Russia, Ukraine and the EU in the new Broader European gas world: what search for equilibrium?

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New post-2009 gas world & its European dimension within Broader Energy Europe

1) **Oversupply due to:**
   a) **Demand-side** => market niche for gas narrowed in EU:
      i. overall decline = (i) economic crisis + (ii) energy efficiency
      ii. gas substitution = (i) subsidized RES *vs* (oil-indexed) gas + (ii) cheap US imported coal (*US shale gas domino effect #2*) *vs* (oil-indexed) gas
   b) **Supply-side** => competition within this narrowed market niche for gas in EU increases:
      i. Qatari LNG (*"garbage gas"*) to EU prior to Fukushima (*US shale gas domino effect #1*)
2) **Institutional** => 3rd EU Energy Package => concurrent with EU oversupply situation which triggered liberalization (upside-down gas reforms)
3) **Political** => RF-UA gas transit crises => consequences for EU/Ukraine/Russia & whole Broader Energy Europe

Russia-EU-Ukraine's new circumstances: 22 days vs. 40+ years => RF-UA vs RF-EU

- Ukraine as integral element of Russia-EU gas supply chain =>
- "Matrix effects" & "Domino effects" of Russia-UA Jan'06/09 gas crises for Russia-EU gas relations/supply chain:
  - 22 days of interruptions of Russian gas supplies to the EU via Ukraine = 3 days in Jan'2006 + 19 days in Jan'2009:
  - has overbalanced previous 40+ years (since 1968) of stable & non-interruptible supplies =>
  - has changed ***perceptions*** within ***all three parties*** on stability & non-interruptible character of future gas supply through this chain => each party has its own vision & answers & lines of actions
- New perceptions as starting points for objective "domino effects":
  - political statements & decisions => legal documents => investment decisions aimed at new ***perceived*** equilibrium to be reached
  - when investments are made, 'no return' points are passed through
- ***"No return" points for each party*** => What are they? Whether they are reached/ passed through already by each party?

EU-Ukraine-Russia: in search for new post-2009 equilibrium with different aims & responds & lines of actions

- **EU:** *to diminish dominant role of Russia as major gas supplier*
- **Ukraine:** *to escape monopoly of Russia as one single gas supplier*
- **Russia:** *to escape monopoly of Ukraine as one dominant gas transit route*
- The aims seems to be totally different (are they?) => to find new equilibrium within multidirectional individually enforced changes
- Narrowing corridor for new equilibrium – but it is still there => a long & winding road to new compromise… (if a goodwill is there)

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New risks, new challenges, new responds, "no return" points: the EU (1)

- Perception: *as if* non-reliable future supplies from Russia via Ukraine to EU =>
- Responds: organization of new internal EU gas market architecture with ***multiple supplies*** & (high) ***flexibility***
- ***Multiple supplies*** by:
  - **Alternatives to Russian gas (*supply side*):** SOS Directive (3+ gas supply sources/MS, 'N-1' rule, etc.), LNG, shale gas, UGS
  - **Alternatives to (Russian) gas (*demand side*):** climate change => decarbonization => RES, energy efficiency => shrinking gas share in fuel mix => the loser would be a less competitive gas supplier
    - perception: most distant & costly in production & oil-indexed-priced Russian gas ?
  - ***=> to diminish dominant role of Russia as major supplier***

New risks, new challenges, new responds, "no return" points: the EU (2)

- (High) ***flexibility*** by:
  - Diminishing barriers for gas flows: CMP rules (UIOLI, SoP), interconnectors, reverse flows, spot trade, demand for softening LTGEC provisions (TOP, hub-based pricing, etc.), …, new market organization => Third EU Energy Package
- Third EU Energy Package (03.09.2009 => 03.03.2011):
  - Set of legal instruments providing ***multiple supplies*** & ***flexibility*** within EU (28) & Energy Community Treaty (28+9) area based on new principles of internal market organization
  - from a chain of 3 consecutive LTCs (1968-2009) – to Entry-Exit zones with Virtual Trading Points (hubs) (2009-onwards)
  - New architecture of EU gas market under development => Gas Target Model + 12 Framework Guidelines + 12 Network Codes + …
- => **"No return" point has been passed by EU as a whole !!!**
- ***BUT:*** economic realities in NWE & CEE are different => not possible to implement EU legally binding decisions on diversification (basis for competition) in synchronized manner

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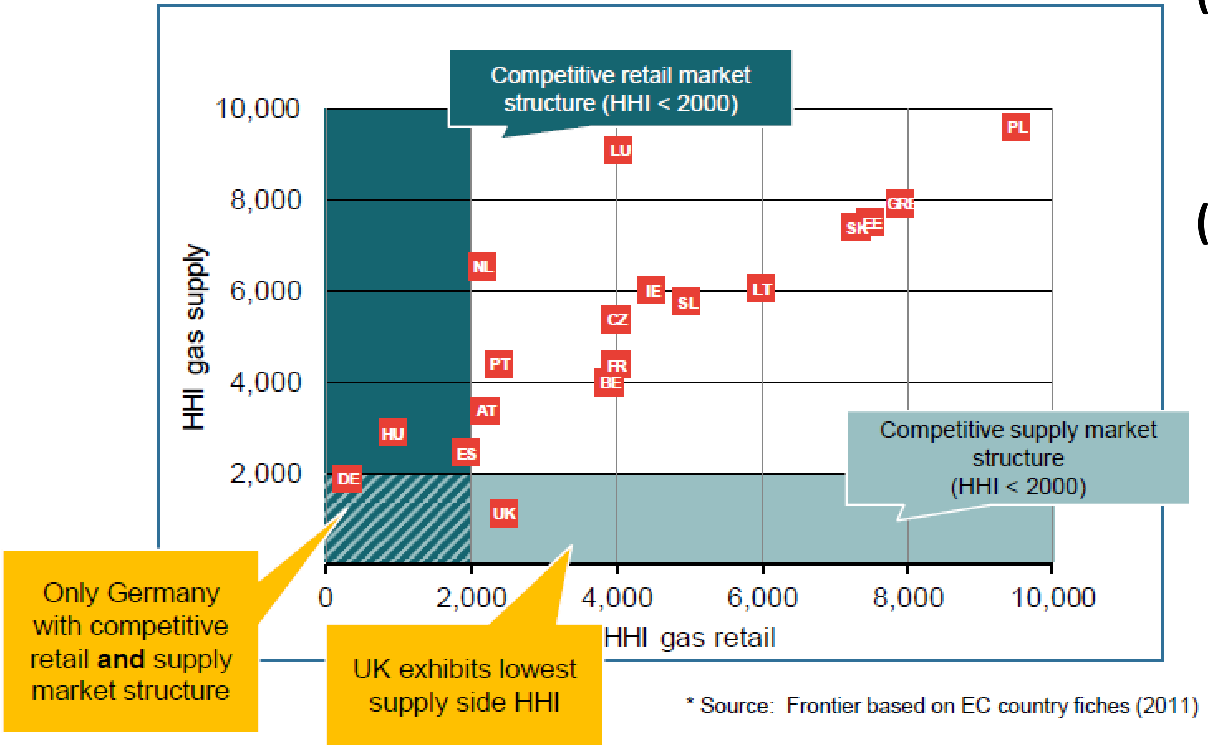
Two approaches to improve competition (preconditions for entry of new market players): with and without deficit of transportation capacity

Remaining barriers inhibit new entry in retail markets



* Source: Frontier based on EC country fiches (2011)

January 29th, 2014 E-Control

E-CONTROL

On which way to search for solution:

(i) New market participants within existing infrastructure (capacity deficit preserves), or

(ii) New market participants within existing and New & Incremental infrastructure (aim – to prevent capacity deficit to appear)

Measure	CEER criteria
Size of Entry-Exit zones	≥ 20 BCM (215 TWh)
Pluralism of sources of supply	≥ 3 significant sources
Market concentration	HHI < 2000
Liquidity of the market	Churn rates > 8

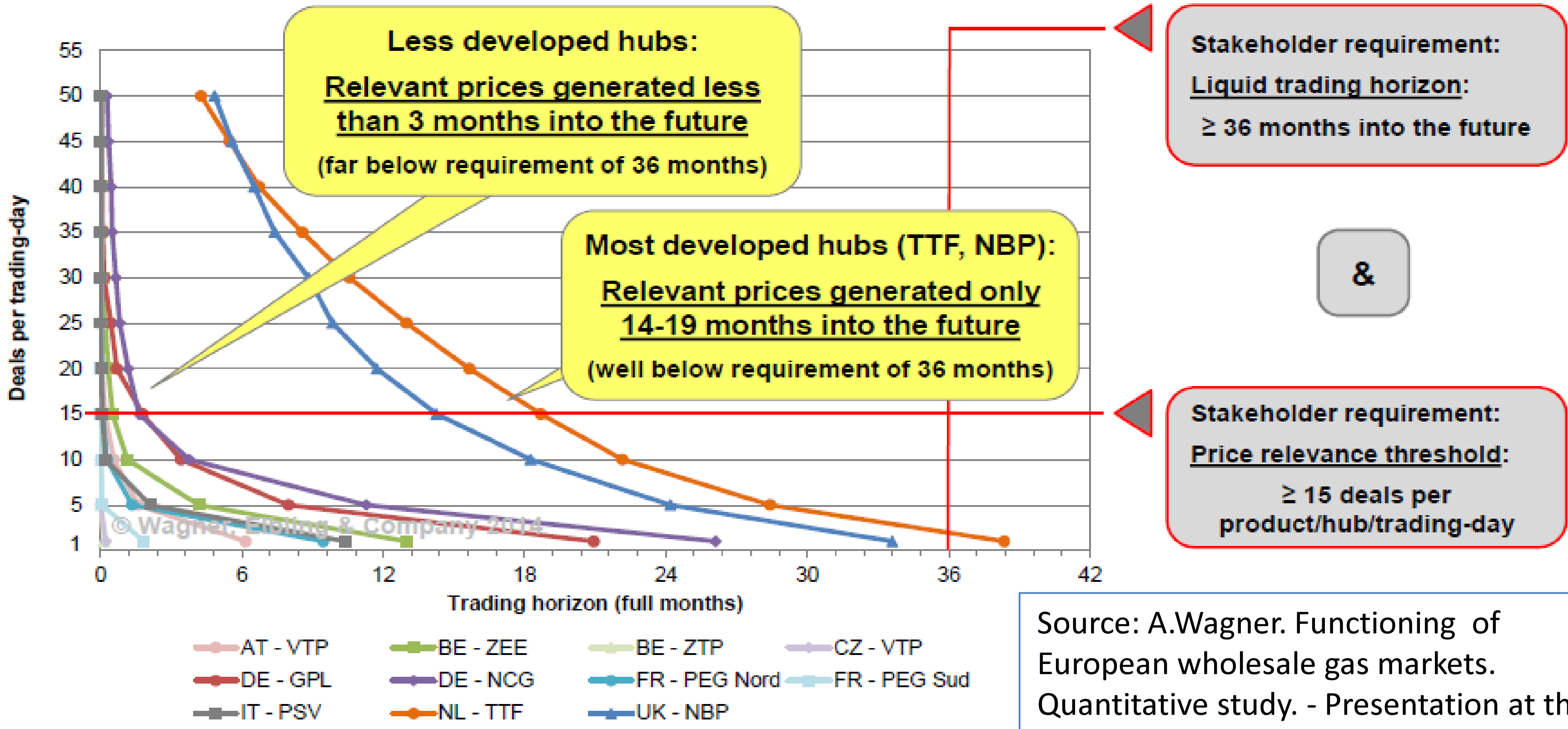
Based on: M.Graf. Developing interactive models in Austria for regional markets integration. – 7th European Gas Conference, Vienna, 29.01.2014

To which extent today's EU gas hubs correspond to criteria of wholesale trade liquidity acc. to market participants view (results of the poll) (1)

Wagner, Elbling & Company
Management Advisors

Price discovery: Deal count per day vs. trading horizon

2013



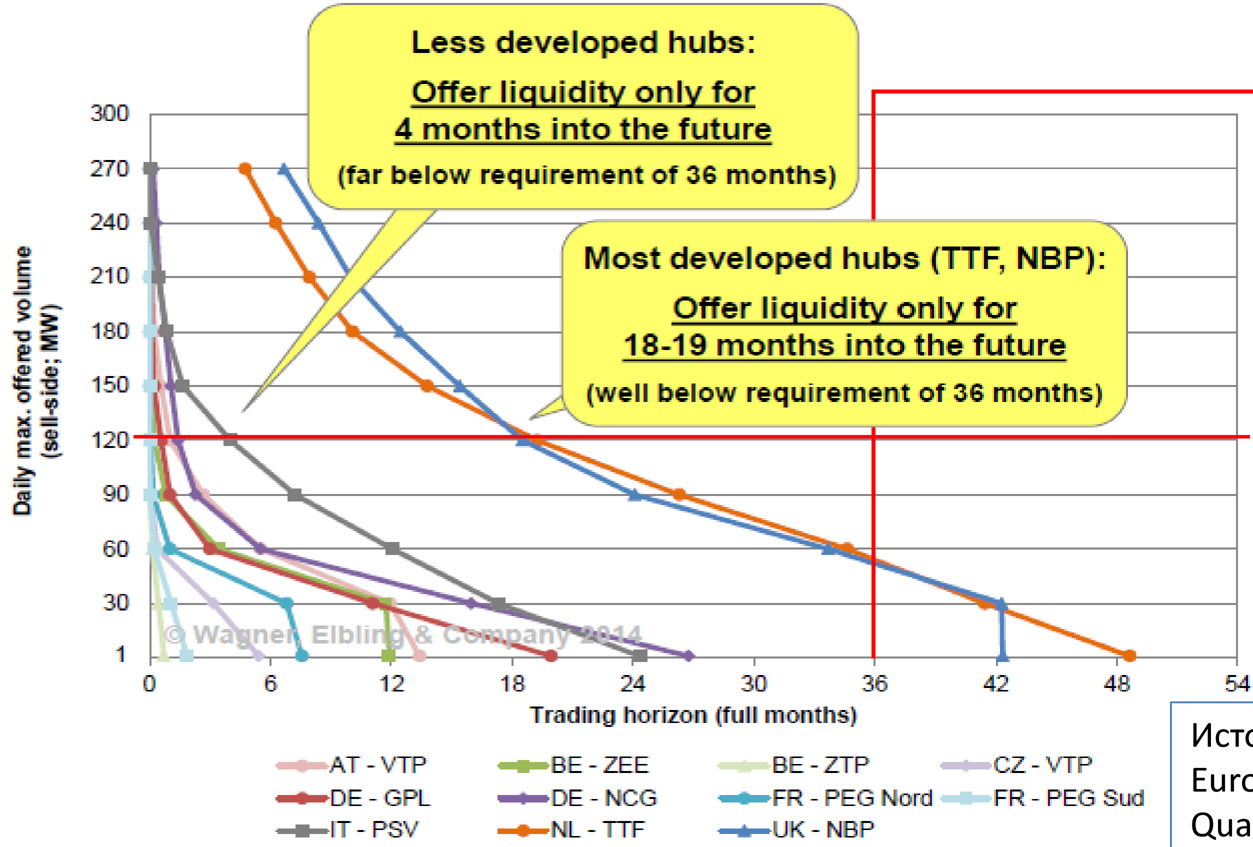
Source: A.Wagner. Functioning of European wholesale gas markets. Quantitative study. - Presentation at the 3rd ACER Workshop on Gas Target Model review and update, Brussels, 15.05.2014

Source and assumptions: See upcoming study by Wagner, Elbling & Company on gas market functioning.

To which extent today's EU gas hubs correspond to criteria of wholesale trade liquidity acc. to market participants view (results of the poll) (2)

Wagner, Elbling & Company
Management Advisors

Availability of gas:
Sell-side (offered) volumes vs. trading horizon
2013



Stakeholder requirement:
Liquid trading horizon:
≥ 36 months into the future

&

Stakeholder requirement:
Liquidity threshold:
≥ 120 MW gas offered per product/hub/trading-day

Источник: A.Wagner. Functioning of European wholesale gas markets. Quantitative study. - Presentation at the 3rd ACER Workshop on Gas Target Model review and update, Brussels, 15.05.2014

A.Konoplyanik, London, 25.06.2014

Source and assumptions: See upcoming study by Wagner, Elbling & Company on gas market functioning.

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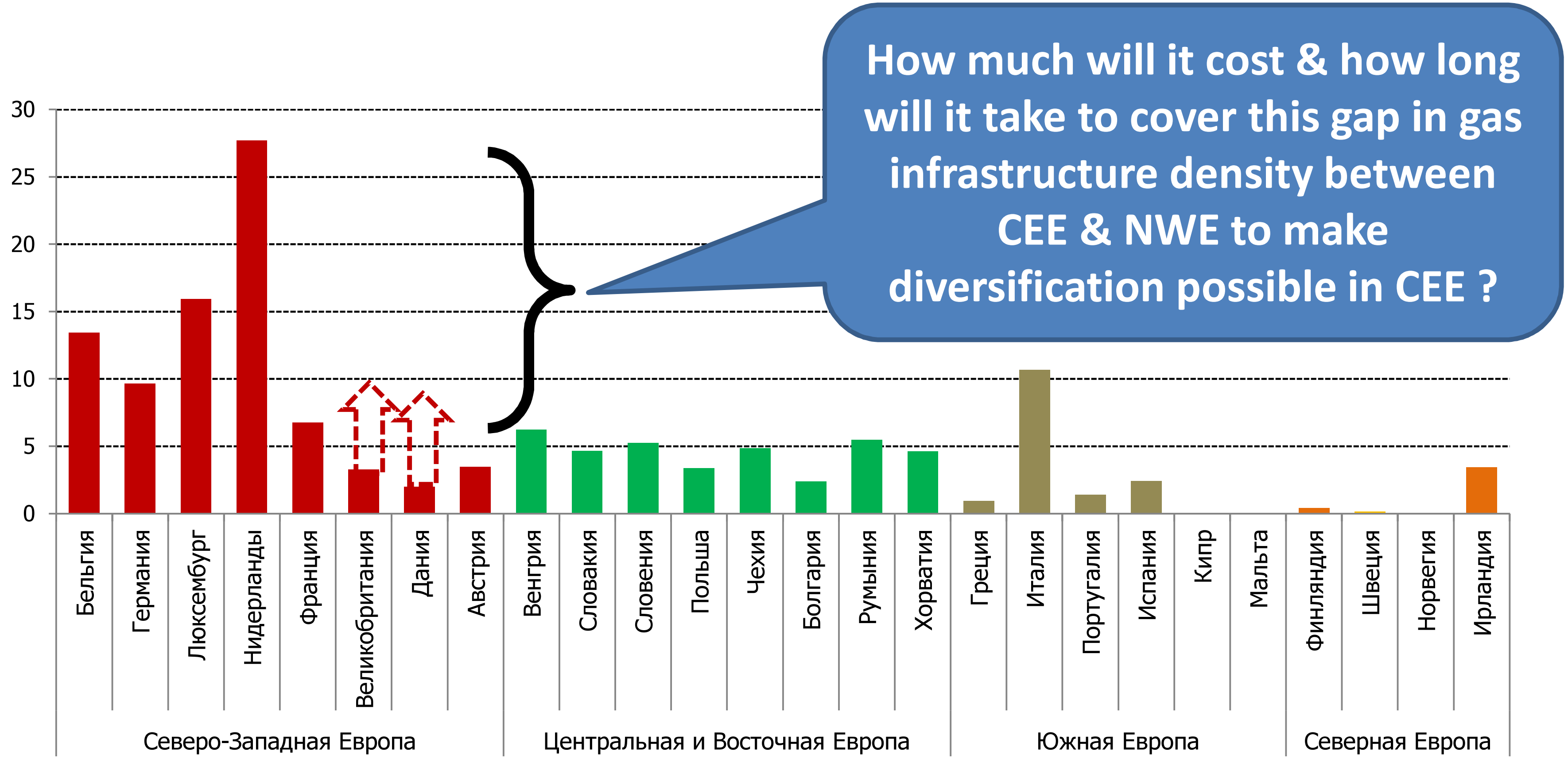
Gas transportation infrastructure density in the EU (*trunk* pipelines only, km/100 km2),

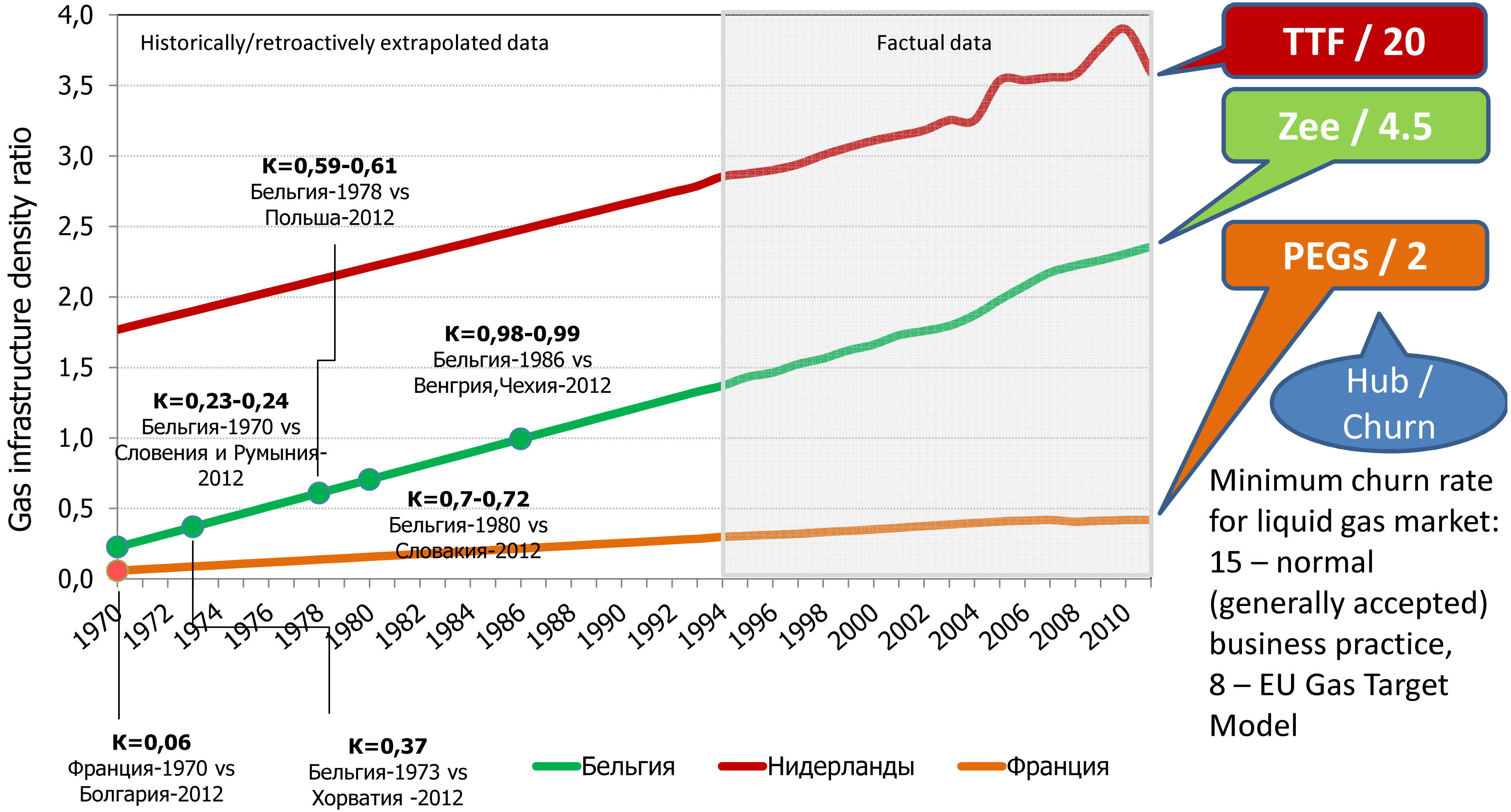
(preliminary results – the comparative order does matter)



Figures for UK & Denmark should be much higher if offshore pipelines are added (to be done at the next step of analysis)

Calculations made by E.Orlova, PHD postgraduate student, Chair "International Oil & Gas Business", Russian State Gubkin Oil & Gas University, based on the data for 2011/2012, kindly provided by ENTSOG

Gas infrastructure* density (km/100 km2), NWE (Belgium, Netherlands, France) vs CEE: time gap measured by decades

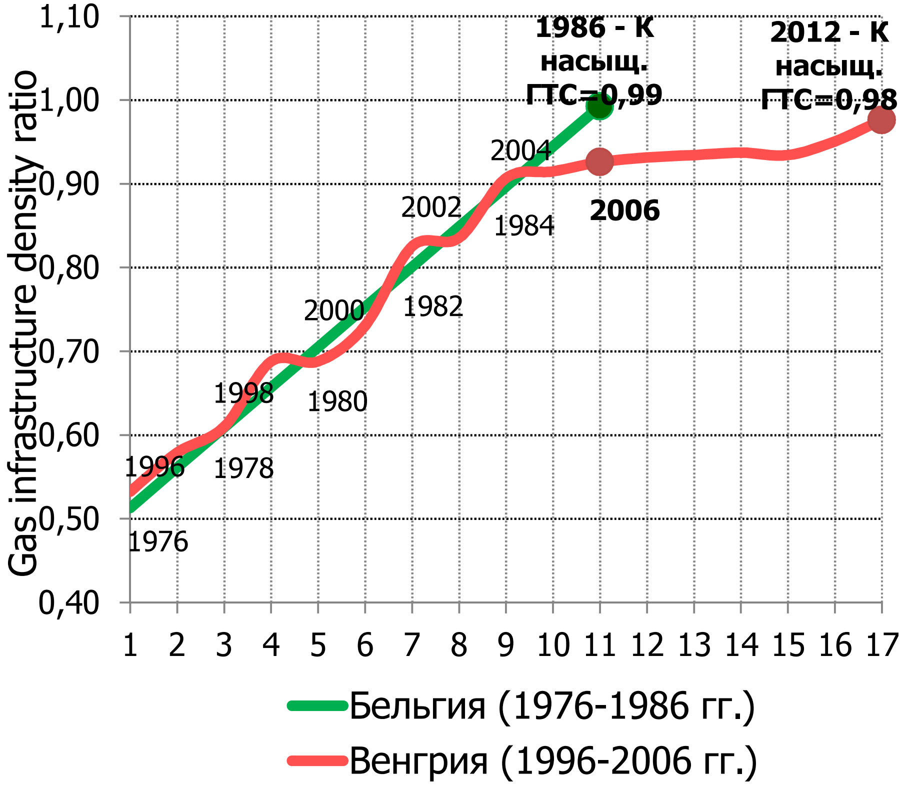


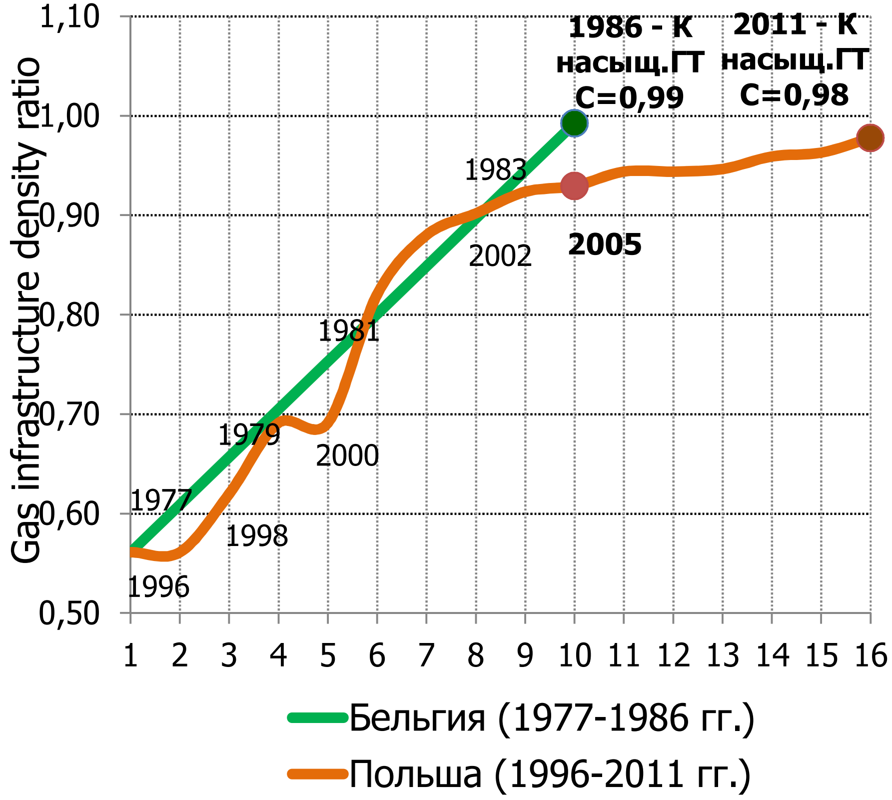
* Trunk lines & transmission lines ;

Calculations made by E.Orlova, PHD postgraduate student, Chair "International Oil & Gas Business", Russian State Gubkin Oil & Gas University, based on the data for 2011/2012 kindly provided by ENTSOG;

Churn rates (July'2013): ICIS Heren European Gas Hub Report October 2013

Gas infrastructure density (km/100 km2): NWE (Belgium) vs CEE (Hungary, Poland)





Stagnation of infrastructure density ratio in CEE* after joining the EU? Is it really so? Why so???

*Preliminary results;

Calculations made by E.Orlova, PHD postgraduate student, Chair “International Oil & Gas Business”, Russian State Gubkin Oil & Gas University, based on the data for 2011/2012, kindly provided by ENTSOG

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New risks, new challenges, new responds, "no return" points: Ukraine (1)

- **UA: Euro-integration** vs. **CIS-integration** => this "no return" point was passed in 2004 => Euro-integration choice de facto in place ***in energy sector*** since then =>
- Since Spring'2004 => UA demand to unbundle supply & transit contracts & to move to "European formulas" in RUS-UA gas trade:
  - UA expectations: to receive higher transit rates
  - UA reality: has received higher import prices
- Since 2006/2009: UA disagreement on import pricing formula & price level resulted from the move to "European formulas"=> transit crises Jan'2006 & Jan'2009 resulted, inter alia, from disagreements with "European formulas" in supply contracts
- Perception of further RUS supply risks => search for multiple supplies => ***to escape monopoly of Russia as one single supplier*** =>

New risks, new challenges, new responds, "no return" points: Ukraine (2)

- UA economic & legal motivation to diminish dependence on RUS gas supplies:
  - **Economic:** High import price & RUS/Gazprom unwillingness to soften pricing policy (no price review results achieved yet – though price concessions) stipulated UA search for:
    - **alternatives to RUS gas (*supply side*):** domestic production – onshore & offshore, shale gas, LNG import, reverse flows & UGS, and
    - **to deviate from (RUS) gas (*demand side*):** switch gas to coal, nuclear, energy saving & improving efficiency
  - **Legal:** Euro-integration policy, membership in Energy Community Treaty => implementation of EU energy acquis (Second => Third EU Energy Package) in UA => ***legal obligations*** for alternative supplies, interconnectors, reverse flows, unbundling Naftogas Ukraine, MTPA => ***BUT:*** *new & incremental risks for transit via Ukraine (both for RF & EU)*
- **"No return" point is almost reached? If not yet (?)** – is it just a matter of time since trend "away from Russian gas" is not to be changed in UA?

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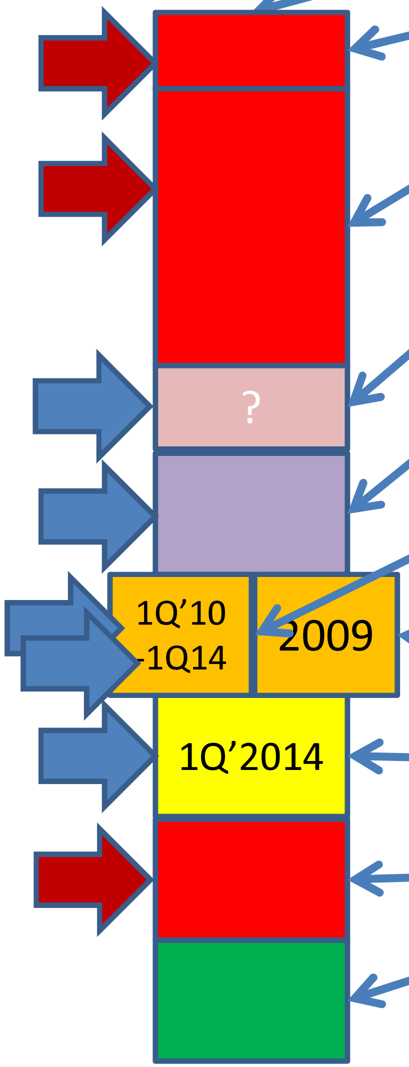
Russia-Ukraine gas supply contract: contractual & factual payments vs. non-payments & subsidies

“European formula”-based market price (net-back replacement value, petroleum-product indexation)



Other penalties (non-timely payments, etc.)

Lost revenue due to off-takes below contracted volumes (f.i.: TOP 80% = 41.6 BCM vs 12.9 BCM/2013)

Other discounts (on top of non-penalties for lower off-takes, for late payments, etc. ?

Discount on gas supplied to chemical industry enterprises

Discount by “Kharkov agreement” (2Q’2010-1Q’2014), 100 USD/mcm by interstate budgetary clearing (prolongation of post-2017 Sevastopol NB lease for today’s gas purchases), cancelled after Crimea reunited with Russia

Discount 20% of P0 (90USD/mcm) for 2009, written in contract

Discount (Dec’2013) for add.100 USD/mcm, conditioned by regular payments, cancelled since 2Q’2014 due to non-payments in 1Q’2014

Non-payment for delivered gas at factual price at contract date (7th next M)

Payment for delivered gas at factual price (contractual price with all discounts)

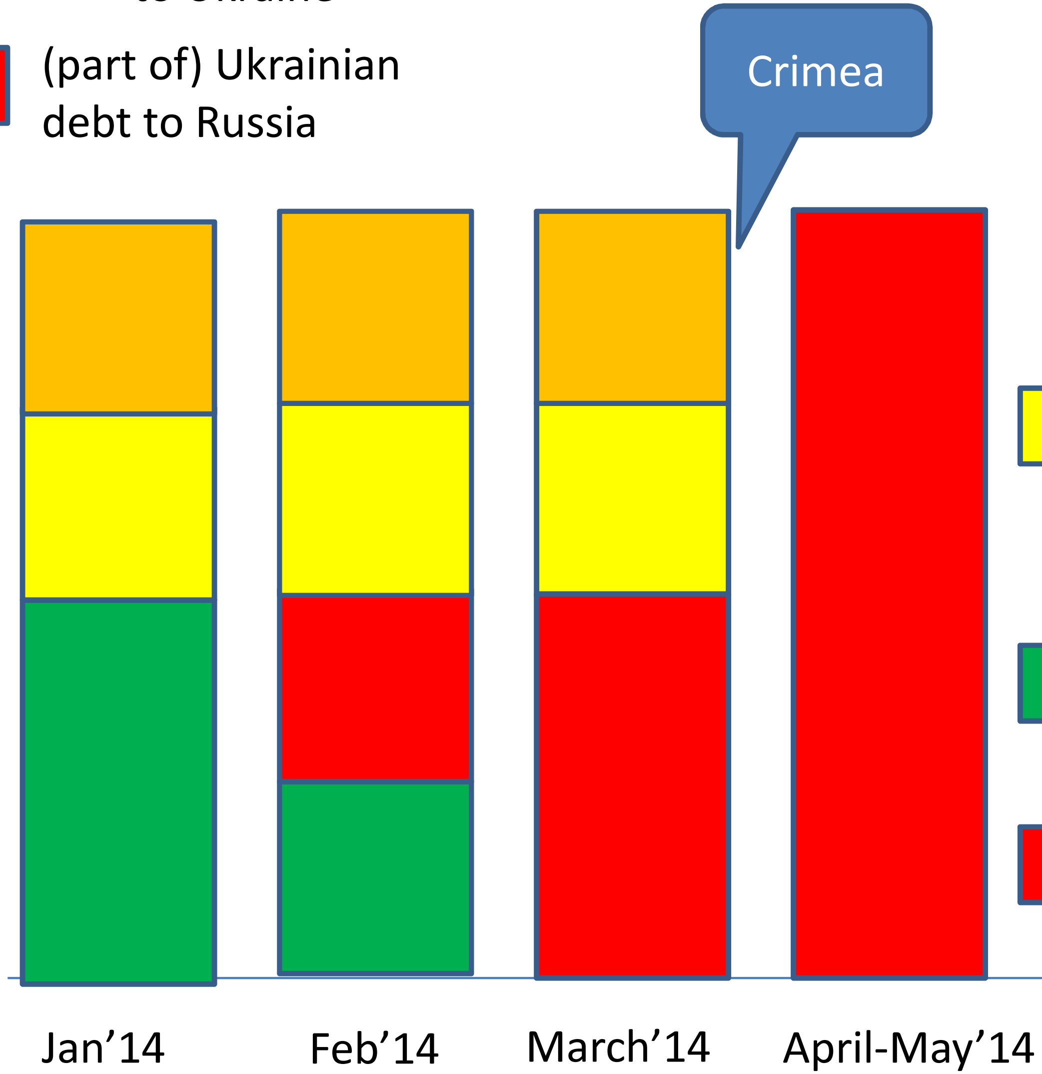
Non-payments, penalties, debts

Direct subsidies, debt converted to subsidies

Structure of Russian gas price to Ukraine 2014

Unilateral Russian subsidies to Ukraine

(part of) Ukrainian debt to Russia



April'10 discount (100 USD/mcm, not more 30% contract price/RUS export customs duty, lasted till April'14 (Kharkov agreement: gas price discount balanced by Sevastopol Naval Base advanced lease payment post-2017, RF-UA inter-budgetary clearing)

Dec'13 discount (extra 100 USD/mcm) conditioned by timely payments (lasted Jan-March'14 only)

Timely payment for physically delivered gas (prior to 7th next month)

Non-payment for physically delivered gas (post 7th next month)

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New risks, new challenges, new responds, “no return” points: Russia (1)

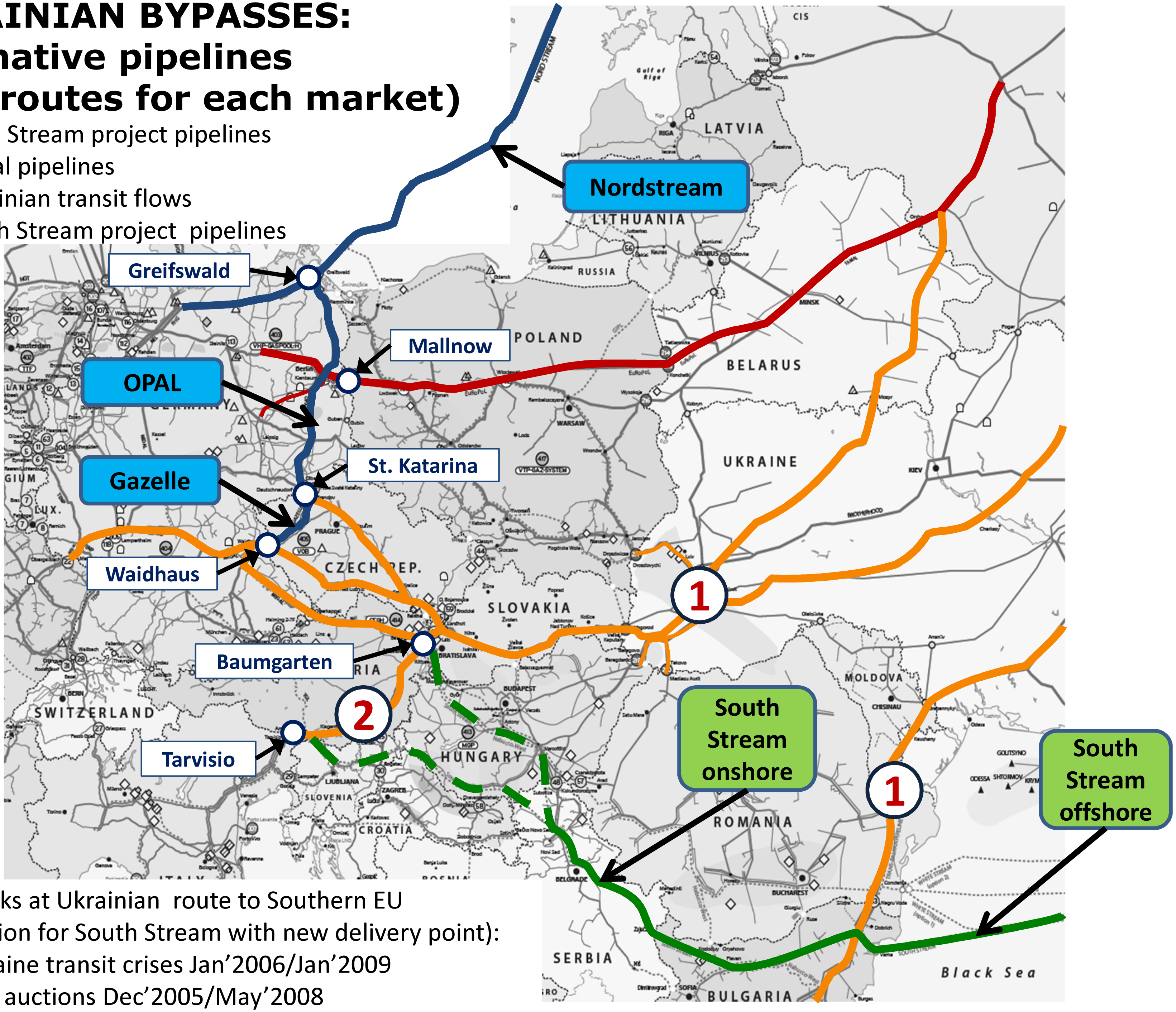
- Supply risks:
  - non-fulfillment of contractual obligations by UA (lower offtakes) = inter alia, negative upstream investment consequences for Russia
- Transit risks (within UA territory, post-2006/2009) – both materialized & perceived risks,
  - ***Materialized:*** not sanctioned off-take of gas in transit (at least 2 episodes – Jan’2006 & Jan’2009) => but:
    - it is RUS supplier who is fully responsible for gas delivery to EU delivery point (non-dependent e.g. transit problems) =>
    - risk of legal claims of EU customer against RUS supplier in case of non-delivery (supply contract) even if violation of transit contract =>
    - EU customers have not raised such claims in Jan’2006 / Jan’2009 cases, but what about the future if repeated?
  - ***Perceived***: to materialize in near future – result of UA accession to Energy Community Treaty (see above):
    - MTPA vs transit flows (risk of contractual mismatch)
    - Forthcoming unbundling of Naftogas UA => risk of factual unilateral change (disappearance) of one Contracting Party to 10Y-long transit contract
    - Etc.

New risks, new challenges, new responds, “no return” points: Russia (2)

- Change of the whole transit economics for supplier if precedent-based “risk” element included => responds:
  - ***to escape monopoly of Ukraine as one dominant transit route*** => to create *alternative* & *non-transit* routes => their economics compared to existing *transit* routes improved by increasing value of transit risks (see next chapter) =>
- Dilemma:
  - **Two routes (incl. transit)** to each major markets (“least radical” scenario):
    - (a) UA GTS + [Nord Stream/OPAL/Gazelle] => to North-West Europe,
    - (b) UA GTS + [South Stream (offshore + onshore)] => to Southern Europe,
    - Supply volumes to be distributed within each pair of routes, or
  - **One direct new (non transit) route** to each major market (“most radical” scenario):
    - (a) Nord Stream/OPAL/Gazelle => to North-West Europe,
    - (b) South Stream (offshore + onshore) => to Southern Europe
    - All transit volumes switched to new routes? => UA GTS dried up?
- **Different “no return” points under different scenarios: some are passed, other – not yet** => no clear final picture yet…

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

- 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

A.Konoplyanik, London, 25.06.2014

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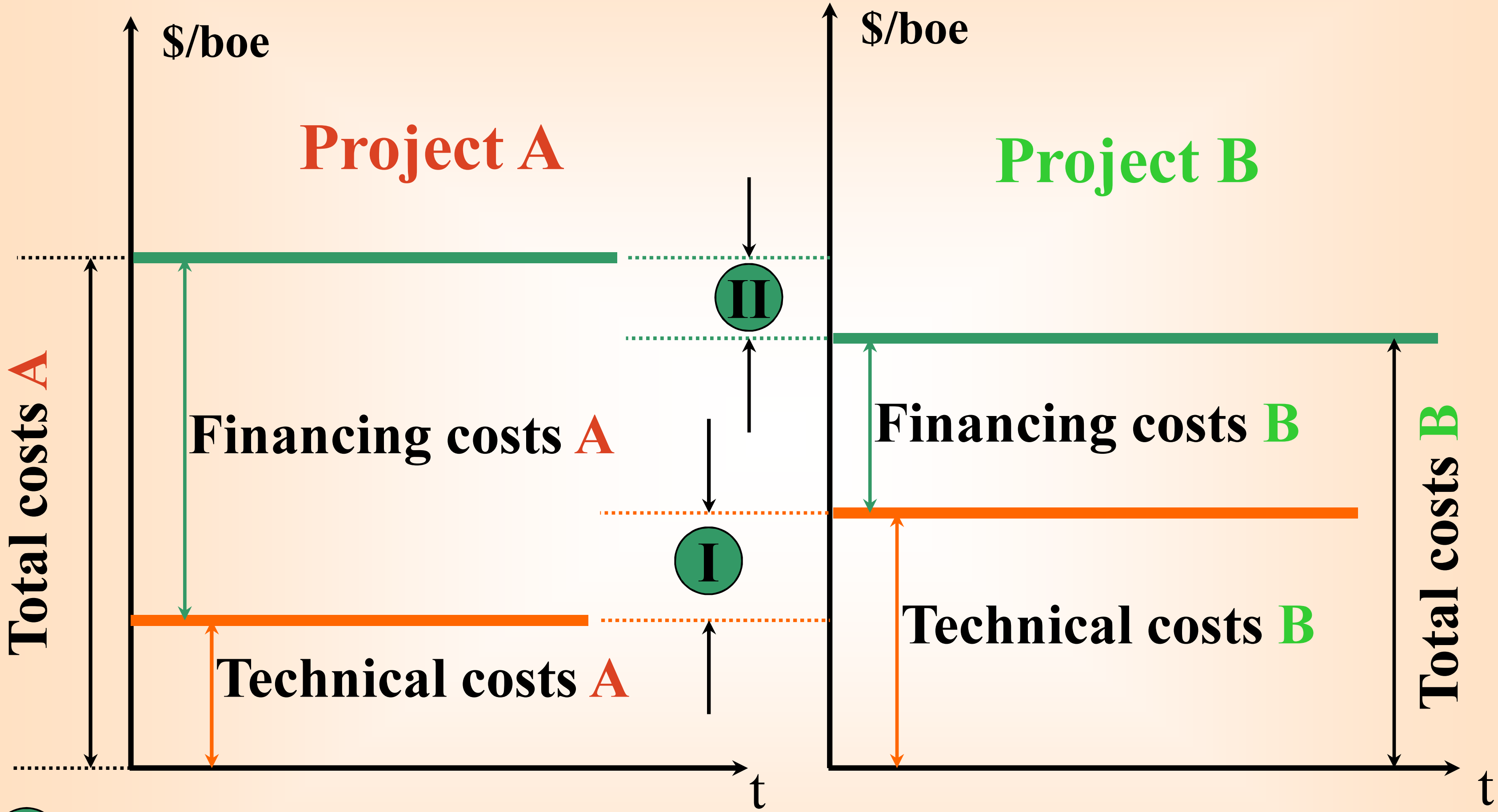
In project financing world both technical & financing costs does matter…



I "Natural advantage" of project A over project B (A < B)

II Final competitive *dis*advantage of project A over project B (A > B)

Financing costs (LIBOR+) = f [R(country) X R(company) X R(project)]

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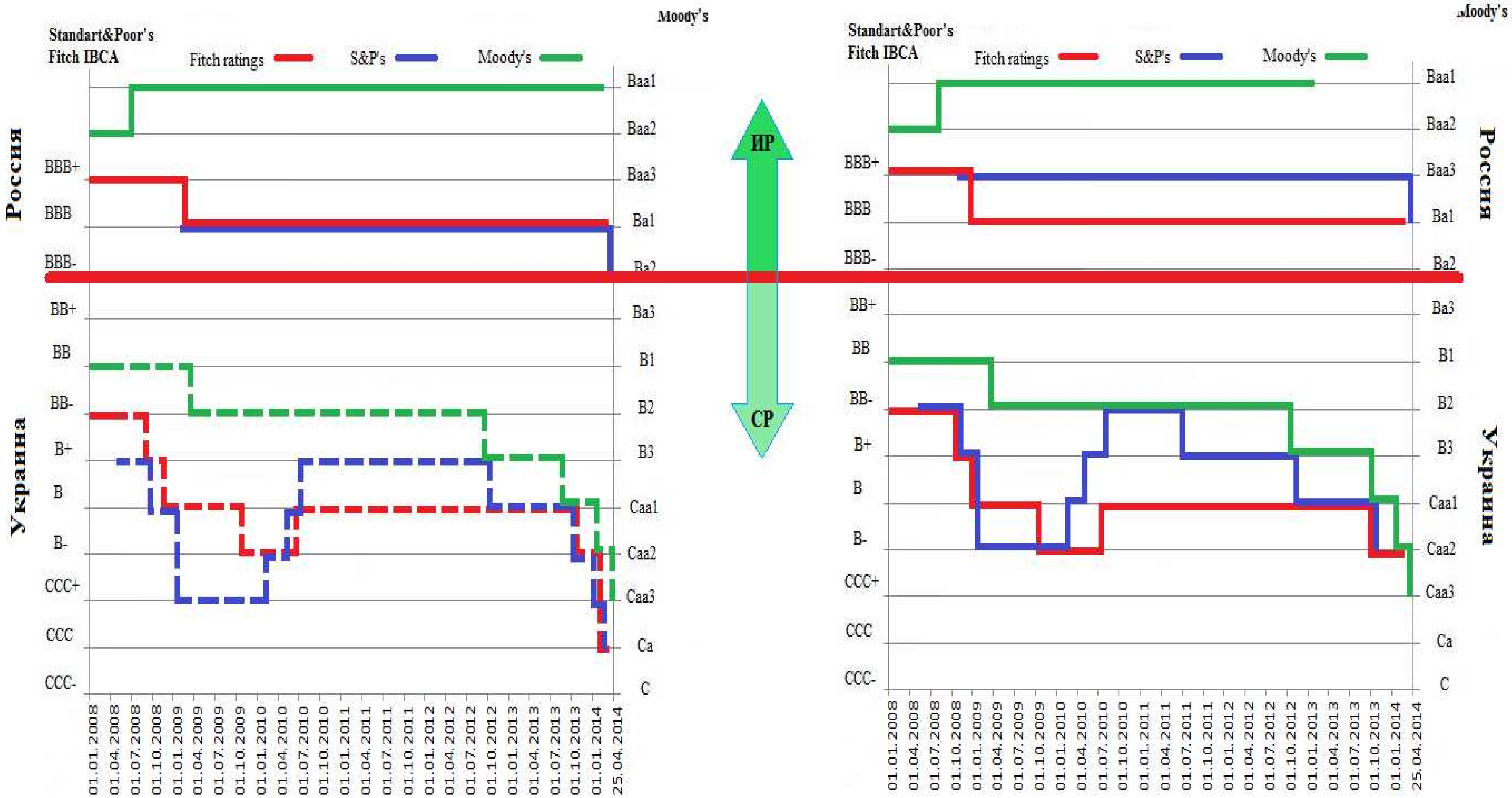
Russia & Ukraine at the scale of major international rating agencies
(long-term investment credit ratings in foreign currency)

	Moody's	Standard & Poor's	Fitch IBCA	Short description	LIBOR+
Investment grades	Aaa	AAA	AAA	Maximum safety level	Up to 4,25%
	Aa1	AA+	AA+	High level of reliability	
	Aa2	AA	AA		
	Aa3	AA-	AA-		
	A1	A+	A+	Reliability above medium	
	A2	A	A		
	A3	A-	A-		
	Baa1 (RF: since 08.10.08)	BBB+	BBB+	Reliability below medium	Up to 6%
	Baa2	BBB (RF: since 08.12.08)	BBB (RF: since 04.02.09; negative outlook 21.03.14)		
	Baa3	BBB-	BBB-		
Speculative grades	Ba1	BB+	BB+	Non-investment, speculative grade	Up to 14%
	Ba2	BB	BB		
	Ba3	BB-	BB-		
	B1	B+	B+	Highly speculative grade	Up to 19%
	B2	B	B		
	B3	B-	B-		
	Caa1	CCC+	--	High risk, emitter is in difficult situation	
	Caa2 (UA: 31.01.14)	CCC (UA, 21.02.14)	CCC (UA, 07/28.02.14)		
	Caa3	CCC-	--		
	Ca	CC	--	Highest speculative rating, default possible	
	C	C	--		
	--	--	DDD	Default	Up to 204%
	--	SD	DD		
	--	D	D		
	--				

LIBOR 1Y
19.03.2014:
USD=0.56,
GBP=0.90
14.03.2014:
EUR=0.52

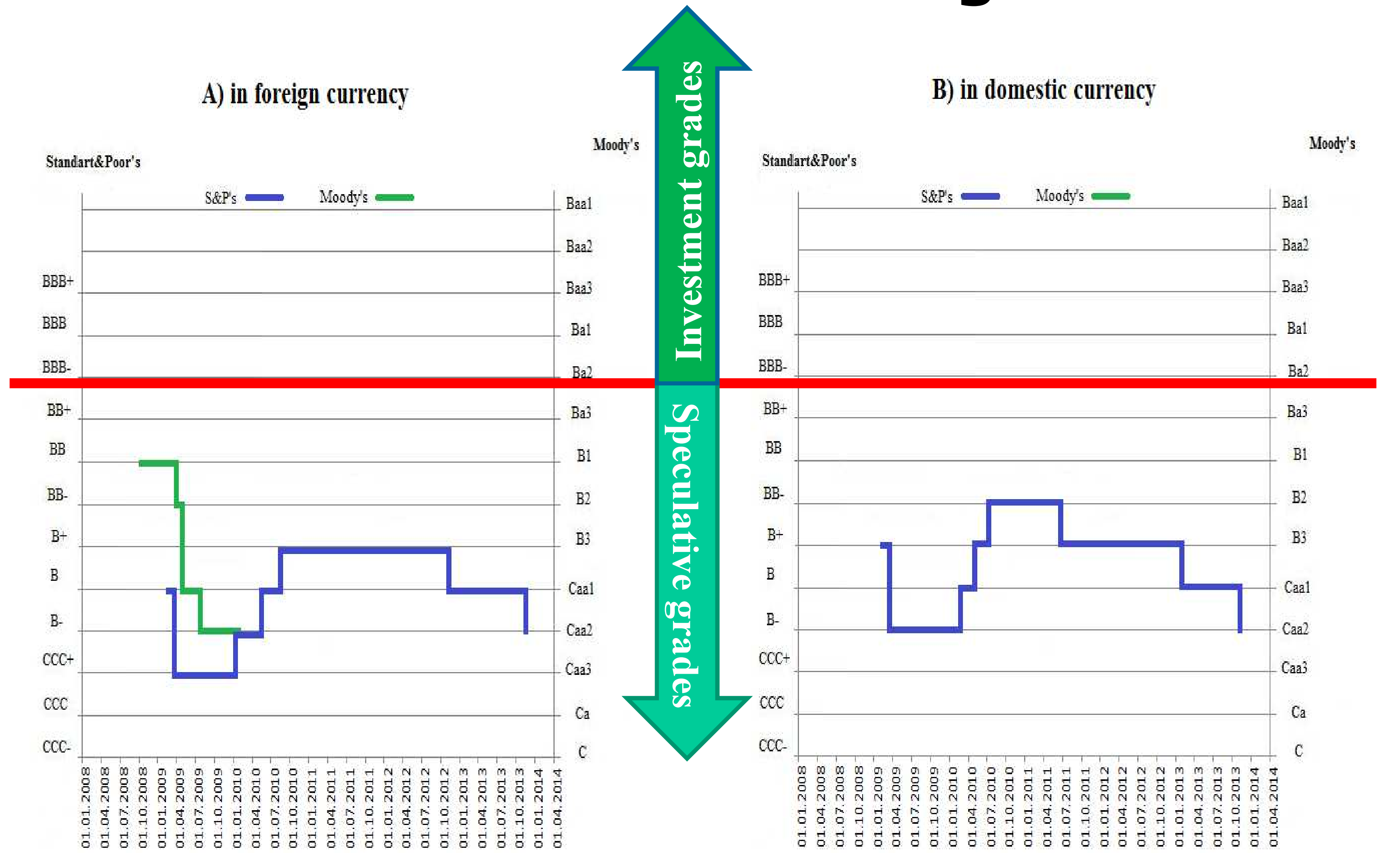
Russia & Ukraine: evolution of long-term credit ratings

(A) In foreign currency **(B) In local currency**



Calculations made by M.Larionova, Russian Gubkin State Oil & Gas University, Chair “International Oil & Gas Business”, Masters programme 2013-2015, based on credit rating agency’s data.

NJSC Naftogaz of Ukraine: evolution of long-term credit rating

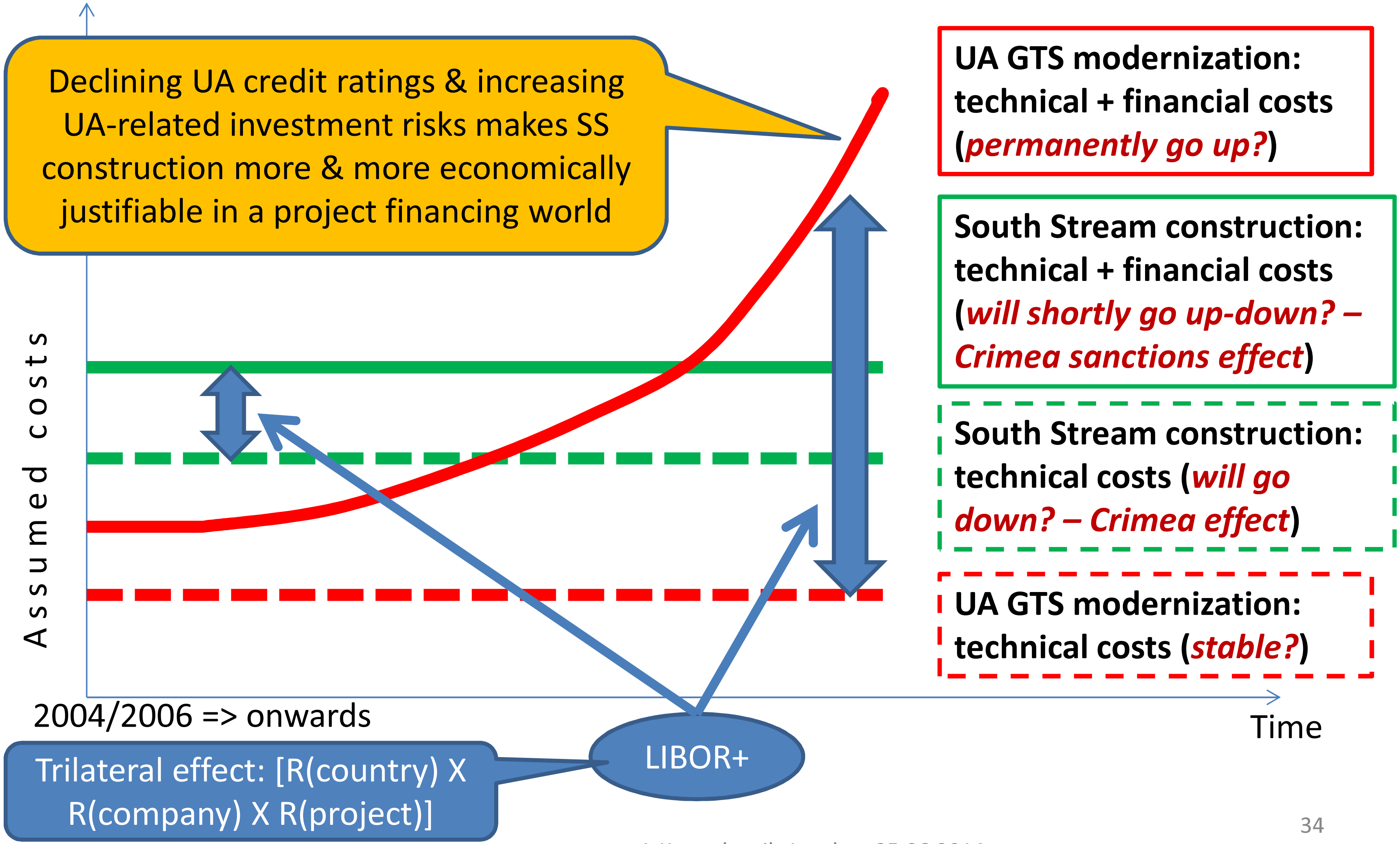


Calculations made by M.Larionova, Russian Gubkin State Oil & Gas University, Chair "International Oil & Gas Business", Masters programme 2013-2015, based on credit rating agency's data.

Ukraine: “transit interruption probability” index

Calculations made by M.Larionova, Russian Gubkin State Oil & Gas University, Chair “International Oil & Gas Business”, Master’s programme 2013-2015, based on the methodology jointly developed with the author

‘South Stream’ construction vs UA GTS modernization: illustrative example of ‘project financing’ cost comparison, if incl. comparative risks & credit ratings within time frame



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Options for gaining EU regulatory approval for major complicated infrastructure projects (like South Stream, Nordstream, OPAL, Nabucco, TAP & similar projects)

- **EXISTING (?)/PAST:** Bilateral IGAs with individual EU MSs => EU: "no go" under Third Package
- **EXISTING:** Exemption under Third Gas Directive Art. 36 = a mainstream in EU (27 big EU projects since 2003) => "a long & winding road"
- **PROPOSED NEW-1:** RF-EU Bilateral Agreement on PMI (Feb'2011) => EU: "export of acquis" as factual policy => "a long & winding road"
- **PROPOSED NEW-2:** Regulated new capacity development under rules of procedure based on TGD Art.13.2 (being developed with active participation of Russia/Gazprom Group experts) => to be in full compliance with TEP rules, no derogations needed => challenges:
  - ENTSOG Incremental Proposal (CAM NC Amendment) based on ACER Guidance: rules for New & Incremental capacities => Coordinated Open Season procedure for cross-border Mega-projects: the idea is incorporated, but not effectively yet for project financing => work to be continued

Thank you for your attention!

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