

# **An Overview of Oil and Gas Evaluation, Classification and Disclosure, and its use for Securities Disclosure**

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The results of the evaluation and classification of oil and gas resources are used for a number of purposes, described by the UN's Expert Group on Resource Classification as:

Energy Studies  
Government Resource Management  
Business Processes  
Financial Reporting

The most widely used petroleum resource evaluation, classification and reporting systems include the Canadian system, the Petroleum Resource Management System (PRMS, See Figure 1), the developing United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources (UNFC), and the new US SEC oil and gas disclosure rules.

The Canadian Oil and Gas Evaluation Handbook (COGEH), first published in 2002, is recognised as the standard for evaluation practice in Canadian securities disclosure legislation and also by the Association of Professional Engineers, Geologists, and Geophysicists of Alberta (APEGGA).

In 2007, a group of professional societies, led by the Society of Petroleum Engineers (SPE), published the Petroleum Resource Management System (PRMS). Although COGEH and PRMS use the same classification system, the guidelines for PRMS are more limited with, what might be described as, "second order" differences, from those in COGEH. At this time, PRMS is not recognised by either the Canadian or the US securities regulators as a standard for oil and gas disclosure.

The UNFC was originally established for solid minerals and subsequently expanded to petroleum. It is a high-level classification system based on three criteria: Economic and Social viability (E), Field Project Status and Feasibility (F) and Geological Knowledge (G). Resource classes are described numerically, in the order EFG, for instance 111 would represent proved reserves. A simplified and updated version, UNFC-2009, has recently been issued and a task force is currently examining the need for and types of guidelines that may be required. It is intended to fulfil the four needs listed above, but at this time, it has been used on a limited basis, for Energy Studies and Government Resource Management.

The two largest oil and gas securities markets are those of the USA and Canada. There are about 500 reporting issuers (colloquially described as public companies") in Canada, and about half that number in the US.

In Canada, the governing securities disclosure legislation, National Instrument 51-101 Standards of Disclosure for Oil and Gas Activities (NI 51-101), was developed with extensive industry input and came into effect in 2003. Limited amendments were made in 2007, and further minor amendments are under review for the end of 2010. The Alberta Securities

Commission (ASC) governs oil and gas disclosure in Alberta and advises other provincial securities commissions on oil and gas matters. The main features of NI 51-101 are:

- It refers to COGEH as the standard of practice for evaluation and classification.
- It covers all classes of resource, from reserves to prospective resources.
- It covers all types of resource, including conventional oil and gas, bitumen, coal bed methane, shale gas, shale oil, synthetic crude, and even methane hydrates.
- It is “continuous disclosure” legislation, that is, it applies to all oil and gas disclosure by a reporting issuer, including required annual filings, news releases, public presentations, etc.
- All assessments of resources that are disclosed must be performed by a Qualified Reserves Evaluator or Auditor, the requirements for which are described in the legislation. Reserves Data for annual filings must be prepared by an Independent Qualified Reserves Evaluator or Auditor,
- It mandates annual filings of oil and gas information in three forms:
  - Form 51-101F1 Statement of Reserves Data and Other Oil and Gas Information requires the provision of information on a company’s activities, including:
    - Mandatory disclosure of proved and probable reserves, and permits the disclosure of all other categories of resource, such as contingent resources.
    - Mandatory evaluation using forecast prices, and allows other price scenarios, such as a constant price case.
    - A reconciliation of changes in proved and probable reserves between the start and the end of the year. An important category of this is Technical Revisions, changes due to new technical information, which allows an assessment of the quality of evaluations.
    - Considerable additional information on a company’s oil and gas activities.
  - Form NI 51-101F2 Report on Reserves Data by Independent Reserves Evaluator or Auditor, is signed by the evaluator or auditor to confirm that at least 75% of the value of reserves data has been evaluated or audited, and the balance has been reviewed.
  - Form NI 51-101F3 Report of Management and Directors on Oil and Gas Disclosure, is signed by two senior officers and two directors, as confirmation of a due diligence process in the preparation of the information disclosed in the Form NI 51-101F1.
- Companion Policy 51-101CP provides considerable guidance on the preparation of oil and gas disclosure under NI 51-101.

The US SEC implemented new oil and gas disclosure rules with effect for filings in 2010. Differences from Canadian disclosure include:

- It covers only required regulatory filings, and does not regulate other disclosure, such as news releases (i.e., it is not continuous disclosure legislation).
- It mandates disclosure of proved reserves, permits disclosure of probable and possible reserves and prohibits disclosure of other classes of resource such as contingent resources (although these may be disclosed outside regulatory filings).
- It mandates evaluation using a constant price, but allows disclosure of evaluations using other price scenarios, such as a forecast price.
- There is no requirement for independent evaluation.

- Some limited guidance on evaluation is provided in SEC publications but there is no equivalent of COGEH.
- Some of the information required by NI 51-101, such as reserves reconciliations, is not required in SEC filings, but in related filings of the Financial Accounting Standards Board (FASB 69).

The ASC carries out reviews of disclosures under NI 51-101, the results of which are published in annual reports and technical journals. Since the inception of this review program, over a thousand reserves reports have been reviewed, from nearly 500 reporting issuers, with properties in 46 different countries. Reporting issuers with deficiencies in their filings may be asked to file corrective disclosure or, in less serious cases, note them for correct usage in future filings.

An important part of the ASC review is the analysis of technical revisions as an indication of the general quality of evaluations. A recently completed review of six years of such data indicated that evaluations were generally of reasonable quality, although there was an indication of a slight positive bias for gas.

In recent years, there has been a significant increase in disclosure of resource classes other than reserves, especially on unconventional resources. COGEH and NI 51-101 were written at a time when industry activity was focussed on conventional oil and gas, although both have been updated to some extent. Issues that need some attention include:

Reserves and contingent resources must satisfy the criterion of being in a “known accumulation”, which requires a well and either a test or a good analog. For unconventional accumulations, there may be many wells but lengthy pilot testing is often needed before the test requirement may be satisfied. Frequently, there is no appropriate analog information. A strict interpretation of the guidelines would often classify a hydrocarbon volume as Unrecoverable in the period between drilling and the receipt of test data, which makes it difficult if not impossible, to raise money in the capital market. Not all volumes in the “Unrecoverable” class are the same, and a review is required to more usefully classify such volumes.

More guidance on the use of analogs would be useful, especially for unconventional accumulations where not only the analog reservoir properties need to be considered, but also an analog recovery process.

There has been a significant increase in the disclosure of contingent resources, but there appears to be considerable variation in evaluation practice. One aspect of this seems to be a failure to realise that, as currently defined, “contingencies” are non-technical factors, such as lack of regulatory approval, lack of markets, etc. Drilling and testing are not “contingencies”, except for limited cases of ongoing testing. Some guidance on contingent resources is under consideration.

Compounding this problem, and common to all reserves and contingent resource evaluations, is the question of how far is it reasonable to extrapolate from or between control points, which is, of course, a function of the geology. It may be fairly easy to establish that a formation is present over a large area, with relatively few wells, but this does not establish that it is also productive, that is, it also satisfies a test criterion, over the same area.

Preparation of the bitumen guidelines presented a particular challenge, partly technical, partly cultural, since bitumen is recovered both by mining and through wells. However, a barrel of

bitumen recovered by mining cannot be distinguished from one recovered from a well, and both must satisfy the same classification requirements. Differences in the recovery process and the practices and usages of the mining and the petroleum industry have been addressed by recognising that the methods of estimating in-place volumes are essentially the same, but that the recovery process imposes different criteria in order to meet the same end. Significant testing of the bitumen guidelines will be required once they are issued.

Most of the attention on unconventional resources was initially on coal bed methane, subsequently on bitumen, and recently on shale gas. Evaluation, classification procedures and disclosure practices need to continue to develop to meet the needs of these resources, and, in future, shale oil and, further again, methane hydrates.

The ASC monitors oil and gas disclosure, maintains communication with industry, and considers amendments to the legislation in order to respond to the changing activities of the industry and to maintain high standards of disclosure in the oil and gas securities market in Canada.

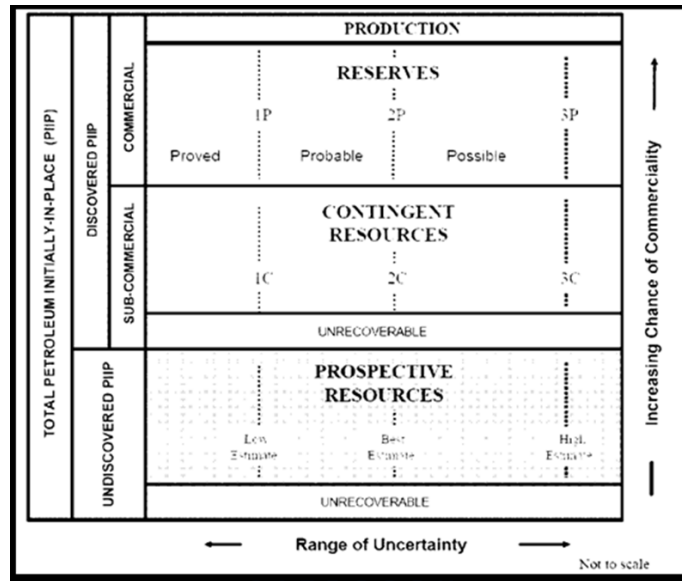


Figure 1. The PRMS Resource Classification System, also used in COGEH.