Turkmenistan:
Prospects for the TAPI & TCGP Projects

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Why Turkmenistan Needs a Fourth Major Outlet

The financial need for new markets

Russia: Gains and setbacks

- **The aftermath of 9 April 2009**

China: Gains and setbacks

- **Missing targets and delivery for debt**

Iran: Gains and setbacks

- **7 November 2010. Javad Oji's statement.**

The commercial advantages of direct exports to South Asia and/or Europe

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Priorities

Turkmenistan's own priorities

- **TAPI first, then TCGP?**

International company priorities (US):

- **An upstream stake in South Yoloten and a workable export system**

International company priorities (EU):

- **Upstream stakes both offshore and onshore and a TCGP**

External priorities:

- **TAPI for India; and also for Pakistan?**
- **TCGP for the European Union**

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TAPI

More advanced than TCGP in terms of international framework agreements

- **Disputes over pricing**
- **India-Pakistan issues**
- **A changing energy scene in Pakistan?**

Transit across Afghanistan

- **Difficult but not impossible?**
- **Prospective roles for ExxonMobil and/or Chevron**

Outstanding issues:

- **Gas sales & pricing**
- **The need for a project leader**
- **Pipeline security**
- **Timing?**
- **Challenge: The progress of IPI**

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TCGP-1

Availabilities

- **10 bcm from Petronas**
- **30 bcm from South Yoloten**

Either, both – or none

Balancing a midstream pipeline and an upstream project

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TCGP-2

The Caspian Sea dilemma

- **Legal or political?**

The Azerbaijan-Turkmenistan dispute

- **Manageable**

The environmental issue

- **Manageable**

The EU September declaration: Necessary but not sufficient

- **Bringing Azerbaijan fully on board**
- **Enabling Turkmenistan to pursue its own policies.**

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TCGP-3

What can Russia offer?

- **Increased gas purchases from Turkmenistan**
- **“Direct” access to non-Russian CIS markets**
- **“Direct” access to non-Russian CIS markets**

What can Russia threaten?

- **Intervention on the Caspian Sea**
- **Intervention affecting Azerbaijan – Nagorny-Karabagh**
- **Intervention affecting Georgia – Abkhazia and South Ossetia**
- **Intervention affecting Turkmenistan: loss of existing Russian gas market.**

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The Question of Russia

The need for an EU counterweight

- **EU Policy: ‘We discuss those issues that need to be discussed’.**

What Turkmenistan Needs:

- **Russia on board - or countermeasures in place**

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The Southern Gas Corridor: The EU's Geopolitical View

The EU's Raison d'Être

"From a long-term strategic perspective, the EU clearly needs to invest in direct contacts and firm contracts with Central Asian and Middle Eastern gas-producing states.

"Opening a fourth or Southern corridor enables the EU to directly link its gas market to the extensive reserves available in the Caspian region and the Middle East. It enables the EU to get connected to new sources, via new routes and hence significantly diversify its supplier portfolio. Key gas markets to be supplied by the Southern Corridor are southern Germany, Austria and Italy, as well as Southeastern Europe, which are physically very close to the gas reserves in the Caspian and Middle East but traditionally have been supplied by Russia. The Southern Corridor provides an opportunity to change this situation, to reduce the dominant position of Russian gas supplies and to introduce price competition on regional markets, which eventually will benefit local consumers."

Source: Brendan Devlin and Katrin Heer: The Southern Corridor – Strategic Aspects for the EU

In: KRISTIN LINKE AND MARCEL VIËTOR (EDS.) | What is the Southern Corridor? BEYOND TURKEY, November 2010, Friedrich Ebert Foundation.

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The Southern Corridor: The Core Commercial Elements

Azerbaijan's Cascading Series of Choices

The twin choice - supposedly by end-2011

- **1. With whom should the Shakh Deniz partners/ Azerbaijan open sale-and-purchase negotiations**
- **2. Which pipeline should they choose?**

In practice, the pipeline decision first requires the Shakh Deniz partners/ Azerbaijan to answer another question: Whether to go with Nabucco or an alternative to Nabucco

If non-Nabucco, then do the Shakh Deniz partners/ Azerbaijan choose ITGI, TAP or the BP capillary proposal -- or a combination.

If non-Nabucco, then is transit across Turkey to be secured by means of an expanded Botas system or by a stand-alone pipeline across Turkey. This decision is due to be made by mid -2012.

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Turkmenistan and Southern Corridor Commerciality

- **Who speaks for Turkmenistan when commercial issues concerning the size and scope of gas pipelines in the Southern Corridor are discussed?**
- **Whether a TCGP is built remains a largely political question. The commerciality is there, but the politics still have to be sorted.**
- **But only if there is an answer to this question can we begin to assess when a trans-Caspian Gas pipeline might be built.**

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Conclusion

Is Turkmenistan ready to:

- **1. Coordinate or even integrate upstream and midstream project development?**
- **2. Envisage upstream onshore PSAs (or other risk-and-reward arrangements) for developers of midstream projects, notably export pipelines?**
- **3. Become a participant in whatever partnerships or consortia are set up to develop new export pipelines, notably TAPI and TCGP?**

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Questions?

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Turkmenistan's Prospects for Exports Westwards: Determination & Challenges

1. Turkmenistan's determination to export across the Caspian
2. Challenges from other conventional sources:
   - Northern Iraq
   - Azerbaijan
   - The Eastern Mediterranean
3. The challenge of unconventional gas within Europe
4. The challenge to – and from – Russia.

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Where Turkmenistan Stands

“In the epoch of new Revival and great reforms Turkmenistan takes specific steps to diversify pipeline infrastructure to ensure reliable, stable and long-term transit of energy to world markets that brings profits for both fuel and energy exporters and consumers.

“Future supplies of Turkmen natural gas to Europe and promotion of close collaboration with countries of the region in the fuel and energy sector are stipulated in this context. The fruitful Turkmenistan-European Union talks on exports of Turkmen ‘blue fuel’ are a powerful incentive to implement this project. These talks reaffirmed that the Turkmen state and Europe are committed to establishing close mutually advantageous cooperation in this area.”

Turkmenistan President Gurbanguly Berdimukhamedov, 26 May 2011

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Turkmenistan: Fallout from the 9 April 2009 Cutoff

Turkmenistan's gas balance in 2011 - The Classic Fields

- **Productive capacity: 70–75 bcm**
- **Domestic consumption: 18-20 bcm**
- **Export to Russia: 11-12 bcm**
- **Export to Iran: 12-13 bcm**
- **Export to China from Classic fields: Zero in 2011; 6 bcm in 2014.**

  NOTE: Most exports to China come from new, dedicated, fields.

STRANDED CAPACITY: 25-34 bcm.

Precision is impossible.

Consequences of 12 hours notice of pipeline shut-in before line shot down, followed by Km-487 explosion.

Consequences of abruptly shutting down 195 fields representing 92% of exports to Russia – or c. 40-45 bcm of capacity.

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2010 - Turkmenistan: Taking Advantage of New Openings

The Short-term issue: Petronas and the issue of stranded gas

- Petronas: 8-10 bcm of gas output by 2013-14

Options:

- The Caspian Coastal Pipeline (Pri-Caspiy) to Kazakhstan and Russia. Technical capacity: 14-16 bcm/y: effective capacity, probably 7-8 bcm/y without significant repair.

Turkmen attitudes:

One: Renovate and upgrade CCP (Pri-Caspiy), as envisaged in the May 2007 agreements with Russia and Kazakhstan.

Two: Opt for a trans-Caspian solution.

- "Obviously, we are ready to supply gas for Nabucco when it reaches us," said a Turkmen government official who asked not to be named.
- "As early as next year, 10 bcm can be exported from the Turkmen Caspian shelf where Petronas is working."

Source: Reuters – Ashgabat 19 November 2009

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2010 - CCP/Pri-Caspiy Issues

- But does Russia want Petronas/Dragon/Burren gas
- If so, on what terms?
- Does it envisage a return to the concept that it is Turkmen gas that will, in effect, be used to supply Ukraine – if so, would it be at the discounted price Russia recently agreed with Ukraine?

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2010 - Turkmenistan's Position – The View from Ashgabat?

- Opportunity Cost: Reduction in exports means Turkmenistan's gas remains available for sale in future, so no long-term loss.

- Pricing Policy: The state considers it important to purchase gas from producers -- e.g. the output from Petronas & Dragon -- and then handle the resale for export itself. Under this system, the Turkmenistan Government retains its existing pricing system, which reflects political as well as commercial considerations.

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Caspian Gas Potential

Current and projected export availabilities (in bcm)

	2008	2009	2010*	Official Projections
• Azerbaijan:	5.6	7.0	8.5	25-30 by 2020.
• Kazakhstan:	2.6	8.0	8.3	20 by 2015
• Uzbekistan:	13.5	16.5	13.6	35 by 2018
• Turkmenistan:	45.1	16.5	19.8	140 by 2020
• Caspian Region	66.8	48.0	50.2	220-225 in 2020?

*** 2008-2010 from BP Statistical Review 2011**

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Conventional Challenges: Potential Suppliers for the EU's Southern Gas Corridor 2011-2020

A Wide Range of Potential Availability

•	**Mid-2011:**	**Northern Iraq: Khor Mor & Chamchamal**	**5 bcm.**
•	**2011-2013:**	**Turkmenistan: Petronas Offshore**	**5, then 10 bcm**
•	**c. 2014:**	**Northern Iraq (increase on above)**	**5 bcm**
•	**2015-20:**	**Turkmenistan: South Yoloten/Osman**	**10-20 bcm.**
•	**c. 2016-7:**	**Iraq, Akkas**	**3-4 bcm.**
•	**2017-2019:**	**Azerbaijan: Shakh Deniz-2**	**16 bcm**
•	**2018-2022:**	**Azerbaijan**	**5-10 bcm**
•	**2017-2020:**	**Eastern Mediterranean**	**10-20 bcm**
•	**2018-2020:**	**Iraq (Baghdad-controlled) a further**	**15-35 bcm***

Total in or around 2020. **80-125 bcm**

Note: No allowance is made for c. 20 bcm of currently shut-in Turkmen gas.

*** Iraqi Deputy Prime Minister Hussain al-Shahristani said that Iraq would have 30-50 bcm/y available for export in seven years (speaking to Platts in January 2011). This would have included Kurdish region and Akkas output, hence lower figures on list.**

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The Challenge of Time

The development of South East European interconnectors

- **The transportation system when SD-2 comes on line will look somewhat different from that in 2011. By then, no EU member state – and possibly no member of the European Energy Community – will be 100% reliant on delivery systems from Russia.**
- **The rise of South East Europe as a market in its own right.**

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The Azerbaijani Challenge

What lies beyond SD2-?

- **The ongoing development of SD-2. Could there be an SD-3?**
- **Umid. Proven reserve of some 200 bcm (SOCAR). First commercial production 2020-2022?**
- **Absheron. Proven reserve of some 350 bcm (Total). First commercial production 2020-2022? Could Total bring this forward?**
- **Deep Level ACG. 300 bcm of recoverable reserves (SOCAR). 'Intense' negotiations under way with Shakh Deniz Consortium over prospective PSA. Development timeframe could be made to mesh with Shakh Deniz schedule.**

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A New Challenge: Eastern Mediterranean Prospects - 1

An estimated 122 trillion cubic feet (3.4 tcm) (mean estimate) of undiscovered, technically recoverable natural gas are in the Levant Basin Province, located in the Eastern Mediterranean region

"The Levant Basin Province is comparable to some of the other large provinces around the world and its gas resources are bigger than anything we have assessed in the United States," said USGS Energy Resources Program Coordinator Brenda Pierce. "This assessment furthers our understanding of the world's energy potential, helping inform policy and decision makers in making decisions about future energy supplies."

USGS 8 April 2010

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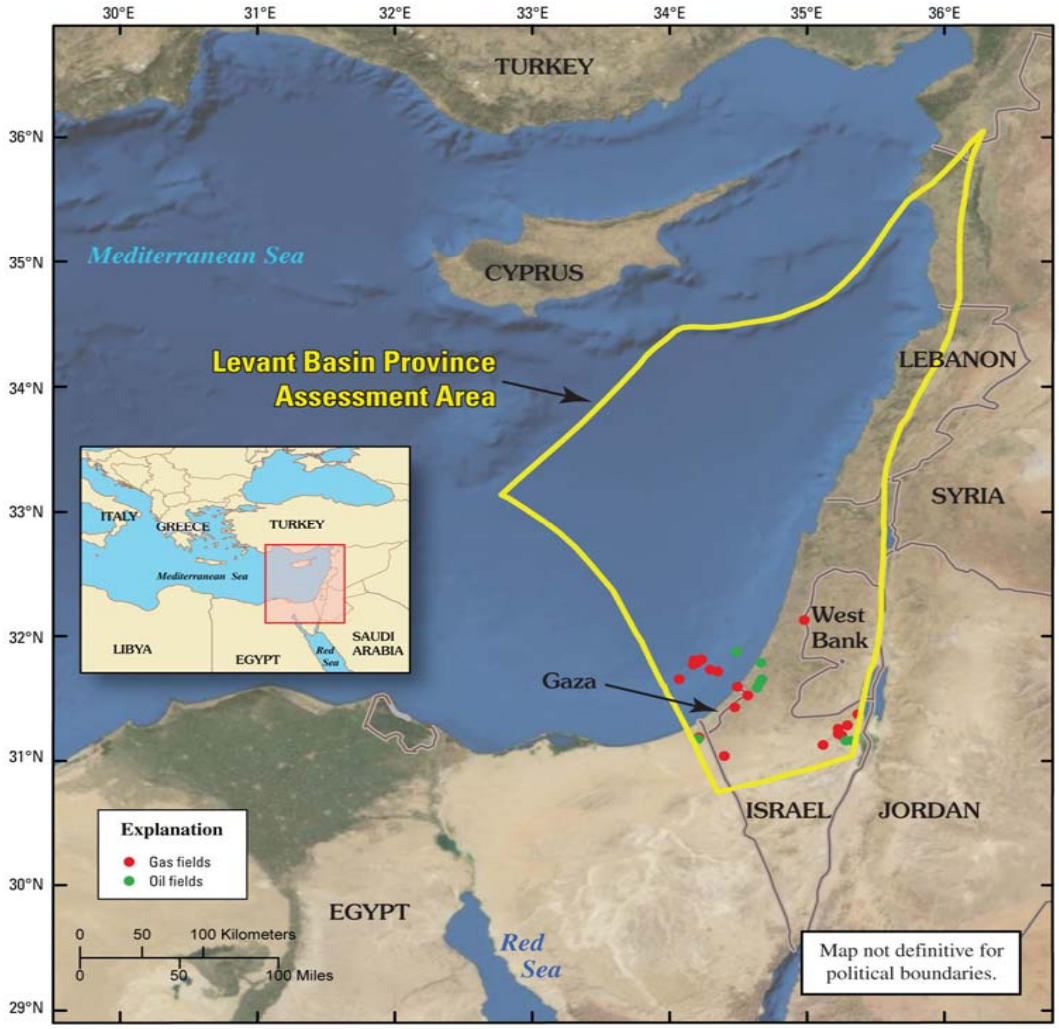
New Models: Eastern Mediterranean Prospects – 2
USGS Map April 2010



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New Models: Eastern Mediterranean Prospects - 3

- **Israel: Offshore: Tamar (8.4 tcf) and Leviathan (16.4 tcf) discoveries. Combined reserve: c.700 bcm. Capable of yielding a 10-20 bcm/y output. 2016-2020.**
- **Cyprus: Indications of 10 tcf (c. 300 bcm) of natural gas deposits in Cypriot waters near Tamar and Leviathan. Cyprus could start producing gas in the next five years.**

Cyprus Energy Director Solon Kassinis, January 2011.

Issues:

- **The Cyprus issue – and Turkey**
- **Palestine's Maritime Rights**
- **Boundary disputes, exports by pipe or by LNG?**
- **Spillover from Egypt?**

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A New Challenge: Unconventional Gas

European Conventional Gas Reserves (BP): 14 tcm
(Includes Ukraine, excludes Russia and other CIS)
Europe-14 (EIA, April 2011) 5.2 tcm

<u>Unconventional Gas:</u>

Old reserve paradigm:	**(US NPC 2007)**	**34.7 tcm**
	(CERA 2007)	**3 - 4 tcm**
New reserve paradigm:	**(EIA April 2011) Europe-14**	**17.9 tcm**
	(IHS CERA, March 2011)	**Up to 173 tcm**

IHS CERA's oil price assumptions place the cost of unconventional gas on par with the long-term average price of contract gas.

IHS CERA source: Breaking with Convention, March 2011.

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European Shale Gas Potential - US EIA 5 April 2011

Estimated shale gas technically recoverable resources for select basins in 32 countries, compared to existing reported reserves, production and consumption during 2009

	2009 Natural Gas Market[1] (trillion cubic feet, dry basis)			Proved Natural Gas Reserves		Technically Recoverable Shale Gas	
	Production	Consumption	Imports (Exports)	tcf	tcm	tcf	tcm
EUROPE	10.81	14.62		**186.21**	**5.208**	**639**	**17.89**
France	0.03	1.73	98%	0.2	0.0056	180	5.04
Germany	0.51	3.27	84%	6.2	0.1736	8	0.22
Netherlands	2.79	1.72	-62%	49	1.3720	17	0.48
Norway	3.65	0.16	-2156%	72	2.0160	83	2.32
U.K.	2.09	3.11	33%	9	0.2520	20	0.56
Denmark	0.3	0.16	-91%	2.1	0.0588	23	0.64
Sweden	-	0.04	100%			41	1.15
Poland	0.21	0.58	64%	5.8	0.1624	187	5.24
Turkey	0.03	1.24	98%	0.2	0.0056	15	0.42
Ukraine	0.72	1.56	54%	39	1.0920	42	1.18
Lithuania	-	0.1	100%			4	0.11
Hungary/Romania/Bulgaria	0.48	0.95	50%	2.71	0.0759	19	0.53

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Shale Gas – European Perceptions

OLD:

- **Little will happen in terms of production by 2015, or even by 2020. Although by 2015 perceptions of the impact of unconventional gas on future European gas perceptions will start to exercise a profound impact on assessments and planning for European gas supplies.**

NEW:

- **Scenario planning 1: Prospectively as much as 35 bcm in production by 2020 (Platts unconventional gas conference, September 2011).**
- **Scenario planning 2: 60-200 bcm around 2025 (IHS CERA, March 2011).**
- **UK: Cuadrilla 5.7 tcm of gas resources in place; a 20% recovery factor?**

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Russia: Two Views of Natural Gas Output 2007 - 2030

Gas production in 2007: 646 bcm (IEA, WEO 2009)

Gas production in 2030: 760 bcm Up 114 bcm.

- ***Source: IEA. WE0 2009 Reference Scenario: Gas Table 12.1 (Page 429)***

Gas production in 2030: 885-940 Up 239-294 bcm

- ***Source: Energy Minister Sergei Shmatko 26 Nov 2009***

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Russia's Goal 2011

- **Gazprom no longer considers Europe as its primary gas market, although it will honour existing and future contracts. Russia will instead expand its LNG production and seek new markets in Asia.**
- **"Now Gazprom does not find itself to be a primary supplier of gas to Europe due to the stance of some of our European partners"**

Source: Deputy Energy Minister Anatoly Yanovsky, in Paris, attending meeting with the International Energy Agency, 18 October 2011.

- **Where is the long-awaited Russia-China gas deal?**
- **What is the impact of China's drive for unconventional gas development?**

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Questions?

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