UNFC–2009 –
Purpose of Resource Classification

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India
29-30 October 2013
Stakeholders of our Reported Resources

- External Influencers
- Internal Stakeholders
- Internal preparers
- Internal users
- Governance and Assurance
- External user
Principles for Resource Identification

• Project based
  – Project management

• Classification of total volume

• Clear boundaries between categories
  – Discovered resources
  – Commercial reserves
Resource Evaluation Data Sources

Reservoir → Net Recoverable Resources → Project

Entitlement

Property
Resource Progression

Access | Appraise | Select | Define | Execute | Operate

Development Pending | Justified for Development | Approved for Development | On Production | Production

Exploration Prospect

Key
- Exploration
- Non-Commercial
- Commercial
- Potentially Commercial

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Typical Deepwater Facility Design

Sources of Uncertainty
- Subsurface
  - Static
  - Dynamic
- Gathering
- Processing
- Transport
- Commercial

Successful development plans include contingencies and mitigations for possible outcomes.
Reservoir Technical Limits

- **Options**
  - Doable now (or almost)
- **Possibilities**
  - Potentially economic
  - May require incremental technology development
  - <5 & >5 yr timescales
- **Barrier opportunities**
  - Technical or commercial barrier
  - Not currently doable or uneconomic
  - Requires step change
The improvement of hydrocarbon recovery and investment efficiency is demonstrably linked with advances in technology.

The right linkage between depletion and technology plans is vital to maximising value from our assets.
Resource Identification

• Aids business planning
• Investment decisions for individuals and corporations
• Allows efficient resource utilisation

• Principally an aid to efficient development
Sustainable Development for All

- Definition must include entire resource base
  - Maintain competitive advantage
  - Recognise the total potential
- Over-conservatism may lead to lost opportunity
- Uncertainty analysis must identify the components
  - Subsurface
  - Project
  - Commerciality

UNFC-2009 with its focus on economic viability, technical feasibility and geologic endowment is well placed to meet all of these needs.
Petroleum Resource Classification is not finished!

Market economics

1937 API
- Drilled
- Proved
- Undrilled
- Possible
- Hypothetical

1941 Commit of oil administration
- Drilled
- Undrilled
- Possible
- Hypothetical

1955 IV World geology congress
- Proved
- Probable
- Possible
- Hippotetical

1962 Arps
- Drilled
- Undrilled
- Producing
- Non-producing

1969 SPE
- Proved
- Recoverable
- Unproved
- Recoverable
- Drilled
- Undrilled
- Probable
- Possible
- Producing
- Non-producing

2000 SPE/WPC/AAPG

1907 London mines institute

1911 XI World geology congress

1928 GEOLOM USSR
- Reserves
- A Matured
- B Identified
- C Prospective

1932-1937 I.M. Gubkin

1959

1983 G&Z USSR

2004 Ministry of natural resources

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