

Russia and the EU energy relations: Where is the misunderstanding? Whether mutually beneficial solutions are possible? What might they be?

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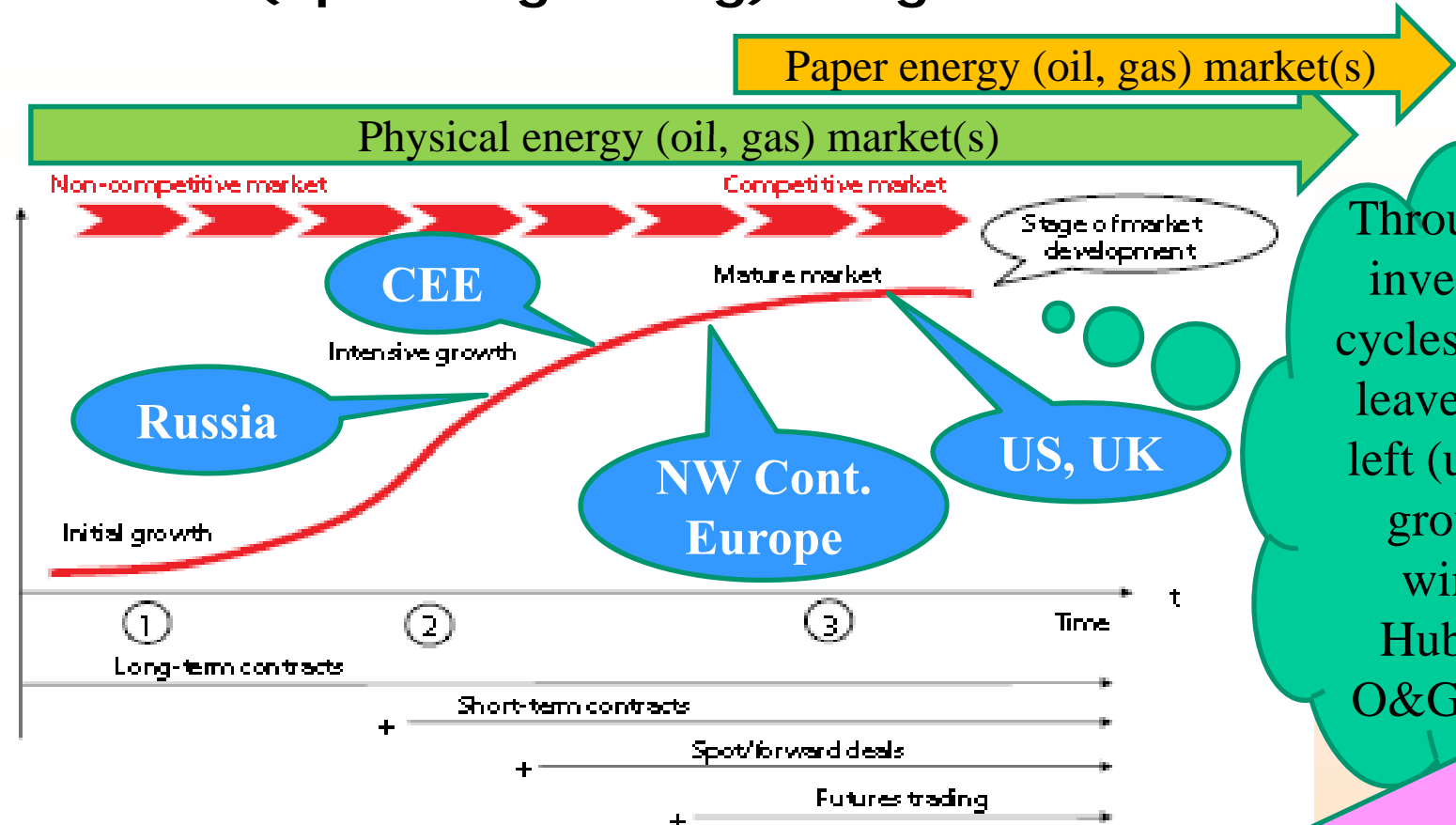
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- 5) What might be optimal gas market structure (contracts & pricing) in Continental Europe under 3rd EU Energy Package?
- 6) *"Bonus track" (if time allows):*
3rd EU Energy Package opens window of opportunities for Energy Charter Treaty revival for Russia

Evolution of oil & gas markets: correlation of development stages, contractual structures, pricing mechanisms on the left (upward-growing) wing of Hubbert's curve



Through two investment cycles we will leave within left (upward-growing) wing of Hubbert's O&G curves

No single & universal gas market model for every region worldwide ("Putting a price on Energy", Energy Charter Secretariat, Brussels, 2007)

- ① Pricing mechanism's development stages:
 - cost-plus
 - escalation formulas (based on alternative fuels prices)
 - based on futures prices (commodities markets)

Source: based on Andrei Konoplyanik

Market stages, pricing mechanisms & contractual structures: coexistence not substitution (increasing multiplicity of choices for market participants)

Energy markets development stage	Physical energy markets	Paper energy markets
Initial growth => <i>non-competitive market of physical energy, no paper energy market possible</i>	Cost-plus (LTC)	-
Intensive growth => <i>competitive market of physical energy, no paper energy market available</i>	+ Net-back replacement value (LTC)	-
Mature market => <i>competitive markets of both physical & paper energy</i>	+ Spot (OTC)	+ Futures-options (exchange & OTC)

Three major pricing mechanisms in international energy

- **Cost-plus (net-forward):** price linked to cost of energy production & delivery/transportation (incl. ROR) to the consumer/delivery point => utilized at non-competitive markets of physical energy => low benchmark price level acceptable for producer (producer's "fair price") => **lower investment price**
- **(Net-back) replacement value:** price linked (with discount) to price of competing energies at the end-user => utilized at competitive markets of physical energy => upper benchmark price level acceptable for consumer (consumer's "fair price") => **upper investment price**
- **Spot/exchange:** equilibrium supply/demand price at competitive markets of physical (spot/forward) and/or paper (financial derivatives linked to futures contracts) energy => trader's/speculator's "fair price" => **trade price**

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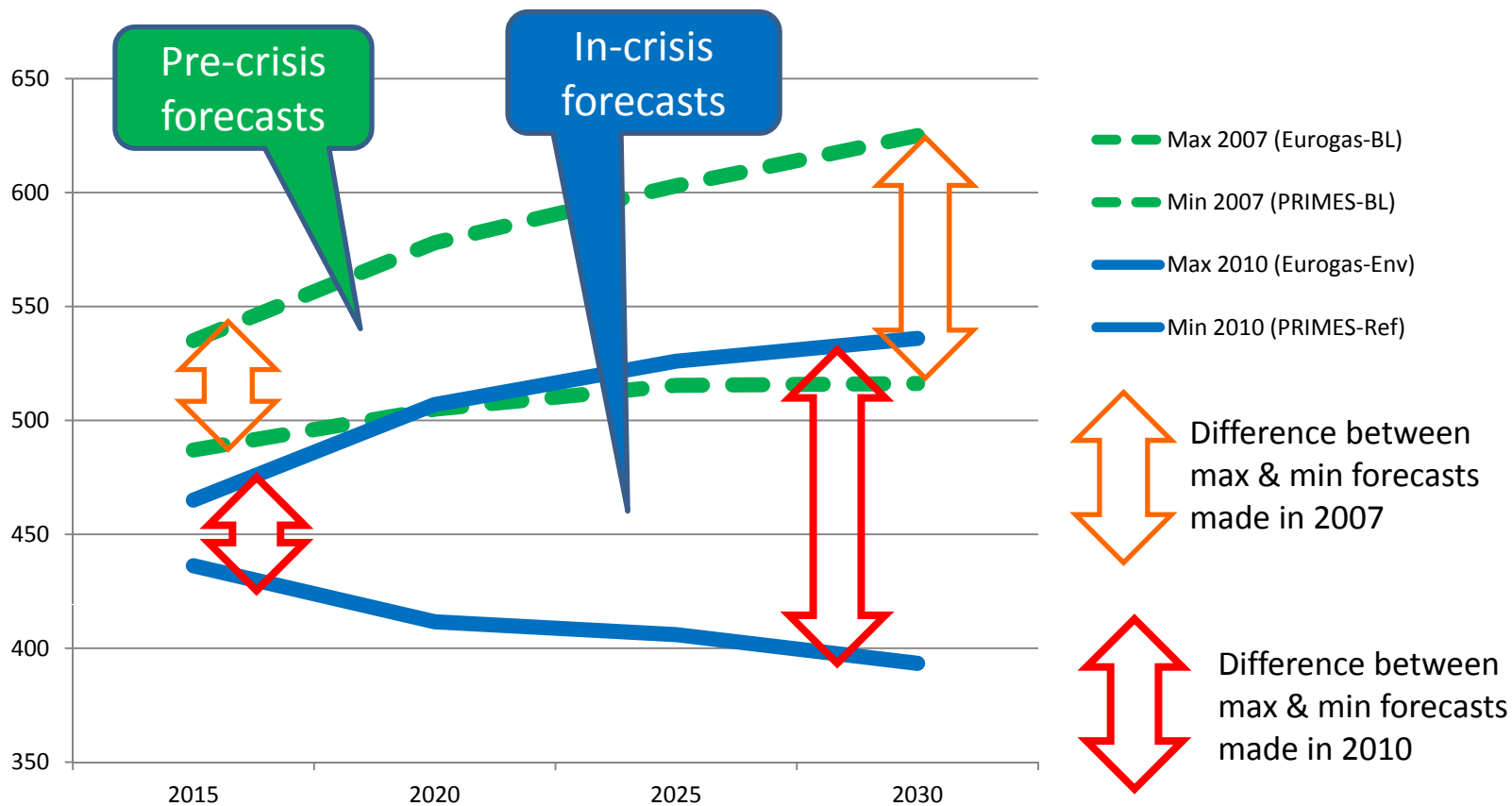
European gas market: new post-2009 realities, risks & challenges for Russian gas

- **Demand-side** (shrinking competitive niche for gas)
- **Supply-side** (increasing supply competition within shrinking niche for gas)
- **Institutional** (increasing investment risks within shrinking niche for gas)
- **Political** (away from dominant Russian gas supplies where possible)

European gas market: new post-2009 realities, risks & challenges for Russian gas (1)

- **Demand-side** (shrinking competitive niche for gas):
 - Global economic recession, incl. in Europe => slowdown demand in mature market
 - Decarbonisation of EU energy prospects/scenarios => RES vs fossil fuels, but why gas is first victim among fossil fuels?
 - Gas vs non-gas competition (see reserve slides):
 - RES: subsidized RES vs expensive PP-indexed LTGEC gas
 - coal: “domino effect-2” of US shale gas revolution => cheap imported US coal vs. expensive PP-indexed LTGEC gas

Tunnels of EU gas demand forecasts: corridor of uncertainties increases, mean line lowers, bottom-line becomes negative...



Source: compiled by V.Protasov on the basis of the database of the study “Energy Forecasts and Scenarios, 2009-2010 Research, Final Report”, Russia-EU Energy Dialogue, Thematic Group on Energy Strategies, Forecasts and Scenarios, Energy Economics Subgroup, 2011 I (available at: www.fief.ru).

What messages energy forecasts sponsored by the Commission send to gas business (is it practical to forecast future demand volumes below already contracted volumes?)

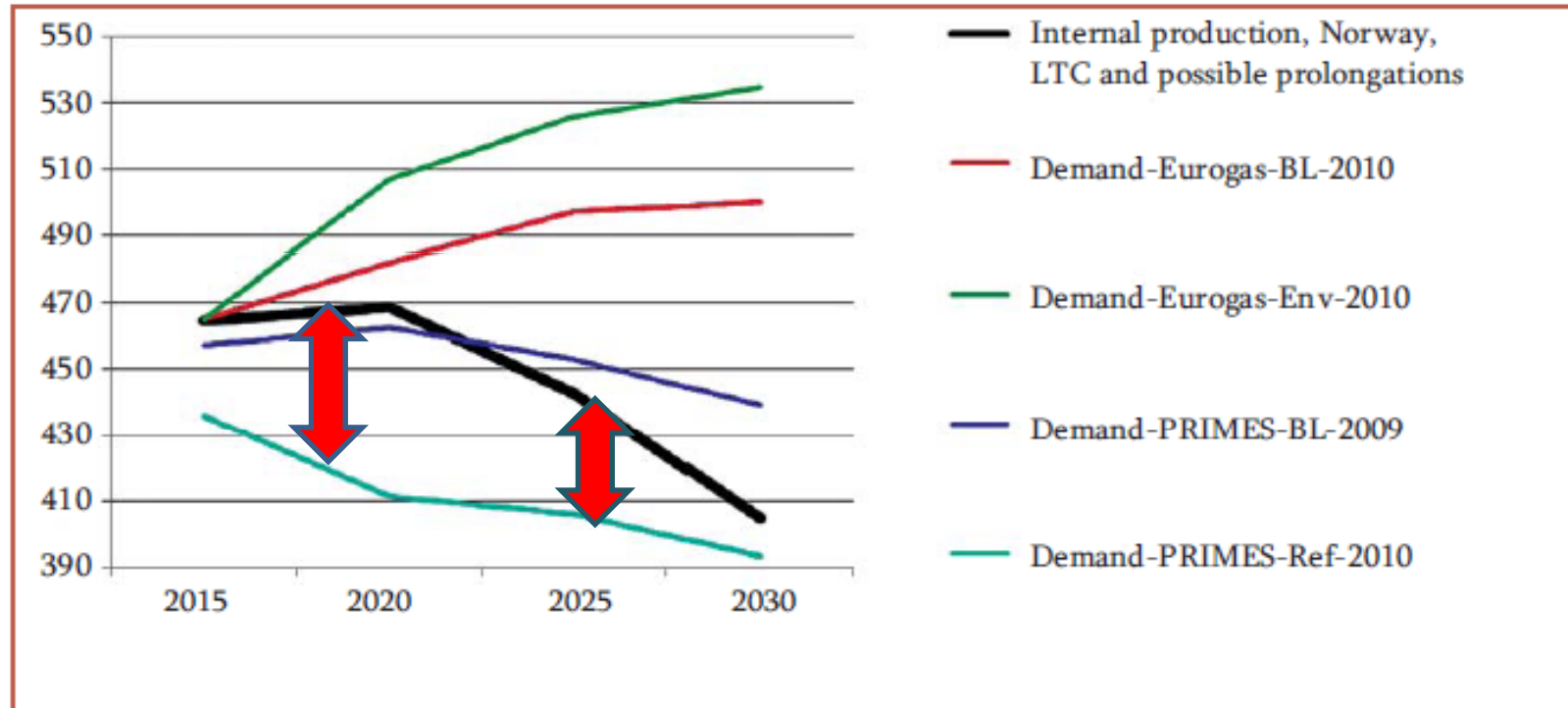


Figure 2. Potential of a new gas supply in EU-27 in 2015-2030 according to forecasts

Sources: Eurogas, 2010; EET-2030 update 2009

Note: LTC – long-term contracts



PRIMES: Gap between production + contracts and demand volumes

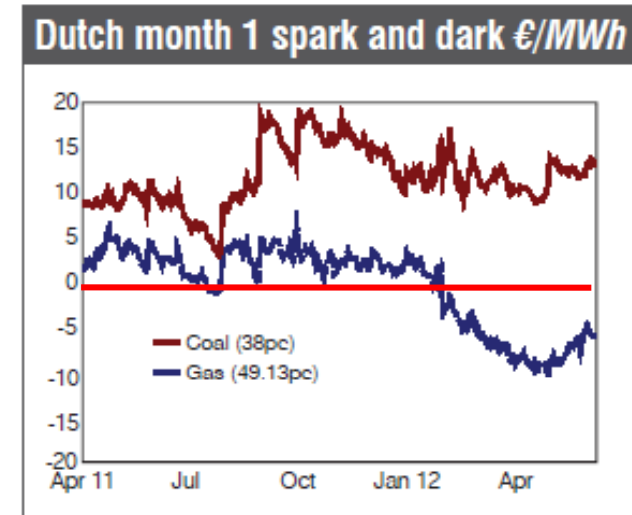
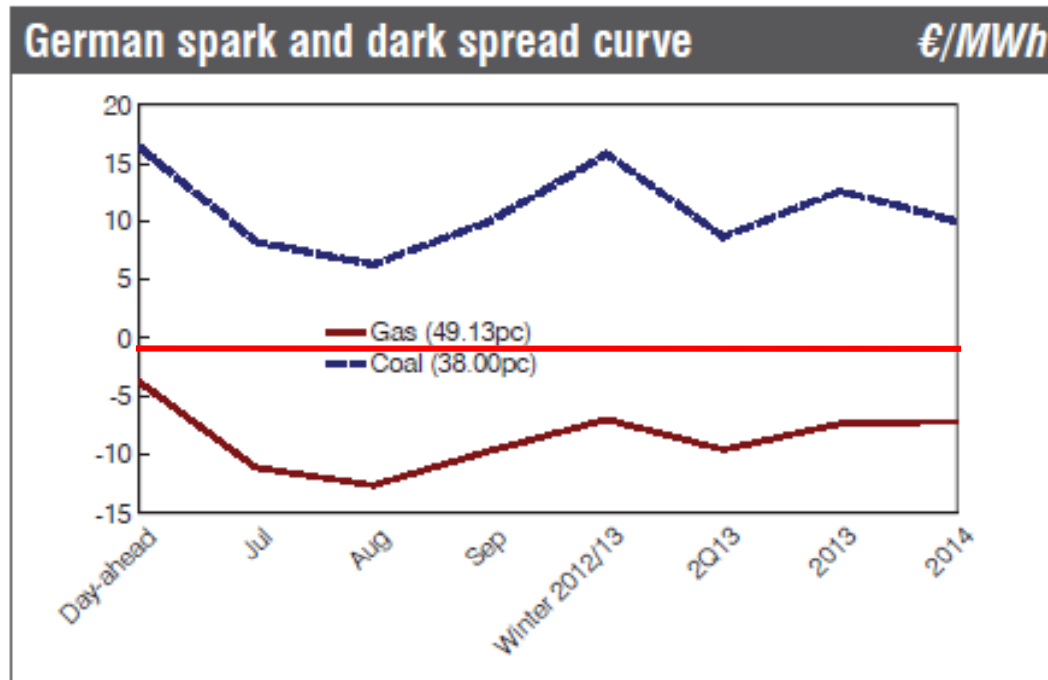
Source: Russia-EU Energy Dialogue. Thematic Group on Energy Strategies, Forecasts and Scenarios. Energy Economics Subgroup. "Energy Forecasts and Scenarios, 2009-2010 Research, Final Report", 2011, p.28

European gas market: new post-2009 realities, risks & challenges for Russian gas (2)

- **Supply-side** (increasing supply competition within shrinking niche for gas):
 - Demand slowdown, but EU-oriented supply projects put on stream must generate revenues to pay-back CAPEX => gas-to-gas competition => dumping / depth of competitive price decreases (e.g. Qatari LNG vs Russian pipeline gas)
 - “domino effect-1” of US shale gas revolution => redirection of LNG flows from US to EU => gas oversupply in EU => gas-to gas competition in EU => cheap spot gas vs expensive PP-indexed gas LTGEC in oversupplied EU gas market

Gas to Power in Europe

Oil indexed gas pricing strongly supports the renaissance of coal in Europe



Source: Walter Boltz. Presentation on "Gas Pricing" at the 11th round of informal Russia-EU expert consultations on the Third EU Energy package issues/4th meeting Work Stream on Internal Markets, Russia-EU Gas Advisory Council, Moscow, Gazprom / Gazprom export, 26-27.06.2012

Source of the two figures: Argus Media, Power in Europe, 13 June 2012

European gas market: new post-2009 realities, risks & challenges for Russian gas (3)

- **Institutional** (increasing investment risks within shrinking niche for gas):
 - Treaty of Rome (1958) => 1st (1996/98) => 2nd (2003) => 3rd (2009) EU Energy Packages/Directives = sovereign decisions of sovereign states for liberalization, *BUT*
 - Incremental investment & trade risks since 2nd package (2003): unbundling & MTPA
 - 3rd EU Energy Package => further separates regulation of commodities vs capacities gas markets (major risk = contractual mismatch for LTGEC)
 - transition to principally new architecture of EU gas market: from chain of 3 consecutive LTC with mostly distant tariffs to regional zones with entry–exit tariffs & virtual hubs = incremental transition risks (“learning by doing”) for all market participants within cross-border EU-oriented gas value chains

European gas market: new post-2009 realities, risks & challenges for Russian gas (4)

- **Political** (away from dominant Russian gas supplies where possible):
 - Negative effects of Russia vs Ukraine/Belarus/CA gas crises on supply security (3/2006+19/2009=22 days vs 40 years) => “domino effect-3” =>
 - EU perceptions of further possibilities of unstable supplies (from Russia) converted into policy actions => legislative acts on diversification of supplies (N-1 rule, 3 suppliers, interconnectors, reverse flows, etc.) => investment decisions & start-up of their implementation => “no return” point (to previous relations with Russia as a dominant supplier) is passed through, esp. in CEE

Post-2009 Gas World: European challenges for Russian gas – and possible responds

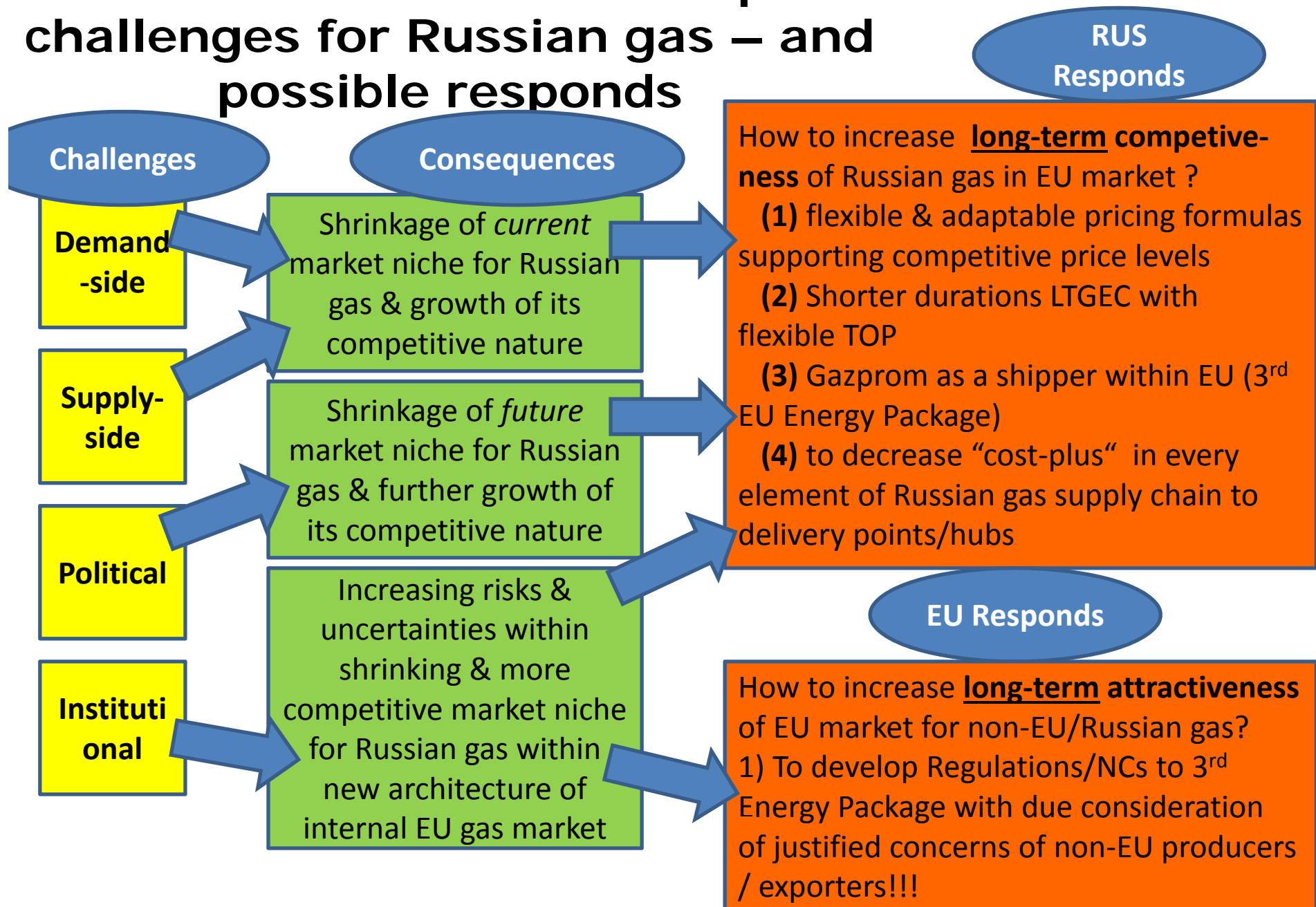
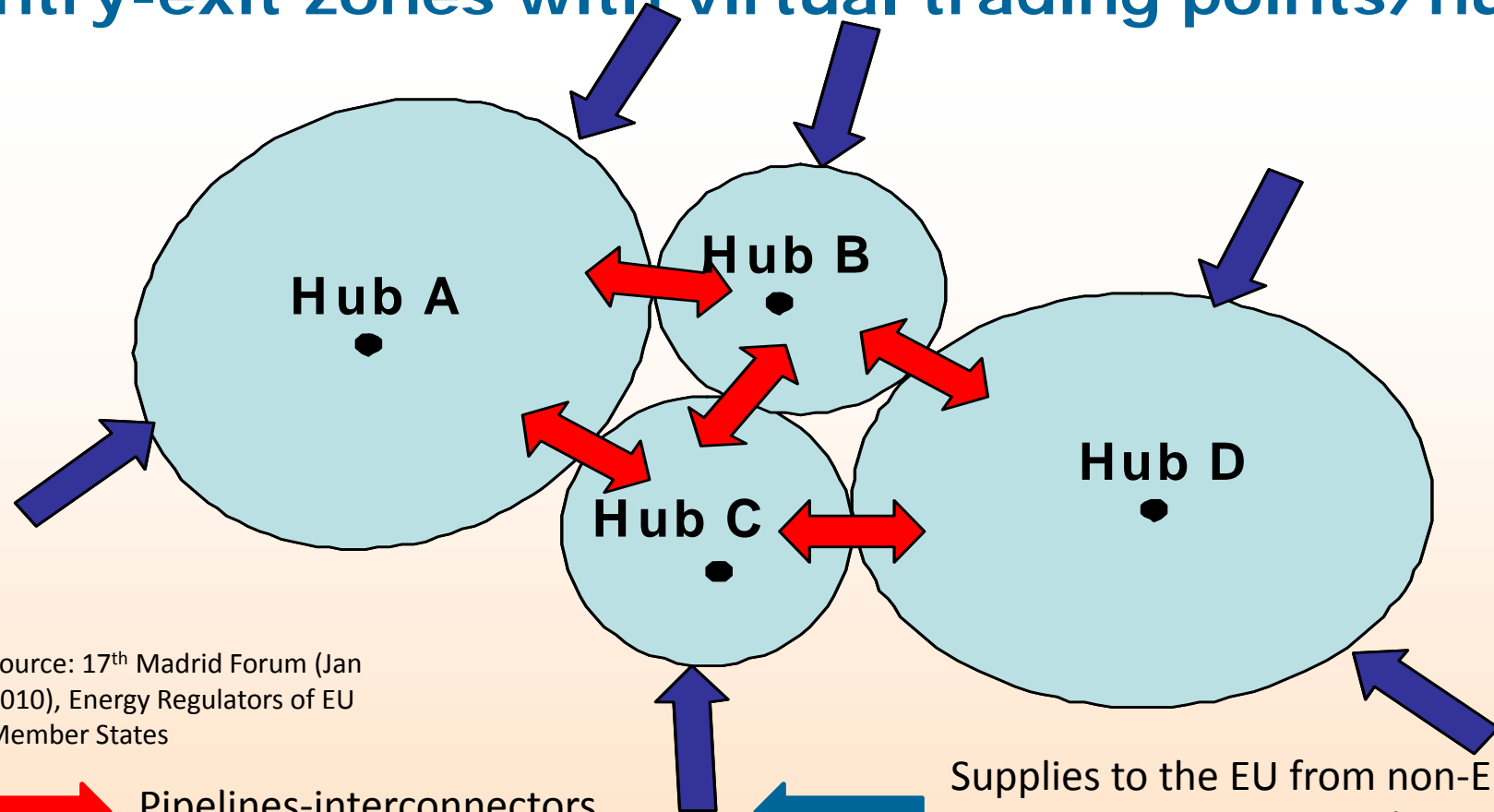



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EU internal gas market architecture according to Third EU Energy Package (entry-exit zones with virtual trading points/hubs)



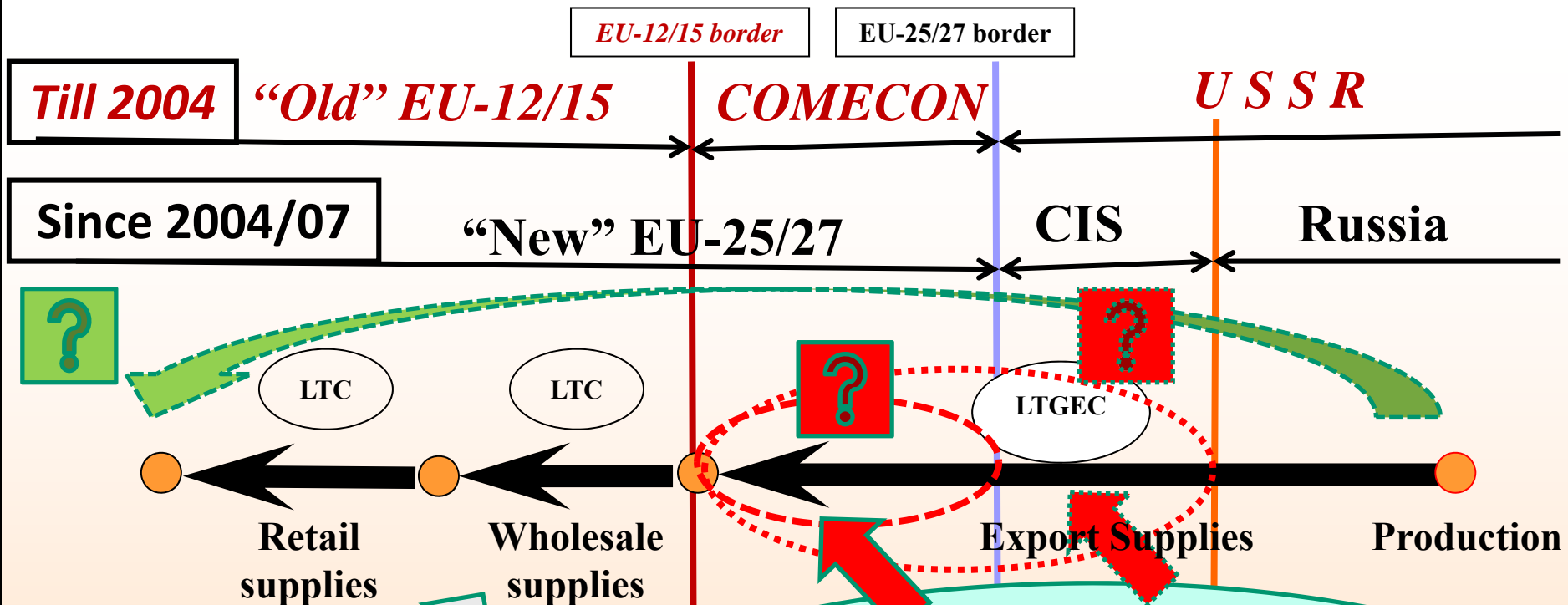
Source: 17th Madrid Forum (Jan 2010), Energy Regulators of EU Member States

 Pipelines-interconnectors between EU zones (*directly covered by 3rd EU Energy Package*)

Supplies to the EU from non-EU (*not directly addressed / covered by 3rd EU Energy Package – but direct economic consequences*) =>

WHAT ARE THEY?

Third EU Energy Package affects Russia-EU Gas supply chain: how to materialize potential benefits



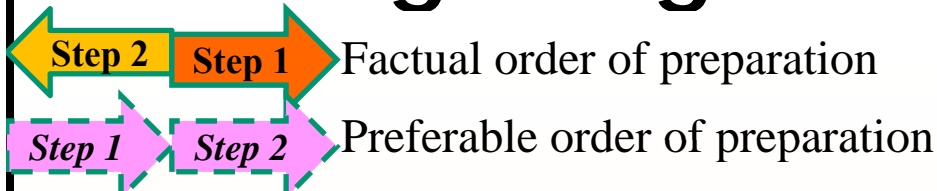
Third EU Energy Package = reform of internal EU wholesale trade ...

Informal consultations/WS-2 RF-EU GAC concentrate mostly on these aspects of EU TEP

... BUT direct economic consequences for Russian LTGEC both within the EU & Energy Community Treaty area, both clearly conflicting with existing trade model (in-EU on-border supplies to wholesale EU importers) but **potentially positive for new/adapted trade model (direct access to end-users)**

Third EU Energy Package in gas

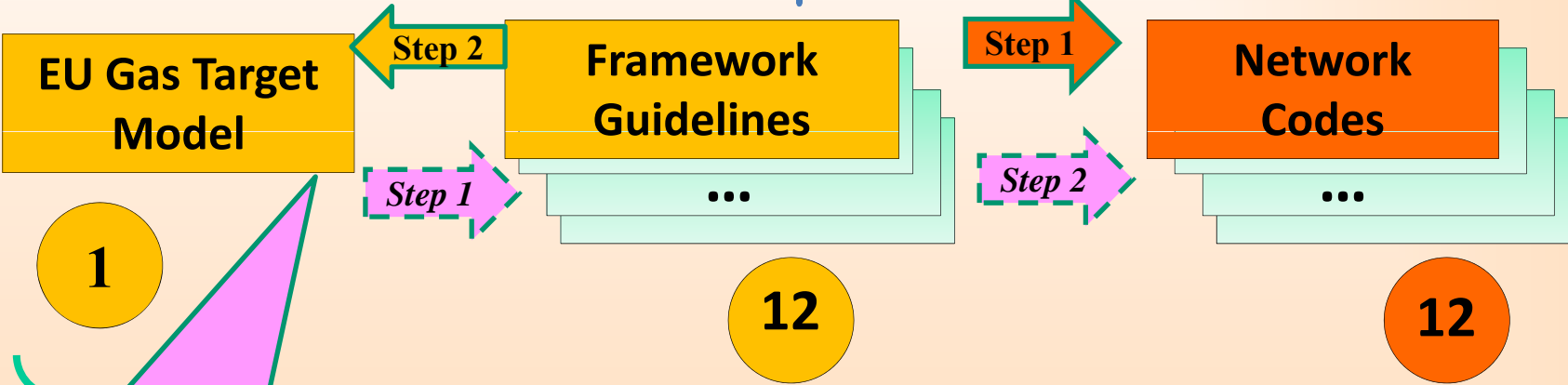
Announced Sept.2007, entered into force 03.09.2009, was to be transposed into national laws by 03.03.2011; 19 MS transposed as of Jan'2012 & ... - as of ...



3rd EU Gas Directive 73/EC/09 (on common rules in gas)

Regulation 713/2009 (ACER)

Regulation 715/2009 (access to natural gas networks)



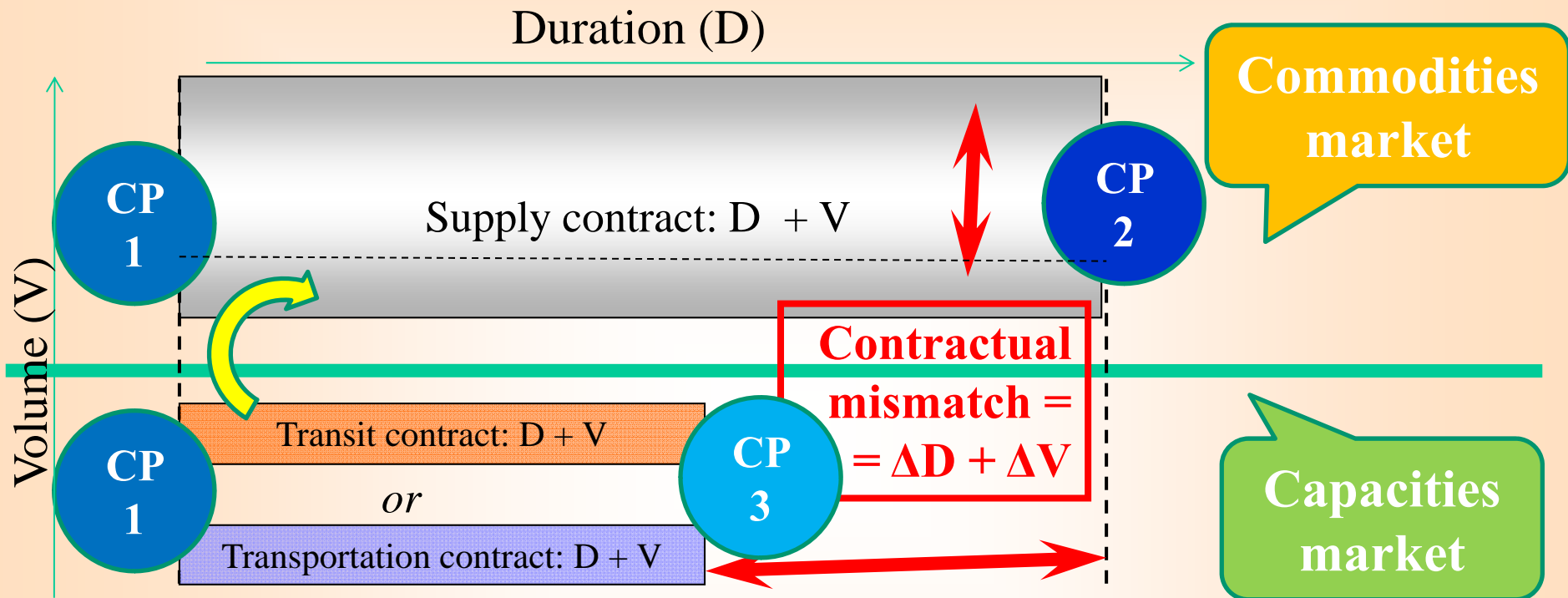
GTM preparation was initiated at the first round of informal Russia-EU expert consultations (Jan'2010)

Work in progress – to be finished by end-2014

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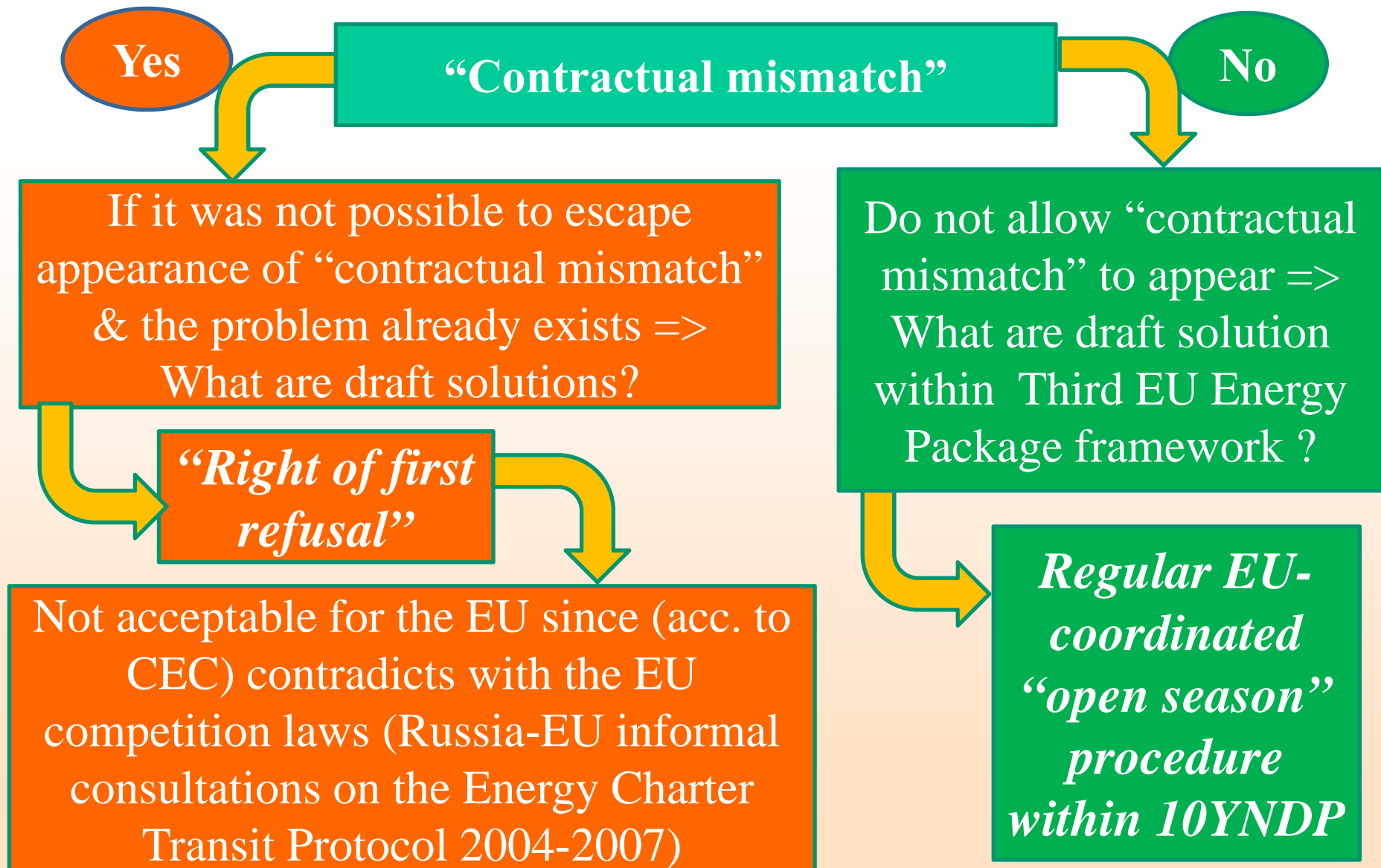
Contractual Mismatch Problem: major risk for contract parties in unbundled gas market



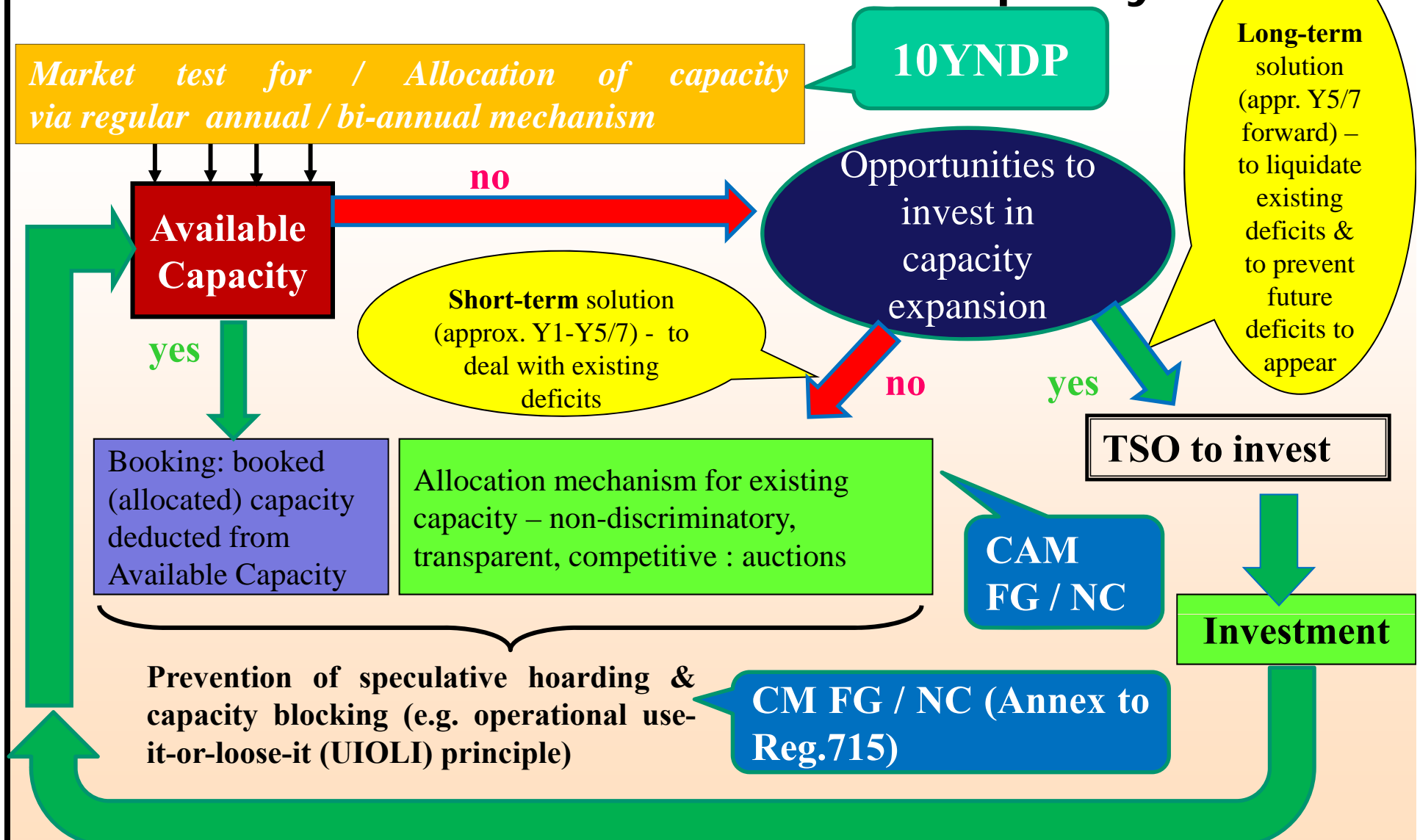
Contractual mismatch: between duration/volumes (D/V) of long term supply/delivery contract (LTGEC; CP1-CP2) and transit/ transportation contract (CP1-CP3); the latter is integral part to fulfill the delivery contract => risk non-renewal transit/ transportation contract => risk non-fulfillment supply/delivery contract.

Core issue: guarantee of access to/creation of adequate transportation capacity for volume/duration of long term contracts

Contractual mismatch: from “Right of First Refusal” to EU-coordinated “Open Seasons”



Draft proposal for EU-Coordinated "Open Seasons" as Universal Mechanism of Long-, Medium-, and Short-Term Allocation of Capacity



What provisions of the Third Energy Package are supportive for EU-wide coordinated “Open Seasons”

• Directive 2009/73/EC

- Art. 13.1(a), 13.2, 13.4
- Art. 14
- Art. 17 (e,f,g)
- Art. 22
- Art. 35.2
- Art. 36.6,
- Art. 41.1(g)
- Art. 42.2(a)
- Art. 52.1(d)

“TSOs *must* build infrastructure to satisfy all economically reasonable and technically feasible capacity demand.”

• Regulation (EC) 715/2009

- Art. 4
- Art. 8.3(b)
- Art. 12.1, 12.2
- Art. 16.2(a), 16.5
- Art. 18.1, 18.3

PLUS: GGPOS-2007

- Esp. Sect. 4.1 - 4.2 (esp. if “sponsor” = TSO)

(See also: “Memorandum on TSOs Obligations to Invest in Capacity” prepared by the Russian side of WS-2 for GAC 25.04.2012 meeting)

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Proposal on the “hybrid” EU gas market model under GTM (for joint discussion & consideration within RF-EU Consultations/WS-2 GAC)

➤ Long-term supplies (firm contracts, main/basic demand load):

- More flexible LTGEC (re off-taking of contractual volumes & pricing formulas & price review rules)
- + long-term access to transportation capacity for full duration & volume of LTGEC (open seasons)
- + modified pricing formulas linking gas to its replacement fuels (indexation not only to petroleum products => coal, RES, spot, etc.)

➤ Short-term supplies (interruptible contracts, additional/semi-peak & peak demand load):

- Spot contracts (delivery & trading)
- + exchange pricing (futures, gas indexes, forward curves)

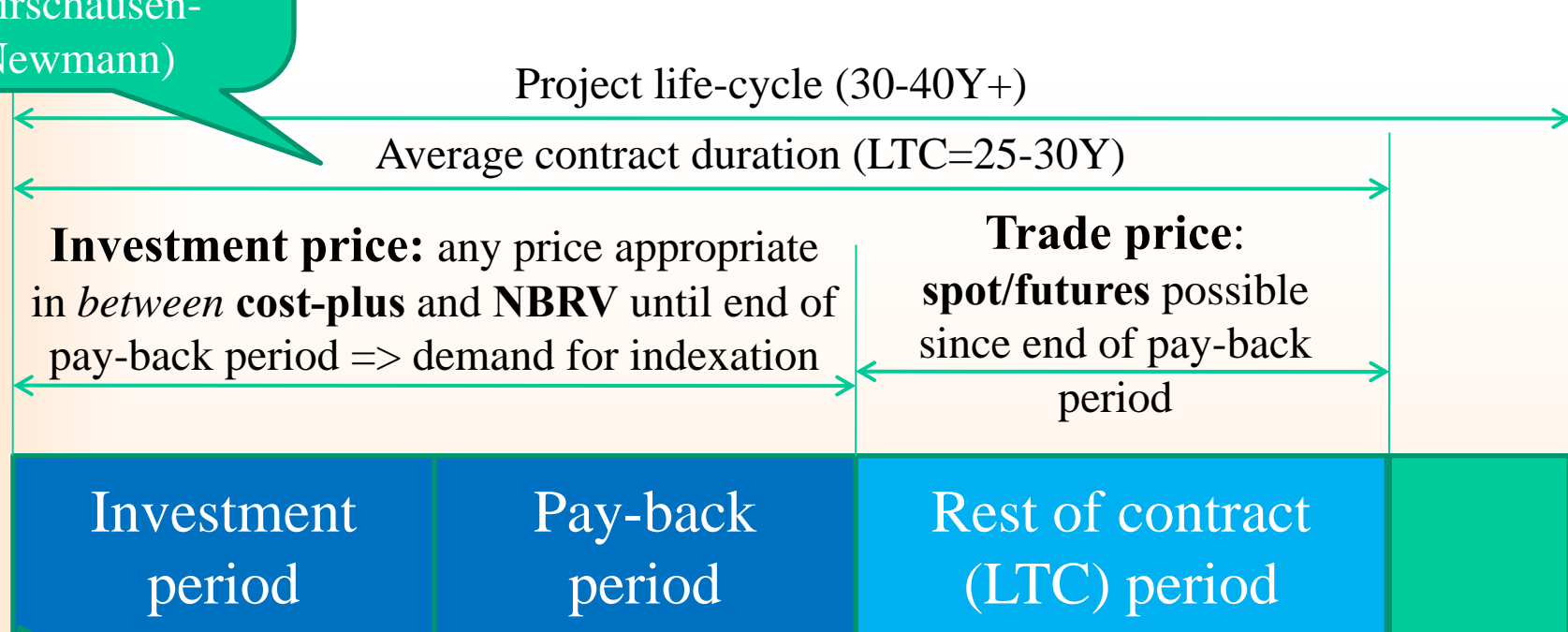
US & UK gas market models are not appropriate in Continental Europe/Eurasia (“Putting a price on Energy”, Energy Charter Secretariat, Brussels, 2007)

Initially GTM did not consider risks & uncertainties for this market segment => these questions have been added on a step-by-step basis in result of RF-EU informal expert Consultations

Initial drafts of GTM covered only this segment of gas market, long-term long-distant supplies and related risks & uncertainties stayed beyond consideration of justified concerns of market participants

EU import LTC signed (pipeline + LNG): 1980 (30Y) => 2004 (15Y), (Hirschausen-Newmann)

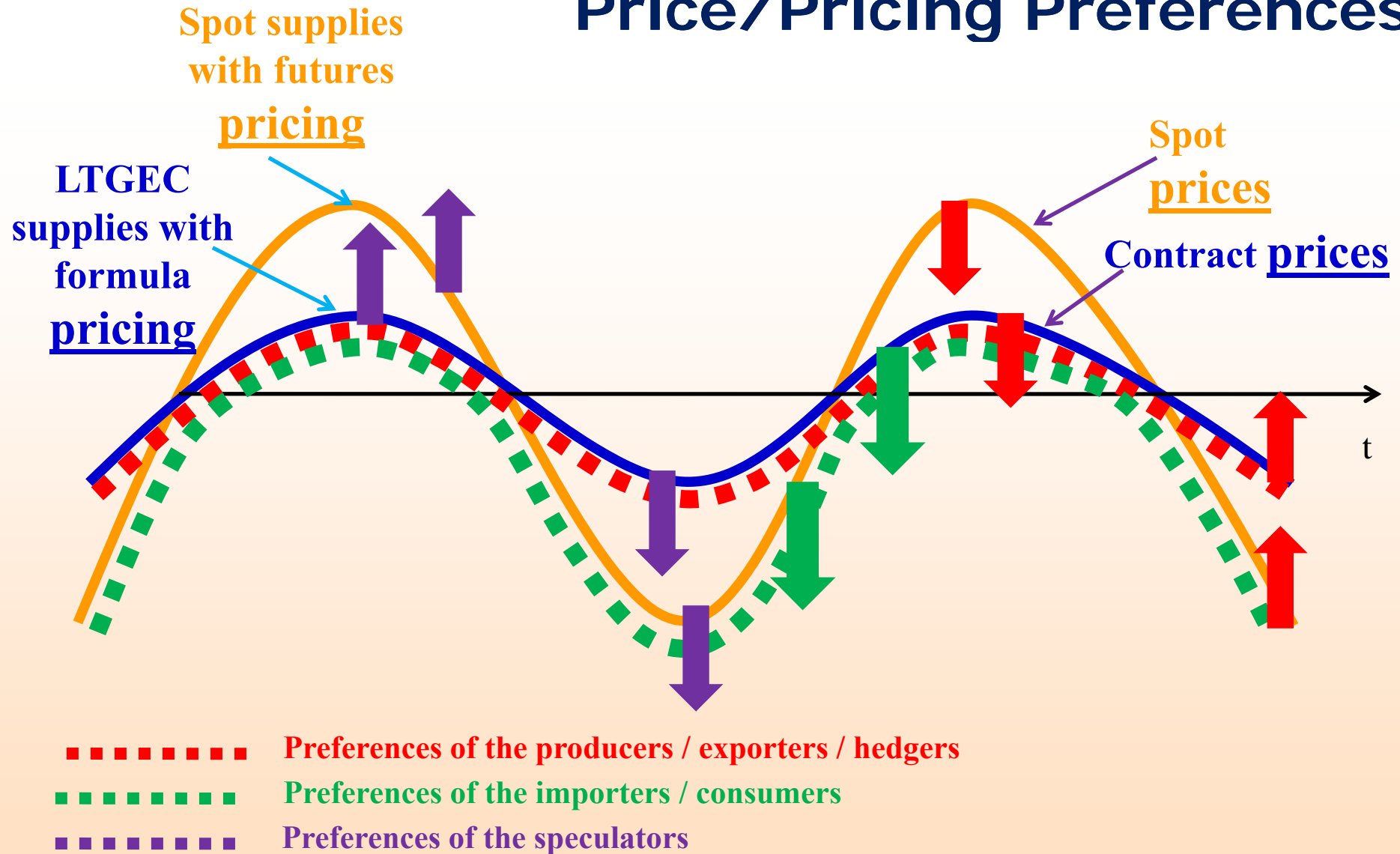
Economic preconditions for different pricing mechanisms at different stages of investment project life-cycle



Energy resource enters the market; upfront CAPEX & OPEX assessment incl. risks for acceptable ROR; higher price needed

Energy resource is already at the market; CAPEX recouped; technological possibilities to switch between competing energies in end-use; OPEX determines benchmark price level; lower price needed to stay with acceptable ROR

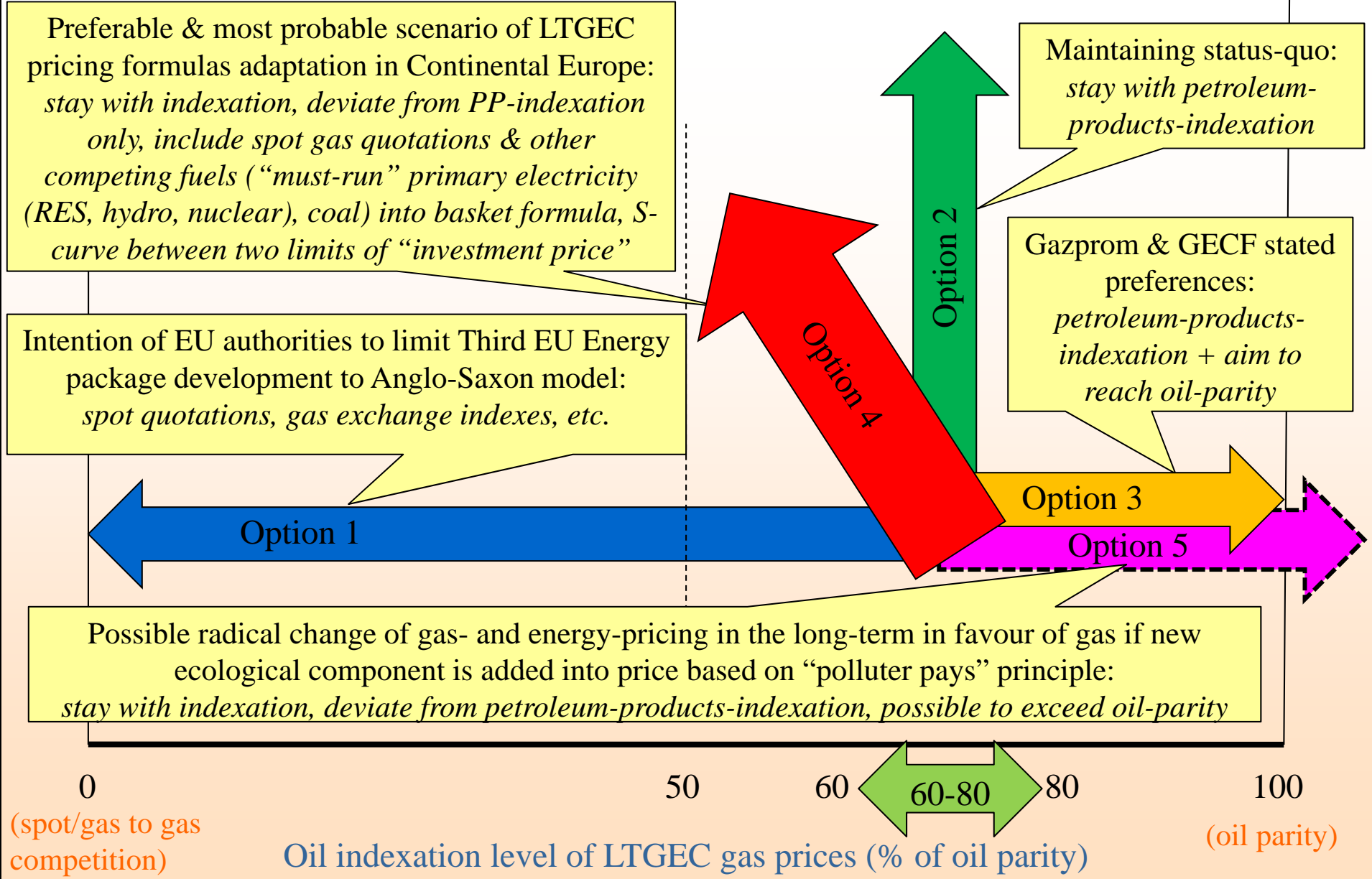
Producers, Consumers & Speculators Price/Pricing Preferences



Gas pricing prospects in Europe: between Komlev & Stern?

- **S.Komlev/Gazprom/GECF:** LTGEC to continue dominate + stay with PP-indexation (+ aim oil parity)
- **J.Stern/3rd EU Energy Package (first draft GTM)/EU energy regulators:** market share for LTGEC to stay, but (soft – J.Stern) switch from PP-indexation to spot/futures quotations as LTGEC pricing mechanism (f.i., in 5 years – J.Stern /similar to “RF-Belarus 2007 model”) => **BUT:** 3rd package does NOT prescribe any specific pricing model NOR only single one pricing model (like spot/futures/hubs/etc)
- **Any alternative/compromise?** (if aim is to support long-term gas market share of Russian gas at EU market)

Evolution/adaptation of gas pricing mechanisms in Europe: major options



S-curve approach for indexation in Continental Europe within contractual pricing (author's vision/proposal)

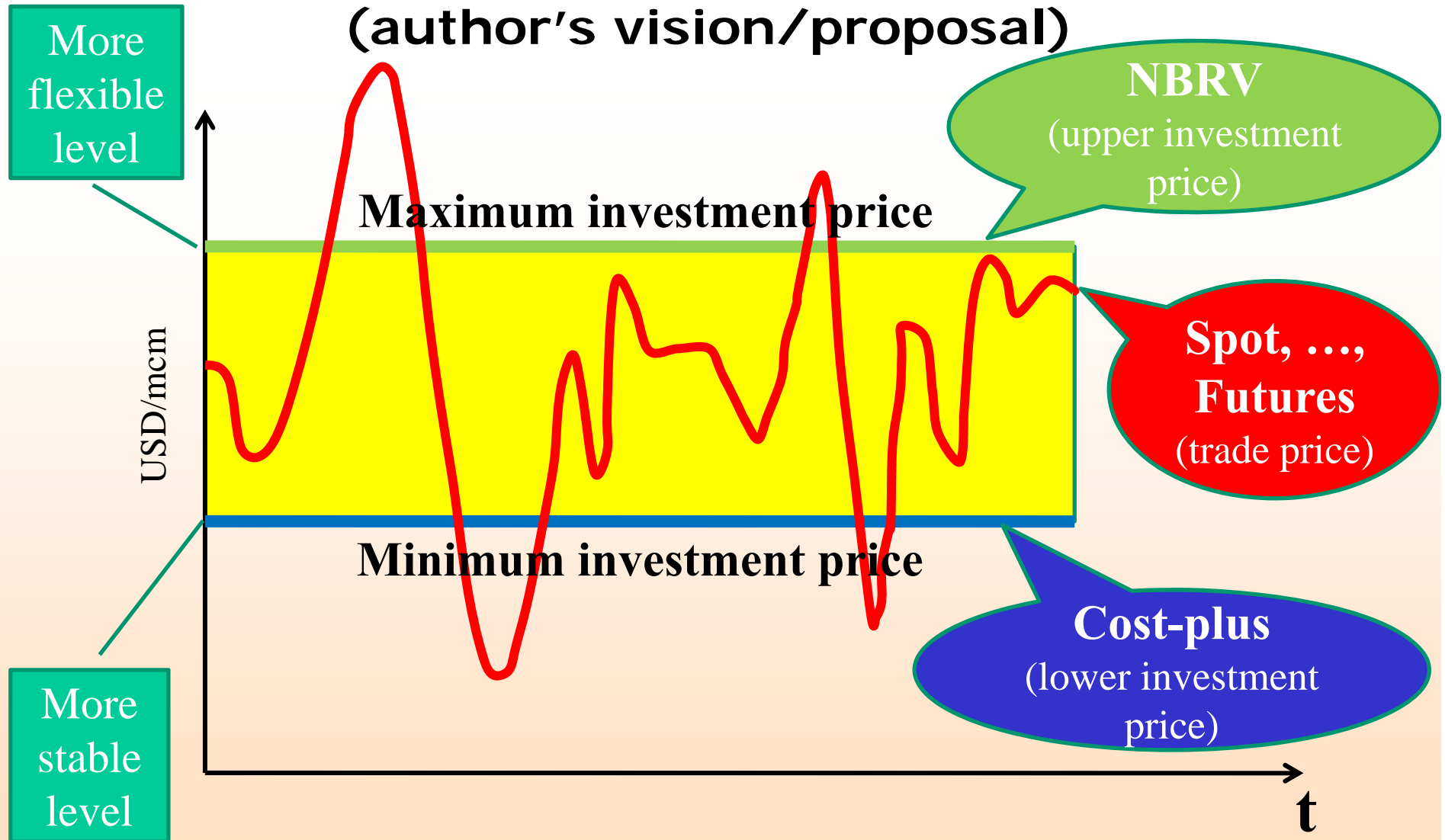


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3rd EU Energy Package opens window of opportunities for Energy Charter Treaty revival for Russia

3rd EU Energy Package (TEP) as a door-opener for Energy Charter Treaty revival?

- TEP: not a homogenous EU gas market, but a combination of (10-20?) regional zones, but...
- Informal RF-EU consultations (2004-2007) on Energy Charter draft Transit Protocol: “REIO clause” as the only left “stumbling block” - all other issues were settled then on a technical level:
 - ECT: 2 issues in article 7 “Transit” (2 new “Understandings” in draft TP),
 - TP: 3 open issues (transit tariffs, contractual mismatch, “REIO clause”)
- “REIO clause” based on assumption of a single internal EU gas market - this is not the case anymore after TEP is in place => “REIO clause” is not a barrier anymore (TEP abolished “REIO clause”) => all former substantive objections (justified concerns) of Russia against ECT/TP are technically settled
- To find a goodwill to restart finalization of ECT/TP (based on recent RF accession to WTO), to add positive elements to RF-EU agenda

ECT/TP: Possible line of action

- Renewal of multilateral consultations (& negotiations afterwards) on new Energy Charter Protocol (based on former draft Transit Protocol) :
 - Not “*Transit Protocol*” (term “Transit” is not used anymore within EU) but maybe “Protocol on long-term long-distant energy supplies via fixed infrastructure” (say, “*Energy Charter Protocol on EMP Transportation*”, the title is not important but the substance),
 - Key issue/risk is the same for “transit (through the chain of states)” and/or for “long-distant long-term large-scale transportation through the chain of zones” => this is “contractual mismatch” (contractual/physical deficit of transportation capacity) => EU-coordinated “Open Season” within 10YNDP can settle this issue => international law instrument more reliable than domestic (EU) legislation (EU *acquis communautaire* is domestic legislation for the EU),
 - Finalization of updated (former Transit) Protocol => Russia can sign new Protocol & ratify it with ECT only simultaneously (two other options are not workable) when all other ECT CPs will sign/ratify new Protocol

**Thank you for your
attention!**

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Reserve slides

Gas price indexation: new prospects in EU electricity generation

- **Competing/replacement fuels** (basis for gas indexation):
 - **Contractually:** through whole period since 1960's – RFO/LFO (Continental Europe)
 - **In practice:** historically – RFO (1960/70-ies), today – coal & RES
- **Gas vs RES: *new CCGT vs new RES* (wind & solar):**
 - **New RES:** “must-run” generation => subsidized CAPEX + zero fuel costs (even after RES subsidies are banned after CAPEX are made)
 - **New CCGT:** as “back-up” capacities for RES only (high PP-indexed LTGEC gas prices prevent to use gas as base-fuel) => low load factor decrease efficiency + non-subsidized CAPEX + high fuel costs => long pay-back periods diminish ROR below acceptable levels

Gas price indexation: new prospects in EU electricity generation (2)

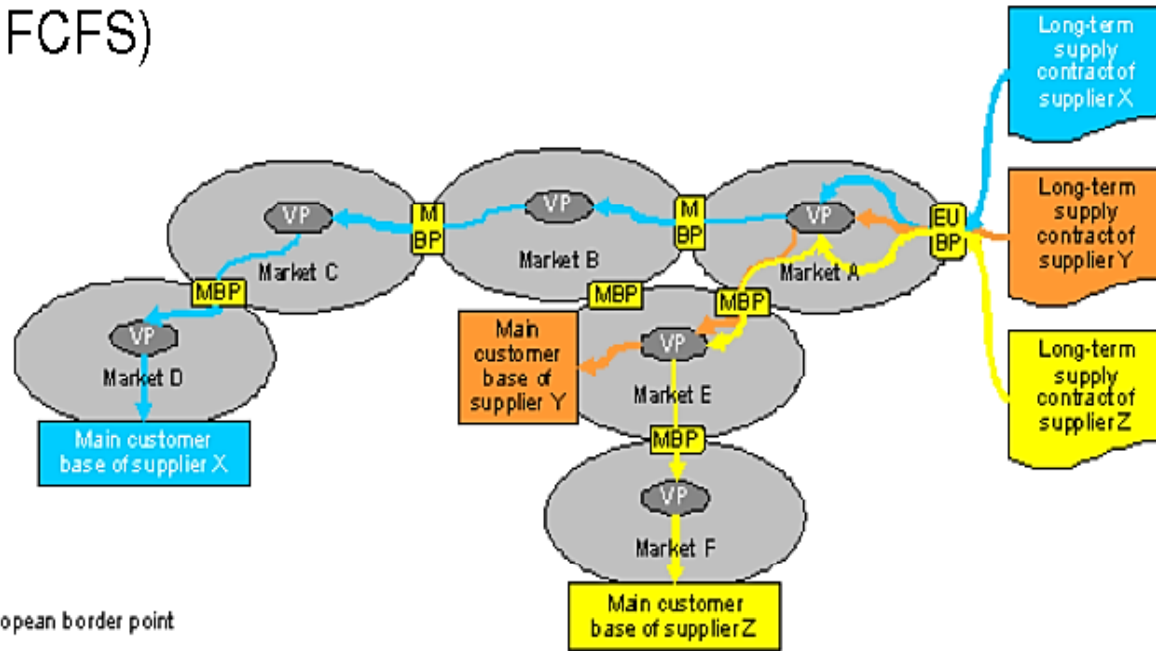
- **Gas vs Coal: *new CCGT vs old coal power stations:***
 - **New CCGT:** to recoup new CAPEX + high fuel costs (if gas linked to RFO/LFO) => spark spread (E-G) ***negative*** in EU
 - **Old coal stations:** CAPEX already recouped + low fuel costs (imported US coal price lower than PP-indexed LTGEC gas price) => dark spread (E-C) ***positive*** in EU
 - **+ ecology: net spreads** (incl. current low spot CO2 price: from 30 to less 10 USD/tCO2 in 2008-2012) changed in favour of coal: until mid-2010 NDS minus NSS was negative and diminishing, since mid-2010 it became positive and is growing => low CO2 price discriminates gas vs coal

Long Distance Capacity bookings in the EU Regulatory Framework (appeared in GTM in result of Consultations)

- Introduction of Entry-Exit System in all countries
- Auctions as standard allocation (instead of, e.g. FCFS)

Whether Auctions are the best effective systemic solution?

Yes, this is a given legal reality to be dealt with by any actor at the EU market, but ...



EUBP European border point
MBP Market border point
VP Virtual point

Long Term Capacity bookings in the EU Regulatory Framework (appeared in GTM in result of Consultations)

- FG CAM reserves (at least) 10% for short-term, i.e. 90% can be booked on long-term Basis
- Capacity can be booked and structured for 15 years in advance (cf. ENTSOG NC)
- Inclusion of “incremental capacity”? [FG CAM: Coherence]

Fine, though worsen pipeline ROR / economics / financing

Fine, validates LTGEC

Fine, prevents contractual mismatch

10% <1yr

90% up to 15yrs

Alternative: Draft proposal on EU-coordinated Open Season procedure as integral instrument of systemic (existing + incremental) capacity development