



**Prepared in cooperation with the Afghanistan Ministry of Mines and Industry and
the U.S. Trade and Development Agency**

U.S. Geological Survey and Afghanistan Ministry of Mines and Industry Cooperative Assessment of Afghanistan's Undiscovered Oil and Gas

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Preface

Results of the U.S. Geological Survey and Afghanistan Ministry of Mines and Industry cooperative assessment of undiscovered petroleum resources of northern Afghanistan were first released through this presentation on March 14, 2006, at the Afghan Embassy in Washington, D.C. On March 15 the results were presented in Kabul, Afghanistan. The purpose of the assessment and release of the results is to provide energy data required to implement the rebuilding and development of Afghanistan's energy infrastructure. This presentation includes a summary of the goals, process, methodology, results, and accomplishments of the assessment. It provides context for Fact Sheet 2006-3031, a summary of assessment results provided in the presentations.

Slide 1:

U.S. GEOLOGICAL SURVEY AND AFGHANISTAN MINISTRY OF MINES AND INDUSTRY COOPERATIVE ASSESSMENT OF AFGHANISTAN'S UNDISCOVERED OIL AND GAS

Slide 2:

Map of Gas Fields and Generalized Geology in the area of Afghanistan.

Slide 3:

Goals of the Assessment of Afghanistan's Undiscovered Oil and Gas Resources

- Collect Scientific Data and Analyses for Energy Resource Assessment and Development
- Train Afghan Geoscientists to Conduct Future Assessments Independently
- Provide Afghanistan with Information Needed to Manage Their Petroleum Resources
- Provide Basis for Investment in Exploration and Development

Slide 4:

Data Collected, Analyzed, Interpreted, and Archived

- Geologic Samples
- Oil and Gas Samples
- Maps
- Seismic Profiles
- Well Reports and Logs
- Exploration Reports and Literature

Slide 5:

Training Provided

- Computer Skills
- GIS
- Petroleum Geology Refresher
- Geologic Framework
- Petroleum Systems
- Geochemistry
- Seismic Interpretation
- Assessment Methodology

Slide 6:

Products

- **Petroleum System Geologic Reports**
- **Assessment Results**
- **GIS**
 - Geologic, Structural, Seismic, Field, Well, Pipeline, Sample Location, and Base Map Layers
- **Petroleum Database**
 - Geochemistry, Seismic, Well Data, and Geology

Slide 7:

Map of Petroliferous Regions of Northern Afghanistan and Surrounding Areas

Slide 8:

A cross section showing the Total Petroleum System Processes (Includes Undiscovered Resources).

Slide 9:

USGS Assessment Methodology

- Geologically Based
- Considers Analogous Systems
- Statistically Rigorous
- Produces Consistent Results Worldwide
- Results Statistical Range of Estimates

Slide 10:

Map of Suprasalt Assessment Units and cross sections of the Kushka Zone AU Exploration Concept and Amu-Darya Basin Exploration Concept.

Slide 11:

Map of Subsalt Assessment Units and cross section of Afghan-Tajik Basin Exploration Concepts.

Slide 12:

Reserve Estimates

- 15 Fields Discovered – 1957 to 1984
 - 7 Oil, 8 Gas (~3 Producing)
- Initial Recoverable Reserves
 - 88 MMBO
 - 5 TCFG
- Estimated Produced Volumes
 - 0.17 MMBO?
 - 2 TCFG?
- Remaining Reserves
 - 87 MMBO?
 - 3 TCFG?

Slide 13:

Assessment of Undiscovered Resources Expands Resource Base

Jurassic Evaporite Basin Subsalt Carbonates – Amu Darya Greatest gas potential – 5,474 BCFG

Eastern Suprasalt Thrust and Folds – Greatest oil potential – 886 MMBO
Afghan-Tajik

Slide 14:

Where is Afghanistan in the Development Process?

- 1 – Completed - Assessment of Petroleum Resources in Northern Afghanistan
- 2 – Completed - Certification of Reserves
- 3 – Completed - Petroleum Law

Slide 15:

Next Steps

- Validation of Potential
- Exploratory Seismic Surveys
- Rehabilitation of Existing Wells

5 -Leasing Preparation

- Lease Process Training
- Delineation of Lease Blocks
- Preparation of Data Packages
- Lease Round Road Show

Slide 16:

Energy Sources in Afghanistan

Electric Generation in Afghanistan

Operating Power Plants

- 1 Natural gas in Mazar-I-Sharif
- 2 Gas turbines running on diesel in Kabul
- ~5 Hydroelectric plants operating

Demand 750 GWh (2003) 3,334 GWh (2015)

Natural gas piped only between Shebergan and Mazar-I-Sharif

Numerous small coal mines operating

Slide 17:
Geologic and Assessment Team

USGS

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Slide 18:
Thank you.
<http://energy.usgs.gov>