

**ENVIRONMENTAL ASPECTS OF THE GAS INDUSTRY
IN THE STATE OF QATAR:
POLICY AND DEVELOPMENT**

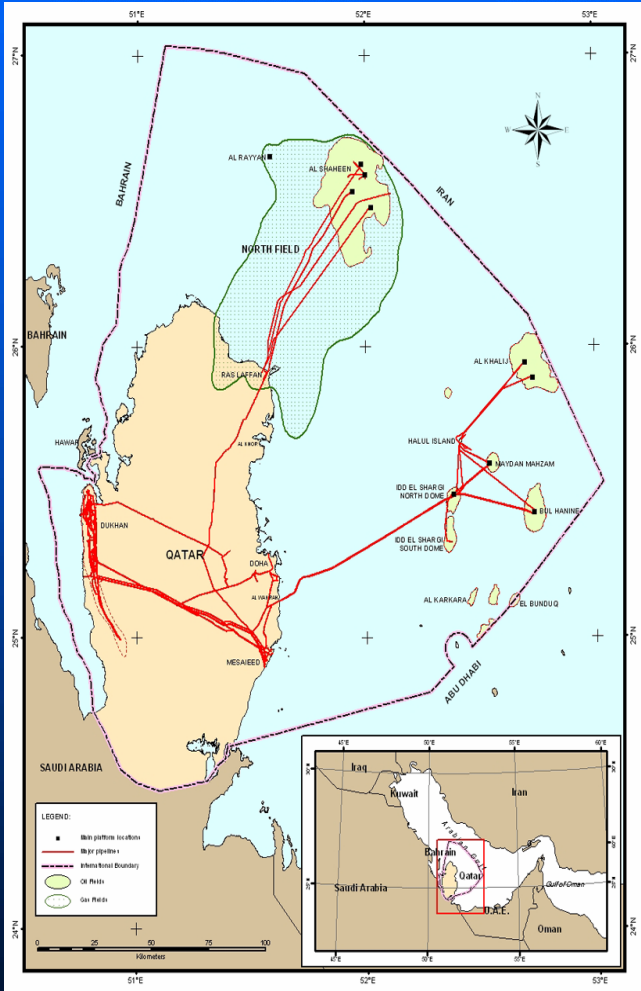
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Presentation Outline

- **State of Qatar**
- **North Field Reserves and Capacity**
- **Qatar Environmental Policy**
- **Regional & International Treaties**
- **Environmental Initiatives**
- **Conclusions**

Historical Background



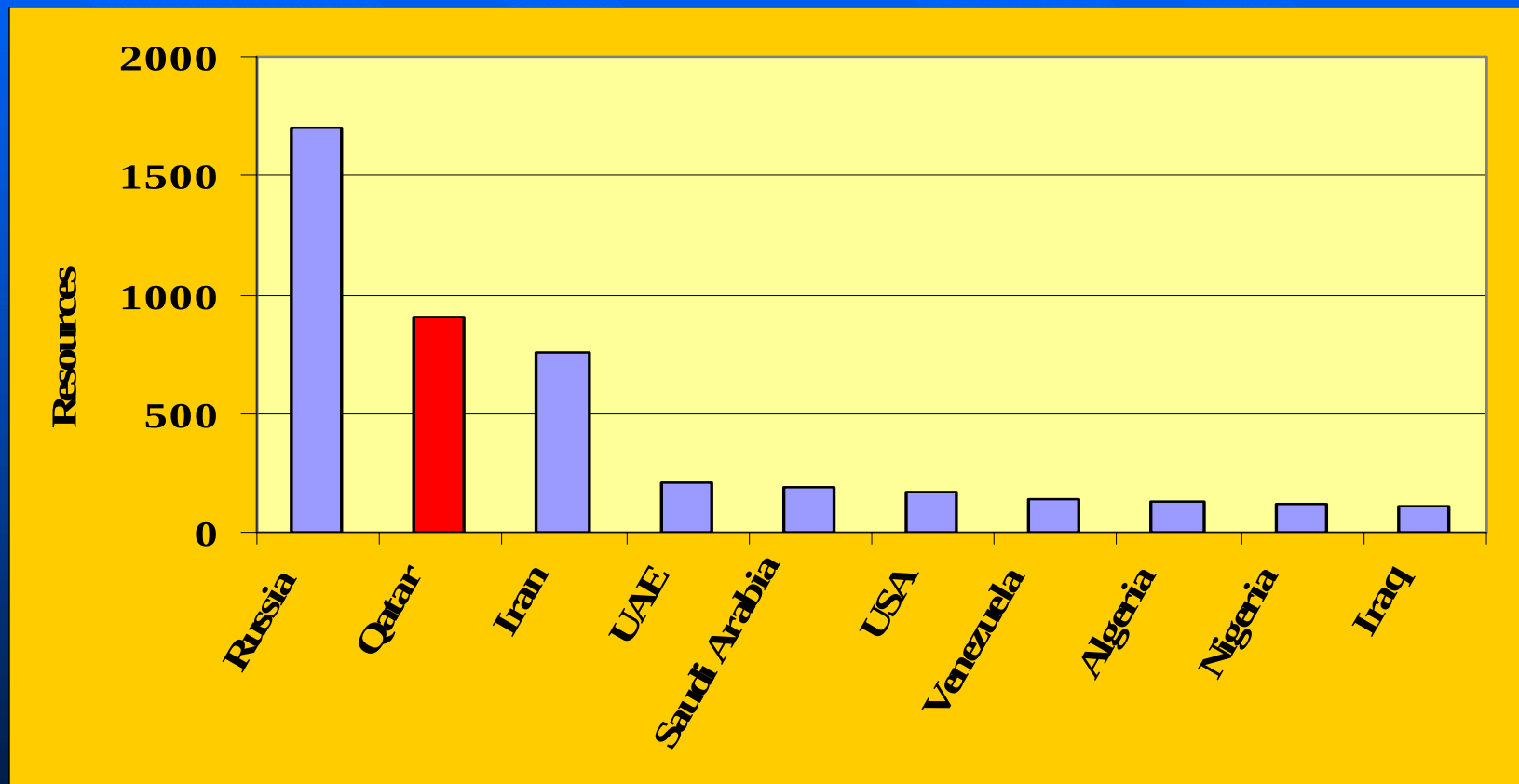
- The State of Qatar is a peninsula in the Arabian Gulf.
- Its size is approximately 11000 square km, with a coast-line extending to about 370 km.
- Cultivable land represents only 1% of the total area.
- The population is around 600,000
- Qatar Natural resources are limited to hydrocarbon reserves & fishing.

The North Field - Qatar



- Field discovered in 1971
- Production started in 1991
- It is the World's largest Single Non-Associated Gas Field covering an area of 6,000 km²
- Reserves exceed 900 TCF (As of Feb 2003)
- Can support planned level of production for 100 Years +

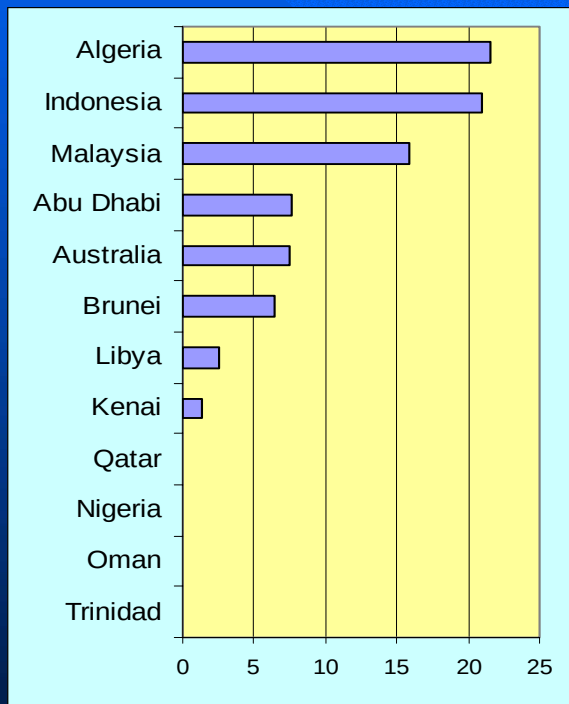
World Leading Gas Resource Holders



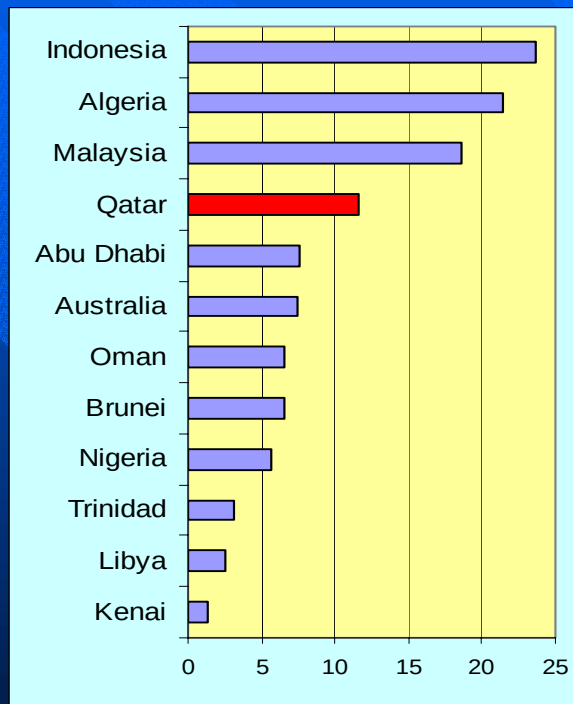
- Traditionally Qatar has been an oil producing and exporting country, it recently became one of the world's leading exporters of LNG.
- Recent estimates suggest that Qatar's LNG export capacity may reach 60 Mt per annum by 2010.
- Development projects for North Field have been designed to meet growing demand for both domestic and international export of natural gas and natural gas liquids (NGL's, LNG).
- Projections suggest exports of Natural Gas and its derivatives will total 100 Mt. Natural gas (LNG, NGL, GTL and Methane).

Qatar's Position as an LNG Supplier

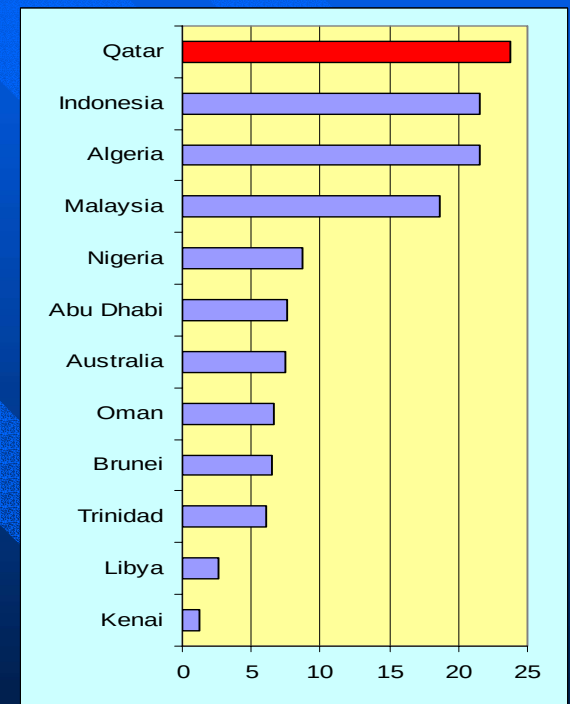
1995



2001



2006



Effect of Current & Prospective Projects on North Field Gas Reserves

- North Field reserves stand at over 900 TCF as of February 2003
- Assuming all current and prospective projects are in place by 2005 and each project requires gas for 25 years:

* Local Demand:	2.0 BCFD =	18.3 TCF (2.0%)
* LNG Projects: 30 MTA	6.0 BCFD =	54.8 TCF (6.1%)
* Pipeline Projects:	4.6 BCFD =	42.0 TCF (4.7%)
* GTL Projects:	2.0 BCFD =	18.3 TCF (2.0%)
Total	14.6 BCFD =	133.4 TCF (14.8%)
Remaining	=	766.6 TCF (85.2%)

- Recognizing the significance of pursuing sustainable development policies for the exploitation of its vast reserves of hydrocarbon resources, the State of Qatar established a number of environmental laws that regulate industrial activities.
- The State also acceded to and/or is in the process of ratifying a number of regional and international conventions and treaties relating to the energy sector and global efforts to protect the marine and atmospheric environment.

Qatar Environmental Policy

- The State of Qatar in the year 2000 has established Supreme Council for the Environment and Natural Reserves (SCENR) as regulatory body headed by the Crown Prince.
- SCENR deals with all aspects of sustainable development, develop laws, regulation, standards related to all environmental activity of all sectors in the state.
- SCENR monitor and enforce compliance of all activities with the Environmental Protection Law and others.

- The general framework of the Environmental Protection Law No. 30 (year 2002) is based on the following fundamental objectives:
 - Preservation and protection of the natural environment against environmental pollution.
 - State sustainable development projects.
 - Development of contingency plans for emergency preparedness.
 - Control of hazardous wastes movement.
- Exploration, production, processing, transportation and domestic utilisation of hydrocarbon resources is regulated in the State of Qatar under State Environmental Laws.

- **“The Conservation of Petroleum Resources” Law No. 4 for the year 1977 regulates petroleum exploration, production and operations within the territory of the State of Qatar and its continental shelf.**
- **Recent modification of this Law No. 4 gave Qatar Petroleum the role for regulating health, safety and environment (HSE) in all activities relating to the hydrocarbon industry.**

Regional & International Environmental Treaties

- International agreements include the Montreal Protocol, the Basel Convention, the United Nations Framework Convention on Climate Change (UNFCCC), the International Convention for the Prevention of pollution from ships and its protocol (MARPOL 73/78), and the International Convention on Civil Liability for Oil Pollution.
- Regional agreement include the Regional Organization for the Protection of the Marine Environment (ROPME), Marine Emergency Mutual Aid Center (MEMAC), and the Regional Clean Sea Organization (RECSO).

Environmental Initiatives

- After the Doha round, the State of Qatar has actively participated in the negotiations conducted by the Committee on Trade and Environment (CTE) on environmental goods.
- Qatar submitted two position papers (WTO TN/TE/W/14, 2002; WTO TN/TE/W/19, 2003). The papers proposed the inclusion of natural gas and natural gas liquids including cryogenic and chemically derived fuels (LNG and GTL) in the list of environmental goods eligible for trade liberalisation negotiations.

- The rationale for the proposals is that natural gas fuel products have lower-carbon and pollutant emitting potential. They also have wider sustainable development merits including socio-economic and environmental benefits, climate change mitigation potential, improved fuel efficiency and reduce adverse impact on human health.
- The oil and gas industry in Qatar operates within stringent guidelines to ensure compliance. Source emission monitoring and a network of ambient air quality stations situated throughout the operational areas routinely monitor air quality to ensure compliance.
- A rigorous policy of flare mitigation (no flare policy) is being pursued by the industry. Projects exceeding US\$ 300 millions are being executed to eliminate flaring of gas both upstream and downstream. This significantly impacts the reduction of CO₂, SO_x and NO_x emissions as required by the State Environmental Laws.

CONCLUSIONS

- The State of Qatar is one of the world's leading exporters of liquefied natural gas with current annual output over 10 MT. The projected export figures are expected to reach 30 MT in 2005 and over 60 MT in 2010.
- Qatar's natural gas reserve is estimated at 900 TCF. Development projects are underway to expand the current LNG plants output establishing gas – to – liquid (GTL) projects and exporting methane gas to neighbouring countries through pipelines.
- The energy industry in Qatar is regulated by a number of Laws, which give Qatar Petroleum the role for monitoring and control of all aspects relating to health, safety and the environment.

- The overall framework of the environmental protection laws are based on the objectives of sustainable development that promote economic development and meet the requirements for environmental protection.
- The State's national energy policy takes into consideration provisions in regional and international treaties such as the UNFCCC, MARPOL, Basel Convention, WTO etc.

- Qatar's policy of accelerating the development of its vast resource of natural gas to provide cleaner energy for the world energy market contribute to the promotion of sustainable development (socio economic benefits) including provision of higher energy efficiency, reduced toxic air pollution emissions and improved air quality conditions. It also offers climate change mitigation opportunities.