

Future Prospects of Iran's Gas Export

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Content

- Gas Reserves, Production and Consumption in the Middle East
- Iran's vision for Gas Industry and Options to Monetize Gas (The Gas Debate)
- Major Issues that influence Oil and Gas Policies in Iran
- Iran's Gas Export Potentials
- Cooperation with Asian and European Countries for Gas Development and Utilization

Basic Regional Gas Statistics

Estimate for 2007 (Figures in billion cubic meters)

	Gas Reserves	% of the World	% of the ME
■ Middle East	75,500	41	
Iran	29,200	16	39
Qatar	25,900	14	35
Saudi Arabia	7,100	4	9
UAE	6,100	3	8

	Gas Production	% of the World	% of the ME
■ Middle East	355	12.1	
Iran	135	4.6	38
Qatar	55	1.8	15
Saudi Arabia	77	2.6	22
UAE	48	1.6	16

	Gas Consumption	% of the World	% of the ME
■ Middle East	304	10.4	
Iran	136	4.6	45
Qatar	21	0.7	7
Saudi Arabia	77	2.6	25
UAE	43	1.5	14

IRAN & Qatar: The Major potential for Surplus Gas in the Middle East

- Gas Reserve
Iran: 29 TCM
Qatar: 26 TCM
- 12 percent of the world gas reserves are situated in a circle with a radius of 150km and over 25 percent of the world reserves is located in a circle with a radius of around 250km



Iran's Gas Industry 2007

(Figures in Billion Cubic Meters)

■ Gas Production	130	
■ Gas Consumption	122	
■ Gas Import	9	
■ Gas Export	7	
■ Gas Flared	8	
Residential & Commercial	34	Percent
Power Sector	32	"
Industry	27	"
Injection	3	"
Export	4	"
■ Annual Growth in Gas consumption is around 10%		

How Natural Gas Resources Could be Monetized

■ Domestic Use

*Replace demand for Petroleum Products with gas
Expand electricity generation from Gas
Development of Gas Based Industries including
Gas to Petroleum Products
Gas injection to enhance oil recovery
(These are major priority of the Government)*

■ Natural Gas Export

*Regional gas trade by Pipeline
(Priority based on long term Strategic value as indicated in
the long term planning of the Expediency Council)*

LNG Export (Not a priority by some policy makers)

Objectives and Policies for Iran's Gas Industry in the officially approved twenty Year Outlook

- To Produce at least 1,300 million cubic meters of gas per day equivalent to 475 billion cubic meters per year
- To increase the share of gas in Iran's energy basket
- To gain value added from gas through gas based industries
- To support the entrance of private sector in downstream gas business in Iran
- To acquire the highest technological capability in all aspects of gas business in the region
- To gain 8-10 percent of the world gas trade
- To maximize development and sale of products from gas rather than sale of Natural Gas
- To cooperate with the regional countries for production, refining and transport and trade of gas

Main Issues Influencing Gas Policies in Iran

- 1- Job Opportunity and Expectation**
- 2- Internal Political and Economic Debate and Lack of Energy Policy**
- 5- Tension Between Iran and the US**
- 3- Decline in Oil Production Capacity and the need for Gas Injection**
- 4- Fluctuations in the Demand for Gas in Winter and Summer**
- 6- Energy Subsidies**

1- Job Opportunity and Expectation

- **Iran has a young population of around 40 million. The main objective of any government should be to create Job opportunities and better standards of life for them. Oil and Gas is now considered a vehicle to generate Jobs in addition to income.**
- **Nearly 2 million (10 times the real population of Qatar) are currently in the Iranian universities. Over 20 million students are at schools. Government must find jobs for these potential trained work force of the coming decades.**
- **Expectations of the young Iranians are high Most of the Iranians believe that Iran deserves a much better economic standards and a better international position considering its human and natural resources as well as its strategic location.**

2- Internal Political and Economic Debate

- **Economic debates on the role of the Government and the recent Privatization Drive. The role of private banks, insurance, airlines, power stations and above all downstream oil and gas business**
- **Lack of any comprehensive Energy Policy**
- **There are unresolved socio political debates on many issues including the freedom of individual within the Islamic society**
- **These issues have so far disallowed a beneficial balance between;**
 - A- Traditional Values and Modernity**
 - B- Government Control and Privatization**
 - C- Islamic Identity and Individual Freedoms.**

5- Iran/US Tension

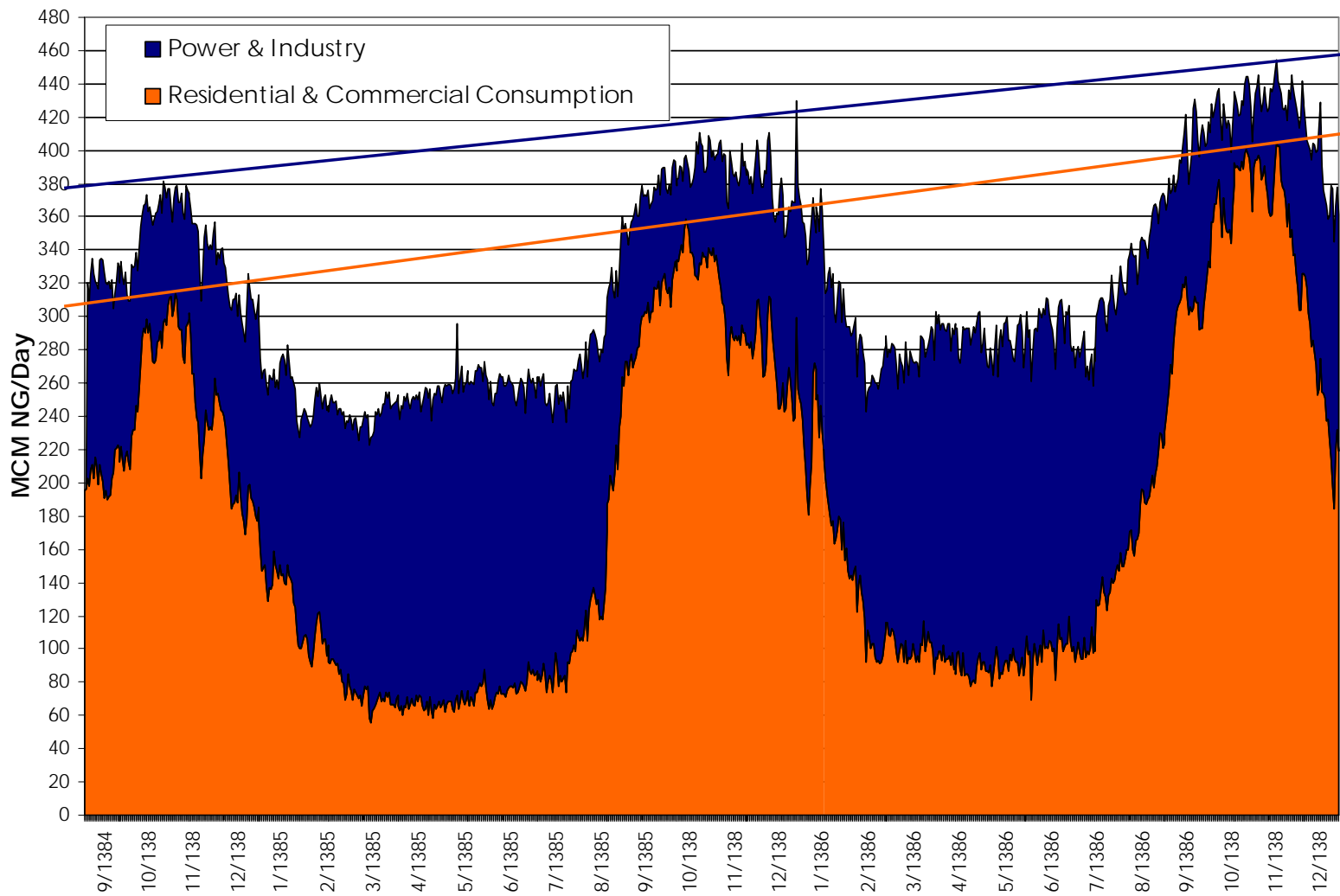
- **Continuing tension with the US have now escalated to a potential confrontation with the UN Security Council over the nuclear issue.**
- **This will influence the;**
 - Level of investment in Iranian gas industry, which will determine the future level of gas production**
 - The time of executing gas projects**
 - The future Iran's partners in gas trade. MOU's have been signed for projects with companies with limited experience in the business.**
- **If tension with the US is not resolved diplomatically and escalates, it would have serious repercussions for the region as whole and Iran's future gas development in particular.**

3- Decline in Oil Production Capacity

- **Estimated 6 to 8 percent decline in oil production or around 250 to 350 thousand barrels per day each year.**
- **Huge amount of gas has to be injected into the oil fields in the coming 20 years reaching over 100 billion cubic meters per year (Approximate total of 1.8 trillion cubic meters to 2030). Some experts argue that the gas needed for injection should be 40% higher than what has been envisaged now.**
- **Most of this gas would become available with the production of oil in the coming twenty years and could be re-injected or used domestically. Gas injection could be perceived as depositing gas for future use**

4- Fluctuations in the Demand for Gas in Winter and Summer.

- **The gas demand for the household and commercial sector in winter time is nearly six times that of summer**
- **In winter of 2008, 460 million cubic meters of gas per day was not enough for the domestic sector of the country**
- **In winter pick time, Industry and Power Generation gas utilization is switched to liquid fuel to cater for the household demand**
Shortage of gas in domestic sector has major political repercussion.



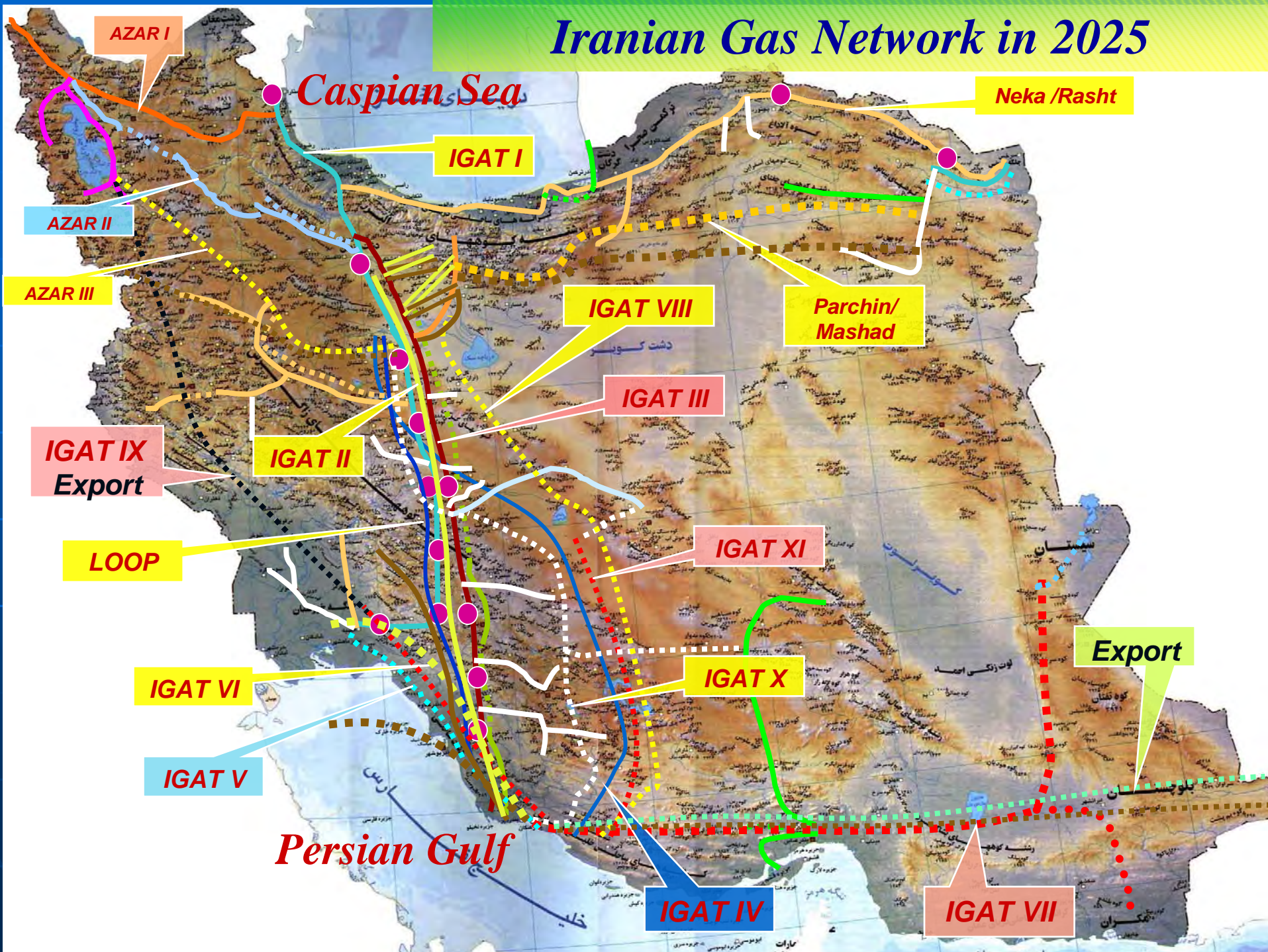
6- Gas Subsidies (cont)

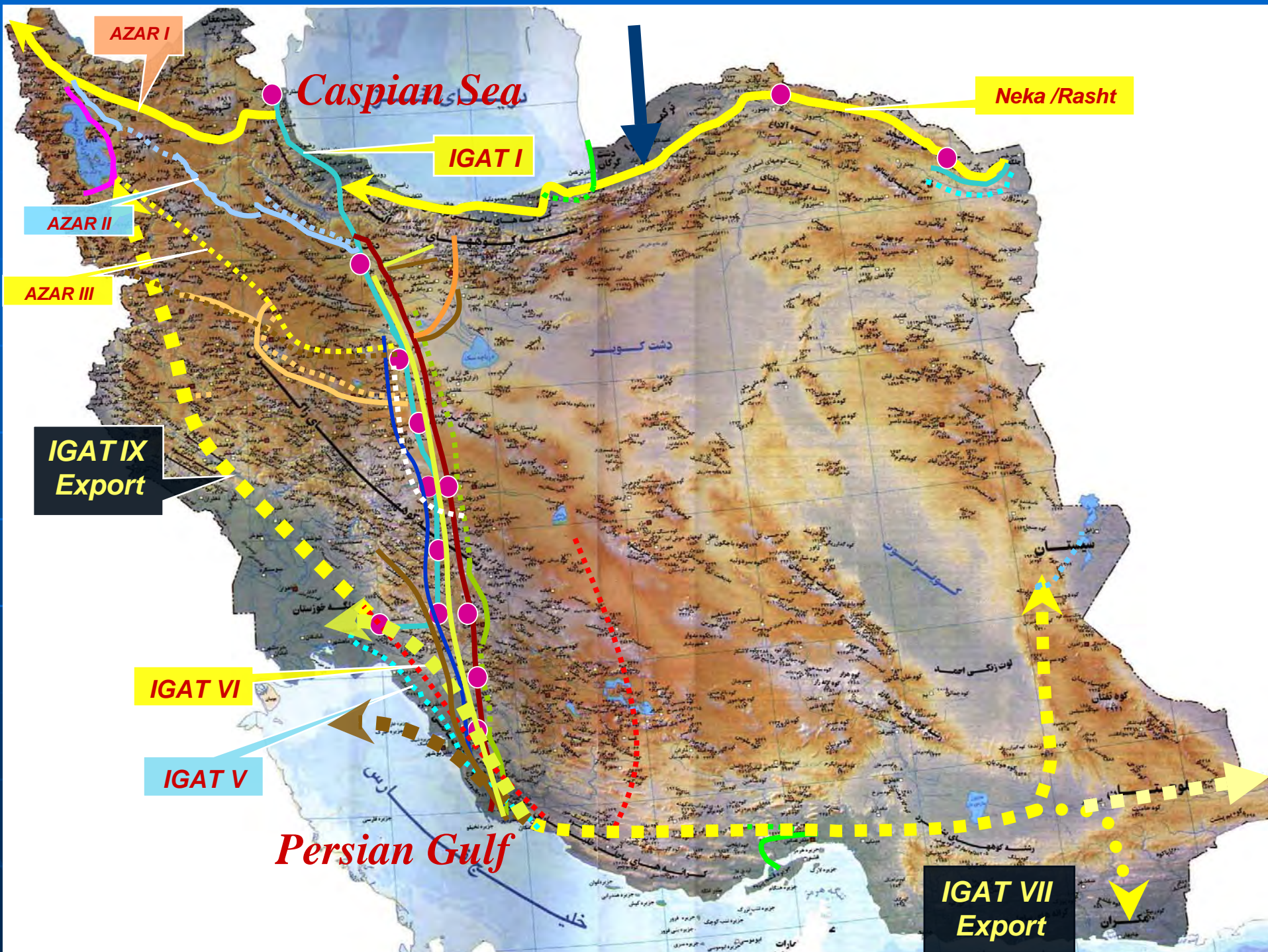
- Average cost of production and refining of new gas from offshore and onshore fields considering IRR of 20% and without considering the value of Condensates is around \$1.4 per million btu or 5 cents per Cubic Meter.
- If the value of condensate is considered in the model the gas would theoretically have a negative value for 20% return as the revenue of the operation is in associated liquids
- The final price of gas to achieve IRR of 20% for the industry including transporting gas in Iran is around \$1.7 Per million btu equivalent to 6 cents per cubic meter
- The average price paid by different sectors is currently estimated to be around \$0.6 per million btu equivalent to 2 cents per cubic meter
- To remove the subsidy the average price of gas to different sectors in Iran has to increase by over \$1/mmbtu.

Actual and Potential Gas Export Projects by Pipeline

- Iran-Turkey: Export started in 2004. Currently 7 billion cm/y
- Iran-Azerbaijan-Nakhichevan: Gas Swap of 300 mmcm/y since 2005.
- Iran-Armenia: Gas export of 1 bn cm/y increasing to 3 bn cm/d in future
- Iran-Europe: Iran and the Swiss Company EGL have signed an agreement for 5 bn cm/y of gas from existing networks.
- Iran-Pakistan-India: Agreement expected in 2008, delay due to political and economic reasons. Volume ~25 bn cm/y
- Iran-UAE (Crescent): (Sharjah), Agreement signed but suspended pending price renegotiations
- Iran-UAE (Dusup, Dubai) and (Mobadalla, Abu Dhabi) negotiation stage.
- Iran- (Bahrain, Kuwait and Oman) negotiation stage.
- Iran-Europe: (Nabucco project) negotiation stage would depend on political circumstances
- Iran-Europe: Negotiation with Edison underway

Iranian Gas Network in 2025





AZAR I

Caspian Sea

Neka / Rasht

IGAT I

AZAR II

AZAR III

IGAT IX
Export

IGAT VI

IGAT V

Persian Gulf

IGAT VII
Export

Asian Integrated Gas Grid

Option to make Gas Export from Iran Viable

- Asian Integrated Gas Grid is part of the Asian Integrated energy Market perused by the newly formed Asian Parliamentary Assembly. If the committee of 7 Asian countries approve the concept, the detail study of the project would begin. The Advantages are as follows;
- It Solves the winter and summer gas demand fluctuation in the region
- It solves the security of Supply, Demand and Investment in an agreement similar to Energy Charter
- It helps to reduce Price Dispute between the Producers and consumers in the long run
- It gives Iran an Economic and Strategic Advantage due to its location between Caspian Sea and the Persian Gulf States.
- It could reduce the Cost of Projects Considerably compared to existing plans



From Azerbaijan

From Turkmenistan

To Turkey And Europe

Cooperation for Gas Export Amongst the **West Asian** States of the Persian Gulf and Caspian Region
Gas Suppliers
Iran, Qatar
Turkmenistan and Azerbaijan
Gas Takers
Turkey, Armenia, Georgia, Europe, Pakistan, India, China
Kuwait, and UAE

From Qatar

LNG Export to Asia Europe and United States

To Indian Subcontinent

Main Points

- Iran is by far the largest producer and consumer of gas and petrochemical 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 prevented the development of Iranian gas industry to give Iran its right place in the world gas business
- Iran could become the second largest producer of gas and gas based products in the coming 15 years, capable of meeting its domestic gas demand without interruption, have around 10% of the world gas business and build up its role as a regional and international gas trader. This could be further enhanced through Asian Gas Grid if it happens.
- The value of Iran's gas projects in the coming fifteen years could be over \$200 billion and will provide ample opportunities for International companies.
- However, these goals could not be easily implemented given the current tension in the ME and particularly between Iran and US.
Political miscalculation by either side could turn this potential win-win scenario into a loss for all in the region