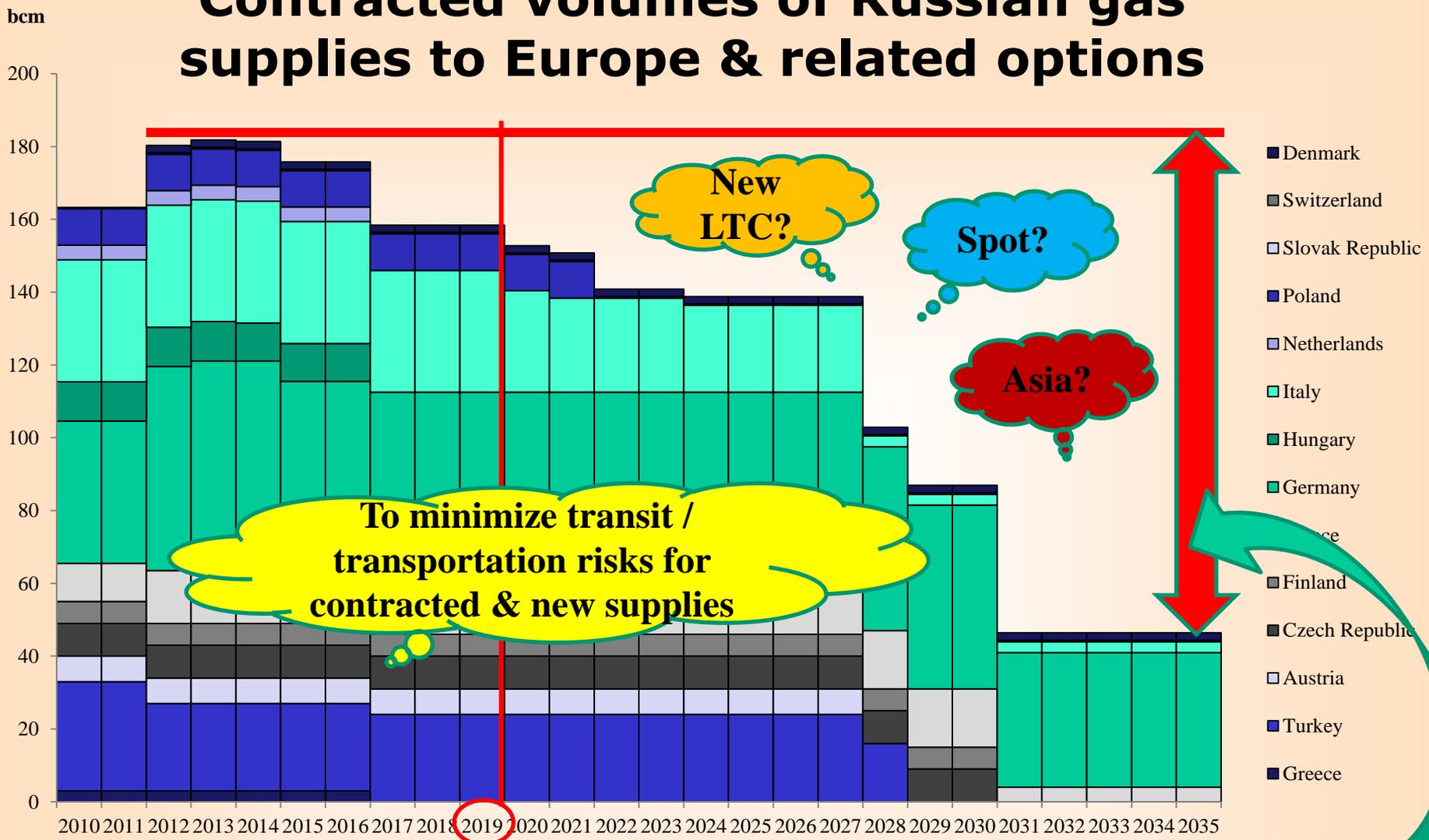
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Contracted volumes of Russian gas supplies to Europe & related options



Source of primary graph:
 T.Mitrova (ERI RAS) in: «The Russian Gas Matrix: How Markets Are Driving Change», Ed. by J.Henderson & S.Pirani, Oxford University Press, 2014, Fig.3.1/p.53.

Expanding niche for (at least partial?) substitution of terminating EU-destined LTC supplies at the border by new (adapted) LTCs, spot deliveries & trade at EU hubs; or partial redirection of terminating EU-destined LTCs to the East?

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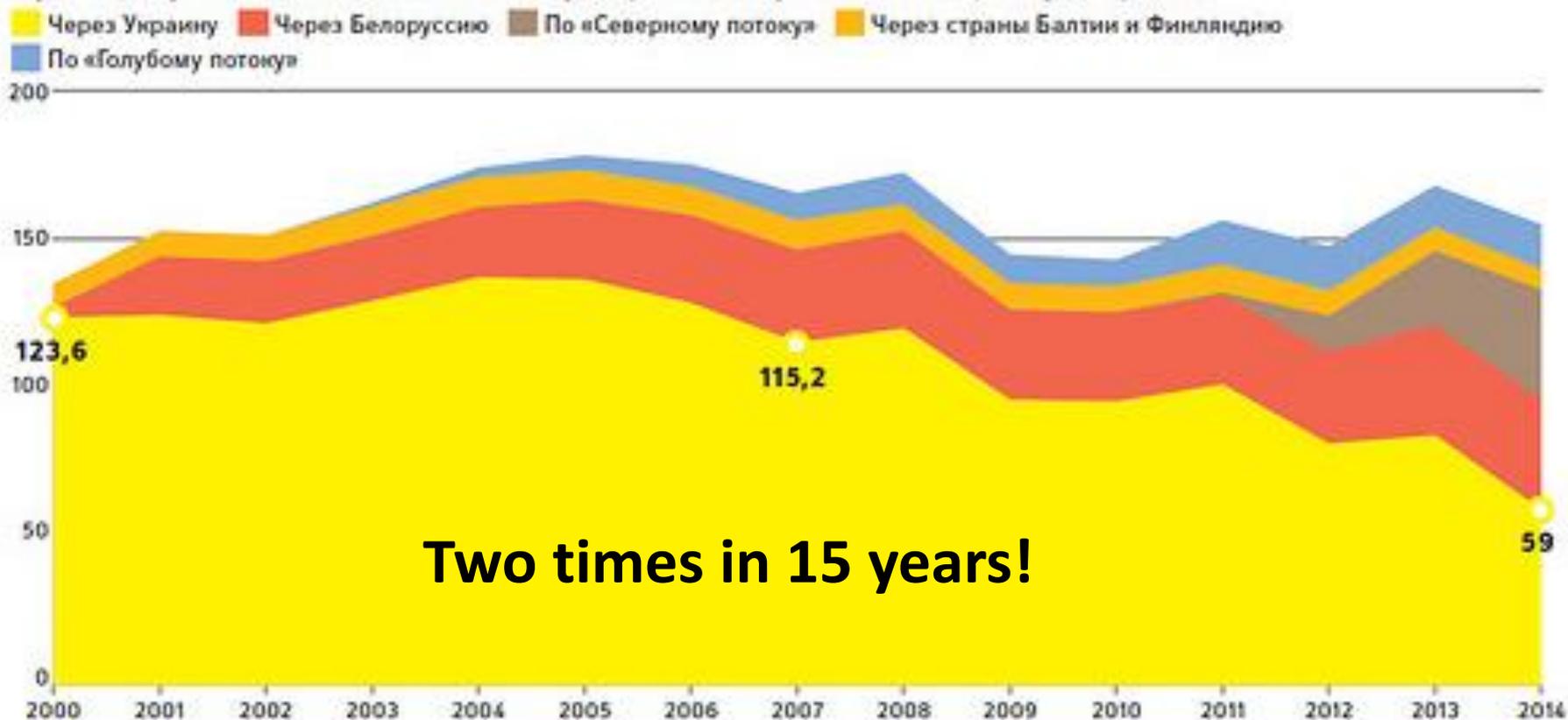
**How to minimize new risks
for existing contractual
obligations of Russian gas
supplies to Europe?
(**Ukrainian** risks)**

Legal & economic motivation for alternative (risk-avoidance) pipelines

- Legal motivation: Sovereign right for producer / exporter to evaluate supply / transit risk since:
 - it is his responsibility to timely deliver contractual gas volumes to delivery point/customer
 - “Sovereignty” means that development of natural resources *“must be exercised in the interest of their national development and of the well-being of the people of the State concerned”* (Res.1803 UN GA of 14.12.1962)
- Economic motivation: EU unbundling (since 2nd EU Energy Package 2003) predetermines free choice for supplier to choose least risky transportation route, if he considers it to be necessary, to fulfill its supply obligation, incl. after expiration of existing transit/transportation contract

Transit of Russian gas via Ukraine by directions

Транзит российского газа в Европу по направлениям, млрд куб. м



Источник: «Газпром», Государственный комитет статистики Украины, МЭА, VYGON Consulting

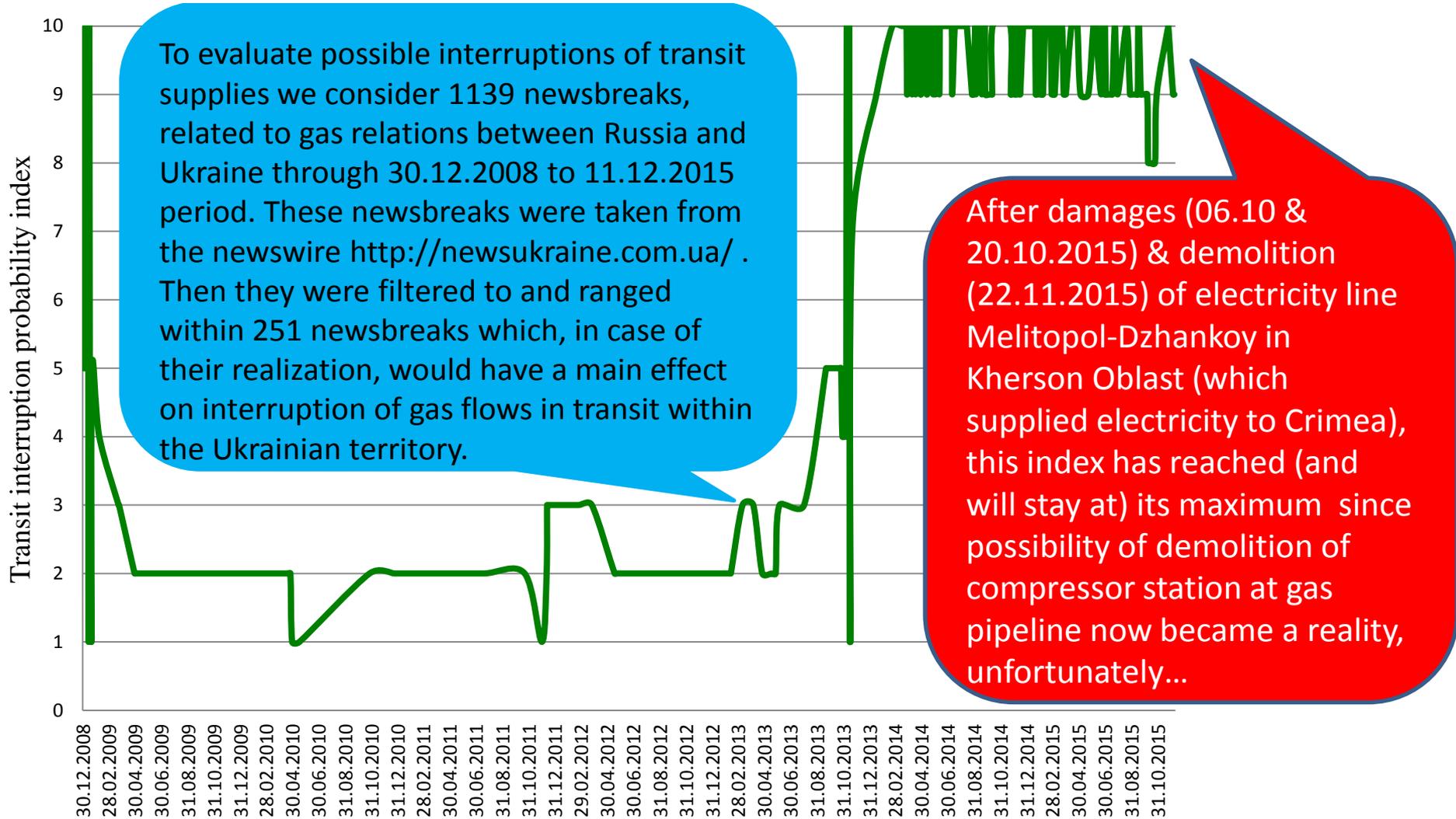
UA GTS: entry capacity (E => W) = 288 BCMY,
exit capacity to all destinations = 178.5 BCMY,
exit capacity to EU = 142.5 BCMY

Source: <http://odnarodyna.org/node/34819>

Ukraine: transit risks & costs

- Transit risks:
 - “transit interruption probability” index at maximum,
 - nevertheless EU insists on continuation of transit, why?
- Transit costs:
 - From “distance tariff” to “entry-exit tariff” => Immediate increase by 25-35% of acting transit tariffs for Gazprom, but:
 - “Pacta sunt servanda” = current transit tariffs governed by 2009-2019 Gazprom-Naftogas transit contract (UA TSO = Ukrtransgas)
 - What means “European methodology”? If E-E tariffs, then:
 - How CAPEX in modernization & development of UA GTS were calculated (ingredients of tariff to cover the costs/pay back investment)?
 - Whether cumulative debt of NAK “Naftogas of Ukraine” is (not) included in “investment”?
- Why Gazprom shall continue with UA transit after 2019 if it is risky & costly?

Ukraine: "transit interruption probability" index (2009–2015)



Calculated by M.Larionova, Russian Gubkin State Oil & Gas University, Chair "International Oil & Gas Business", Master's programme 2013-2015, on methodology, jointly developed with A.Konoplyanik, based on principles of credit ratings evaluation by major international credit agencies

EU support for transit via Ukraine: the end or the means? (1)

- EU has multiply stated its support for continuation of RUS gas transit via UA post-2019 (30-40 BCMY) => EU opposes redirection of RUS gas supplies to new transportation routes to EU post-2019
- But (it seems that) EU (CEC) support for existing & future transit of RUS gas via UA is not the end, but just the means; the real goal is:
 - to provide UA with steady financial flow of transit revenues from RUS supply contracts to EU via UA (with currently “unfriendly” to RF political regime in UA) – instead of donating corresponding EU financial aid to UA, and
 - to finance/guarantee pay-back of potential investment of UA-EU-USA GTS consortium (acc.to UA Law 4116a) in modernization of US GTS (*NB: RUS participation in consortium forbidden by UA law, but continued transit of RUS gas is the only way to make consortium financeable*):
 - either under existing supply to EU formula (RUS supplies directly to inside EU through UA) => RUS will continue taking transit risk via UA,
 - or by new CEC proposed formula: delivery of RUS gas at RUS-UA border, in which case:
 - either EU companies will take the transit risk via UA by themselves (*which they are not willing yet*),
 - or there might be possible role for de facto EU *Single Purchasing Agency* mentioned in the Energy Union Package (?) [*“options for voluntarily demand aggregation mechanisms for collective purchase of gas during a crisis and where Member States are dependent on a single supplier”*]

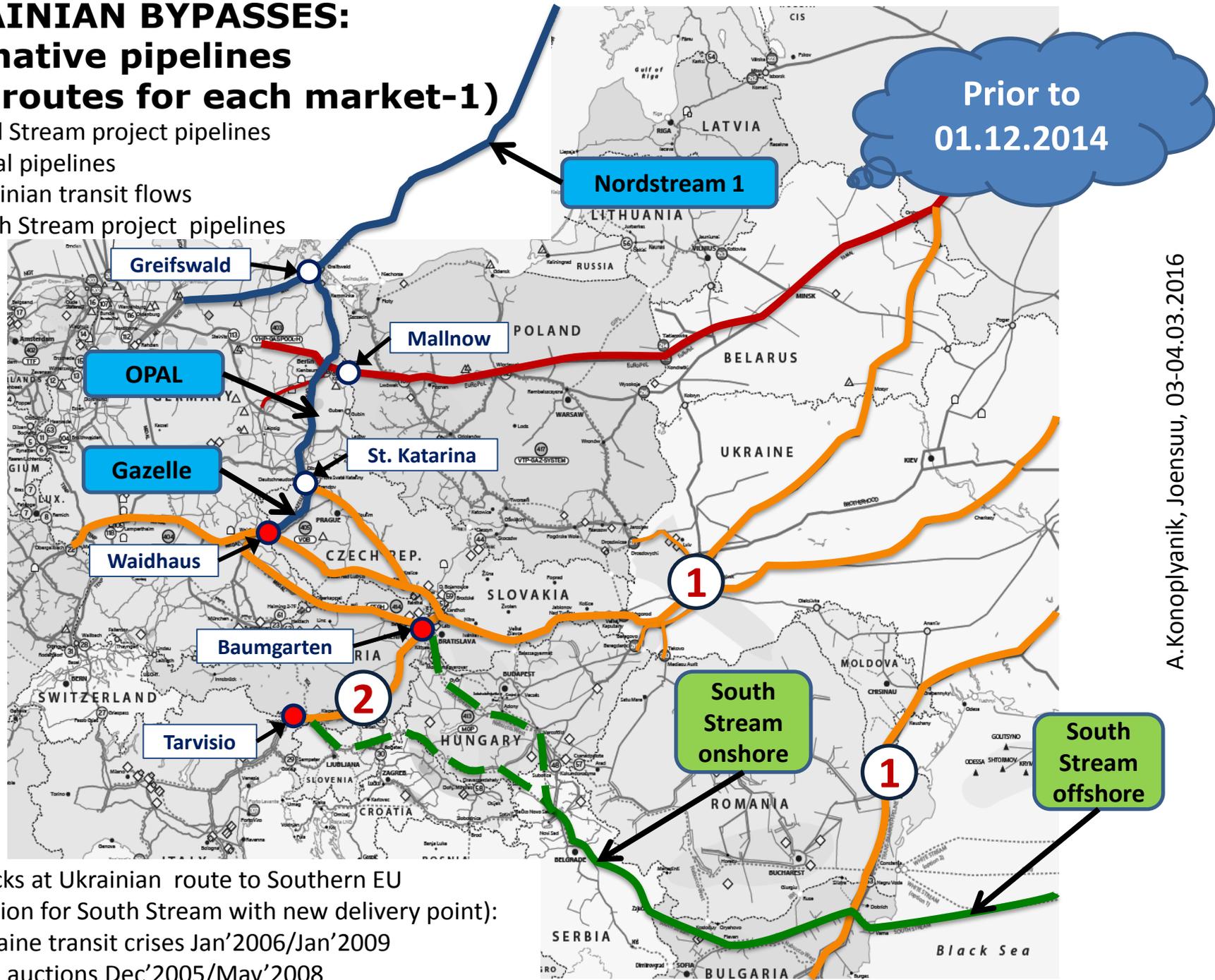
New "entry-exit" gas transportation tariffs that were established by NRA Ukraine from Jan'2016



Source: <http://biz.liga.net/print/all/tek/novosti/3202984-ukraina-povysila-stavki-tranzita-gaza-dlya-gazproma-na-25-35.htm>

UKRAINIAN BYPASSES: alternative pipelines (two routes for each market-1)

- █ Nord Stream project pipelines
- █ Yamal pipelines
- █ Ukrainian transit flows
- █ South Stream project pipelines



Bottlenecks at Ukrainian route to Southern EU
(justification for South Stream with new delivery point):

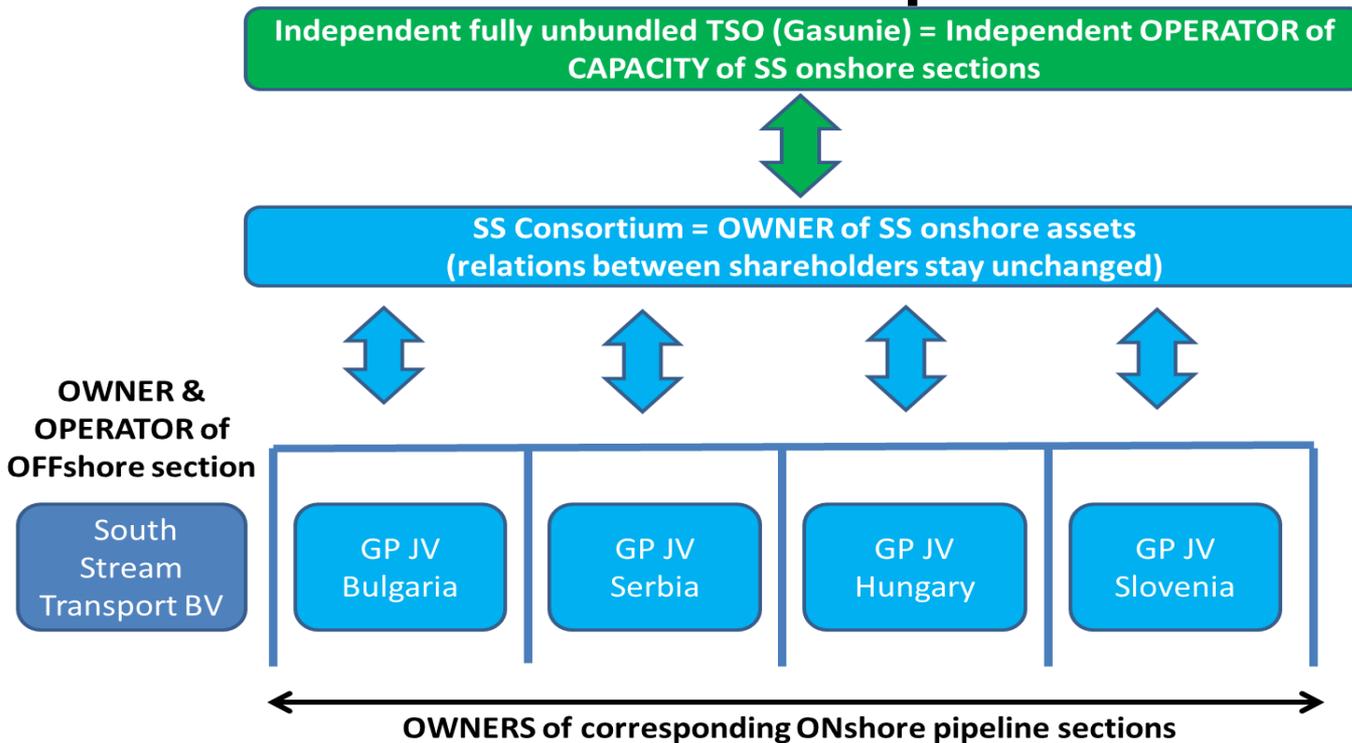
- ① Ukraine transit crises Jan'2006/Jan'2009
- ② TAG auctions Dec'2005/May'2008

Why South Stream really failed, in my view

- Major attention was always paid to South Stream **offshore**, while major unresolved problems, in my view, were with South Stream **onshore**
- Options for gaining EU regulatory approval for major complicated infrastructure projects **onshore** EU:
 - **(1) EXISTING (?)/PAST:** Bilateral IGAs with individual EU MSs => EU: “no go” under Third Package (04.12.2013 for South Stream) => Russia objected, though that not helpful for South Stream in practical terms (2019 issue)
 - **(2) EXISTING:** Exemptions under Second (Art.22) & Third (Art.36) EU Gas Directives = a mainstream in EU (about 40 big projects since 2003) => EU proposal for South Stream , but “no go” for Russia (esp. after OPAL story)
 - **(3) PROPOSED NEW-1:** RF-EU Bilateral Agreement on PMI (Russia’s proposal, Feb’2011, general exemptions from EU energy acquis) => de facto “no go” for EU since “export of acquis” is its factual policy => not helpful for South Stream in practical terms (2019 issue)
 - **(4) PROPOSED NEW-2:** Regulated new capacity development under rules of procedure based on Third EU Gas Directive Art.13.2 (CAM NC INC + TAR NC, yet to be approved via Comitology) => in full compliance with TEP rules, no derogations needed => preparation of new NCs started 2013 => question of time for South Stream (2019 issue)

Based on: Alex Barnes, Andrey Konoplyanik, Kristof Kovacs, Nigel Sisman. “New Capacity Case Study - Progress, Status Update and Key Issues”, Presentation at Work Stream 2 GAC, St. Petersburg, 10-11 September 2013 (slide 3)

Proposed (end-Oct'2013) draft solution for South Stream onshore (based on Art.9.5 of Directive 2009/73/EC) *have not been implemented*



“Article 9: Unbundling of transmission systems and transmission system operators

1. Member States shall ensure that from 3 March 2012:

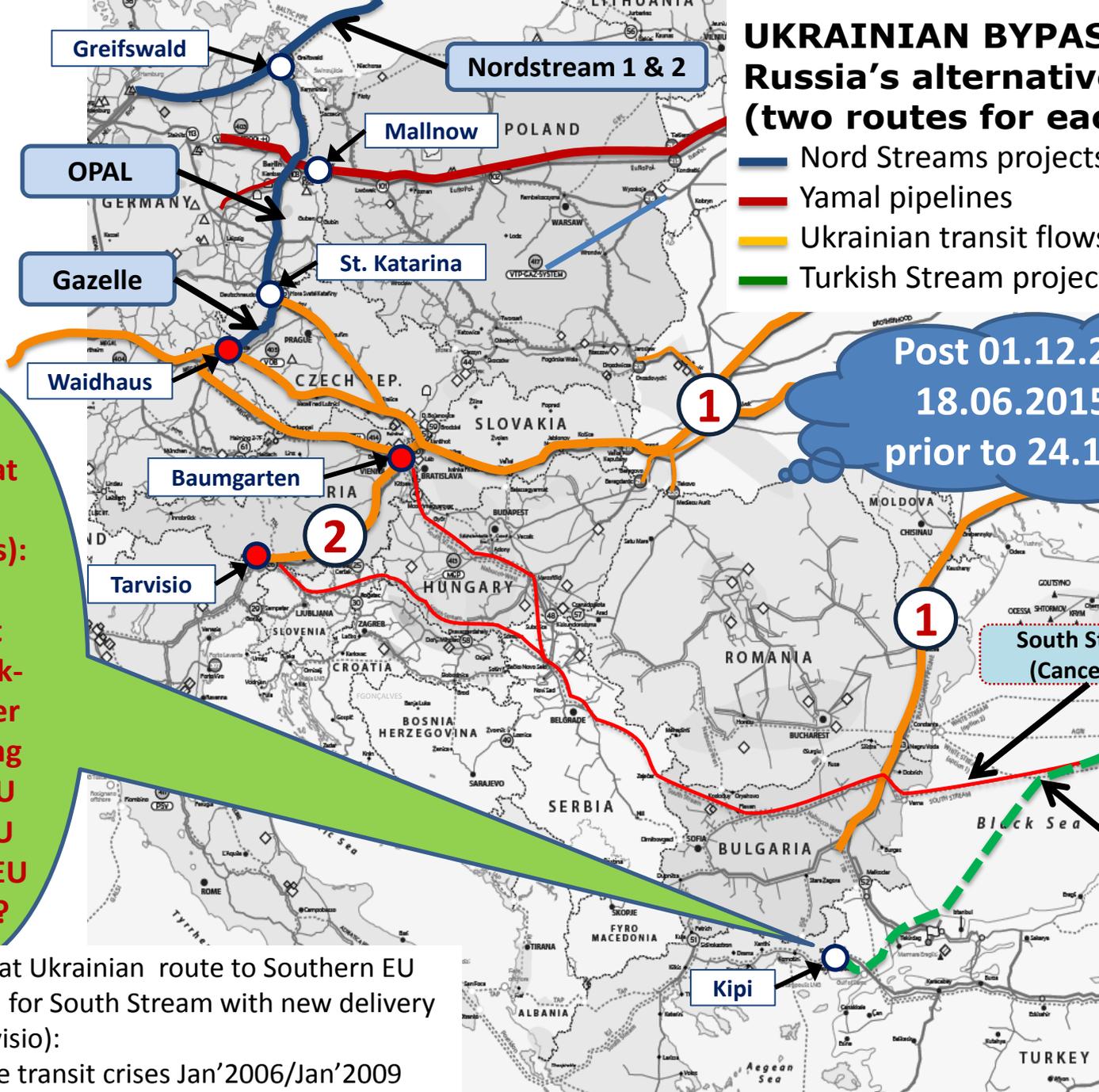
(a) each undertaking which owns a transmission system acts as a transmission system operator;

...

5. The obligation set out in paragraph 1(a) of this Article shall be deemed to be fulfilled in a situation where two or more undertakings which own transmission systems have created a joint venture which acts as a transmission system operator in two or more Member States for the transmission systems concerned. No other undertaking may be part of the joint venture, unless it has been approved under Article 14 as an independent system operator or as an independent transmission operator for the purposes of Chapter IV.” (DIRECTIVE 2009/73/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC)

UKRAINIAN BYPASSES: Russia's alternative pipelines (two routes for each market-2)

- Nord Streams projects pipelines
- Yamal pipelines
- Ukrainian transit flows
- Turkish Stream project (to EU border)



Post 01.12.2014 & 18.06.2015, but prior to 24.11.2015

First 47BCM at 2019 (then less): How to move it from Turk-EU border to existing DPs in EU acc.to EU rules by EU entities?

Bottlenecks at Ukrainian route to Southern EU (justification for South Stream with new delivery point at Tarvisio):
 Ukraine transit crises Jan'2006/Jan'2009
 TAG auctions Dec'2005/May'2008

EU support for transit via Ukraine: the end or the means? (2)

- Whether EU will change its opposition to US by-passes if alternative means for UA to earn money are presented instead of gas transit revenues?
- An idea: “Russian gas circle” with expanded trade at the hub (Baumgarten) => this requires regular use of UGS (to provide flexibility from the market (UGS) under spot deliveries instead of contractual flexibility within LTGEC) => role for UA UGS ?
 - Today: GP uses UA UGS for seasonal adjustments of RUS LTC transit flows to EU
 - Post-2019 (after GP-Naftogas transit contract is over): *maybe* GP can use UGS in Western UA to balance market fluctuations at EU gas market in the nearest market zones (hub Baumgarten, etc.) => then GP *shall* be present at EU hubs, incl. wider presence in spot segment

“Russian gas supply ring” for Europe?

- “Russian gas supply ring” concept for Europe:
 - a mutual RUS & EU safeguard from new transit monopolies +
 - new revenues for UA (a way for UA to raise gas-related revenues without transit of RUS gas) =>
 - addresses issue of major concern for EU (how to finance UA economy without/with minimum involvement of EU money) +
 - solve the issue of utilization of Slovak GTS (& M.Sefcovic)
- Redirection of existing Gazprom’s supply (sales) contracts to new routes within EU = 100% financeable way for development of new transportation capacities in full compliance with Third EU Energy Package provisions (Art.13.2 Third Gas Directive => CAM NC INC Art.20(d))

Russian gas supply ring for Europe? (proposal for discussion/consideration/evaluation)



Nordstreams 1 & 2

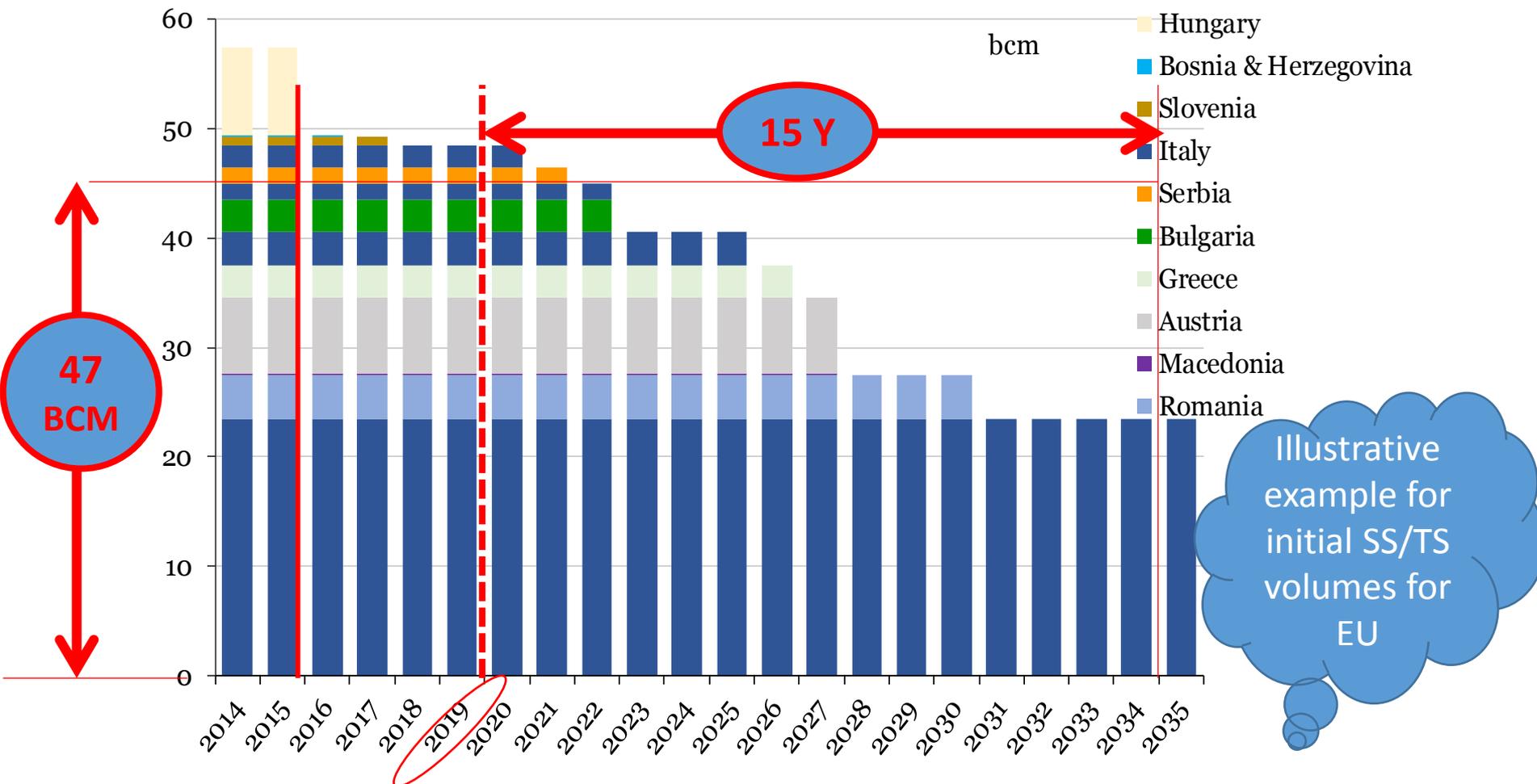
First South Stream, then Turkish Stream, then ...

Hub in Baumgarten

UGS in Western Ukraine

Russian re-routed gas supply contracts to Central & South-Eastern EU from UA transit last till 2035 = 100% security for TSO project financing of new capacity in SEE

(illustrative example for initial Turkey Stream scenario)



Source: calculated by E.Orlova (FIEF) based on based on: "Turkish stream": Scenarios of by-passing Ukraine and barriers of European Commission". Vygon Consulting, June 2015 (fig.4, p.30).

**What to do
after
24.11.2015?**

**How to minimize new risks
for existing contractual
obligations of Russian gas
supplies to Europe?
(**Turkish** risks)**

TurkStream: what's new at Gazprom site (as of 27.02.2016)



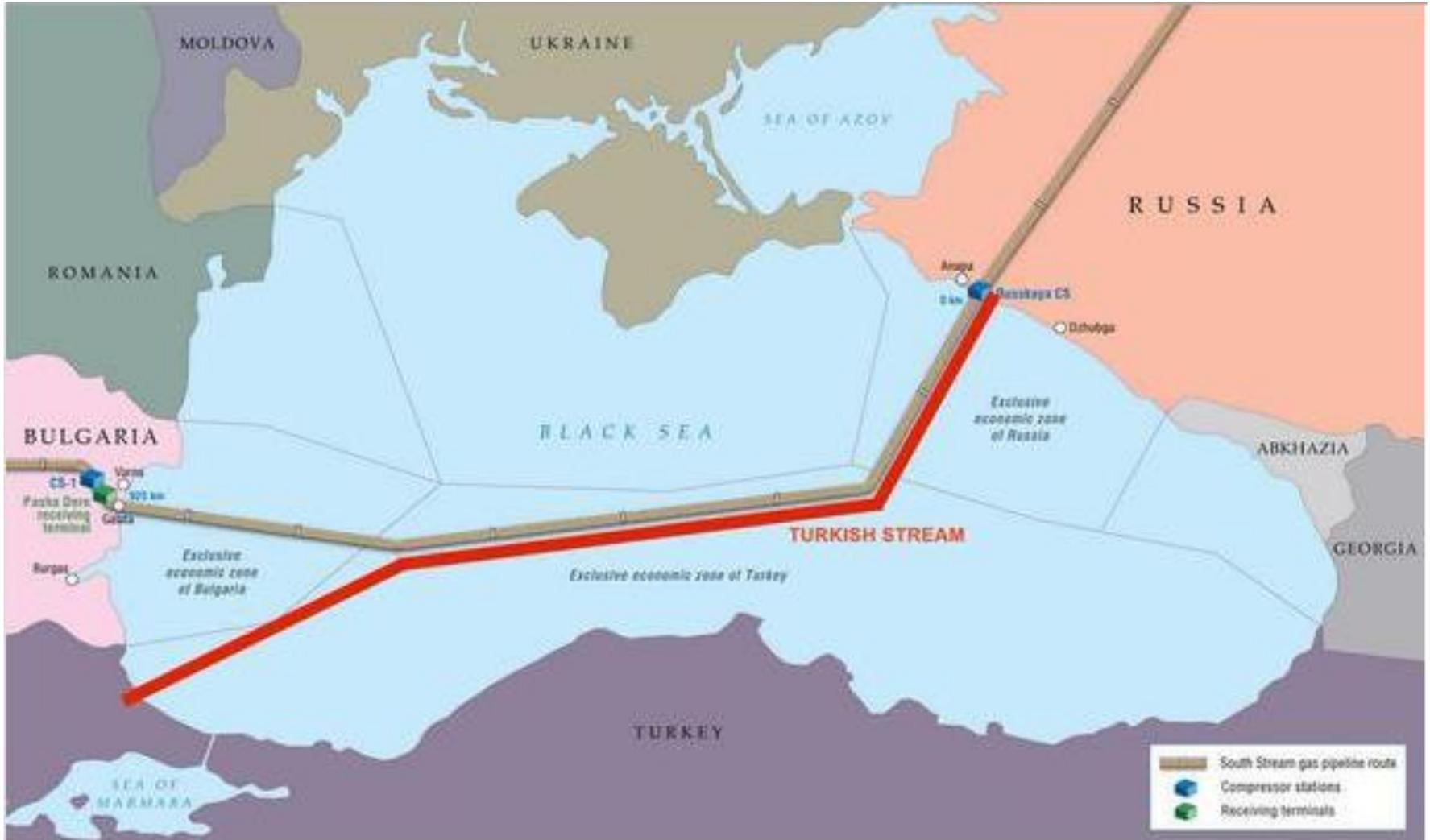
Route: 660 km of the offshore pipeline route will be laid within the old corridor of South Stream and 250 km – within a new corridor towards the European part of Turkey. The onshore gas pipeline section will stretch for 180 km from the Black Sea coast of Turkey to the border between Turkey and Greece.

Capacity: The annual gas pipeline capacity will total **63 BCM**. The offshore gas pipeline will consist of **four strings** with the capacity of **15.75 BCM each**. Gas from the first string is intended exclusively for the Turkish market.

Project history: On **December 1, 2014** Gazprom and Turkish company Botas Petroleum Pipeline Corporation signed the Memorandum of Understanding on constructing the TurkStream gas pipeline. In **February 2015** the key reference points of the route and technical solutions for the gas pipeline in Turkey were approved. **On May 8, 2015 Gazprom moved on to the construction stage of the TurkStream offshore gas pipeline.** Gazprom will be solely responsible for the construction of the offshore section. Turkish gas transportation facilities will be built jointly. **The first string is forecast to be constructed by December 2016.**

Source: <http://www.gazprom.com/about/production/projects/pipelines/turk-stream/> 21

TurkStream: why such complicated route? To bypass (former) Ukrainian EEZ...



Source: <http://middleeastnewsservice.com/tag/turkish-stream/>

Black Sea delimitation prior to and after reunification of Crimea with Russia



The new reality:
Turkish &
Ukrainian EEZs
do *not* interlock
anymore

Map source:
http://img1.liveinternet.ru/images/attach/c/0/113/415/113415843_large_16012_102020_54593033675_5644072863940384821_n.jpg

Source: Lamont-Doherty Earth Observatory of Columbia University

<http://www.liveinternet.ru/users/3616936/>

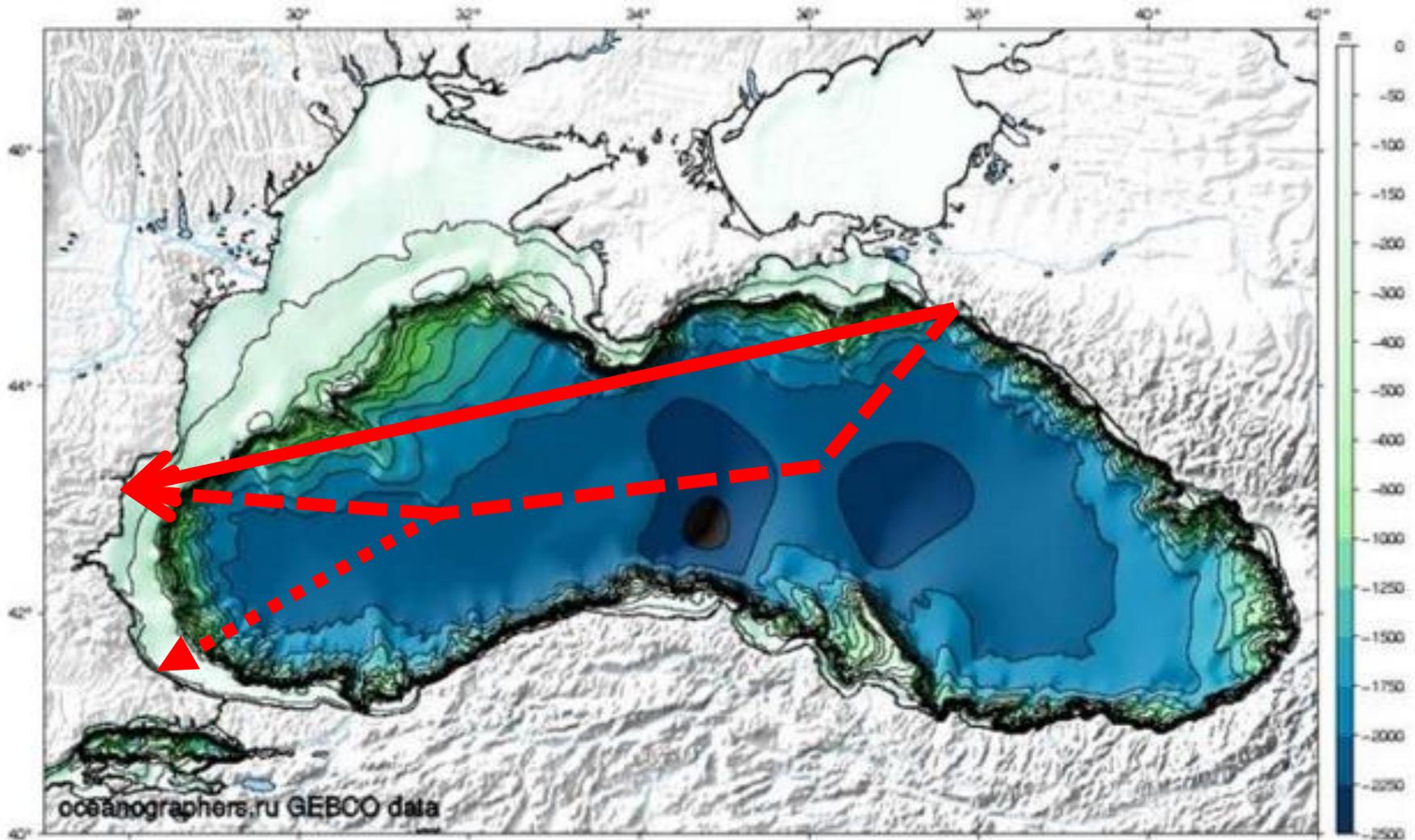
Black Sea delimitation prior to and after reunification of Crimea with Russia: consequences for risk-avoidance offshore pipelines

- South Stream (via Turkish EEZ)
- Turkish Stream
- Possible “New” Stream (?) (via new / expanded Russian EEZ)

Reunification of Crimea with RF opens opportunity (& 24.11.2015 incident & event afterwards votes for its use) to avoid Turkish transit => My proposal: offshore pipeline route to Bulgaria/Varna directly via new (expanded) RF EEZ in Black Sea, now by-passing both Ukrainian & Turkish EEZs, with all its positives: shorter line via shallower waters => benefits to both RF & EU



Black Sea: map of water depths & offshore routes



Map source:
<http://www.perekop.info/black-sea-history/>

- ← - - - - - South Stream (via Turkish EEZ)
- ← ····· Turkish Stream
- ← Possible "New" Stream (?) (via new/expanded Russian EEZ)

Romania-Ukraine EEZ Black Sea demarcation dispute results (2009): no consequences for possible "New" Stream

Results of Romania-Ukraine dispute on demarcation of their EEZ in Black Sea do NOT touch **possible** new (instead of Turkish Stream) route of offshore part of **possible** new risk-avoidance gas pipeline to EU - a part of southern wing of **possible** Russian gas supply ring for Europe

← Possible "New" Stream

Map source:

http://img0.liveinternet.ru/images/attach/c/11/116/349/116349424_large_0301e1_5cdb3fac_orig.gif



What after 24.02.2016?

24.02.2016 Gazprom, DEPA and Edison signed Memorandum of Understanding

- Memorandum of Understanding on natural gas deliveries **across the Black Sea from Russia via third countries** to Greece and from Greece to Italy in order to establish **a southern route** to deliver Russian natural gas to Europe.
- In working towards that goal, the parties are committed to take advantage of the work done by Edison and DEPA within the **ITGI Poseidon project** to the fullest extent possible.
- The potential development of a new supply route is planned to be implemented **in full compliance with EU laws**.
- **Note:** *ITGI (Interconnector Turkey – Greece – Italy) is a natural gas pipeline project proposed in the framework of the Southern Gas Corridor from Turkey to Italy via Greece. Poseidon is a construction project for the ITGI offshore section across the Ionian Sea to connect gas transmission systems of Greece and Italy. Edison and DEPA are equal partners to IGI Poseidon S.A.*

Source: <http://www.gazprom.com/press/news/2016/february/article267671/>

What is ITGI Poseidon project

- **ITGI:** part of “Southern Gas Corridor” => 15 BCMY from Caspian, East Med &/or Middle East to Italy & Europe through Turkey & Greece.
- **Turkish grid:** will be upgraded to enable transit of gas for Italy & Greece
- **ITG:** in operation since Nov’2007, transport capacity 11.5 BCMY
- **IGI:** transport capacity 12 BCMY. IGI will be 800 km long & includes:
 - **IGI Onshore:** 600 km onshore pipeline in Greek territory (to be developed by Desfa, Greek Transmission System Operator);
 - **IGI Poseidon:** 200 km offshore pipeline across the Ionian Sea (under development by IGI Poseidon SA, a joint venture between Edison and Greek company Depa).
- **IGB:** The pipeline (appr. 180 km long) is designed to transport 3 to 5 BCMY, will connect Komotini in Greece to Stara Zagora in Bulgaria. The project is subject of EU financial support through the European Energy Program for Recovery (EEPR) to the amount 45 million EUR pursuant to Commission Decision C(2010) 5813, as amended by Decision C(2012) 6405.
- **ITGI** is a **Project of Common Interest** as it was included among the Southern Gas Corridor Projects in the European Economy Recovery Plan with a 100 mln Euros financing. Italy-Greece section of the ITGI pipeline was granted 25 years TPA Exemption (Art. 22 of Directive 55/2003)
- Among “Key benefits of the ITGI project” indicated that “Since the project is not sponsored by main gas producers, different sources of supplies could be transported.” => **AK: Gazprom (RUS gas) as one of such “sources”**

Source: <http://www.edison.it/en/itgi-pipeline>; <http://www.edison.it/en/igb-pipeline>

ITGI Pipeline at website of Edison

ITGI pipeline



- IGI Poseidon
 - IGI Onshore
 - IGB (under development)
 - ITG (in operation)
 - Turkish Grid (in operation) and/or TANAP (under development)
 - Existing interconnections
 - Under evaluation
- IGI (under development)

Source: <http://www.edison.it/en/itgi-pipeline> (as of 27.02.2016)

ITGI Pipeline at website of Edison - & what can go further

30 July 2015

ITGI pipeline

go further

← My proposal of new offshore route directly to Varna by-passing (between) Ukrainian & Turkey EEZs in Black sea



- IGI Poseidon
 - IGI Onshore
 - IGB (under development)
 - ITG (in operation)
 - Turkish Grid (in operation) and/or TANAP (under development)
 - Existing interconnections
 - Under evaluation
- IGI (under development)

Source of original map: <http://www.edison.it/en/itgi-pipeline> (as of 27.02.2016)

Prospects of Russia – EU cooperation (how it can help)

Russia-EU GAC: expert discussions continues

- Whatever will happen *offshore* EU, new regulatory EU rules for development new transportation capacity *onshore* EU (CAM NC INC + NC Tariffs) are to be tested, preferably before Comitology procedure will come to its end & will fix these rules “in stone”:
 - At WS2 GAC meeting 22.01.2016 EU side has agreed with (proposed by RUS side within WS2 GAC) “Reality check” for new EU regulatory rules for new onshore infrastructure development based on “as if” approach & realistic (not need to be real) case with primary attention to CAM NC INC Art.20(d) procedure (new cross-border capacity),
 - ENTSOG INC team & Prime Movers (incl. Gazprom Group team) & EU TSOs established Ad Hoc group on “Reality Check”
 - First results of Ad Hoc Group on “Reality Check” to be presented at next WS2 GAC meeting 22.04.2016
 - This might enable improvement of EU internal procedures on development of new transportation capacity in the process of Comitology

Thank you for your attention!

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