Delivering Caspian Gas from the Caspian Region to Europe – “Its coming”

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The energy to lead

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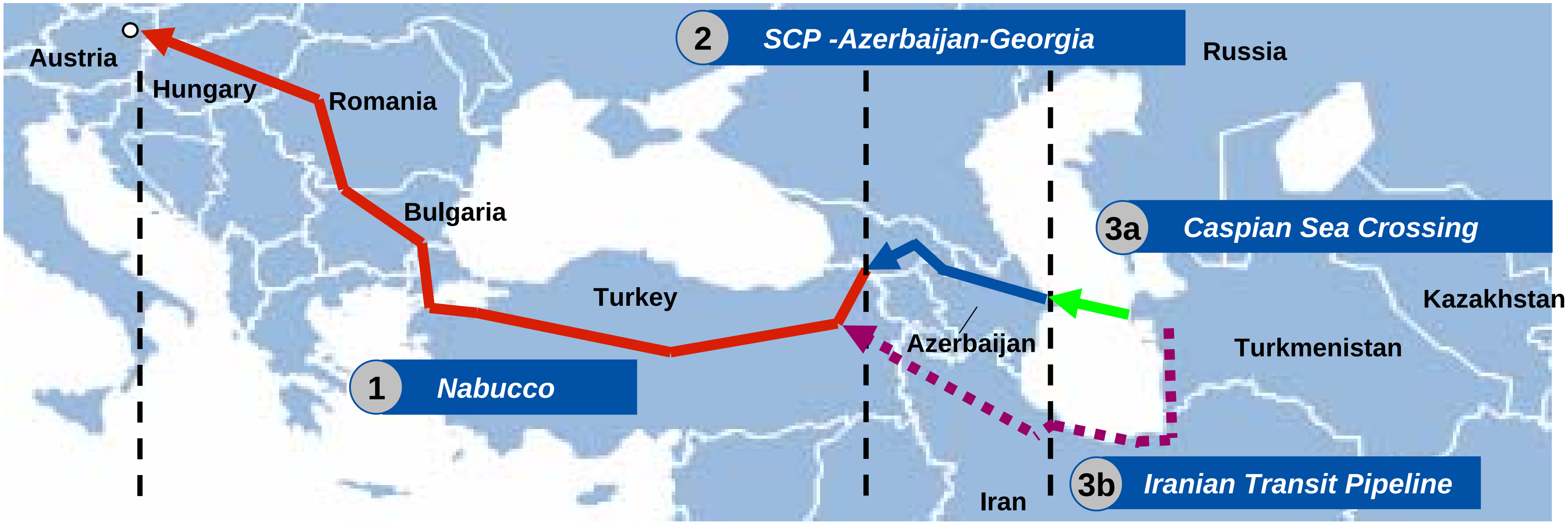
Seen historically - opportunities to link the Caspian Region's gas to Europe have always been difficult and not successful to date….

"The pessimist sees difficulty in every opportunity. The optimist sees the opportunity in every difficulty."

Sir Winston Churchill
(British Statesman, 1874 - 1965)

Opening the Caspian Region to Europe for gas export will involve the development of 3 gas pipelines…….



1. **Nabucco** – The Southern Corridor from Turkish Eastern border to Europe – **Ready to go**
2. **South Caucasus Pipeline ("SCP")** – Linking Azerbaijan to Turkey and Nabucco – **In place and operational**

3a. **Caspian Sea Crossing** – Linking Turkmenistan and other potential East Caspian countries to Azerbaijan – **under detailed consideration**

3b. **Iranian Transit Pipeline** – although the most cost effective option not feasible given political environment

Section 1. Nabucco – Is ready to go….

Nabucco – linking European gas markets directly to gas reserves in Caspian / Middle East Region

Nabucco pipeline **Nabucco transit countries**

Nabucco – Facts & Figures

> Pipeline diameter: 56"
> Distance: ~3,300 km
> Investment: up to € ~8 bn (real terms)
> Transport capacity: up to max. 31 bcm/a
> Construction of pipeline is expected to begin in 2011 and first operations in 2014
> Capacity in phases:
- Phase 1: 8 bcm/a (2014)
- Phase 2: 15.7 bcm/a (2015/16)
- Phase 3: 31 bcm/a[1)] (2019/20)

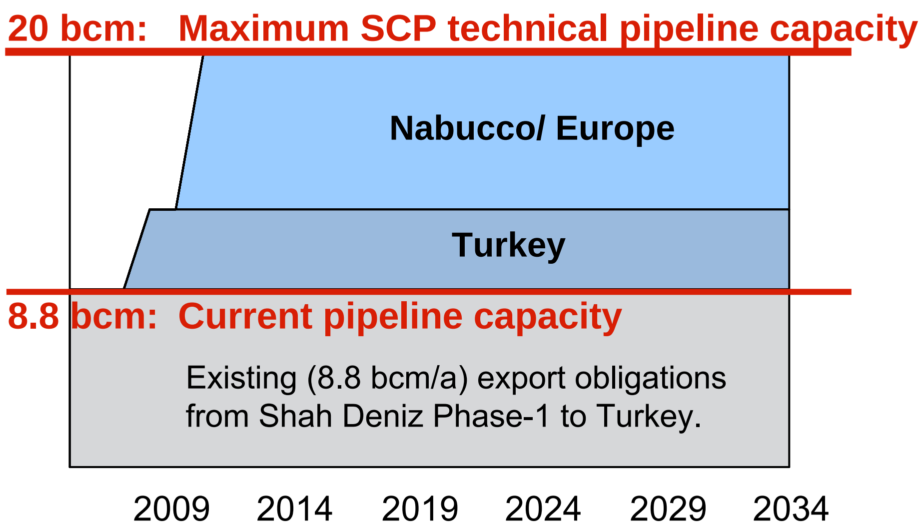
> Shareholders (each 16.67%):
- BOTAS *(Turkey)*
- *Bulgargaz (Bulgaria)*
- MOL *(Hungary)*
- OMV *(Austria)*
- RWE[2)] *(Germany)*
- Transgaz *(Romania)*

There is enough gas for Nabucco, there is sufficient financing for Nabucco and Turkey and Europe have now agreed the marketing and capacity rights

1) Depending on demand
2) 5th Feb 2008 RWE joined Nabucco as sixth strategic partner

Section 2. SCP is in place and operational….

SCP Capacity



> Currently transporting approx. 8.8 bcm/ of Shah Deniz phase-1 gas to Turkey

> Additional compressor stations required to reach its max. technical capacity of 20 bcm/a to transport Shah Deniz phase-2 gas to Turkey and Europe via Nabucco

Conclusion:

⇨ A new build pipeline is required “looping the SCP” to deliver additional gas volumes from Turkmenistan – Azerbaijan have confirmed their readiness to transit these gas volumes

Section 3. East Caspian link – there are 4 technically feasible options…A Caspian Sea pipeline is the most viable solution today…

1 Trans Caspian Pipeline

> 300 km off-shore pipeline linking Turkmenistan and Azerbaijan

> A 10-15 bcm/a capacity pipeline (operational in 2015) would match Turkmenistan's un-contracted offshore gas production

3 CNG/LNG Vessels

> Transport by CNG ("Com-pressed Natural Gas") or LNG ("Liquefied Natural Gas")

> CNG is more costly than a pipeline. Can only be economic for very small volumes (≤2-3 bcm)

> LNG is not economic in this case (small distance)

2 Offshore field tie-in

> Connecting Turkmen and Azeri offshore platforms and utilising existing infrastructure

> A 5-10 bcm/a capacity field tie-in would offer a smaller technically and commercially viable solution

4 Transit via Iran

> Expansion of existing pipeline via Iran to Turkish border

> It is the lowest cost option for a large scale export pipeline but under current political environment not possible

EU plans a gas link to Turkmenistan and Kazakhstan – RWE has set up a Company ‘CEC’ to build that link

> **The Commission considers [...] as energy security priorities of the Community:**
>
> A southern gas corridor must be developed for the supply of gas from Caspian and Middle Eastern sources, which could potentially supply a significant part of the EU's future needs. This is one of the EU's highest energy security priorities. The Commission and Member States need to work with the countries concerned, notably with partners such as Azerbaijan and Turkmenistan, […] with the joint objective of rapidly securing firm commitments for the supply of gas and the construction of the pipelines necessary for all stages of its development.
>
> EU Energy Security and Solidarity Action Plan (13th Nov 2008)

- RWE together with OMV of Austria have incorporated a Caspian Energy Company (‘CEC’) to investigate developing, constructing, owning and operating an east-to-west pipeline connection across the Caspian Sea
- CEC is open to further partners e.g. from Azerbaijan or Turkmenistan, if desired
- CEC is seeking political patronage from EU and German high-level politicians to support an agreement of the regional countries involved

› RWE takes positive action on linking Europe to the Caspian Region with founding a company developing a gas infrastructure connection

A Trans Caspian gas export solution has failed to materialise to date…………

Trans-Caspian Pipeline

Early 1990s

Iranian pipeline

- Discussions to bring Turkmen gas via Iran to Turkey started
- In 1998 discussions ended due to deteriorated US-Iran relations and Iranian skepticism to allow competing gas volumes crossing its territory

1998

US initiative

- Failure of Iranian pipeline resulted in idea of a Trans-Caspian Pipeline.
- This initiative failed due to:
  - Project partners could not agree on terms
  - Azerbaijan's focus shifted to developing large scale upstream discoveries

2000

Private investors

- Bechtel and General Electric Capital won the tender to construct TCP (Shell joined later; Enron raised interest)
- The project was abandoned in June 2000 because of:
  1) Overcontracted supplies in Turkey
  2) South Caspian Pipeline from Shah Deniz
  3) Commissioning of Blue Stream

Key reasons for failure:

- Lack of interest and political support from littoral/transit states
- A major power retreated from the initiative (US) or blocked the project (Russia)
- No on-going route to Europe bridging the distance between Azerbaijan and Europe
- Unfavorable target market situation (Turkey)

But times have changed and political and commercial developments have opened a "window of opportunity" for a Caspian Sea solution to be realised..

A *TKM – AZE dispute on Caspian Sea progresses*

Baku Surprised by Berdimuhamedov's Inflammatory Statement

On July 24 Turkmenistan's President Gurbanguly Berdimuhamedov declared his country's intention to take Azerbaijan to the international court of arbitration (ICA) over disputed oil fields. This announcement has shocked the Azeri government.

Eurasia Daily Monitor, August 6, 2009

B *Gas crises make Security of Supply for Europe top priority*

Independence Day For European Gas

The leaders of four European countries and Turkey gathered in Ankara on Monday to sign the long-delayed Nabucco pipeline deal. The project aims to supply Europe with gas and, crucially, lessen dependency on Russia.

SpiegelOnline, July 13, 2009

C *The need for diversification of demand becomes ever more clearer*

Pipeline explosion raises tensions between Turkmenistan and Russia

Turkmenistan's President Gurbanguly Berdymukhammedov is calling for talks with Russia as part of efforts to repair a damaged natural gas pipeline and, more importantly, damaged Turkmen-Russian relations after last week's pipeline explosion. […]

EuropeanEnergyReview, April 2009

D *Nabucco offers a realistic route for Caspian Gas to Europe*

There are lots of benefits to the Caspian Region from linking to Europe

Security of Demand and Price Security

- Diversification of export routes and demand markets
- Multiple gas buyers and no intermediaries
- Long term take or pay contracts vs. swing contracts
- Netback pricing with transparent price benchmarks

Foreign Investment & Economic Development

- Increased earnings (foreign exchange) from gas sales and tax income
- Encourages further foreign investment in the energy sector (upstream oil and gas, power generation, gas distribution networks, etc.)

Know How Transfer

- IOCs and European energy companies can bring expertise, experience, training and know how transfer

Political & Social Impact

- Interconnectivity with neighbouring countries and Europe creates interdependence
- Encourages regional development
- Employment

Nabucco is the only project that realises these benefits and without access to Europe there is no market to take the gas …the Italian projects certainly do not offer these benefits..

ITG-IGI and TAP

- ITG-IGI and TAP projects target local markets only (Italy (already over-supplied) and Greece)
- There is no incentive to open the Caspian Sea as ITG-IGI and TAP have no ability to transport the gas to Europe
- ITG-IGI and TAP transportation capacities are small and thus offer little (if any) investment incentive in Turkey nor in the gas producing countries

- ITG-IGI will be significantly less competitive in terms of transportation costs/tariff as the projects have no economies of scale
- ITG-IGI and TAP relies on the Turkish gas grid and are not dedicated export pipelines. Is this acceptable to producers?

The ideal world – pipelines from Central Asia bridge the Caspian Region to Europe

The Brave New World…

"Where there is a will there is a way."

Thank you very much for your attention

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