Comments on the paper on gas pricing provided by the EU experts for the RF-EU experts meeting in Moscow on June 26-27, 2012

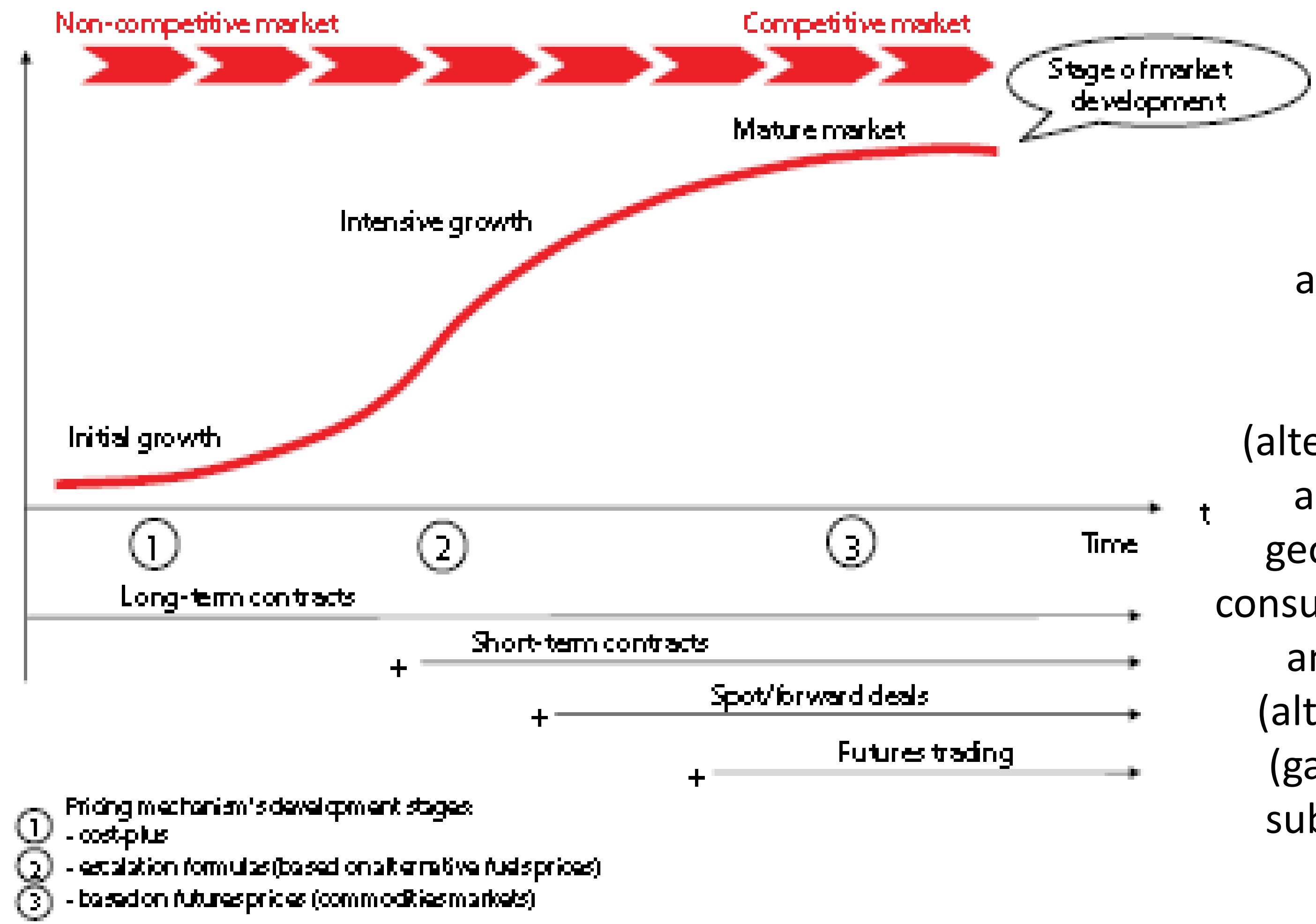
A.Konoplyanik,

11th round of informal Russia-EU experts Consultations on EU regulatory issues / 4th meeting of Work stream on internal markets, EU-Russia Gas Advisory Council,

June 26-27, Moscow, Gazprom / Gazprom export

Gas Market development stages & pricing mechanisms

Figure 5: The Dynamics of Gas Markets Development



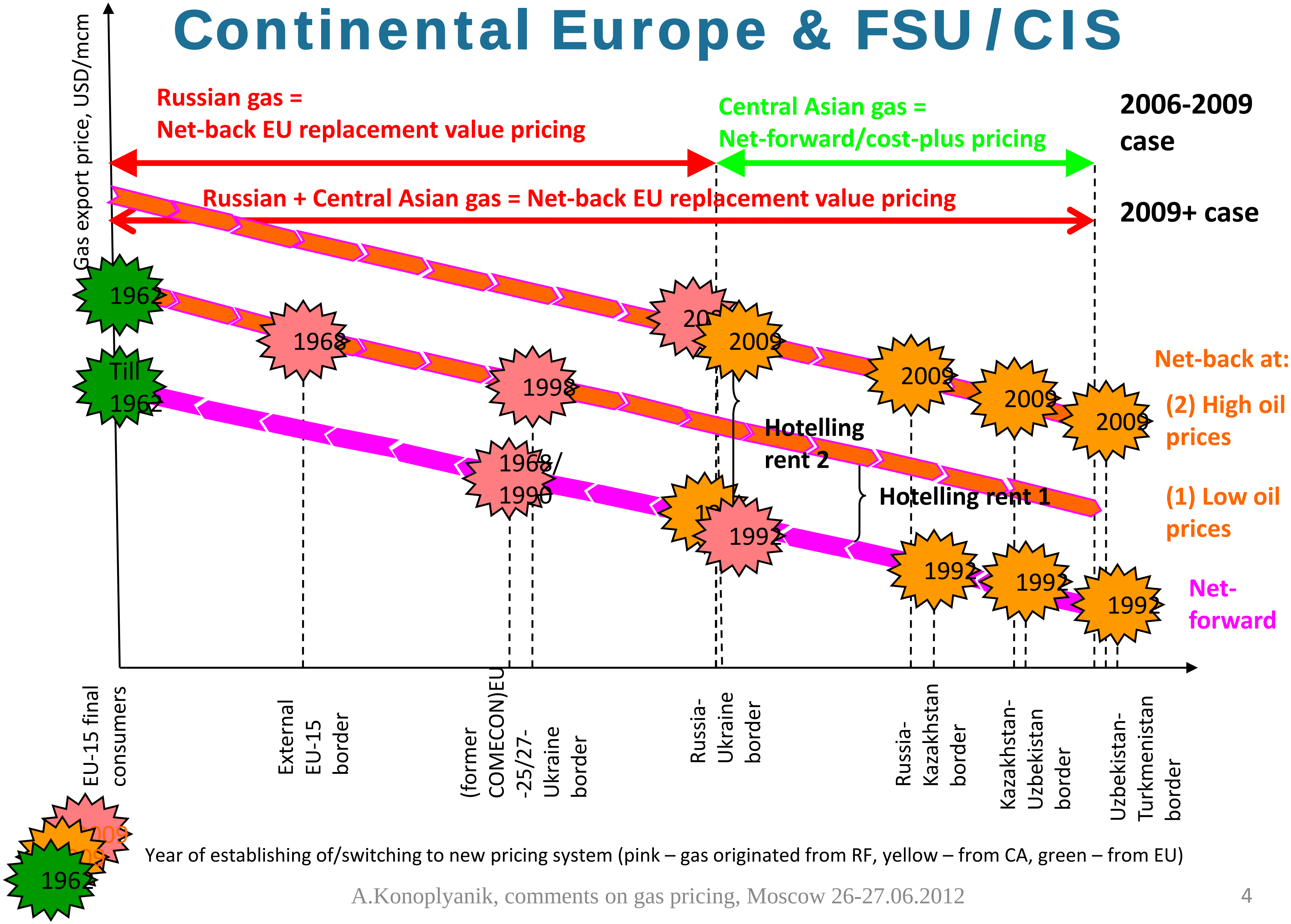
Source: based on Andrei Konoplyanik

Diversity of infrastructure & availability of alternative energy sources, both at producer end (alternative pipelines and markets, both geographical & new consuming industries) and consumer end (alternative supplies (gas-gas) & end-use substitution (gas vs. non-gas))

Evolution of gas pricing mechanisms

- **Cost plus (net forward):**
  - Consumer takes the price – if no alternative supplies (gas & other energies) => price to cover the cost => price risk at the consumer end
- **(Net-back) replacement value based:**
  - Competitive energy market (gas to compete with other energies) => to link gas price to price of replacement fuels
  - NBRV (gas) > cost-plus (gas) => gas to be producible
  - NBRV (gas) < cost-plus (gas alternatives) => gas to be competitive
  - Price risk shifting from the consumer end to the producer end
  - If NBRV price linked to commodities (replacement fuels) – to increase frequency of its adaptations /price reviews => to be adaptable & flexible = to be competitive
- **Spot/futures (exchange based /commodities):**
  - Price risk has moved totally to the producer end of the gas value chain (from investor's angle) and is unpredictable (from trade's angle)
- **General conclusion: evolution of (gas) pricing mechanisms has been shifting price risk to the producer – BUT capital intensity (& unit capital value) of the upstream projects has been increasing due to worsening natural conditions of the fields (global general trend since edge 1960-ies/1970-ies) => disbalance between costs & price risks**

Evolution of gas export pricing in Continental Europe & FSU/CIS



Year of establishing of/switching to new pricing system (pink – gas originated from RF, yellow – from CA, green – from EU)

Gas pricing: price indexation vs. spot/futures pricing – pros & contras (1)

Price indexation	Spot/futures pricing
Long-term stable non-interruptible gas supply with minimum costs & risks for both LTGEC parties => maximum marketable resource rent	Maximization of profit short-term => to earn on price fluctuations => maximum price fluctuations
Physical gas market => non-liquid, but more stable	Paper gas market => liquid, but less stable
Hedgers => mostly producers / traders of physical gas => limited & stable spectrum of participants	Speculators => mostly traders of gas contracts => inflow / outflow of financial players => open & unstable spectrum of participants

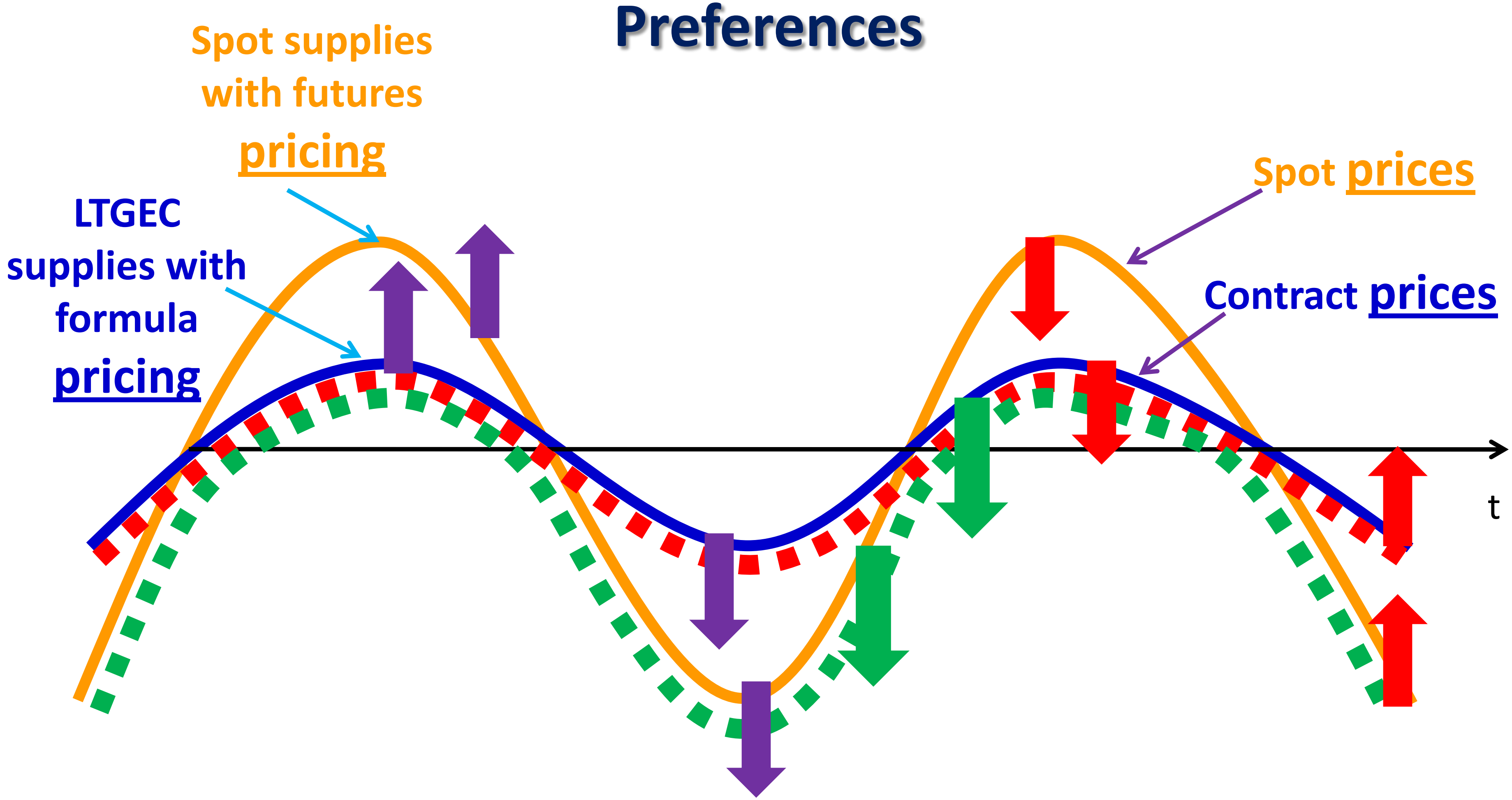
Gas pricing: price indexation vs. spot/futures pricing – pros & contras (2)

Price indexation	Spot/futures pricing
Predictable contract prices => based on stable contractual formulas	Unpredictable spot prices & forward curves since based on frequently changing perceptions of global financial market players
Transparent formula & price review mechanisms *though* actual price not available to public immediately: (i) price calculated as function of formula ingredients, (ii) LTGEC confidentiality clauses	Transparent & immediate result (price quotations) *but* non-transparent & unclear decision-making mechanism on price levels (based on perceptions of big & unstable amount of players)

Gas pricing: price indexation vs. spot/futures pricing – pros & contras (3)

Price indexation	Spot/futures pricing
Impossible to manipulate – fixed formula & contractual clauses; adaptation on bilateral basis within legally-binding procedure	Possibility to manipulate: (i) by direct price-manipulations, (ii) by influencing on expectations (perceptions) of market players
To soften price-peaks (narrow corridor of price fluctuations) => to stabilize gas market	To amplify price-peaks (expand corridor of price fluctuations) => to destabilize gas market
Price indexation (LTC) aimed at delivery	Spot/futures aimed at trade

Producers, Consumers & Speculators Price/Pricing Preferences



Preferences of the producers / exporters / hedgers

Preferences of the importers / consumers

Preferences of the speculators

Results of J.Stern’s FLAME polls on expected time of gas price decoupling from oil prices

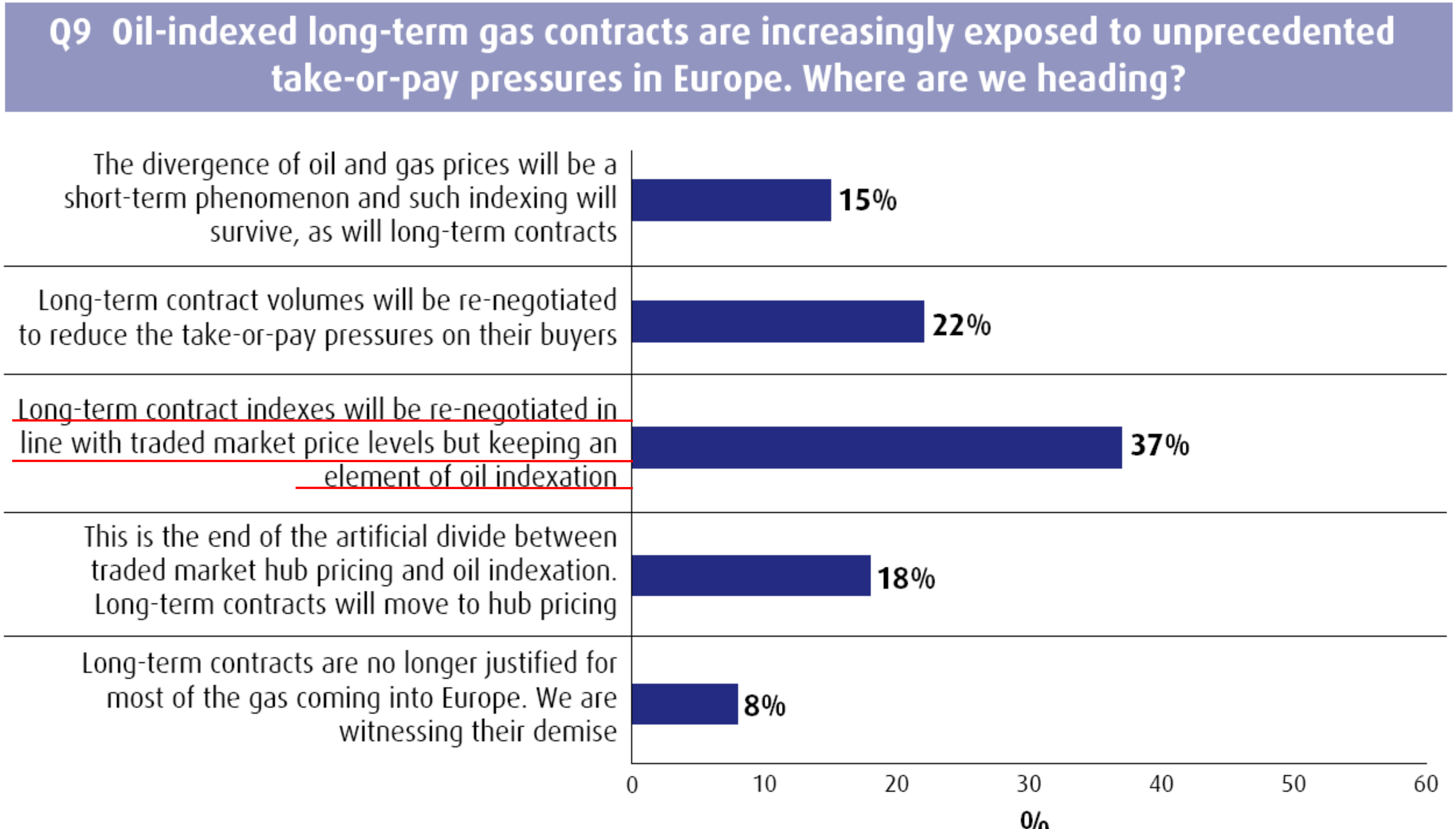
Table 1: When do you expect European long tern contract gas prices will become decoupled from oil and determined by spot and futures prices? (% of total)

YEAR OF CONFERENCE POLL:	2004	2005	2008	2009	2010
Before end 2010	24	15	8.7	3.8	4
Before end 2015	36	15	22.1	20.3	20
Later than 2015	15	39	42.5	44.3	51
Never	24	31	28.8	31.6	25

Source: FLAME Conference for respective years

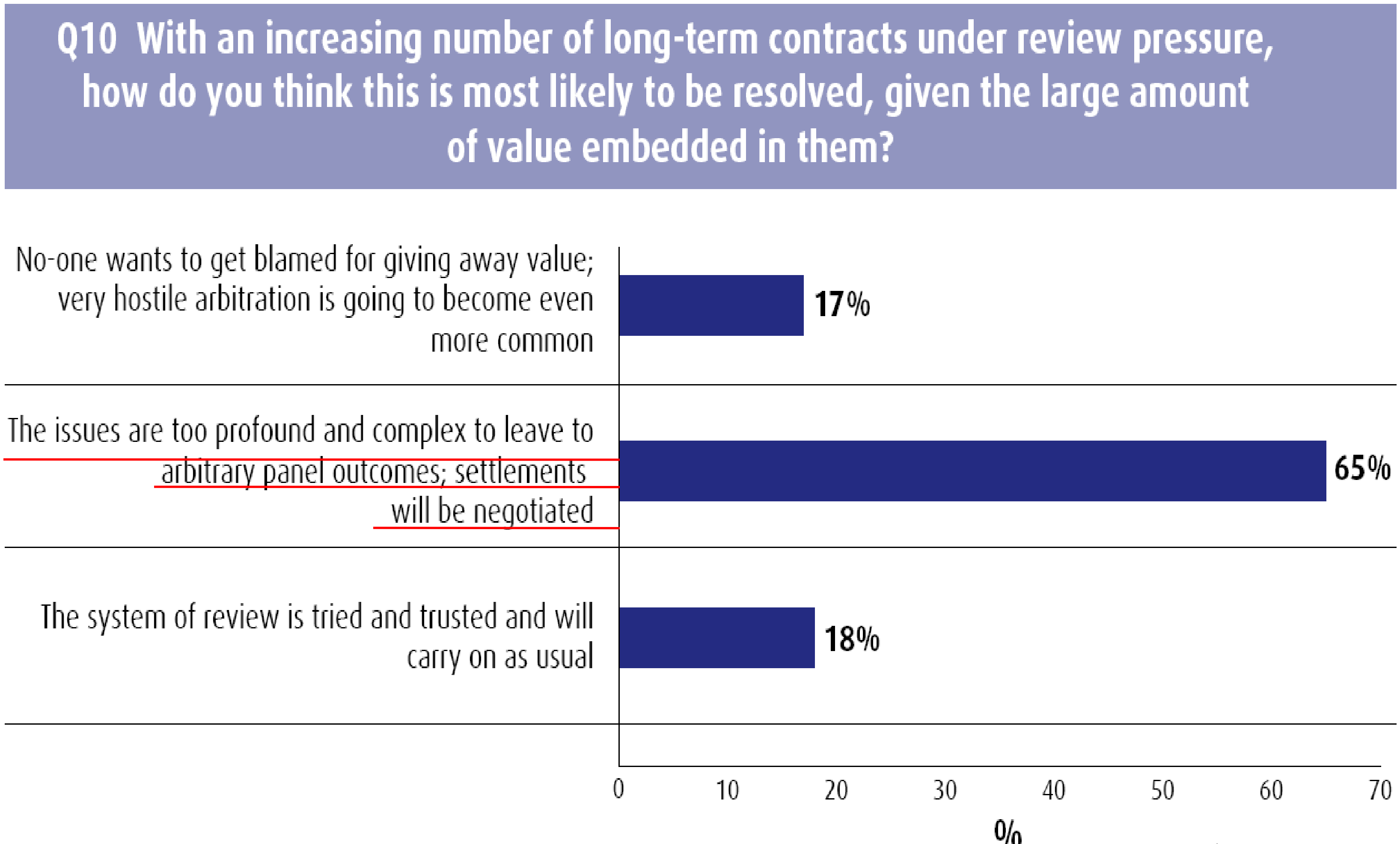
Source: J.Stern. “Continental European Long-Term Gas Contracts: is a transition away from oil product-linked pricing inevitable and imminent?”, OIES, NG34, September 2009, p.5; Ibid. “Gas Price Formation in Europe: rationale and next steps”, Presentation at GMT, 8 October 2010.

Future of LTGEC with indexation: industry view



Source: Europe's gas industry need transformation to adapt to energy revolution. Key messages from the 24th European Autumn Gas Conference, held in Bilbao in northern Spain in November 2009", December 2009, p.14.

How to adapt LTGEC with indexation: industry view



Source: Europe's gas industry need transformation to adapt to energy revolution. Key messages from the 24th European Autumn Gas Conference, held in Bilbao in northern Spain in November 2009", December 2009, p.15.