WBC Training

Oil & Gas Reserves

The most significant assets of E&P companies do not appear on their balance sheets: Reserves - the oil & gas that they have discovered or acquired the rights to but have not yet produced. Understanding how reserves are measured and reported is key to assessing the value and prospects of any E&P business.

BOOKING RESERVES

By booking Reserves E&P companies can show the total value of their business. This is important for:

- Reporting to investors
- Raising capital
- Raising debt (e.g. reserve-based loans)
- Buying and selling assets
- Investment & M& A decisions
- Bid evaluation
- Getting projects sanctioned
- Play and prospect evaluation

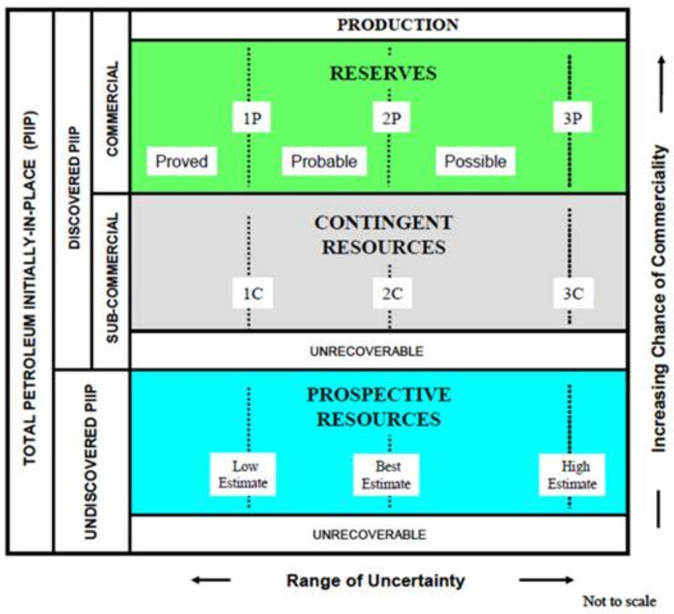
COMMERCIALITY

To be included in Reserves oil or gas must be Commercially Recoverable

At a given market price all the following must be recovered

- Discovery costs
- Development costs
- Production costs
- Transport costs
- All taxation and royalties

The market price will dictate the point at which production is cut off, as it declines below point at which net revenues cover fixed costs. Reported reserves will therefore change as the market price changes.



The Petroleum Resources Management System(1) (PRMS) developed by the Society of Petroleum Engineers and 3 other bodies is the internationally recognised standard for the definition and measurement of petroleum resources.

RESERVES & RESOURCES

Reserves: petroleum anticipated to be ***commercially recoverable*** by developing discovered accumulations categorised in ascending order of uncertainty as:

- **Proved reserves**: Reasonable certainty (>=90%) of being recoverable. Known as P90 or 1P. Will be either
  - **Proved developed** (PD) – produceable from existing wells and perforations or with minimum additional investment; or
  - **Proved undeveloped** (PUD) – require additional capital investment (e.g. a new well)
- **Probable reserves**: Attributed to known accumulations with >=50% confidence level of recovery (P50). Together with Proved reserves known as 2P
- **Possible reserves**: Attributed to known accumulations but with a lower confidence level of recovery (>=10%; P10). Together with Proved and Probable reserves known as 3P

Resources: petroleum ***not considered mature enough for commercial development***

- **Contingent Resources –** discovered. Contingencies preventing classification as reserves include: no viable market, commercial recovery dependent on technology under development, evaluation of discovery insufficient to clearly assess commerciality.
- **Prospective Resources**: undiscovered but potentially recoverable by application of future development projects

RESERVES DISCLOSURE

US listed companies must follow SEC rules: Rule 4-10 of Regulation S-X and Subpart 1200 of Regulation S-K.

International Financial Reporting Standards (IFRS) contain no requirements on reserves disclosure - many non-US companies voluntarily report reserves using the SEC standards to provide comparability.

SEC rules are very prescriptive, including requirement for historical prices (preceding 12 months) to determine reserve values. Companies not following SEC standards may use forward looking price estimates, so use caution when comparing companies.

A Competent Person's Report (or Qualified Person's Report or Technical Expert's Report) is required for an Initial Public Offering (IPO) or for other material transactions by listed companies. Companies will usually make regular independent assessments of reserves to enhance their credibility.

DEPRECIATION, DEPLETION AND AMORTISATION (DD&A)

- The costs of acquiring and developing oil and gas fields are capitalised and amortised over the productive life of the property using the unit-of production formula:

  $$\frac{\text{Production for period (BoE*) x Net Book Value at end of period}}{\text{Estimated reserves at start of period (BoE)}}$$

- Calculate estimated reserves at start of period by adding period production to period end estimated reserves. This way revisions during the period are taken into account.
- DD&A can be calculated by property or on some reasonable aggregation of properties with common features (e.g. a reservoir or field).
- Under SEC rules costs are amortised over proved reserves. IFRS permits the inclusion of probable and possible reserves provided that the costs of developing these incremental reserves are included.

COURSES

- 3 Day MBA in Oil & Gas
- High Performance Leadership
- Contracts & Negotiations in Oil & Gas
- Risk Management in Oil & Gas
- Procurement and Supply Management
- Fast Track to Leadership

OTHER WBC GUIDES

- Portfolio Management
- Petroleum Economics
- Gas Monetisation
- Shale versus Conventional Asset Development

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