



Potential Gas Exports from Iran In View of Domestic and World Gas Developments

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CONTENT

(Four Questions)

- Is there changes in the Regional Gas Reserves, Production and Consumption?
- Iran's Gas Balance. Is there enough gas for domestic and Export projects?
- What are the Main National and International Issues that will effect Iranian Gas export projects?
- Is there Changes in the Potential pipeline Routes for Gas Export from Iran to Europe?

Estimated Gas Reserves and Production in the Caspian Region

Source: BP Statistical Review of World Energy 2009

| | Reserves (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 at over 30TCM. Iran's gas production will reach around 180 billion cubic meters in 2010 and Iran will be the third largest gas producer in the world replacing Canada.

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 | 29,610 | 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 | 15-25 |
| ○ Kazakhstan | 2-3 | 30-50 |
| ○ Turkmenistan | 8-10 | 80- 120 |
| ○ Iran | 30-35 | 500-600 |
| ○ Potential Direct Export to Europe by 2020 | | |
| | Azerbaijan 10-15 BCM/Y | |
| | Iran 30-40 BCM/Y | |

Iran's Gas Industry (March 2009 - March 2010)

(Figures in Billion Cubic Meters)

| | |
|-------------------------------------|-----|
| ■ Gas Production | 174 |
| ■ Gas Consumption | 142 |
| ■ Gas Import | 6 |
| ■ Gas Export | 7 |
| ■ Gas Consumed in Operations | 23 |
| ■ Gas Flared approximately | 8 |
| ■ GAS CONSUMPTION OF 142 BCM | |
| ■ Power plants | 30% |
| ■ Industry | 16% |
| ■ Household and commercial | 54% |

Iran Gas Utilization Priorities

- **Domestic Use** (*major priorities*)
 - 1) *Replace demand for Petroleum Products with gas and Electricity generation for Domestic use*
 - 2) *Gas injection in the oil fields (enhance oil recovery)*
 - 3) *Development of Gas Based Industries (Petrochemicals, Cement, Iron, Aluminum, Gas to Petroleum Products etc.*
- **Natural Gas Export to Regional Markets**
(*Priority based on Economic and Strategic value as indicated in the Expediency Council's long term energy Objectives*)
Gas trade by Pipelines to Regional markets, Turkey and South Europe, Indian Subcontinent, Kuwait, Bahrain and UAE
- **Liquid Natural Gas (LNG) Trade**
Not a Priority

Is There Enough Gas for Domestic and Export ?

Yes

If gas resources are developed quickly

No


if gas resources are developed at current pace

Gas Requirements for all Existing and Planned Projects 2010-2030

SECTORS

Trillion Cubic Meters

- Total Domestic Consumption
(Electricity Generation included) 6.7 – 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 1.0 – 1.1
- Natural Gas Export 1.5 – 1.9
- **TOTAL**
(Around 40% of the current total reserves) **11–12.0**



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

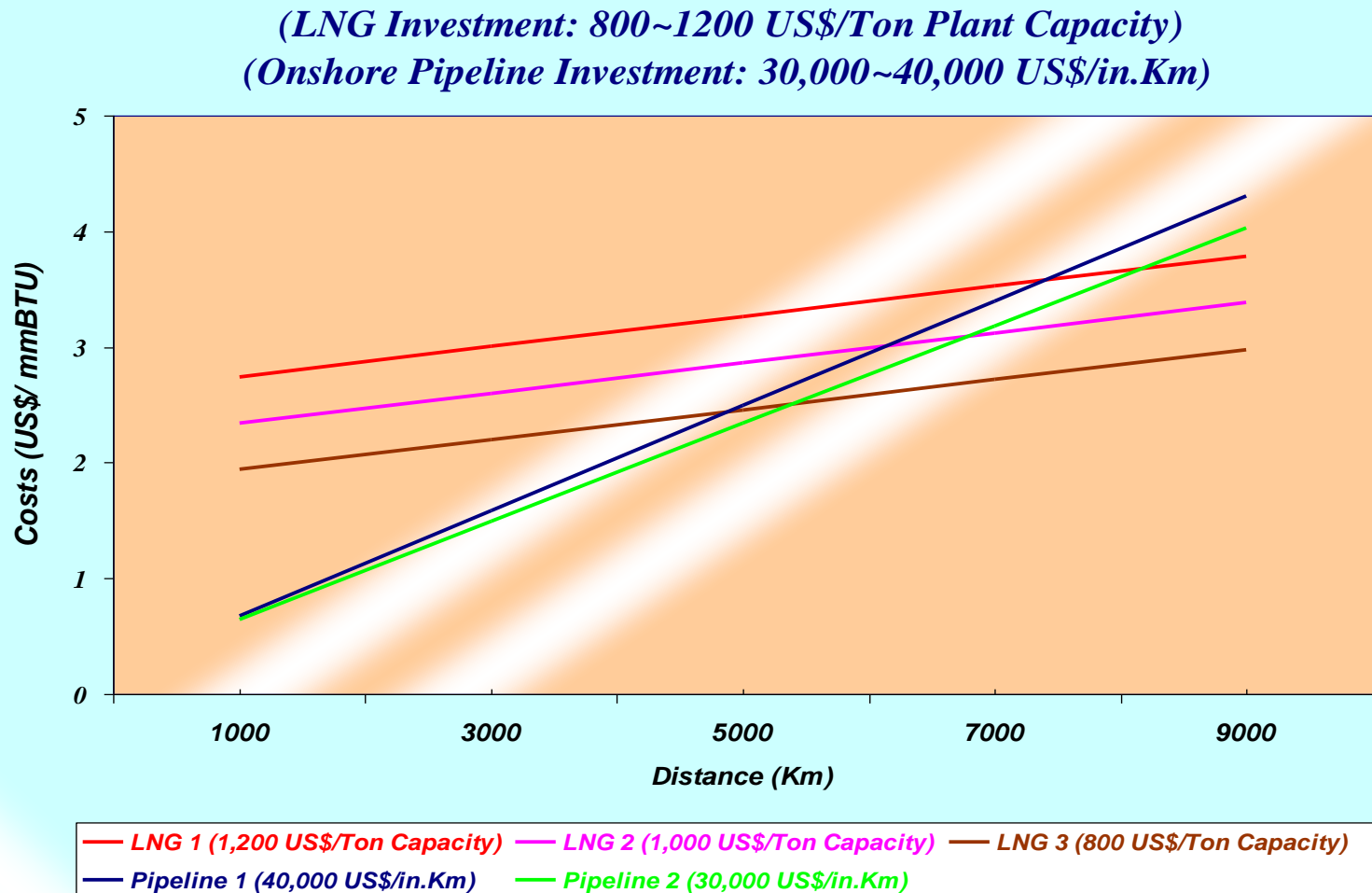
- 1- Job Opportunity and Expectation**
- 2- The need for Gas Injection for Enhanced Oil Recovery**
- 3- The high Gas Requirement for Domestic Market in Winter time**
- 4- Energy prices and Subsidies.**
- 5- Political Tensions, which has delayed gas developments**

Why Liquid Natural Gas (LNG) Export is no longer a priority?

- **The Economics of LNG has Changed**
 1. The Impact of Shale Gas in US
 2. Low LNG Spot Prices
 3. The LNG Oil Link in Asia and Europe Weakens on Gas Supply Glut
- Gas Demand for Gas based industries
- Foreign Investors reluctance to invest in Gas Development due to Sanctions

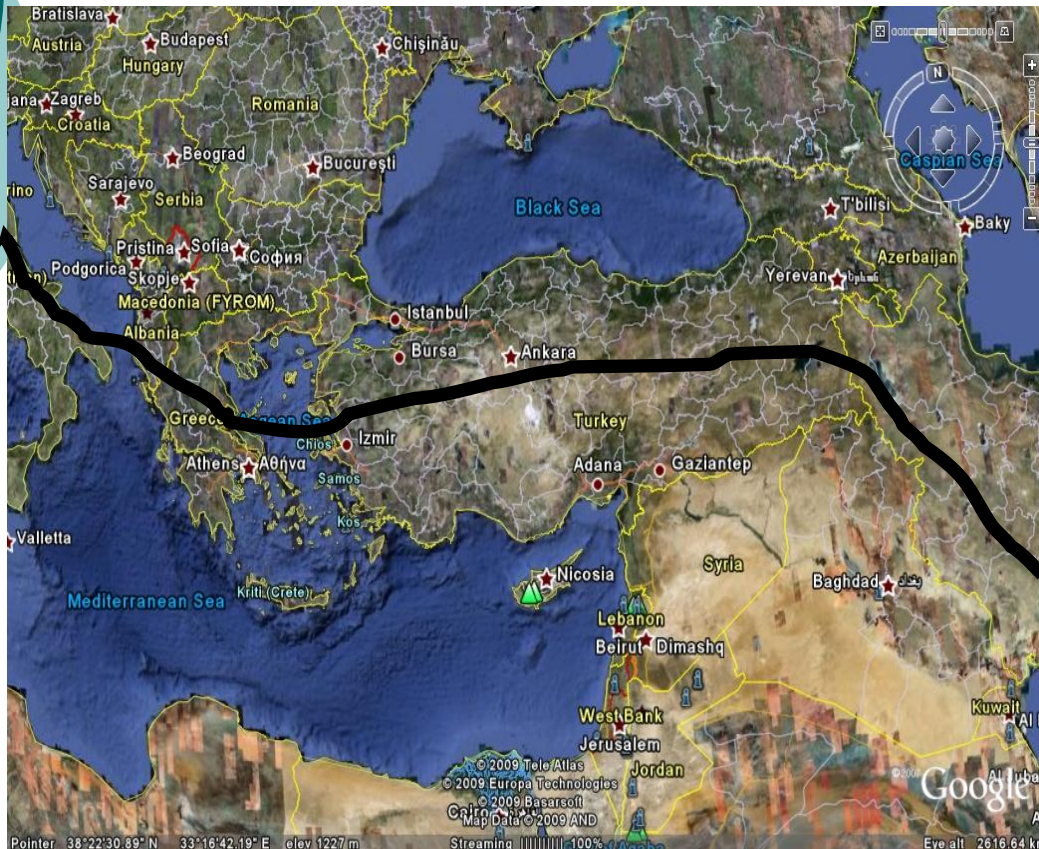
The Comparison of Natural Gas Transmission Costs – Pipeline & LNG

(Slide from Iran's Petroleum Ministry 2008)



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

- Length: 6200KM
- Estimated Investment;
Iran ~ \$5bn
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



Potential Gas Export Pipeline Route to Europe (Nabucco)



- Length: 5600KM
- Estimated Investment; Iran ~ \$5bn
- The pipeline passes through;
Turkey
Bulgaria
Romania
Hungary
Austria

Persian 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



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Persian Pipeline

The Persian Pipeline Realistic approach based on current conditions



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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 is the third largest gas producer now and could become the second largest producer of gas in the coming 15 years, capable of meeting domestic gas demand and a good share of the regional gas business.
- There are several Routes for export of gas from Iran to Europe which includes passing through Turkey or via Iraq and Syria to Greece. The expensive options from the sea are no longer viable due to the economics of gas business around the world

Main points (Cont)

- **Iran can export gas to Europe through Persian Pipeline. Iran's contribution to Nabucco is by facilitating Turkmen Gas through Iran**
- **LNG Export has lost its lustre due to the introduction of Shale Gas.**
- **The main challenges to achieve gas production targets which allows regional export are structural and political.**
- **The private sector must be allowed to increase its involvement in gas business.**
- **Governments must structure a meaningful price formula for gas based industries and regional gas export to attract required capital from within Iran and worldwide.**
- **Greece, as the nearest European country member to Iran has a very important role to play.**