

Iran and China: Dialogue on Energy

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Research Seminar

Repsol YPF-Harvard KSG Fellows

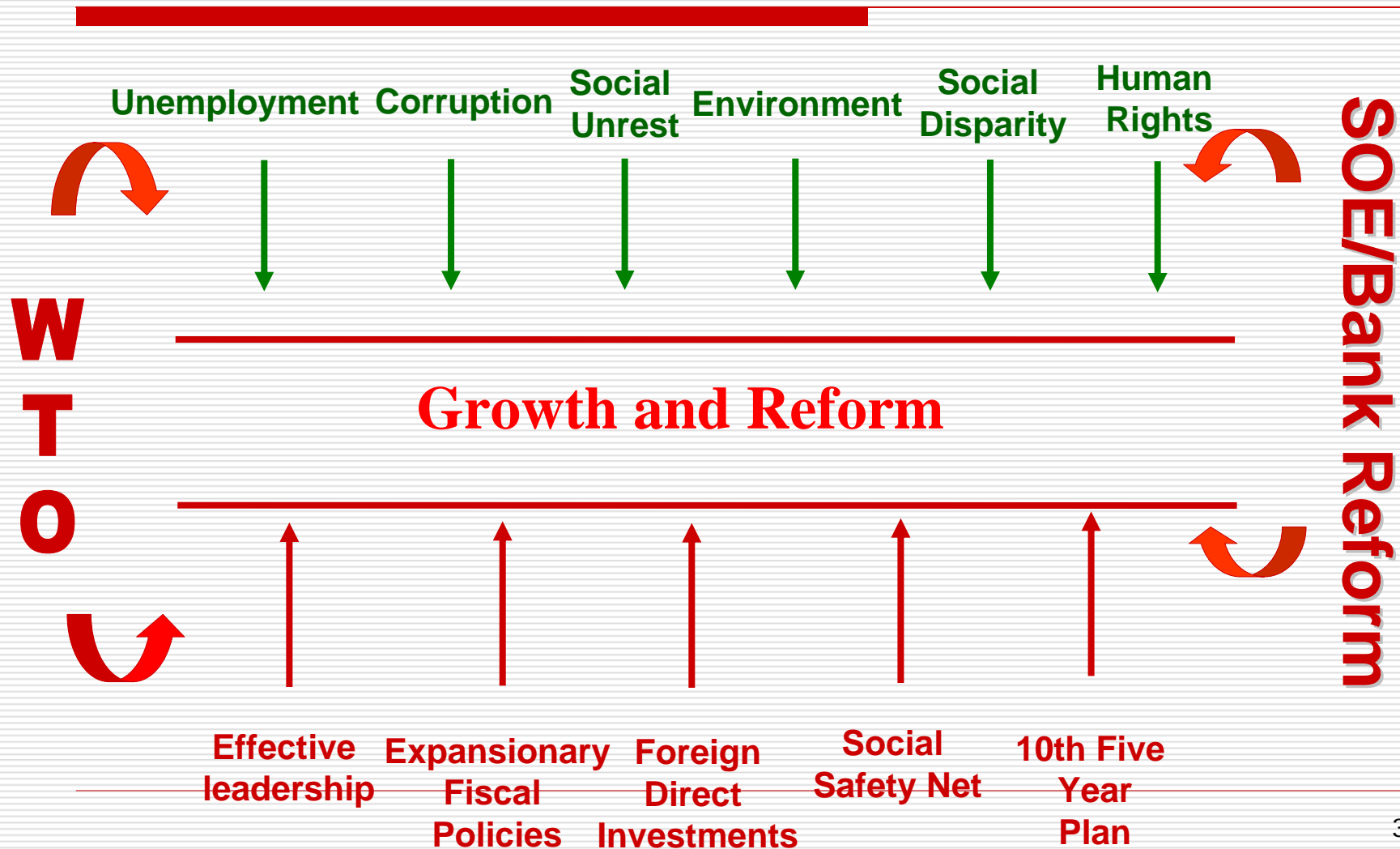
Harvard University

March 15, 2006

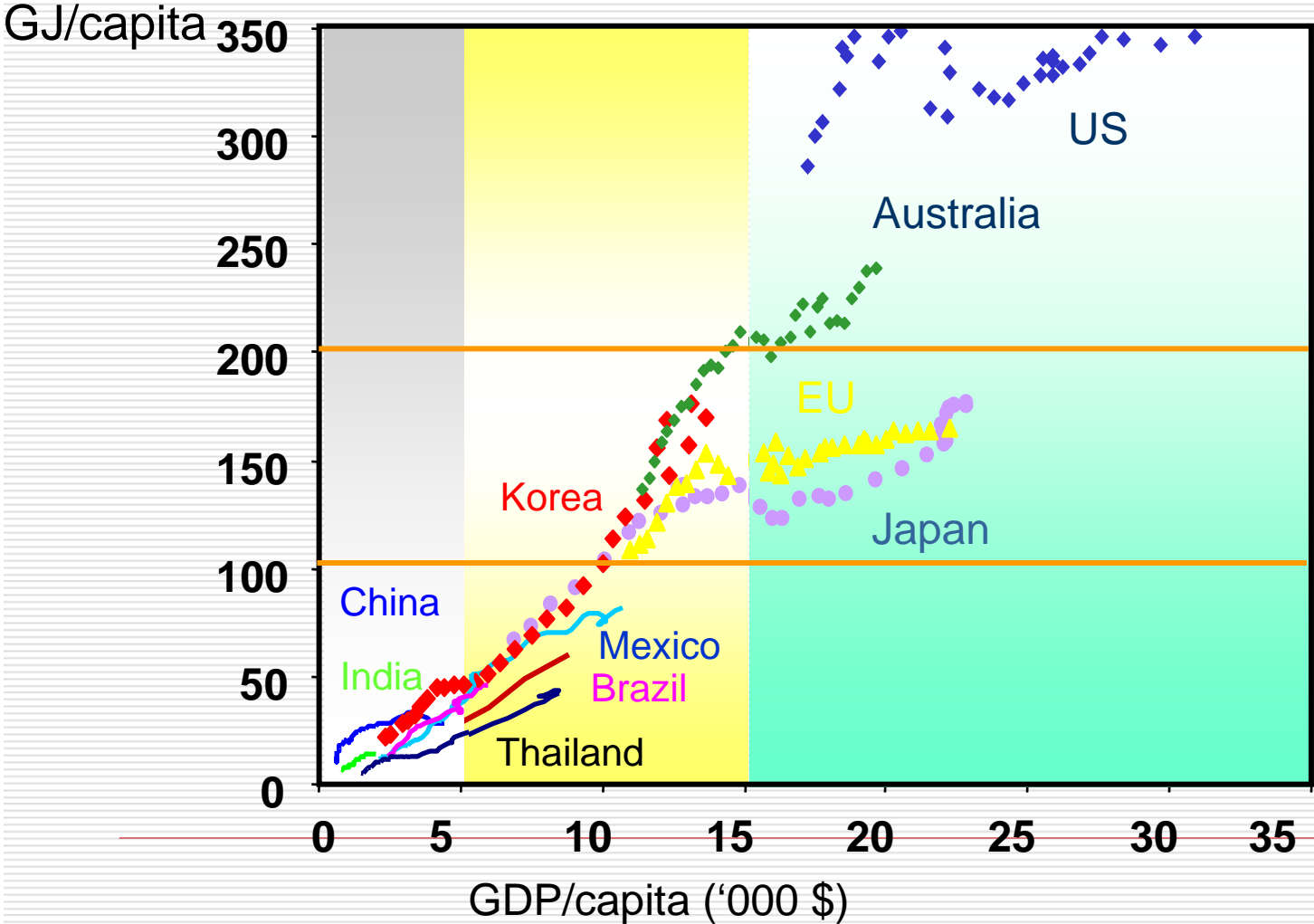
What is the crux of Iran-China relations?

- the exchange of Chinese capital goods, equipment, industrial technology, and engineering services to Iranian crude, gas and other minerals
- This exchange has several strategic impacts to International system.

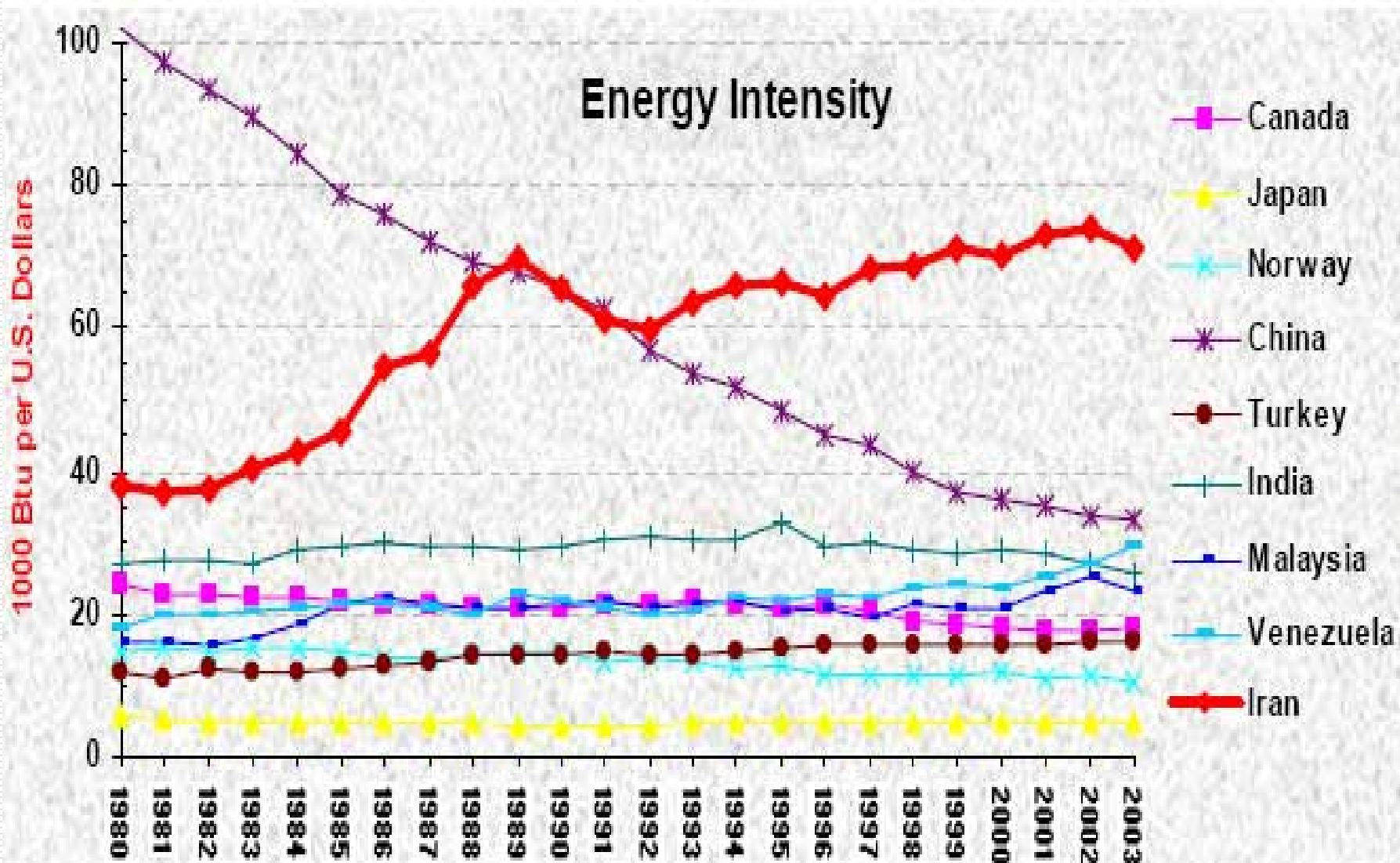
Can Growth Continue for another 20 years?



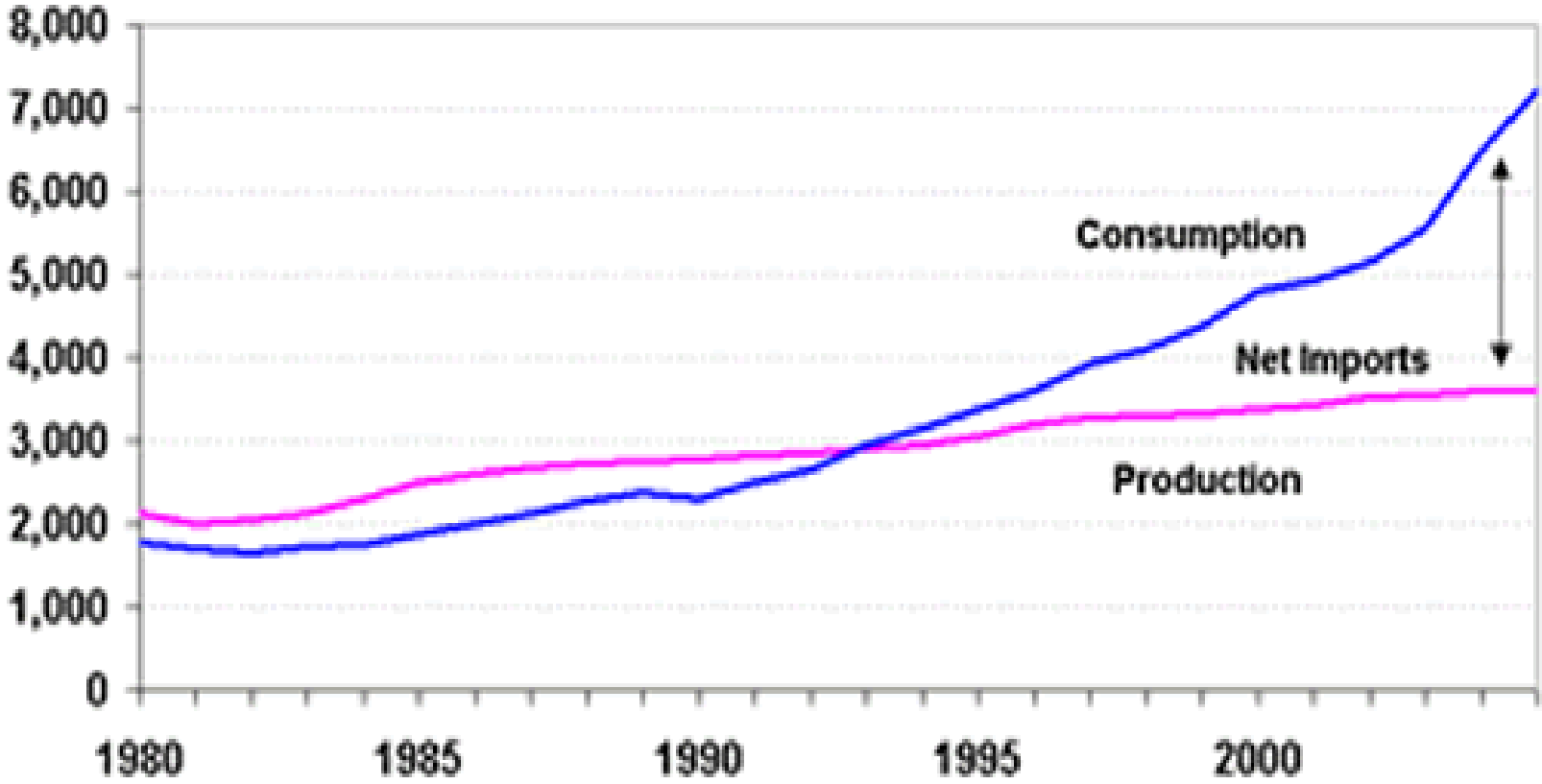
China Climbing The Energy Demand Ladder



Energy Intensity in China and Iran



China's Oil Production and Consumption, 1980-2005 (thousand barrels per day)



Basic Energy Statistics of China

(Figures in million barrels of oil per day equivalent)

	1994	2004	Average annual Growth 1994-2004
□ OIL	3	6.1	7.5%
□ GAS	0.3	0.7	8.8
□ Coal	12.1	19.1	4.7
□ Others Nuclear, Hydro, etc	0.8	1.8	8.5
□ <u>TOTAL</u>	<u>16.2</u>	<u>27.7</u>	<u>5.5%</u>

Source: BP

Outlook for Consumption and Import of Oil and Gas in China

(Figures in million barrels of oil per day equivalent)

	Consumption 2015	Potential Import
□ OIL	13	8.5
□ Gas	2	0.6
□ Coal	31	-
□ Others	4	-
□ <u>Total</u>	<u>50</u>	<u>9.1</u>

China's Petroleum Strategy

- Overseas equity investments
- Supply diversification
- Reducing demand
- Substitution
- Strategic petroleum reserves
- Maximum domestic production

China's NOCs Reorganization

<p>China National petroleum (CNPC)</p> <ul style="list-style-type: none">□ Production□ Working in North/West□ PetroChina (subsidiary)	<p>China Petrochemical Corporation (Sinopec)</p> <ul style="list-style-type: none">□ Refining□ Working in the South
<p>China National Offshore Oil Corporation (CNOOC)</p> <ul style="list-style-type: none">□ Offshore E&P	<p>China Oilfield Service, Ltd. (COSL) (Subsidiary of CNOOC)</p>

Chinese National Oil Companies (NOC's)-Overseas

- Belief that CNPC, Sinopec and CNOOC can improve supply and price security
- Active where others are not:
 - Iran
 - Sudan
- From regional competition to global strategy

POTENTIAL ROLE FOR CHINESE COMPANIES

- ❑ Exploration and Development of New Oil and Gas Reserves
- ❑ Development of Existing Proved Oil and Gas Reserves
- ❑ Upgrading Existing Oil and Gas Refineries
- ❑ Building New Condensate and gas Refineries
- ❑ Enhanced Oil Recovery (EOR)
- ❑ Gas Based Industries including GTL

Advantages of Chinese Oil Companies

- ❑ • State ownerships
- ❑ • High Risk tolerance
- ❑ • Access to low cost capital (Total trade USD 1.15 Trillion)
- ❑ • Ability to package complete deal –
Holistic commercial approach

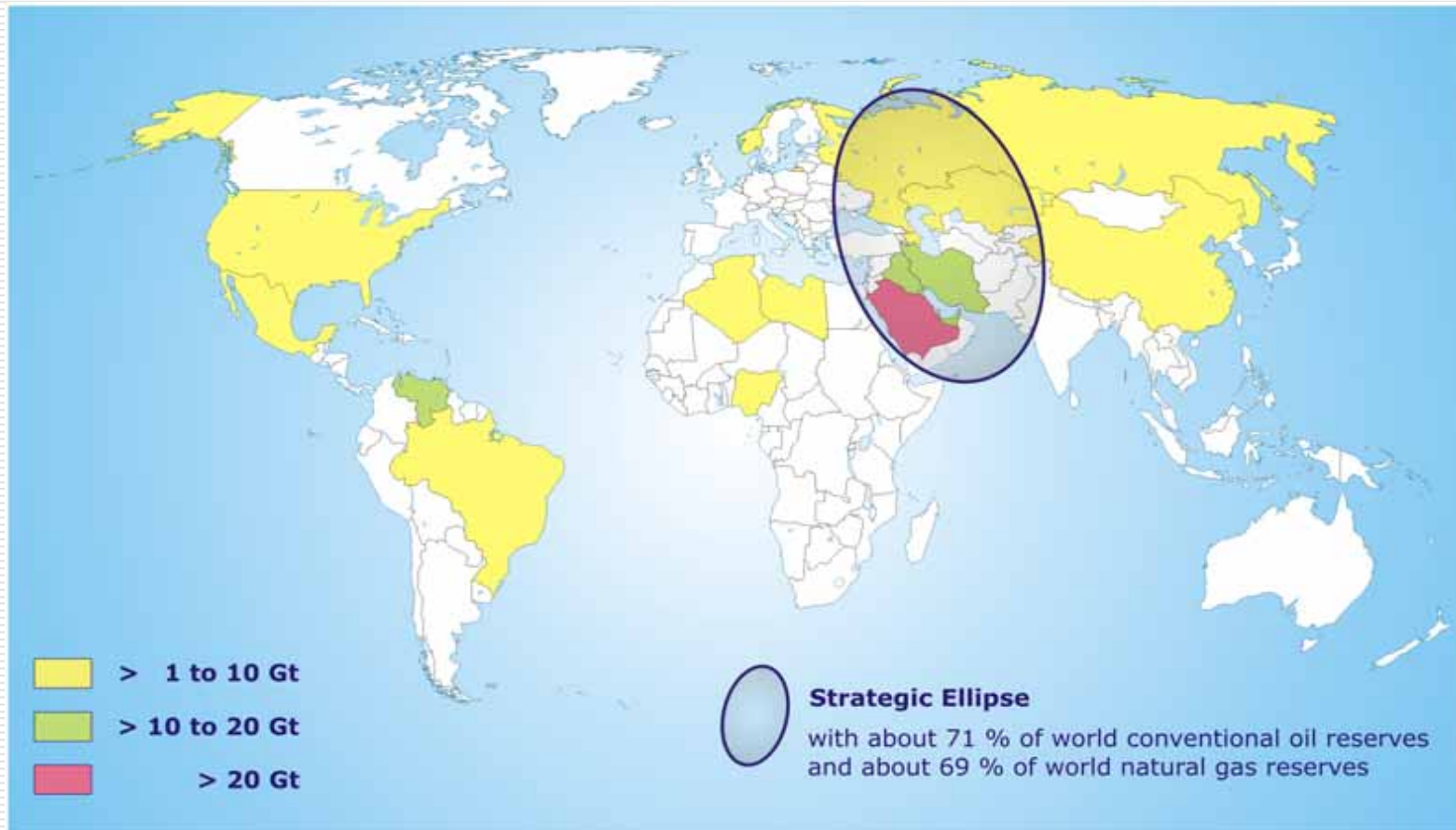
Chinese NOCs Requirements

- Technology and Management
- Brand Recognition
- Contribution above the bilateral agreement level

Key Mindsets of Iran in China

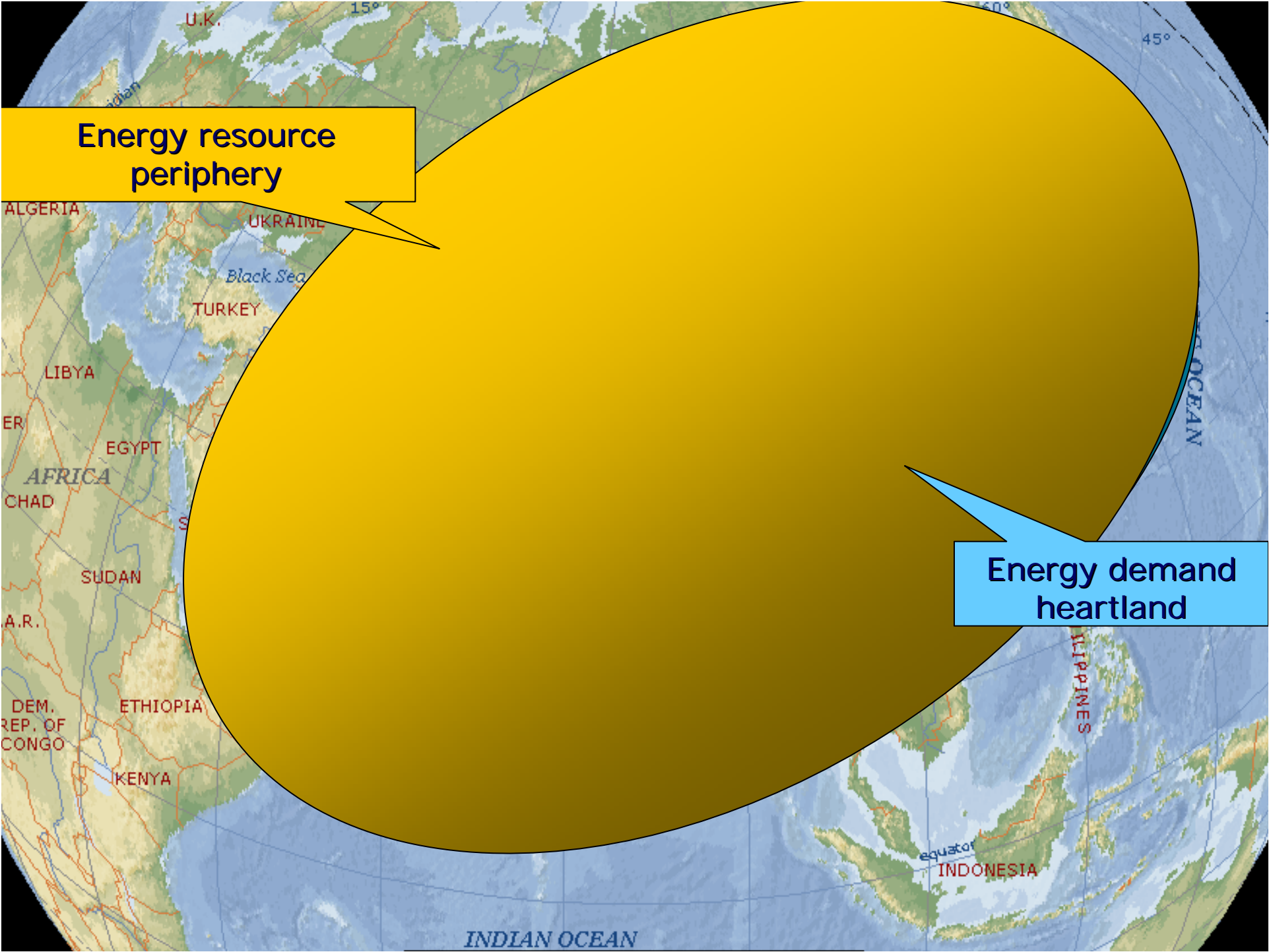
- ❑ Iran is giant energy supplier, big market for Chinese products.
- ❑ China as a rising global power is too late for entering Middle East, the region which has significant strategic interests
- ❑ Iran is the only worthwhile political and military friend of China in West Asia. 45% of China's imported oil comes from Persian Gulf.
- ❑ Iran provides China with a "strategic counter-pressure point" against the United States in relation to Taiwan.
- ❑ Iran is viewed as a prospective naval foothold for the Chinese Navy in the Indian Ocean and the Persian Gulf.

Countries with Oil Reserves > 1 bill. t and Strategic Ellipse



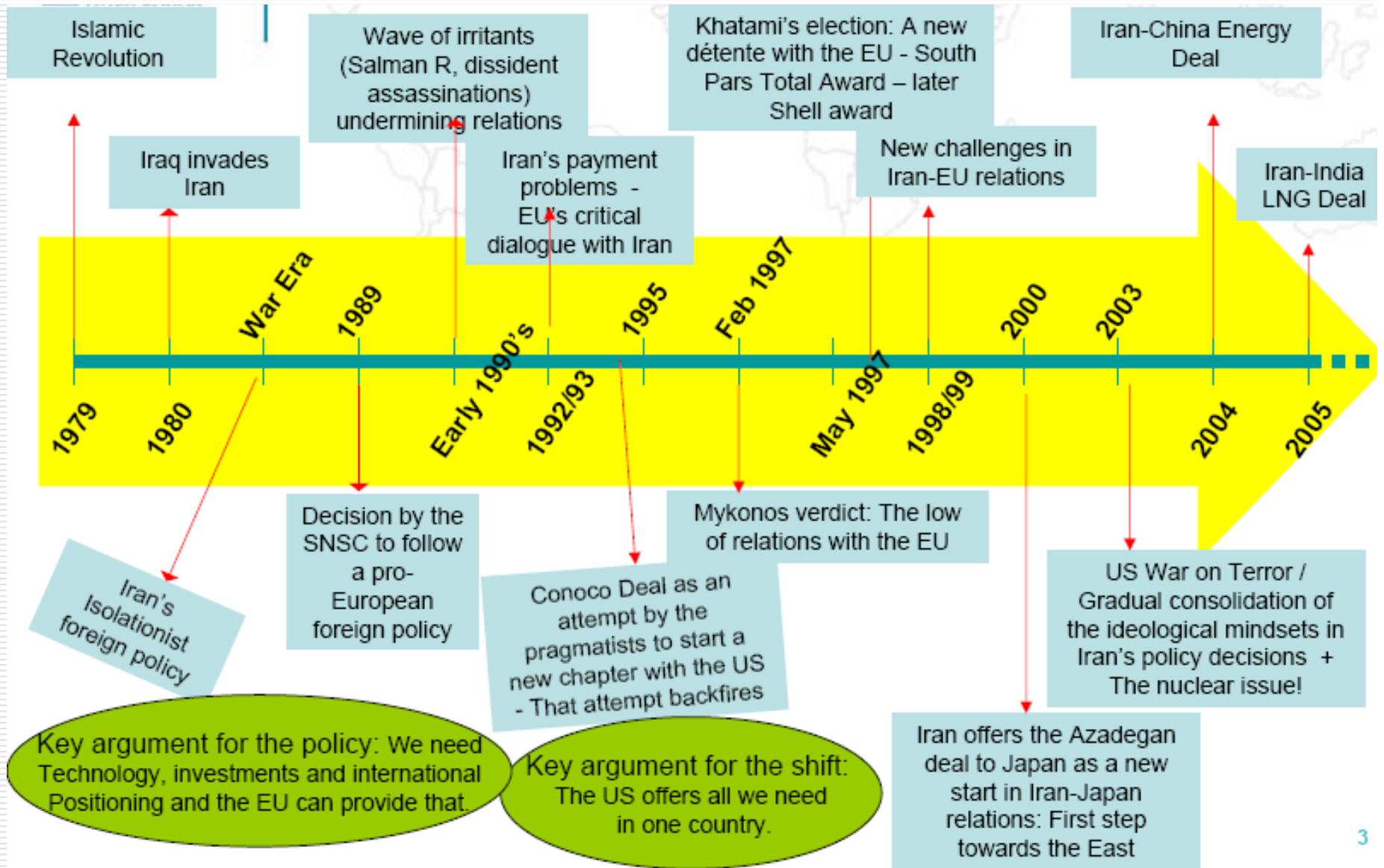
Supply and Demand, both in Asia

- The changing dynamics of international energy markets have facilitated the whole process as the Persian Gulf region is becoming more and more the natural supplier of oil and gas to the East



Energy resource periphery

Energy demand heartland



Change on Iranian perceptions

- ❑ By US pressures and sanction on Iran, the sentiments among the Iranian society are also moving away from insisting on western concepts, there is greater attention to economic and security issues as opposed to political modernization.
- ❑ Iran has several sub regions, increasing tendency that Iran is in West Asia not Middle East
- ❑ "Asian Identity" means more cooperation with Asian powers like China, India, Russia

Iran and its Subregions

- ❑ Middle East
- ❑ Persian Gulf
- ❑ South West Asia
- ❑ Central Asia, Caucasus, and Afghanistan
- ❑ Caspian Basin



IRAN has

-
- 1% of the world's population,
 - 7% of the world's natural reserves including
 - 10% of the global proven oil reserves
 - 16% of the world's natural gas resources.

130 b barrel oil (17 billion tons)
27 trillion cm gas
which means \$3000 billions

Basic Energy Statistics of Iran

(Figures in million barrels of oil per day equivalent)

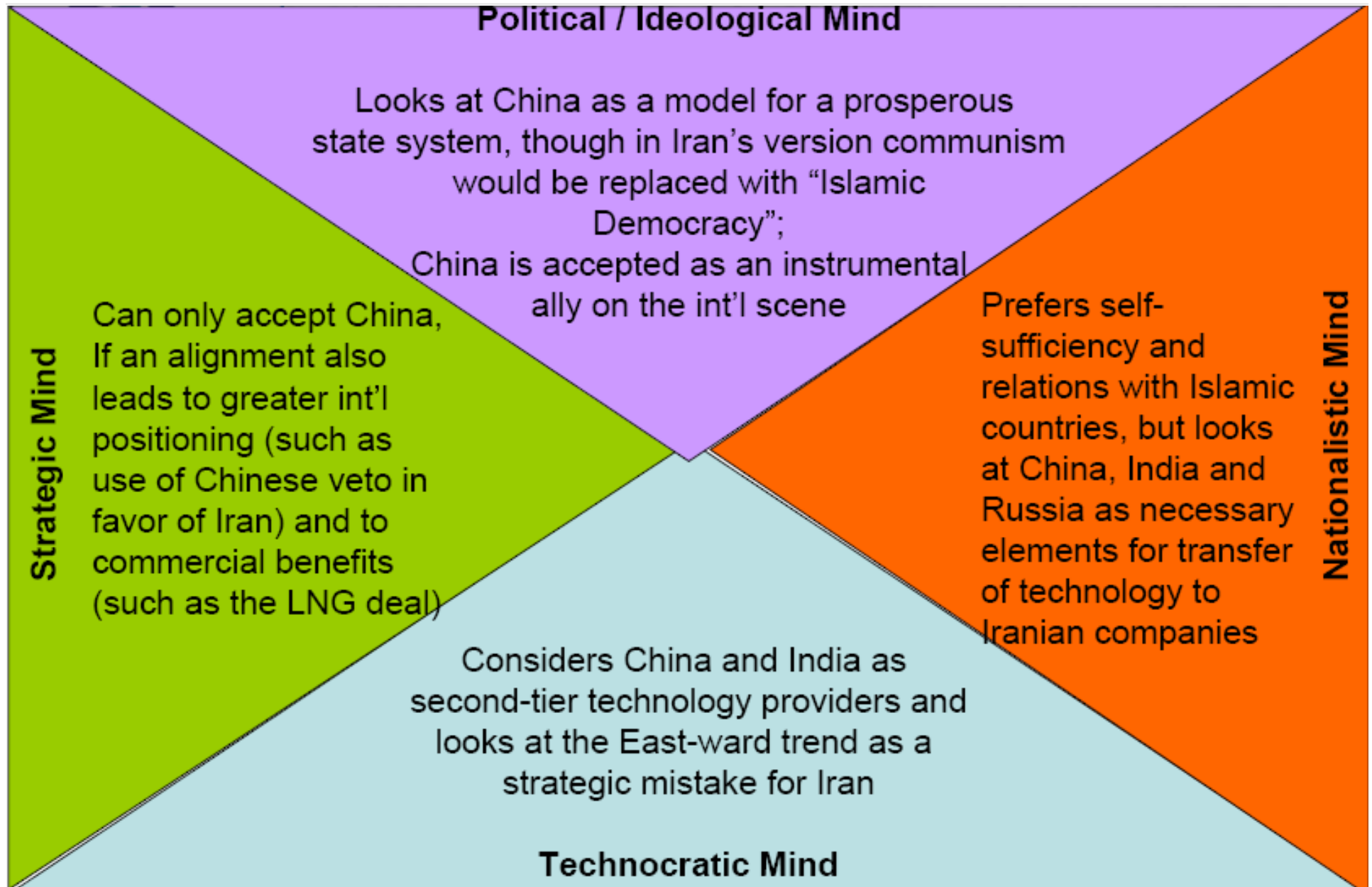
- Iran's total Energy Production ~ 6.2 mb/d
- Total energy Consumption ~ 3.6 mb/d
- Oil Export ~ 2.6 mb/d

- Oil Reserves over 130 Billion Barrels
Potential to Produce 5mb/d of Oil for ~ 50 years
- Gas Reserves over 27 Trillion Cubic Meters
Potential to Produce 500bcm/y of Gas for ~ 55 Years

Why Iran looks to the East?

- ❑ The ultimate goal of Iran is to position herself as an economic, regional power and the Eastern powers are the most feasible partner in achieving this goal
- ❑ Western countries will more and more be seen as sources of technology rather than as strategically important trading partners

Key mindsets to China in Iran



Which of them is stronger now?

- There are various mindsets in Iran's power structure, but the ideological and the nationalistic mindsets are dominant for the time being and that will translate into greater emphasis on China, India, Russia and the Islamic world

Iran's Main Trading Partners (2005)

	Exports	Imports
EU	26%	44%
Japan	21%	10%
China	10.4%	7.8%
South Korea	NA	6.3%
UAE	NA	6.4%
South Africa	6.6%	NA

Iran looks to East

Bilateral Trade	2005 (Billion dollar)	Projected 2008	Projected 2015
Iran-China	9.5	10	15
Iran-India	4.1	5	10
Iran-Japan	9.8	10	10
Iran-EU	15	18	20

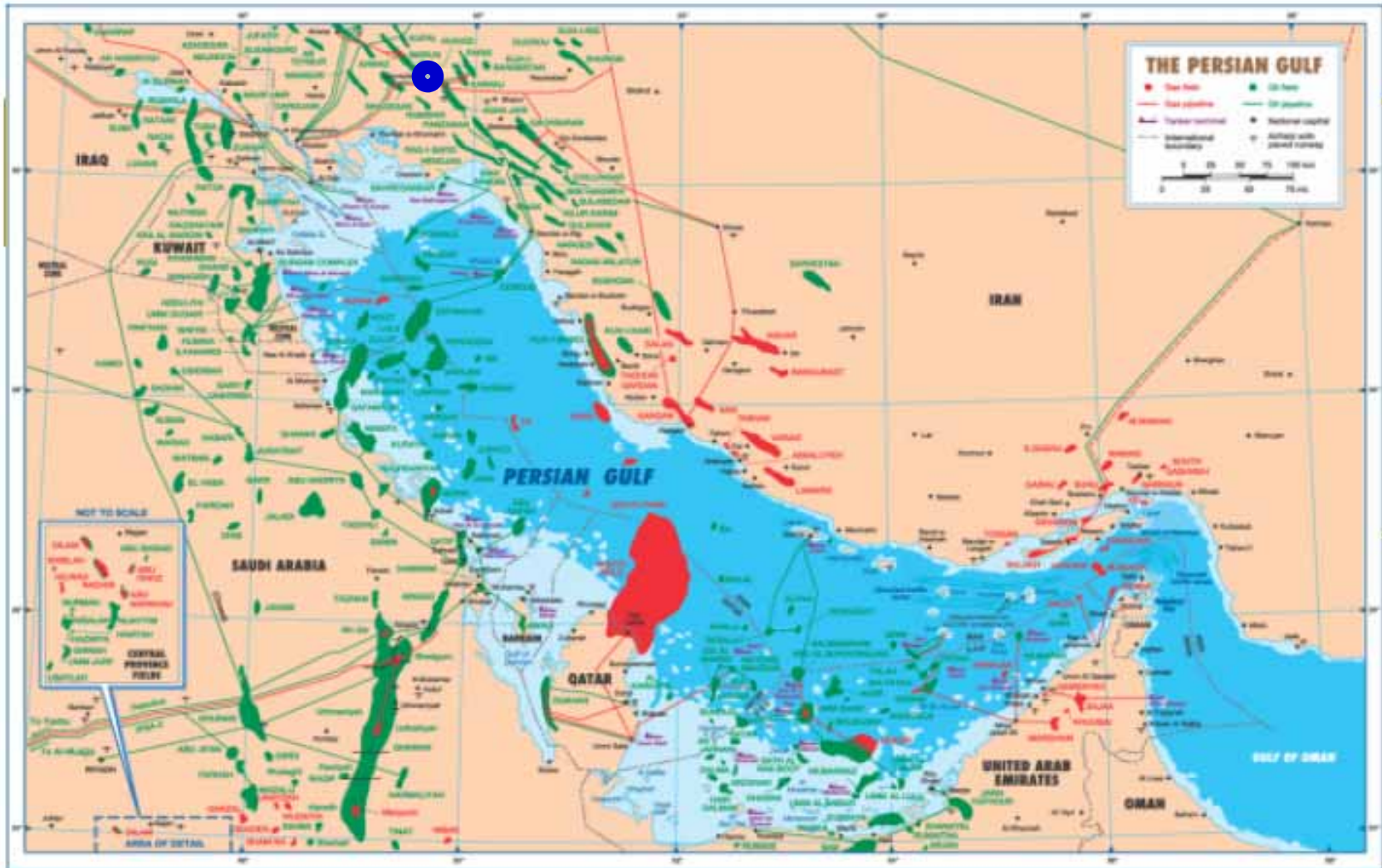
Major China-Iran Projects

- Yadavaran E&P
- LNG
- Neka-Pipeline
- Alborz Platform
- Railroads
- Exchange of goods
- Military!

Yadvaran Field

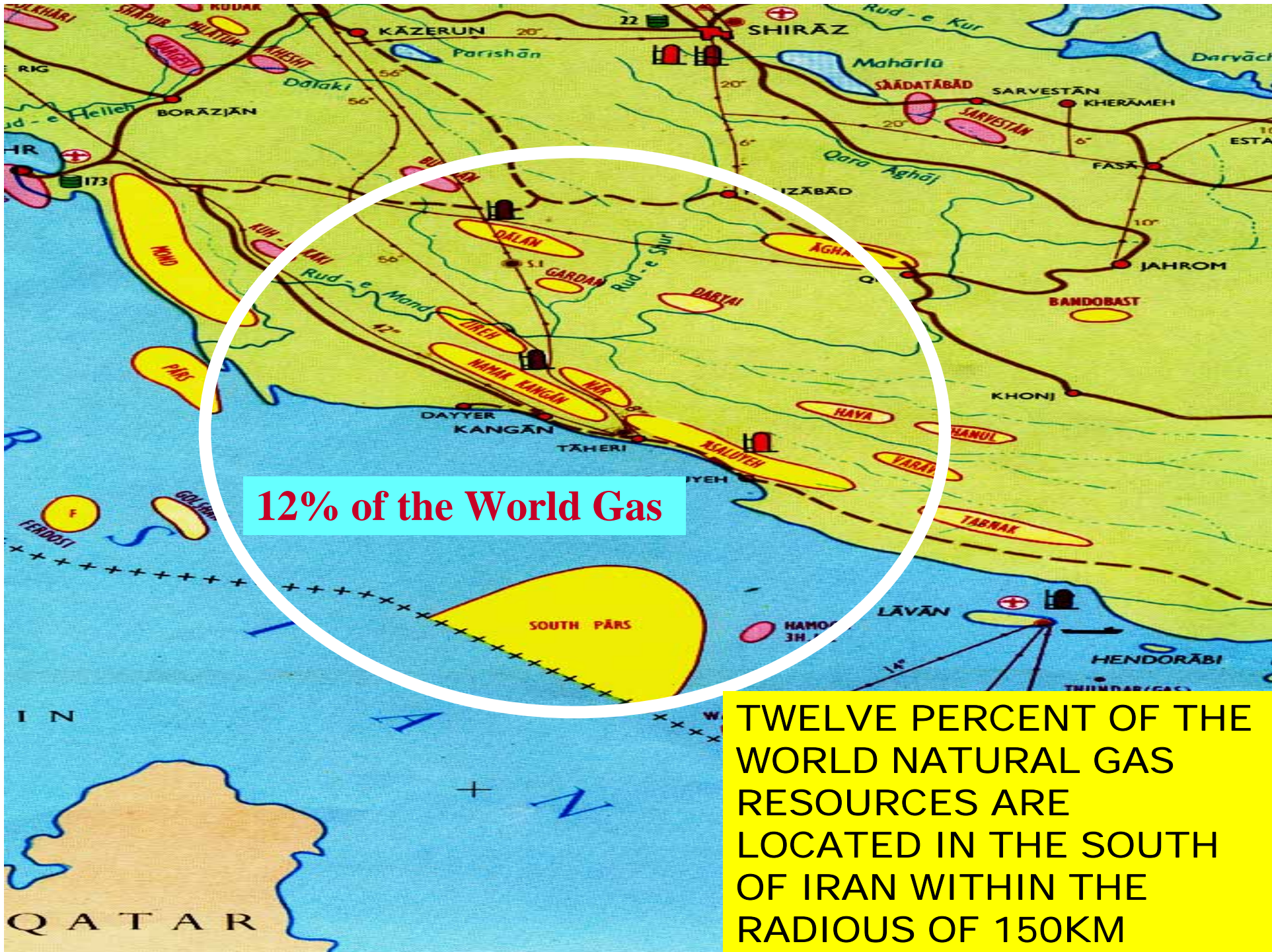
- ❑ Agreed in 2004, signed in 2006 (!)
- ❑ \$100 billion contract, likely to increase to \$200 billion
- ❑ Discovered in 2002
- ❑ Reserve: 17 billion barrels
- ❑ 3 billion recoverable
- ❑ Production: from 2009, 150,000 b/d to 300,000 b/d
- ❑ Share: SINOPEC 51%
India's ONGC 25%
Shell 20% !

Yadavaran Field



Iran's LNG to China

- ❑ Agreed in Oct. 2004
- ❑ 270 million tons
- ❑ From South Pars gas field
- ❑ 30 years
- ❑ \$70 billion
- ❑ Beginning in 2009



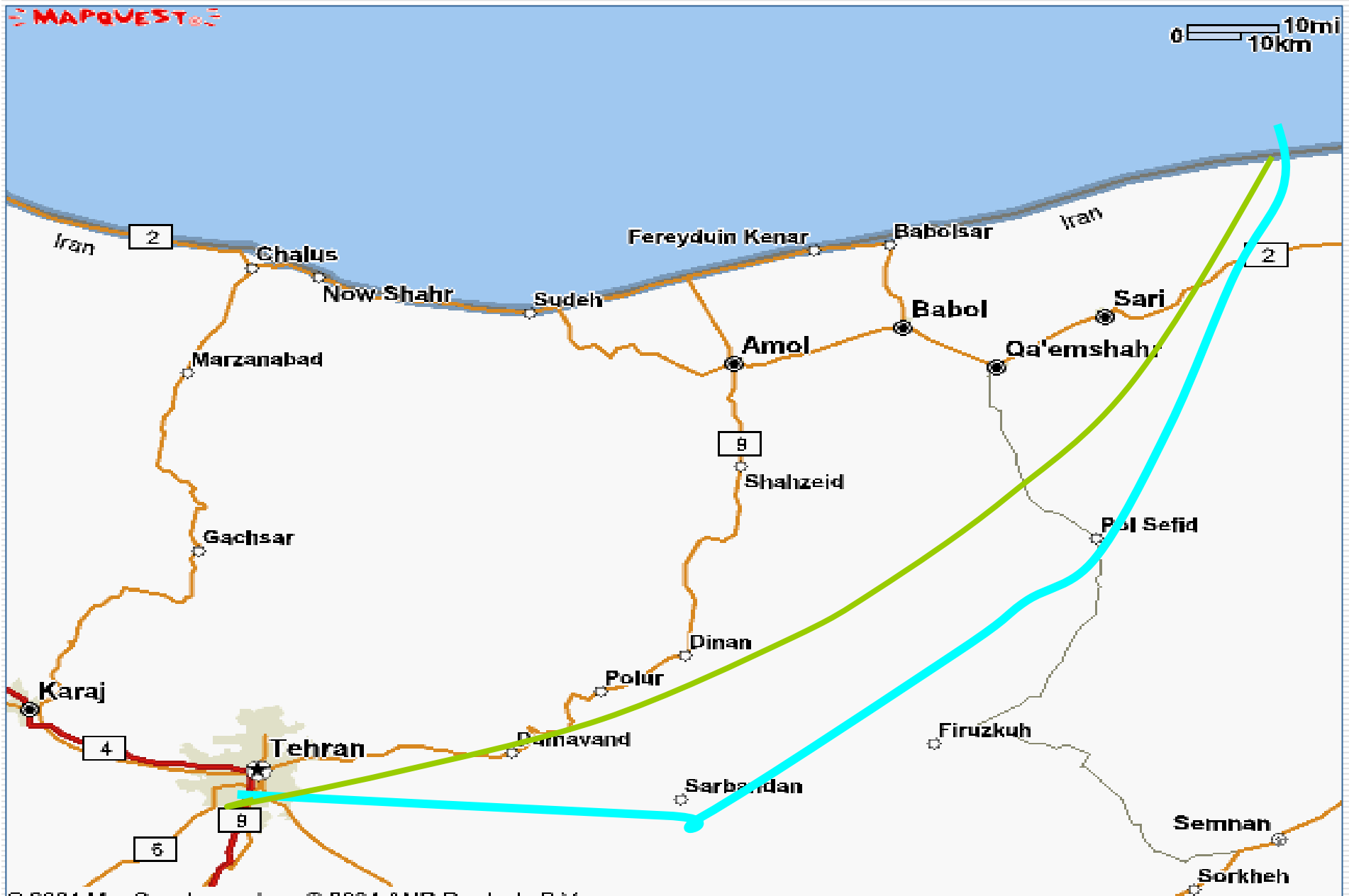
12% of the World Gas

TWELVE PERCENT OF THE WORLD NATURAL GAS RESOURCES ARE LOCATED IN THE SOUTH OF IRAN WITHIN THE RADIOUS OF 150KM

Neka-Ray Pipeline

	Main Targets	Expansion
Phase 1	16" Neka/Sari Pipeline	50,000 b/d
Phase 2	32" Sari/Namroud	120,000 b/d
Phase 3	32" Namroud/Rey	370,000 b/d
Phase 4	Modification of Tehran and Tabriz refinery	500,000 b/d

Neka-Ray Old and New Pipeline



Caspian Oil Terminals and Neka



Alborz Platform

- ❑ It was built by GVA, Sweden
- ❑ Iran's North Drilling Company (NDC) & China Oilfield Services Ltd (COSL)
- ❑ \$35 million worth
- ❑ Training of NDC staff over the next three years
- ❑ Drilling should start from April 2006
- ❑ It will work on disputed fields between Iran and Azerbaijan

Confrontation between Iran and Azerbaijan



Railroads

- ❑ Two EPCs
- ❑ Signed in April 2005
- ❑ Mehrshahr-Hashtgerd electrified railway
- ❑ Tehran Metro line 4
- ❑ \$836 millions
- ❑ Beat Germany's Siemens and South Korean bidders

THE VISION FOR THE OIL INDUSTRIES IN IRAN

- ❑ Building Oil Production Capacity by;
 - 1- Enhanced Oil Recovery
 - 2- Development of Existing Proved Oil Reserves
 - 3- Exploration and Development of Oil from those areas of the country with high prospects
- ❑ Development of the required refining capacity and infrastructure for domestic demand of around 2.5mb/d by 2020 from existing 1.5mb/d

Iran

OIL PRODUCTION CAPACITY

- Average yearly growth of 1.8% in world demand for Oil between 2005-2020 leads to more than 40 mb/d of demand on OPEC oil
- Iran's 14% share of production, if to be kept, is 5.6mb/d an increase of 1.6mb/d from today
- Assume 6% decline in production from old oil fields, it needs 2.4mb/d additional capacity to keep the present level
- Together **4mb/d** of additional oil production capacity has to be added.

ESTIMATED OIL BUSINESS (2006- 2020) (BILLION DOLARES)

PROJECTS :

<input type="checkbox"/> Purchases of Equipment & Services	18-20
<input type="checkbox"/> Oil Developments	17-22
<input type="checkbox"/> Enhanced Oil Recovery	5-6
<input type="checkbox"/> Refineries upgrade & new	10-12
<input type="checkbox"/> <u>TOTAL</u>	<u>50-60</u>

THE VISION FOR THE GAS INDUSTRY IN IRAN

- ❑ Injection of Gas into the Oil Fields (enhanced oil recovery)
- ❑ Maximizing Domestic Use of Gas in order to reduce demand for Petroleum Products
- ❑ Utilization of Gas in Petrochemicals and Other Gas Based Industries including Gas to petroleum products
- ❑ Export of Gas by Pipelines and LNG

ESTIMATED GAS BUSINESS (2005-2020) (Billion Dollars)

PROJECTS:

<input type="checkbox"/> Gas Development (Onshore & Offshore)	20-22
<input type="checkbox"/> Gas Processing	6-8
<input type="checkbox"/> Gas Transmission (Domestic & Regional)	8-10
<input type="checkbox"/> Gas Based Industries and Gas to Petroleum Products	6-8
<input type="checkbox"/> LNG	8-10
<input type="checkbox"/> <u>TOTAL</u>	<u>48-58</u>

SUMMARY OF THE POTENTIAL ENERGY PROJECTS (2005-2020)

(Billion

Dollars)





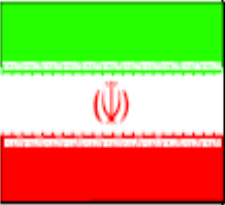
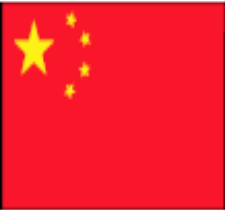
	Total	Hard Currency
OIL PROJECTS	50-60	30-40
GAS PROJECTS	48-58	26-32
PETROCHEMICAL	25-30	12-15
POWER GENERATION	15-20	8-10
<input type="checkbox"/> <u>GRAND TOTAL</u>	<u>138-168</u>	<u>76-97</u>

Iran's energy sector expectations from China

- ❑ Raising necessary Capital
- ❑ "Buy back" contract is attractive for NOCs, as China major companies.
- ❑ Safety and environmental standard
- ❑ Reduction of delay in existing projects
- ❑ Hong Kong is emerging as a location for companies that merge East and West for Iranian projects

Overall Evaluation

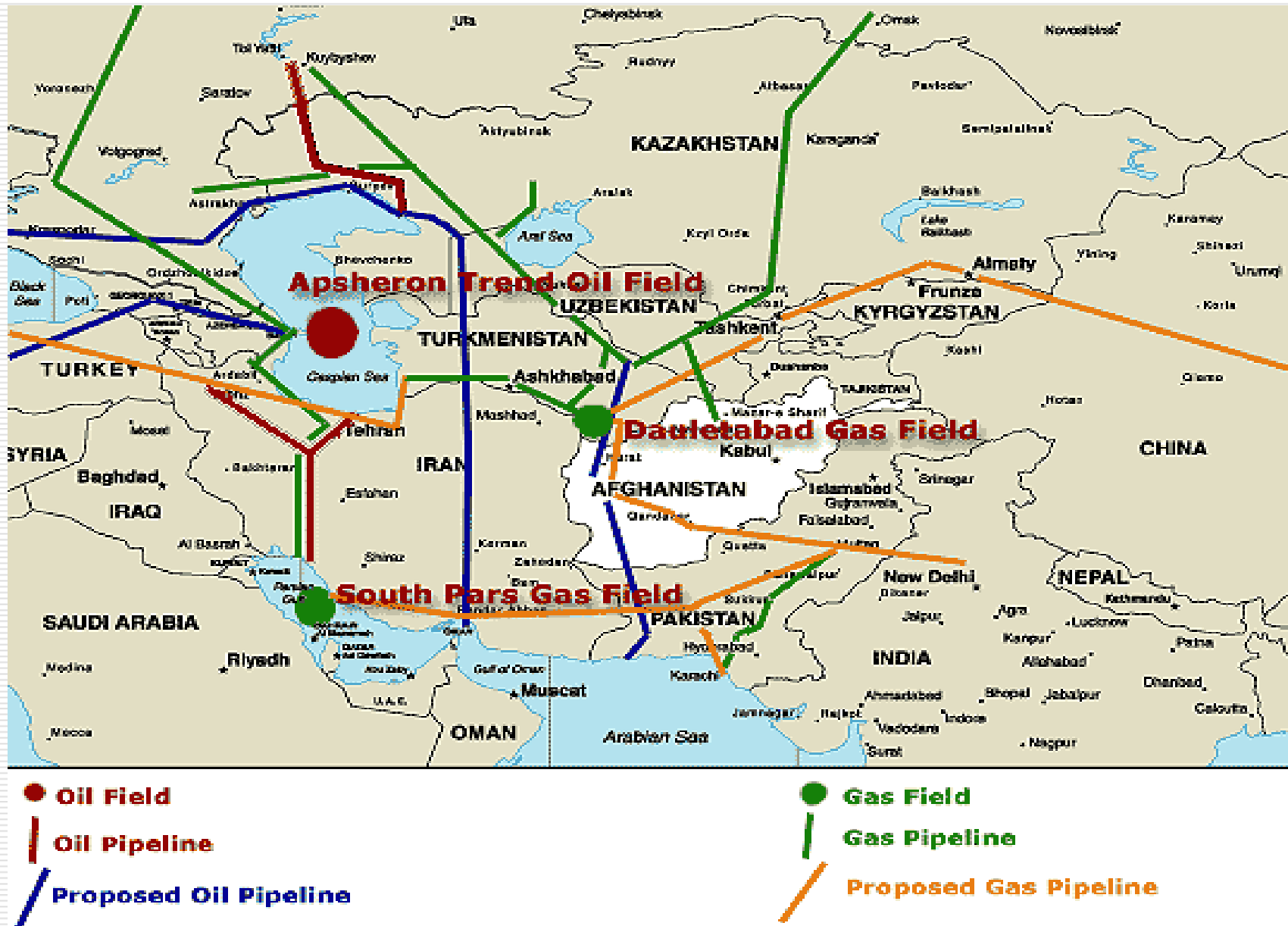
Cooperation between two sides

	 Capital	 Management	 Work force	 Tools & Technology	Benefit
	+	0	+	+	<ul style="list-style-type: none"> • Develop fields • Supply Oil and Gas • Job creation • Technology transfer
	+++	0	+	0	<ul style="list-style-type: none"> • Oil supply security • Job creation • Export own workers • Technology transfer

Russia Kazakhstan China Oil pipeline

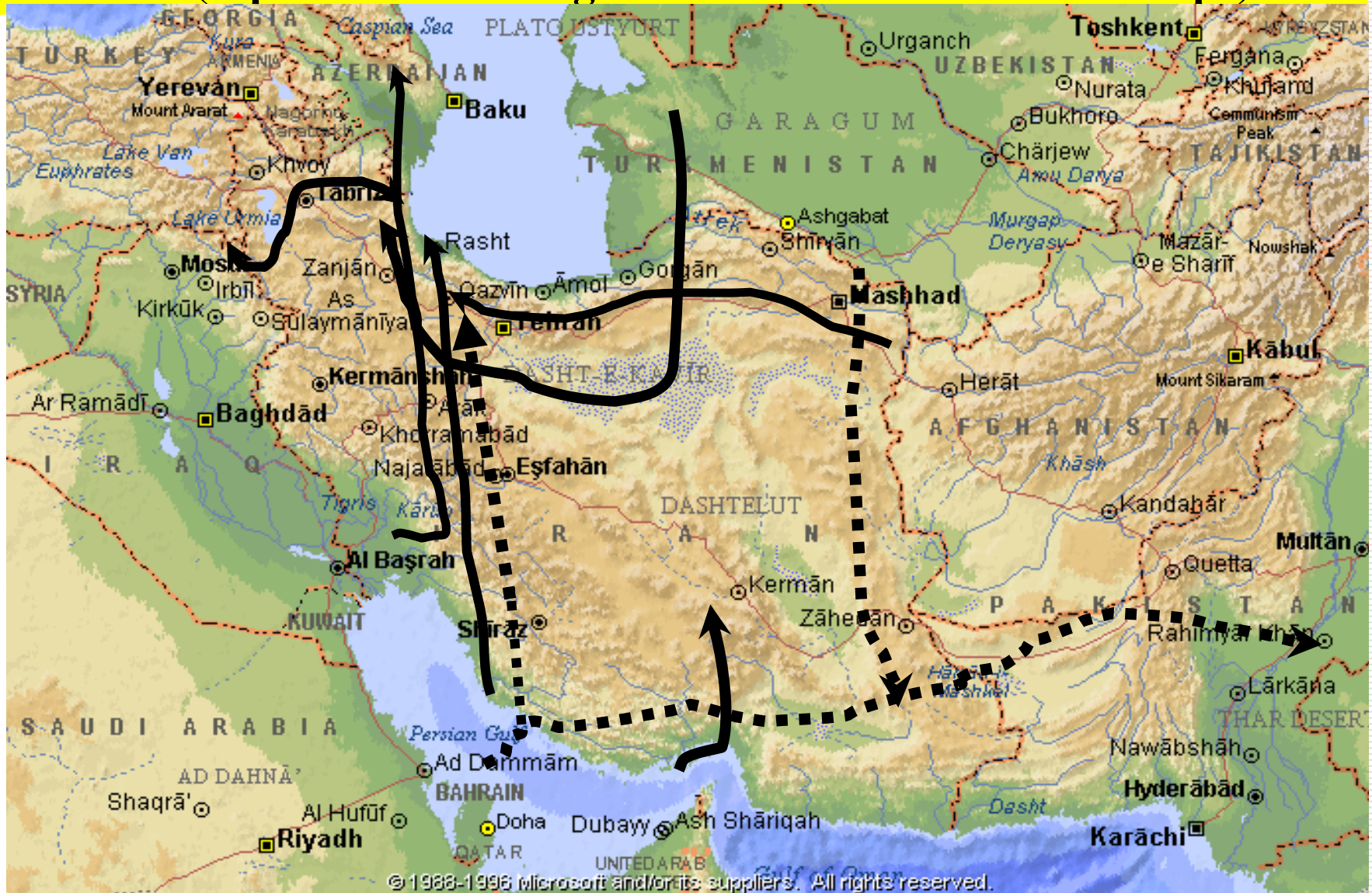


Chinese proposed Gas Pipeline



Existing & Proposed Gas Pipelines:

(Pipelines Extending from Asian Countries to Europe)



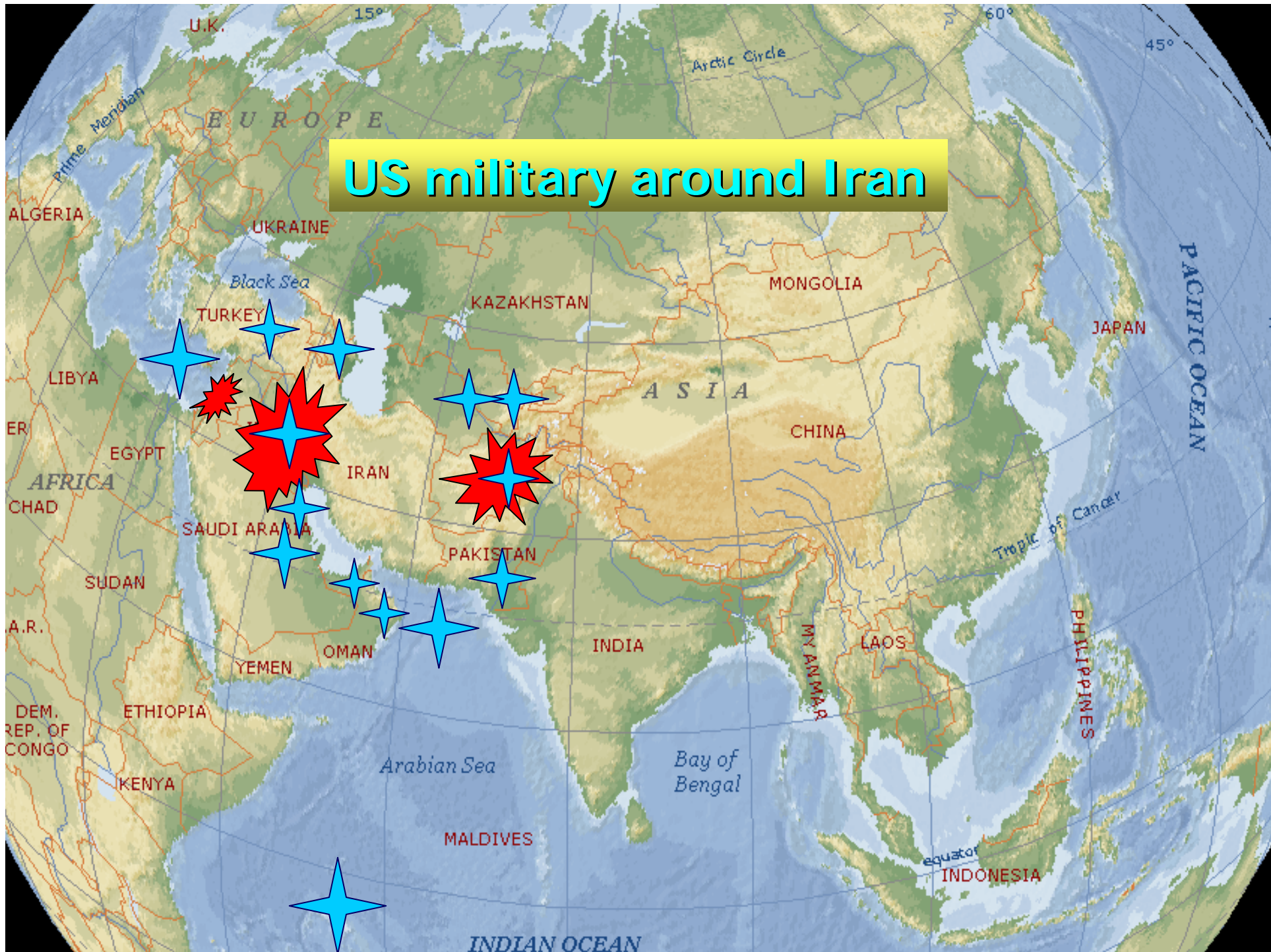
Iran Gas proposed pipeline to China



Why does Iran participate to SCO?

- ❑ Iran has joined the Shanghai Cooperation Organization (SCO) as an observer
- ❑ Iran's concern on US military attack is very serious
- ❑ The treat of extremism and terrorism is common for Iran, China and rest of the region

US military around Iran



Conclusions

- ❑ Energy security and geopolitical issues can create new dynamics for Iran's foreign relations
- ❑ China's total energy consumption in 2004 was about 2.3 times that in 1980
- ❑ China has been emerged as industrial and economic powers that could act as Iran's effective trade partners

Conclusions (2)

- ❑ China's approach to international positioning (acquiring US and European companies) will open a door for the West to put pressure on China's role in Iran
- ❑ China has tendency to secure oil and gas assets in the entire Middle East, including Iran
- ❑ China's export-led growth and its ability to provide jobs for its people, turns on access to ever-increasing quantities of energy.

Conclusions (3)

- As China tries to diversify away from the Middle East, China is strengthening its position in Central Asia to reach to Caspian energy
- Chinese companies are interacting in Iran's north part to be familiar more to Caspian oil and gas
- Iran is eager to know China's policy on energy efficiency

Thank you
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