Potential Gas Exports from Caspian Region to Europe

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3rd South East Europe Energy Dialogue

18th & 19th of June 2009
Thessaloniki, Greece

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Estimated Gas Reserves and Production in the Caspian Region

Source: BP Statistical Review of World Energy 2009

	Reserves at end of 2008 (In Trillion cubic Meters)	Production (In Billion cubic Meters)
AZERBAIJAN	1.2	14.7
KAZAKHSTAN	1.8	30.2
TURKMENISTAN	7.9	66.1
TOTAL	10.9	111.0
Russia	43.3	601.7
Iran*	29.6	116.3

*Iran's reserves are estimated by the Government at around 30TCM
Iran's gas production will reach 185billion cubic meters by winter of 2010 and Iran could become the third largest gas producer in the world

Basic Regional Gas Statistics

Source: BP Review of world Energy Statistics 2009
(Figures in billion cubic meters)

Gas Reserves		% of the World	% of the ME
Middle East	75,910	41.0	
Iran	29,6100	16	39.5
Qatar	25,460	13.8	33.5
Saudi Arabia	7,570	4.1	9.9
UAE	6,430	3.5	8.4
	Gas Production	**% of the World**	**% of the ME**
Middle East	381	12.4	
Iran	116	3.8	30.5
Qatar	77	2.5	20.0
Saudi Arabia	76	2.5	20.5
UAE	49	1.6	13.2
	Gas Consumption	**% of the World**	**% of the ME**
Middle East	327	10.8	
Iran	118	3.9	36.1
Qatar	20	0.7	6.1
Saudi Arabia	78	2.6	23.8
UAE	58	1.9	17.7

Potential Direct Gas Export from Caspian Region and Iran to Europe

	Potential Reserves Trillion Cubic Meters	Potential Production Billion Cubic Meters/year
Azerbaijan	1-2	10-15
Kazakhstan	2-3	30-50
Turkmenistan	8-9	80- 120
Iran	30-35	200-600

- **Potential Direct Export to Europe BCM**
  Azerbaijan 10-12 **Iran 100-120**

Gas Export from Iran

Options to Monetize Iran's Natural Gas Resources

- **Domestic Use**

  a) *Replace demand for Petroleum Products with gas*
  b) *Gas injection in the oil fields (enhance oil recovery)*
  c) *Electricity generation using Natural Gas*
  d) *Development of Gas Based Industries (Petrochemicals Cement, Iron, Aluminum, Gas to Petroleum Products etc.*
  (These are major priorities of the Government)

- **Natural Gas Export**

  a) Gas trade by Pipelines to Regional markets, Europe, Indian Subcontinent and China)

  (Priority based on their Strategic value as indicated in the long term Energy planning of the Expediency Council)

  b) *LNG Export*

Is There Enough Gas for all these Projects?

<u>Yes</u> If gas resources are developed quickly

<u>No</u> if gas resources are developed at current pace

Gas Requirements for all Existing and Planned Projects 2008-2030

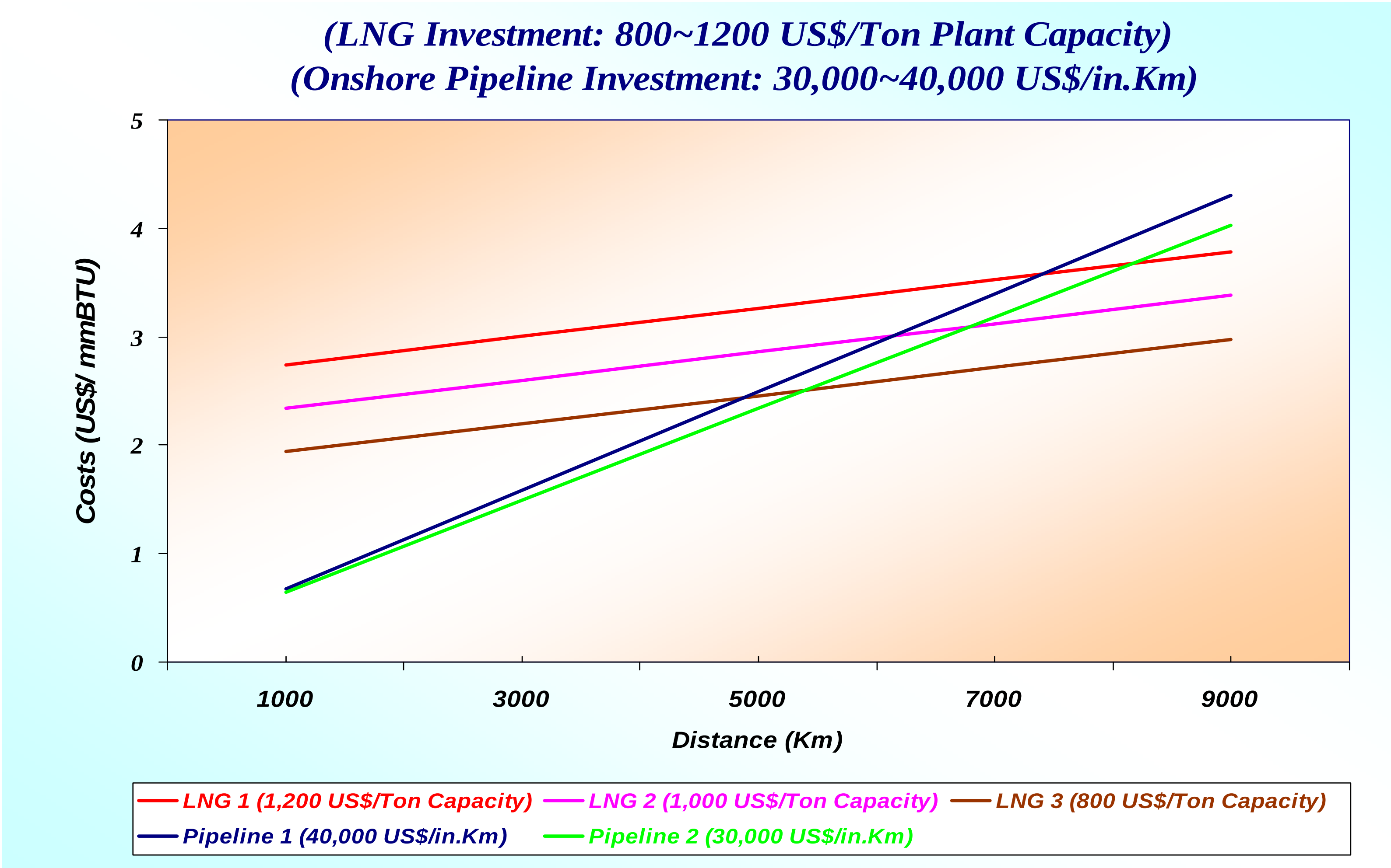
SECTORS	Trillion Cubic Meters
Total Domestic Consumption **(Electricity Generation included)**	**6.5 – 7.0**
Total Injection in the Oil Fields **(Most of this gas will be recovered)**	**1.8 – 2.0**
All types of Gas Based Industries	**0.9 – 1.0**
Export (Pipelines & LNG) **(Based on current export agreements and MOUs)**	**1.8 – 2.0**
TOTAL **<u>(Around 40 % of the current total reserves)</u>**	**<u>11–12.0</u>**

What are the Main Issues Influencing Iran's Gas Policies and Development?

1- Job Opportunity and Expectation
2- The need for Gas Injection for Enhanced Oil Recovery
3- The high Gas Requirement for Domestic Market in Winter time
4- Energy prices and Subsidies.
5- Lack of Comprehensive Energy Policy
6- Political Tension with the US

The Comparison of Natural Gas Transmission Costs – Pipeline & LNG

(Slide from Iran's Petroleum Ministry)



Persia Pipeline

The Superiority of the Persian Pipeline to the Nabucco Pipeline is that the route of the pipeline is through gas Consumer Countries (Customers) and not through Transit Countries

Thessaloniki
June 18th & 19th 2009

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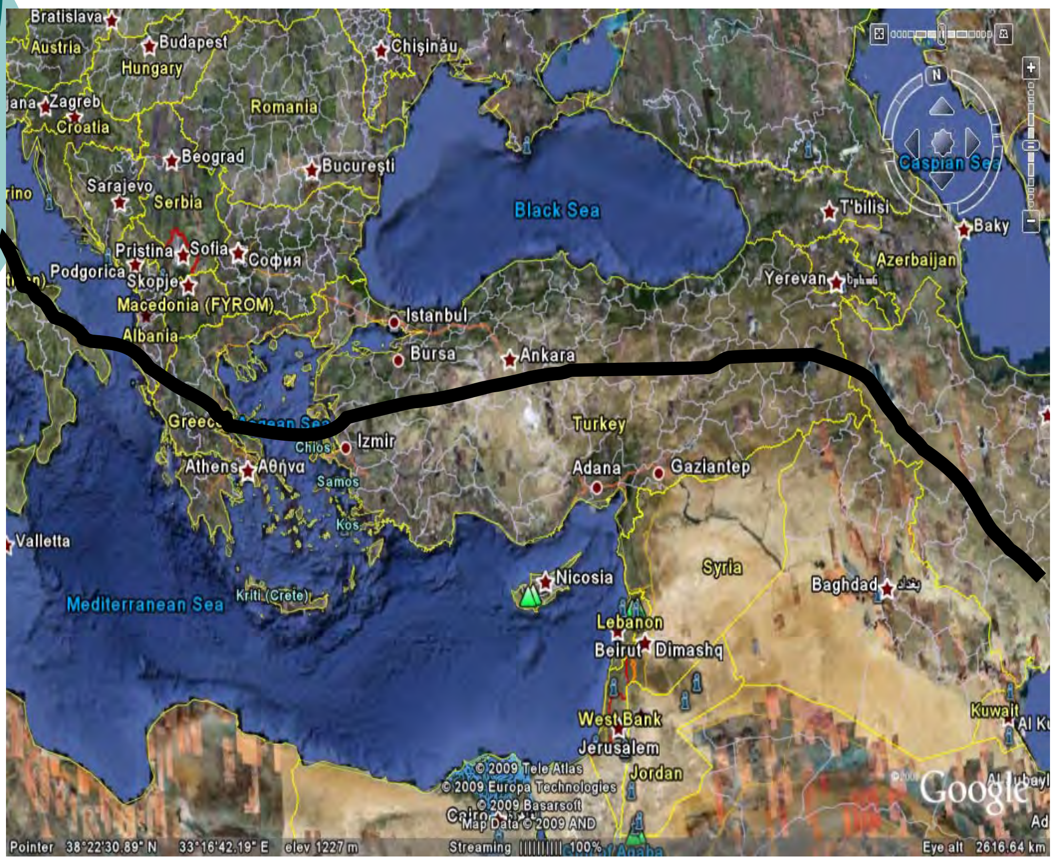
Potential Gas Export Pipeline Route to Europe (Eastern Europe Via Turkey)

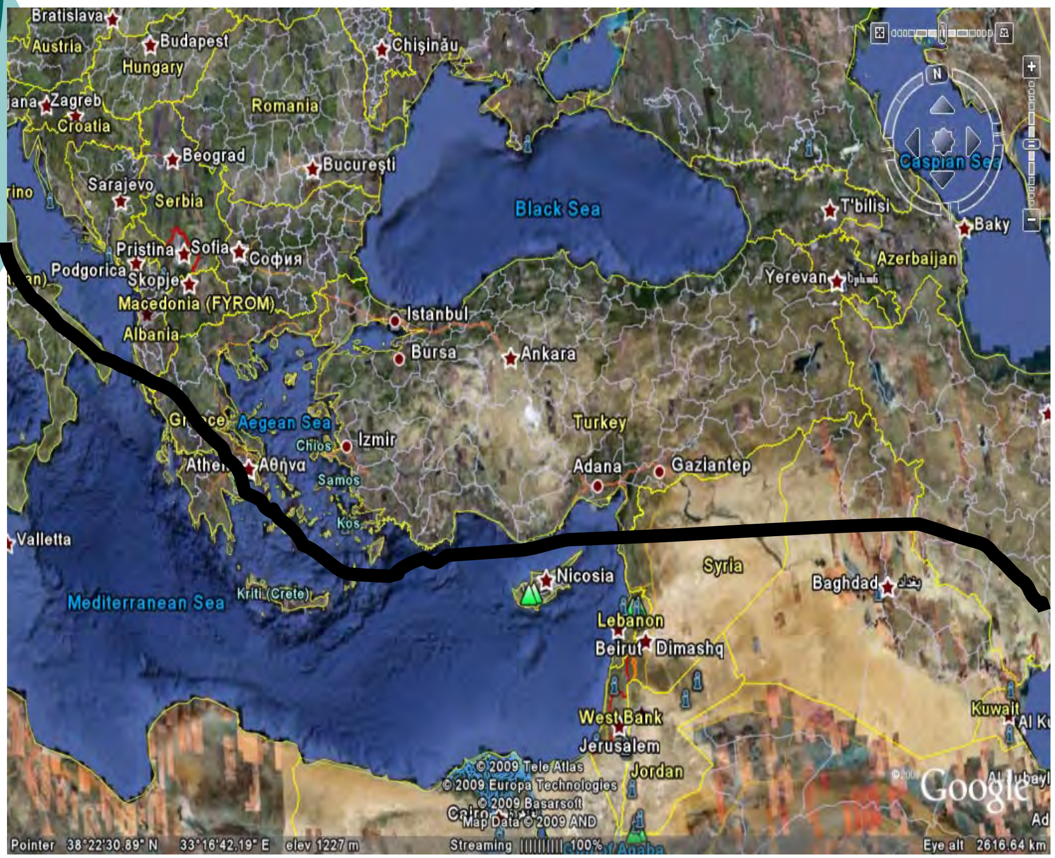
- Length: 5600KM
- Estimated Investment;
  Iran~ $7bn
  Total~ $18bn
- The pipeline passes through;
  Turkey
  Bulgaria
  Romania
  Hungry
  Austria

Potential Gas Export Pipeline Route to Europe (Southern Europe Via Turkey)



- Length: 6200KM
- Estimated Investment;
  Iran ~ $7bn
  Total ~ $20bn
- The pipeline passes through;
  Turkey
  Greece
  Italy
  Switzerland

Potential Gas Export Pipeline Route to Europe (South Europe Via Mediterranean Sea)



- Length: 5700KM
- Estimated Investment; Iran~ $2bn Total~ $25bn
- The pipeline passes through; Iraq Syria Greece Italy

Main Points

Iran is by far the largest producer and consumer of gas and gas based products in the ME. The country is strategically located to benefit from regional and international trade. However domestic and international political and economic considerations has slowed down the development of Iranian gas industry and consequently it has deprived Iran from gaining its right place in the world gas business.

- Iran could become the second largest producer of gas in the coming 15 years, capable of meeting its domestic gas demand without interruption and have a good share of the world gas business as a regional and international gas trader.
- There are several Routes for export of gas from Iran to Europe which includes passing through Turkey or via Iraq and Syria to Greece. Greece, as the nearest European country to Iran has a very important role to play in the coming years.
- The main challenges for the implementation of these goals are structural and political. There must be a vision locally and regionally to legislate laws and regulations as well as allowing the private sector to get involved in the gas business. Governments must cooperate to structure a meaningful price formula and legal framework.
- Politically, The current wars and tensions in the ME and particularly between Iran and US has hampered progress considerably. Political miscalculation could turn this potential win-win scenario into a loss for all in the region