

Russia and Central Asia: Gas Pricing and Gas Pipelines

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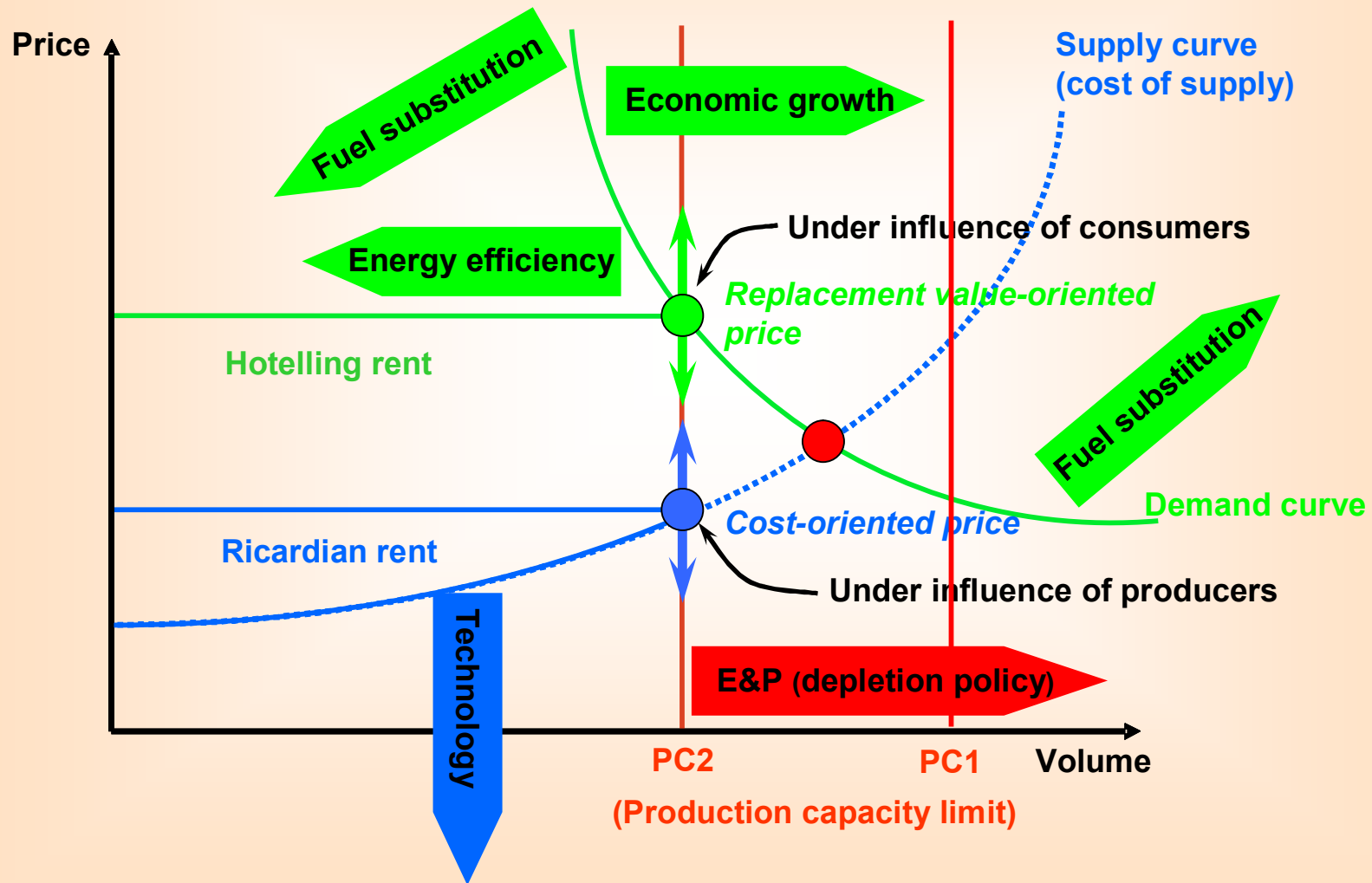
ACUS views on Caspian exports

- For the U.S., it would be reasonable to focus on solutions that provide to Caspian producers outlets to free markets, rather than lock them up in a long-term relationship with state-controlled entities
- The U.S. and Europe should put their act together to give these countries better access to free, competitive energy markets.

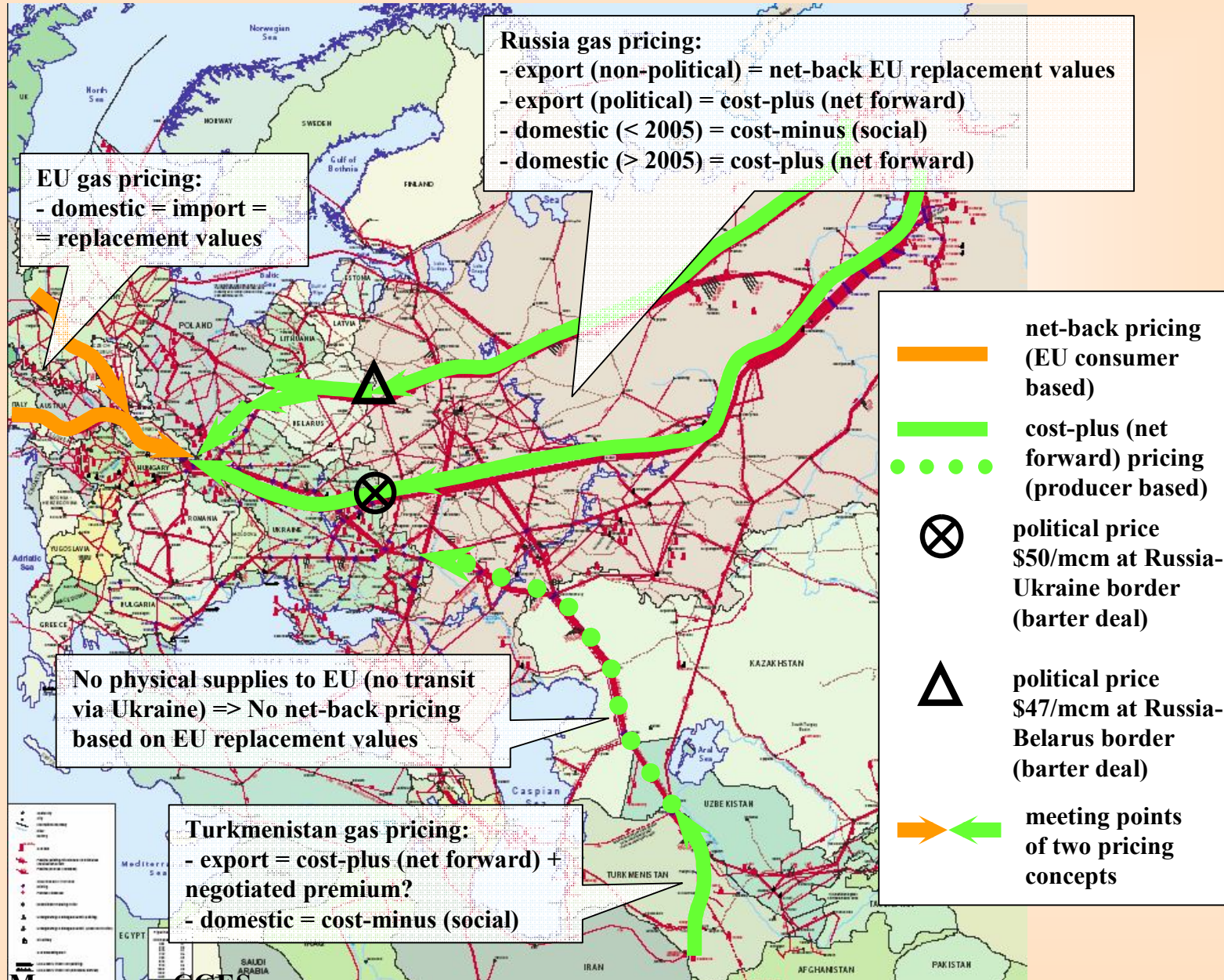
Source: Boyko Nitzov. “Russian Oil and Gas Starts Flowing East”, Published on Atlantic Council website (www.acus.org) 01 May 2009.

Pricing of Non-Renewable Energy Resources: RICARDIAN VS. HOTELLING RENT

$$\text{Ricardian rent} + \text{Hotelling rent} = \text{Resource rent}$$

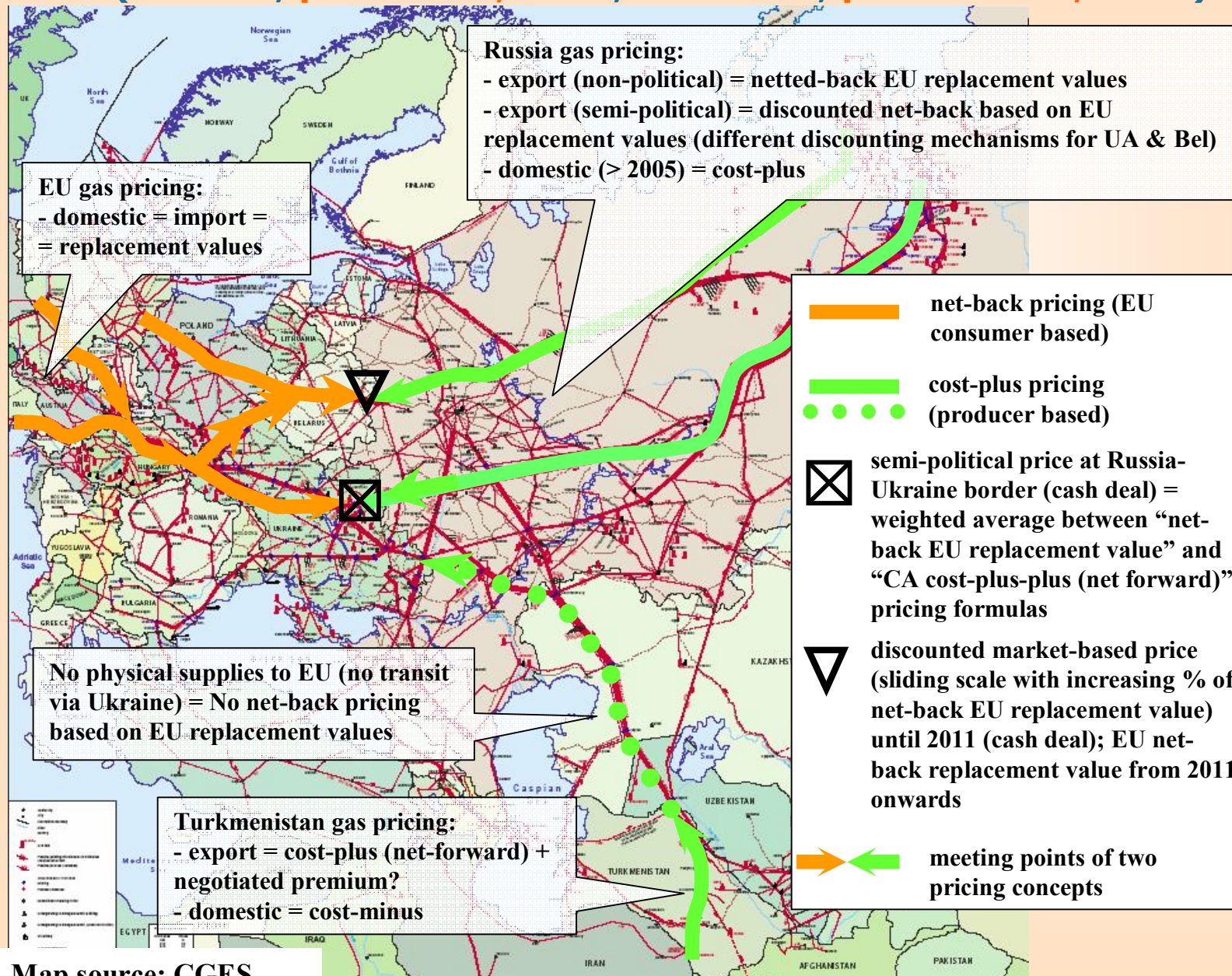


Russian Gas to Europe prior to January 4, 2006: "Political" and "Non-Political" Pricing Zones



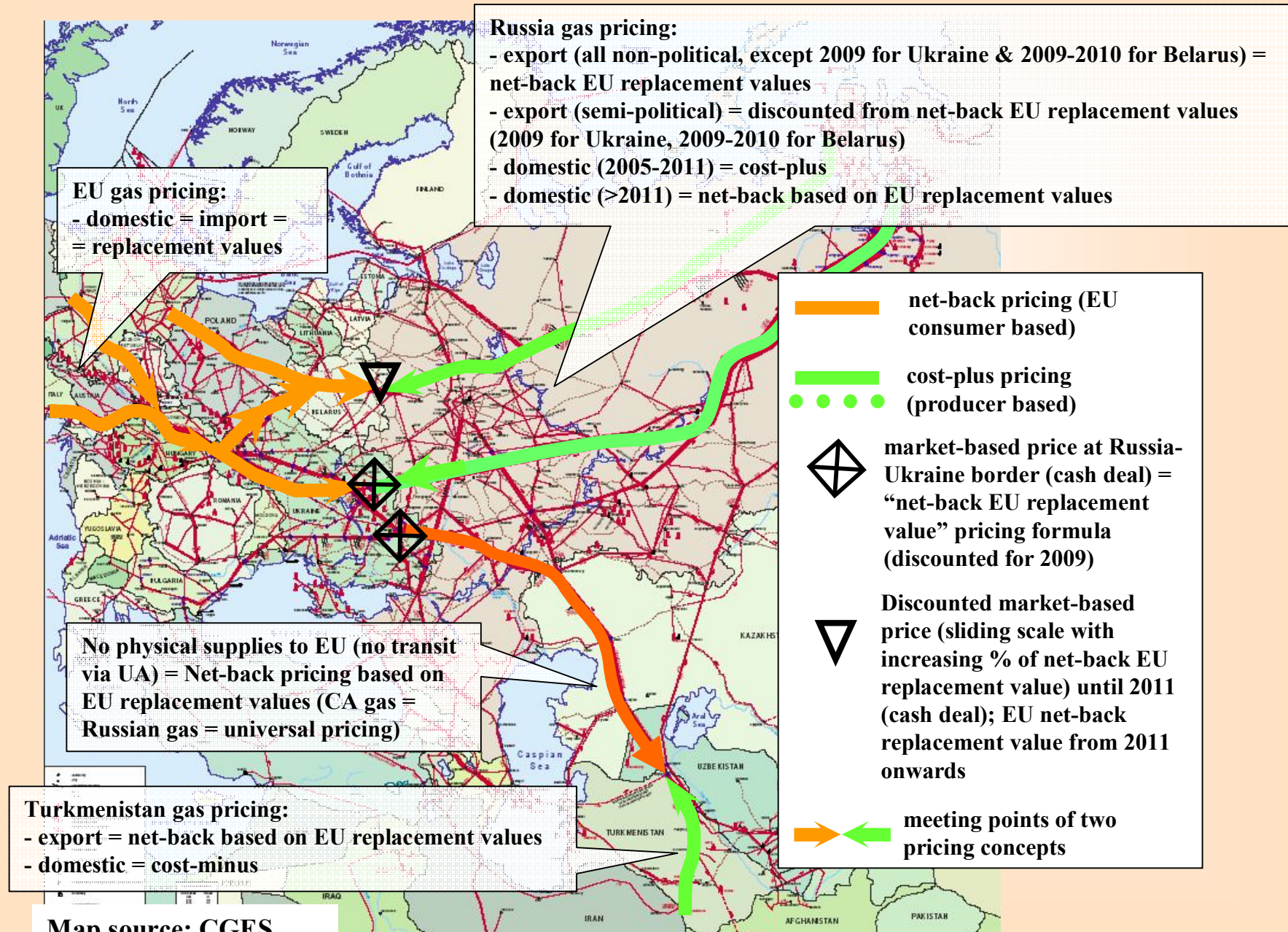
Map source: CGES

Russian Gas to Europe: "Political" and "Non-Political" Pricing Zones 2006-2009 (Ukraine, post-Jan.4, 2006, & Belarus, post-Dec.30, 2006)

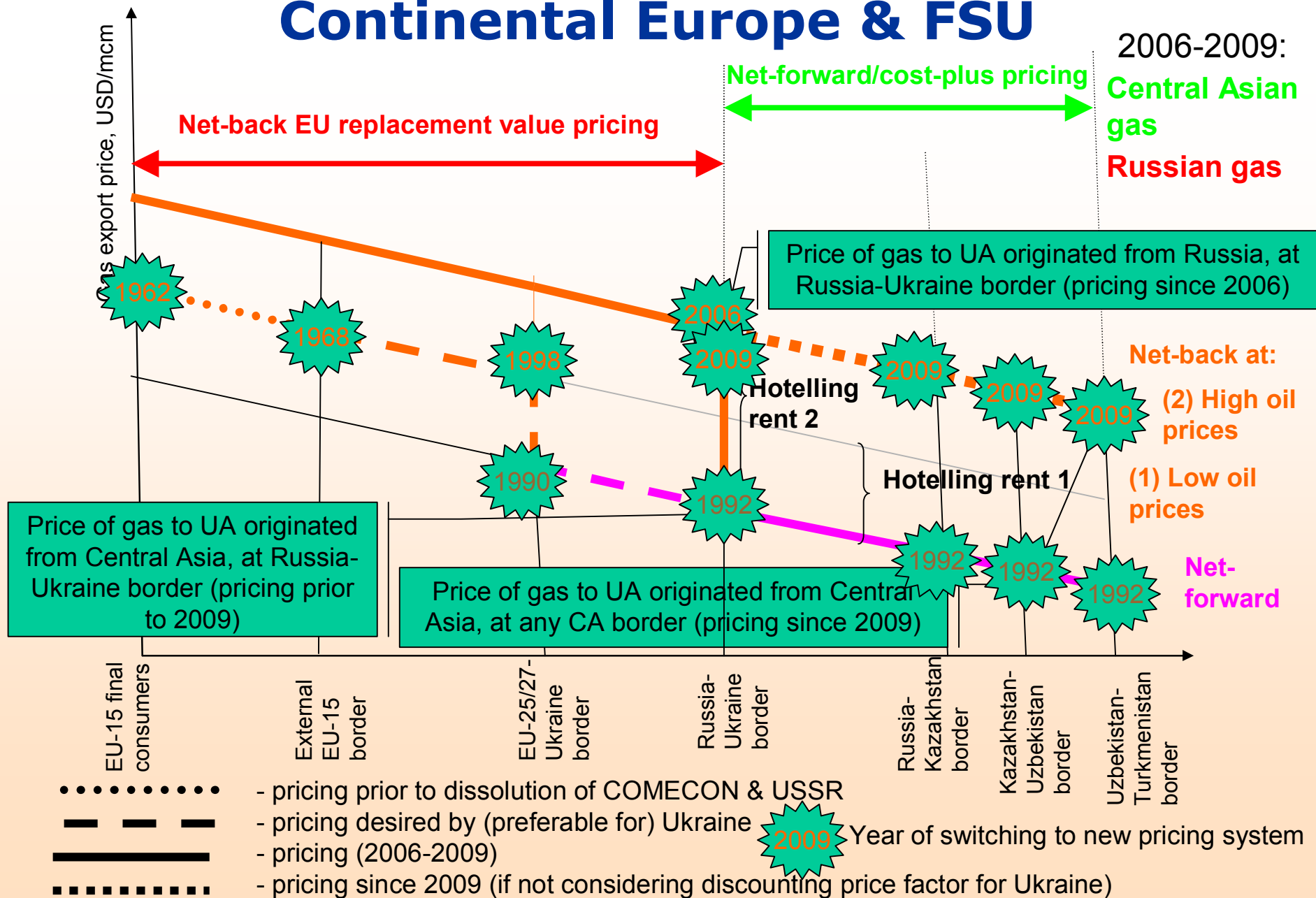


Map source: CGES

Russian Gas Export to Europe: Pricing Zones since Jan 1, 2009



Evolution of gas export pricing in Continental Europe & FSU



Russia-Turkmen gas prices & pricing

- **2004-05:** 44 USD/mcm (Cost-plus-plus)
- **2006:** 74 USD/mcm (Cost-plus-plus)
- **2007:** 100 USD/mcm (Cost-plus-plus)
 - July: contract with CNPC for 30 BCM/y for 30 years since 2009;
 - Nov: statement on market sales principles since 2009
- **2008:** 140 USD/mcm (Cost-plus-plus)
 - June: construction of Turkm.-Uzb.-Kazakh.-China gas pipeline started;
 - July: agreement with Russia to expand pre-Caspian (CAC-3) to 30 BCM/y
- **2009:** 365 USD/mcm (annual? 1Q only?) (Net-back EU replacement value)
 - 25.03: Rus.-Turkm. agreement on East-West pipeline not signed (since Turkm. refused to merge it with expanded pre-Caspian pipeline);
 - 27.03: Turkm. announced international bidding for construction of East-West pipeline;
 - 08.04: explosion at Turkm. segment CAC-4 (drop of pressure by 90% due to (?) short advanced info from RF)
 - 21.04: Russian initiative on new international agreement (incl. on transit) – instead of or amending Energy Charter
 - 23-24.04: Turkm.-UN international conference in Ashgabad on reliable transit; Turkmenistan prefers UN avenue (?)

Central Asian alternative (1)

- To sell its gas directly to Ukraine:
 - During 2005-2006 Russia-Ukraine gas dispute Ukraine was arguing for gas import price calculation on the basis of gas replacement value within Ukrainian domestic market, which is much lower than within EU market =>
 - If Ukraine to follow consistent policy regarding import gas pricing, it is to present the same pricing principles to Central Asian gas exporting states as well,
 - Export gas price at external border of Central Asian exporter, if calculated as net-back replacement value at the domestic Ukrainian market, will be relatively low

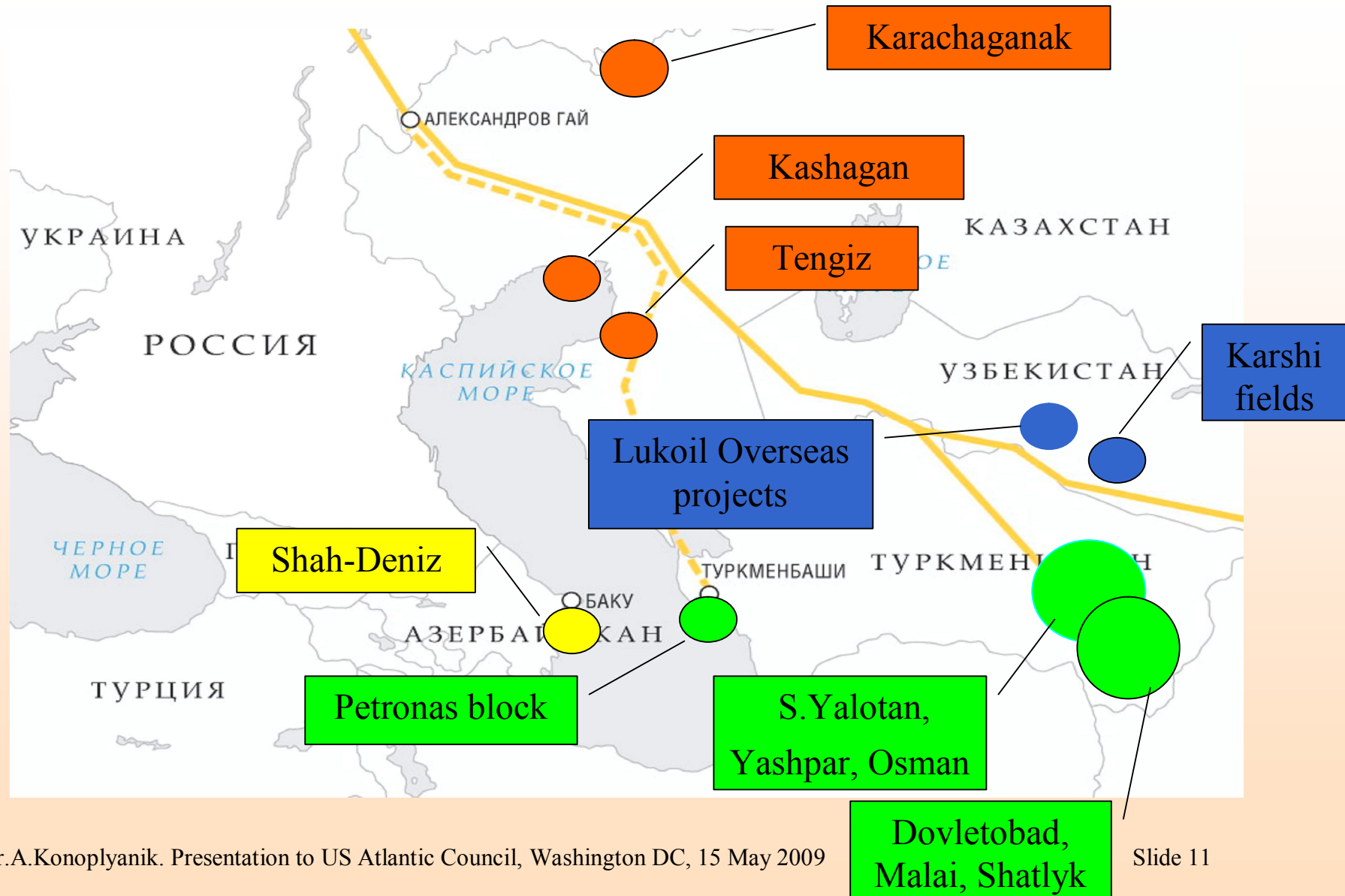
Central Asian alternative (2)

- To sell its gas to Ukraine via Russia:
 - Russia agreed to buy Central Asian gas at their external borders at the price calculated as net-back replacement value at the EU market =>
 - Export price at external border of Central Asian exporter would be relatively high – higher than according to Ukrainian scenario (previous slide)
- +
 - Russia contracted (booked) all export volumes of Central Asian gas and took all costs and risks of its transportation to the end-use markets

Central Asian alternative (3)

- Central Asian gas exporting states are willing to receive maximum Hotelling rent & to minimize export costs & risks =>
- It is more profitable for them to sell their gas to Russia at their external borders at the price, linked to gas replacement value at the EU market (maximization of Hotelling rent), with further Westward transportation of their gas by Gasprom (exclusion of risks & costs of transit), - compared to other options

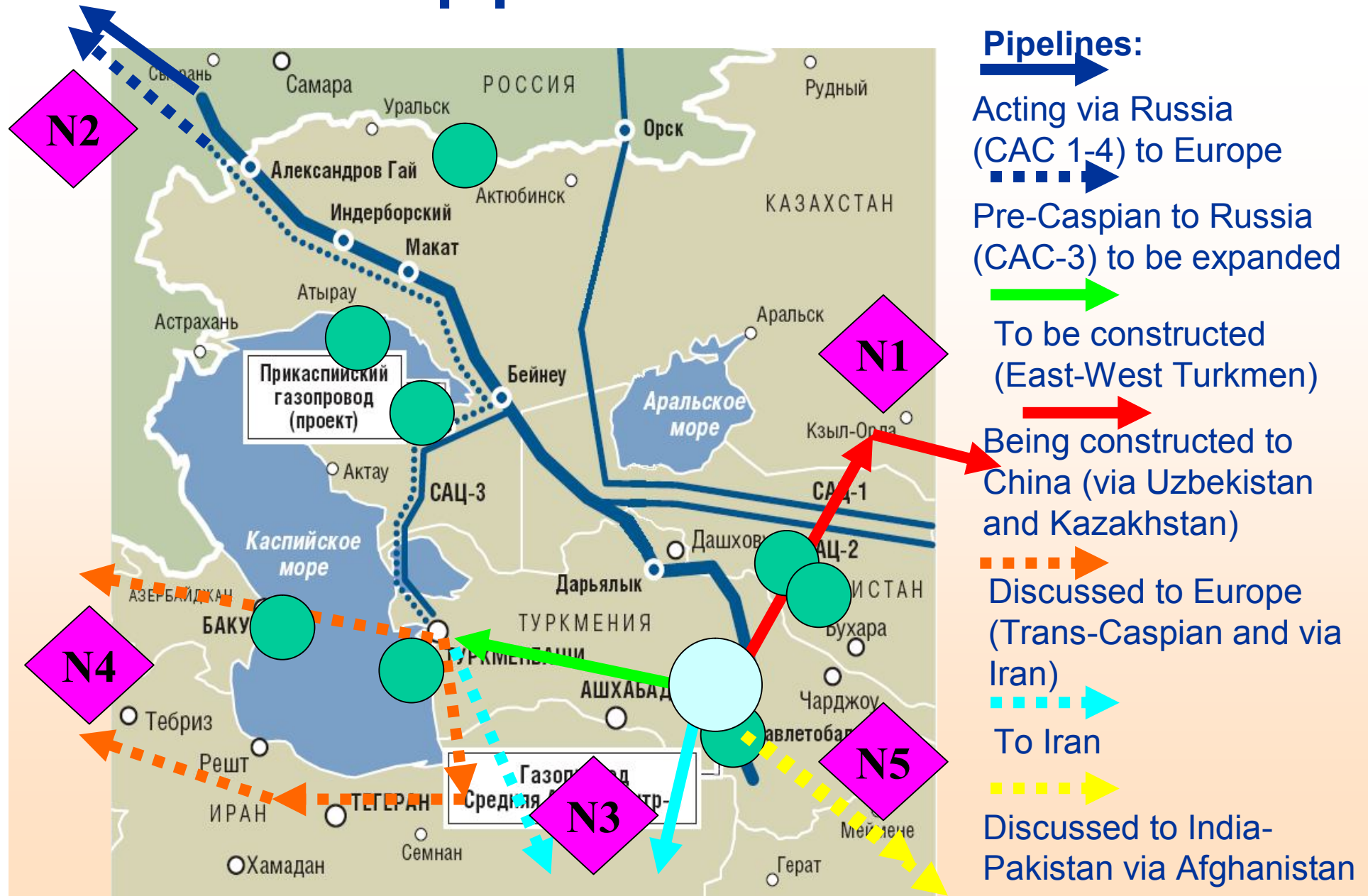
Major Central Asian gas areas



Central Asia gas export potential

State	2009 export, BCM	Max export potential, BCM	
Turkmenistan	50	110-115	S.Yalotan up to 75 BCM; 15-20 BCM offshore
Uzbekistan	15	40-45	Up to 15 BCM Lukoil Overseas & to 10-15 Karshi
Kazakhstan	11	32	Mostly due to Kashagan, Tengiz & Karachaganak
Azerbaijan	8	15-20	Mostly due to production increase at Shah-Deniz

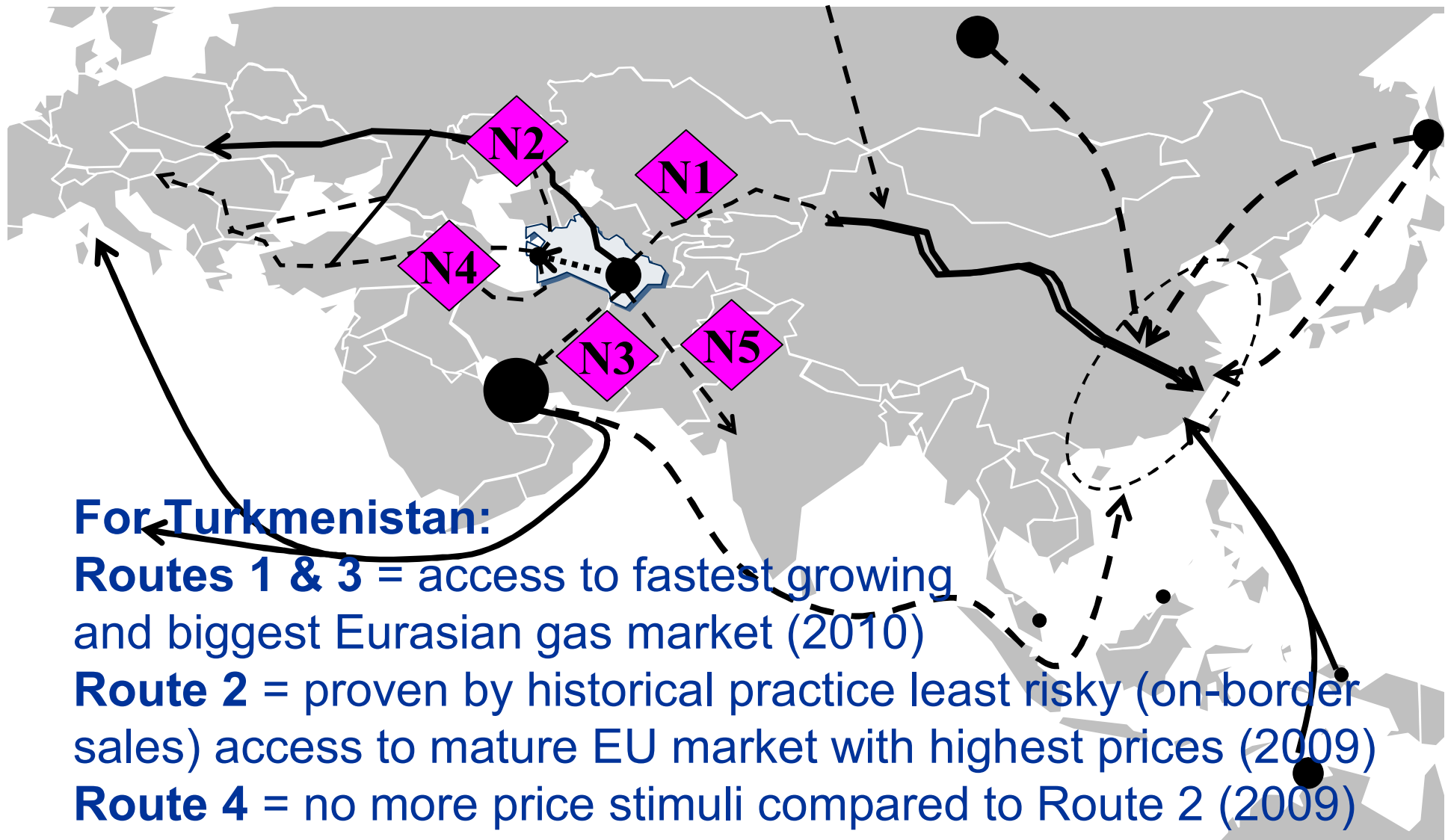
Alternative pipelines from Turkmenistan



Turkmenistan: 5 export options

N	Pipeline	Capacity	
1	To China	Up to 30 BCM/y	Start operation 2010; 100% financing by China
2	Via Russia Westward	42.5+30 BCM/y	Current volume + pre-Caspian (expansion CAC-3)
3	By-passing Russia to EU	Up to 31 BCM/y	Nabucco; connection either via trans-Caspian or via Iran;
4	To Iran	Up to 14 BCM/y	Currently 8
5	To India-Pakistan via Afghanistan	Up to 20 BCM/y	Highly speculative due to high transit risks & political instability

Central Asian Gas at Competitive Eurasian markets



For Turkmenistan:

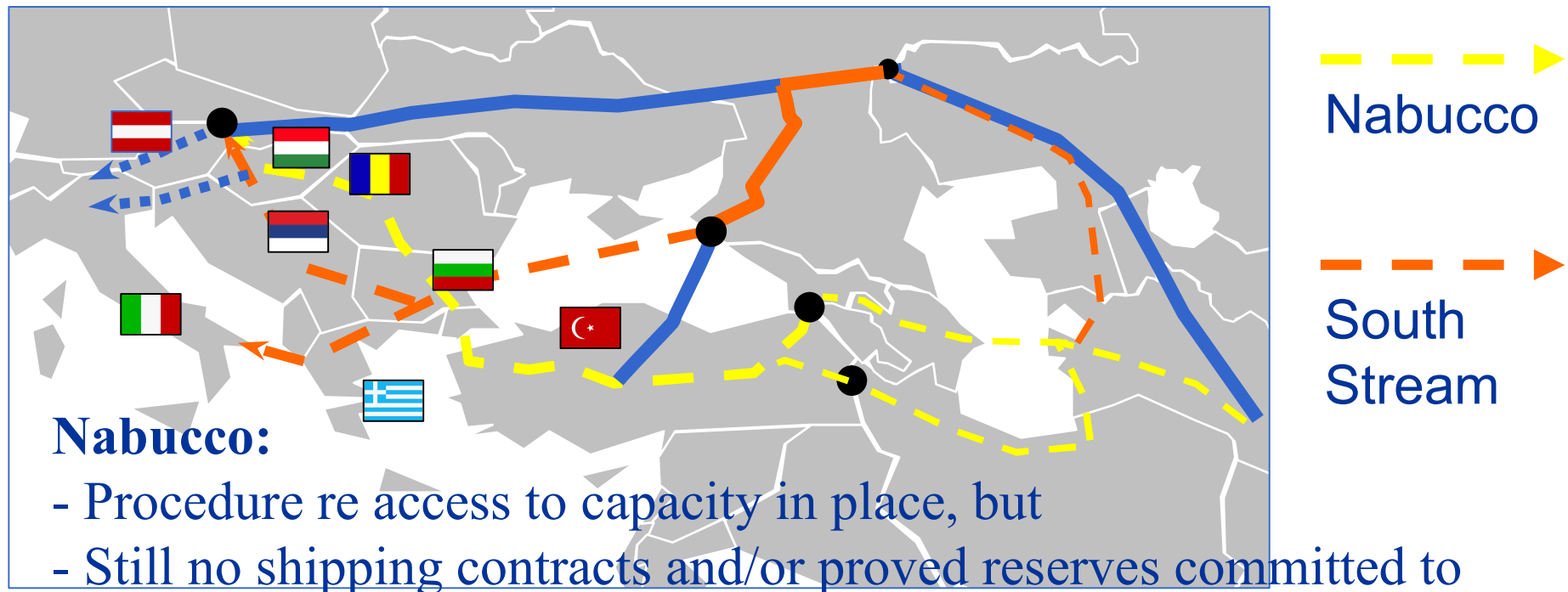
Routes 1 & 3 = access to fastest growing and biggest Eurasian gas market (2010)

Route 2 = proven by historical practice least risky (on-border sales) access to mature EU market with highest prices (2009)

Route 4 = no more price stimuli compared to Route 2 (2009)

Route 5 = most risky & unpredictable

South Stream and Nabucco



Nabucco:

- Procedure re access to capacity in place, but
- Still no shipping contracts and/or proved reserves committed to deliveries via Nabucco, plus
- Competition with other pipelines for gas of Shah-Deniz-II, plus
- No go for Trans-Caspian (delimitation) and via Iran (US embargo + conflict of interests) pipelines
- EU structures ready to finance at minimum pre-investment stages, but
- No dedication from private investors to invest until supplies are contracted and LTGECs are signed

Thank you for your attention !

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