

SPE-PRMS And Reserves Reporting In Australia

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Reserves and resource estimations are fundamental to the funding and valuation of petroleum projects. Many technical organisations, regulatory bodies and financial institutions have introduced nomenclatures for the classification of petroleum reserves. The most widely used international standard is the SPE-Petroleum Resources Management System (SPE-PRMS). This article will discuss the SPE-PRMS standard and petroleum reserve reporting in Australia.

The purpose of reserve standards is to establish a common language underpinned by technical specifications or other criteria designed to be used consistently as a definition or guideline. Petroleum reserves have a life cycle from undiscovered, discovered, production and abandonment. The reserve standard needs to reflect both the maturity of the asset and the range of possible estimated petroleum volumes from a given date. Table 1 lists the reserve/resource classification systems published by 10 international agencies.

Table 1

1. Petroleum Resources Management System (SPE, WPC, AAPG, SPEE 2007)
2. US Securities and Exchange Commission (SEC-2010)
3. UK Statement of Recommended Practices (SOR-2001)
4. Canadian Security Administrators (CSA-2002)
5. Russian Ministry of Natural Resources (RF-2005)
6. China Petroleum Reserves Office (PRO-2005)
7. Norwegian Petroleum Directorate (NPD-2001)
8. United States Geological Survey (USGS-1980)
9. United Nations Framework Classification (UNFC-2004)
10. Australian Securities Exchange (Chapter 19 LR)

In the last two decades there has been consolidation of reserve standards; for example, the PRMS is now sponsored by the Society of Petroleum Engineers (SPE), the World Petroleum Council (WPC), the Society Of Petroleum Evaluation Engineers (SPEE) and the American Association of Petroleum Geologists (AAPG). From 2010, the Securities and Exchange

Commission (SEC) will adopt the SPE-PRMS principles within its regulatory framework. In addition, the UN and SPE have signed a memorandum of understanding which may lead to further consolidation. The Australian Securities Exchange has its own reserve definitions within listing rules.

Reserves reporting within each jurisdiction must satisfy the regulatory framework governing the reporting entity. In Australia, publicly listed companies must comply with the supervisor, the Australian Securities Exchange (ASX), and the regulatory Australian Securities and Investments Commission (ASIC) governance. Reporting under the jurisdiction of ASIC (Valmin Code), companies are required to use the SPE-PRMS standard. Reporting to the market under the jurisdiction of the ASX, companies must comply with the definitions described in Chapter 19 of the listing rules. The ASX has proposed to replace these definitions so that companies can report reserves using the following standards:

- report in accordance with the SPE Petroleum Resources Management System (PRMS); or
- report in accordance with the SEC Standard; or
- disclose or define the standard or methodology the entity has used.

(Source: ASX presentation: QUPEX, Wednesday 13, June 2007.)

The third option permits the use of any standard, including self-generated standards. This option is concerning as the independence of the reserve standard custodian and the reserve estimator is not required. These proposed changes have not been endorsed by ASIC, although the ASX has permitted their use, as shown in the following extracts from ASX company announcements:

ASX standard

The reserves estimates used in this statement were compiled by [redacted] and [redacted] of [redacted] and are consistent with the definitions of Proved, Probable and Possible hydrocarbon reserves defined in the ASX Listing Rules

SPE

In accordance with Society of Petroleum Engineers (SPE) guidelines, the following upgraded reserves have now been attributed to the [redacted] field by [redacted]

Company generated

[redacted] uses an internal company reserves categorisation system that has been developed by experienced and qualified personnel.

The SPE-PRMS standard is fundamentally different and does not satisfy the reserve definitions in ASX listing rules. There is no official industry recognised document mapping the SPE-PRMS to ASX definitions; therefore, any relationship is an opinion, and the assumption they are somehow stricter is unfounded.

In addition, the different reserve standards used for reporting to the Australian market use the same terminology, 'proved', 'probable' and 'possible', causing confusion and possibly misleading the investor.

The market regulator and supervisor have different regulatory requirements regarding the use of reserve standards. Petroleum companies determine the reserve standard for reporting to the market.

SPE Petroleum Resources Management System

The majority of oil and gas companies in Australia use the SPE-PRMS, as introduced in March 2007. The 2001 Reserve Guidelines for the Evaluation of Petroleum Reserves and Resources often referred to in the PRMS is still valid. These documents can be downloaded from the SPE website (www.spe.org).

The SPE-PRMS endeavours to capture the size, maturity and range of uncertainty of petroleum-estimated volumes from a given date. Figure 1 is a graphical representation of the PRMS resource classification framework.

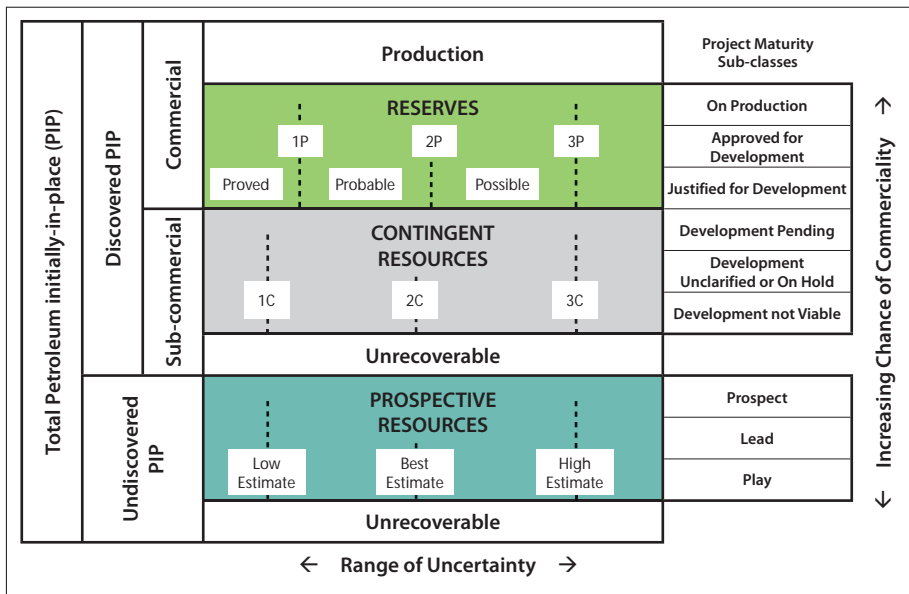


Fig. 1. PRMS resource classification framework.

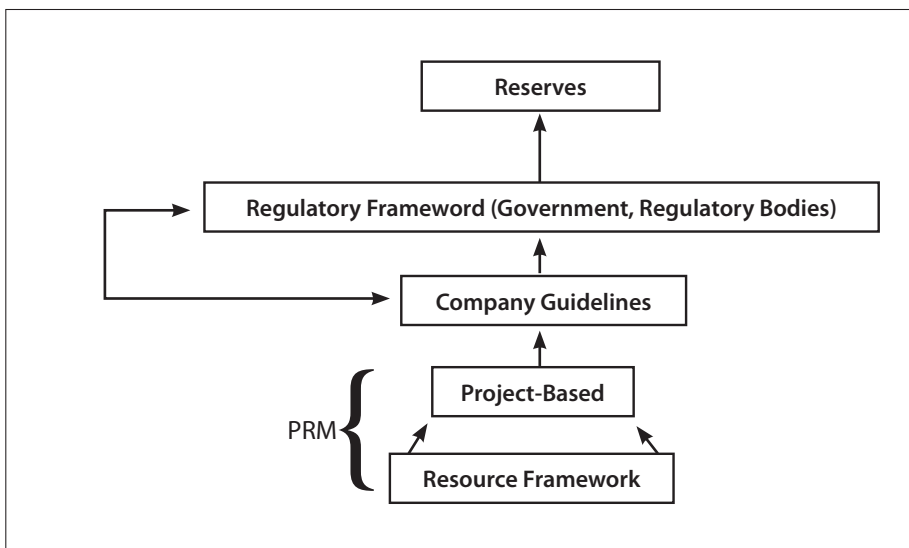


Fig. 2. Reserve reporting.

The following is a brief description of the PRMS framework. The PRMS endeavours to capture the range of possibilities regarding size and maturity of the project. The Y-Axis is a series of boundaries defining the resource status; for example, 'Prospective Resource' (Undiscovered) and 'Contingent Resources' (Discovered). The only category that is a measurement is 'Production', the rest are estimates. The technical analysis is the domain of resource estimations, that is, petroleum initially in place (PIIP), prospective and contingent resources. Reserves are a subset of the resource framework distinguished by its commerciality. Resource estimates are determined by technical analysis and reserves are determined by economics. This philosophy distinguishes the PRMS from other standards.

The following discussion highlights areas within the PRMS which are often misunderstood.

The PRMS defines petroleum as oil, gas and inerts, such as CO₂ and N₂. Therefore, reported PIIP in volumetric units, such as, Tcf, may include inerts unless specified. The 'Range of Uncertainty' (Figure 1), with arrows in both directions, has been controversial amongst reserve estimators. The outcome that 1P, 2P and 3P reserves represent the range of uncertainty is subtly different to the previous mindset that uncertainty increases to the right. Project uncertainty is now evaluated on the vertical axis; that is, project maturity. The critical step in resource evaluation is the declaration of reserves, which has major legal implications. The reserve category with the greatest project uncertainty is 'Justified for Development'. This category states the "implementation of the development project is justified on the basis of reasonable forecast commercial conditions at the time of reporting ... " Reserves are solely a commercial term and therefore declaration has value.

The PRMS permits both probabilistic and deterministic methods for estimating the range of uncertainty; for example, proved, probable and possible reserves. Probabilistic method generates a range of estimates with associated probabilities. The 1P, 2P and 3P distribution is equivalent to the P10, P50 and P90 probabilities. In this context, there should be at least a 50% probability that 2P (proved and probable) quantities actually recovered will equal or exceed this estimate. (Note: this does not mean a 50:50 chance of happening.) Declaration of reserves implies the project is 'Justified for Development', so reserves will happen. Deterministic methods utilise discrete scenarios in determining proved, probable and possible estimates. These estimates do not have to match an equivalent P10, P50 and P90 log normal distribution. The implication is that two methods can generate two sets of different reserve estimates.

The PRMS guidelines and definitions for each item in the framework are flexible enough to encompass all petroleum resources, conventional and unconventional. This flexibility requires refinement defined by the regulator and reserve estimator for each particular project.

The reserve reporting procedure is outlined in Figure 2.

The PRMS is a project-based reporting system structured as a management tool to evaluate a project's commercial viability. The project can influence the resource framework; for example, an LNG project can have substantially different reserves than a domestic gas project for the same tenure.

The regulatory framework in Australia is sparse compared to the USA or Canada. The regulatory framework is often used to force market consistency. Examples include gas and oil prices used in economic models, guidelines pertaining to undeveloped reserves, and treatment of gas production outside contract periods. In Australia, these and other issues are often decided by negotiation between the reserve estimator and the petroleum entity.

'Reserve certification'

'Reserve certification', or 'certified' reserves language, is often used in Australian company announcements. What is the definition of reserve certification?

The SPE-PRMS has no reserve certification process. Describing a reserve as 'certified' is non-compliant to the standard. Any word used to describe a reserve must be defined in the PRMS.

reserves in oz

The ASX and ASIC have no reserve certification process.

Some US banks have an internal reserve certification procedure that outlines the legal responsibilities and independence of the reserve estimator in financing petroleum projects. This is usually a confidential document and the custodian of the certification process is with the bank.

Using the words 'certify' and 'certification' relating to Australian company announcements implies the word has value and therefore is the responsibility of the:

- Reserve estimator; and/or
- Board of directors; and/or

- Australian Securities Exchange.

All reserve documents have a disclaimer whose validity in relation to 'certification' may exclude the reserve estimator from legal redress. Responsibility for the reserve certification is the responsibility of both the originators and market supervisor. Companies should seek legal opinion if 'certification' or 'certify' is to be used in the public domain.

Auditing

SPE is the custodian of the PRMS and has no jurisdiction in regard to its usage. For governance, SPE encourages the auditing of reserve documents. The reserve document must be comprehensive and all assumptions,

estimations and economics must be disclosed. The reserve auditor must be independent of the reserve estimator. In Australia, ASIC and the ASX have no formal requirements for reserves to be audited prior to public submission. It is recommended, if possible, that investors seek an audit of reserves prior to investment. Auditing has no relation with certification.

Reserve estimators and auditors

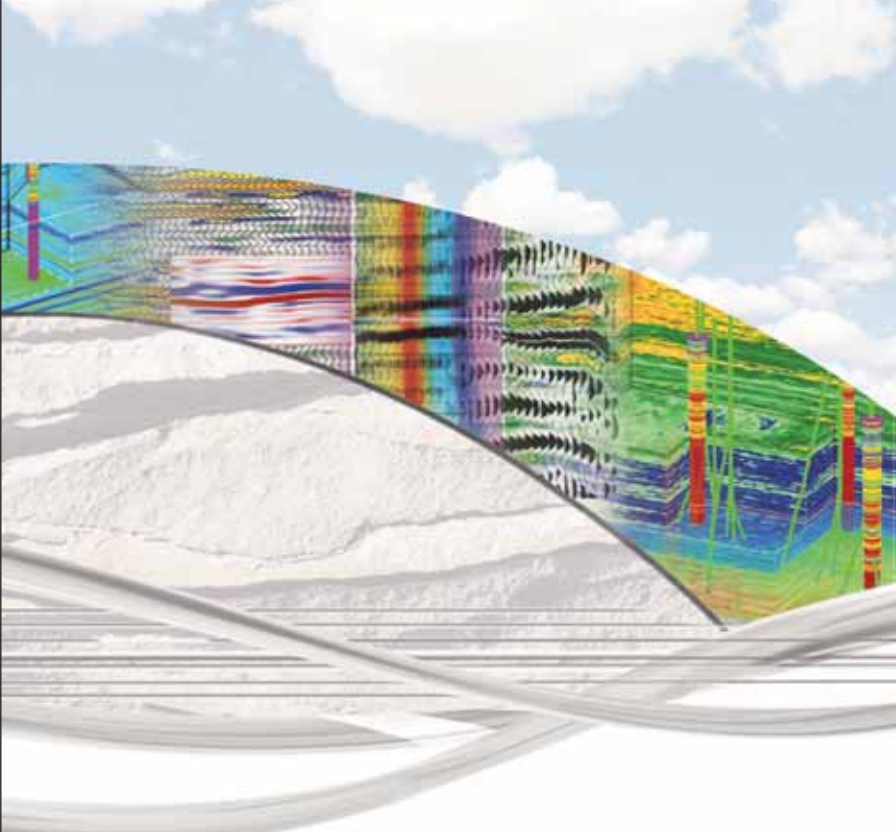
SPE requirements for reserve estimators and auditors are outlined in the Reserve Audit Standards 2007 (www.spe.org). Reserve estimators or auditors may be employees of the entity or an independent firm. A reserve estimator would normally be considered qualified if he/she has a minimum of three years' practical experience in petroleum engineering or petroleum production geology, with at least one full year in estimation and evaluation of reserves information. A reserves auditor requires a minimum of 10 years' practical experience in petroleum engineering or petroleum production geology, with at least five years in estimation and evaluation of reserves information. They should have qualifications of bachelor or higher in petroleum engineering, geology, or another discipline of engineering or physical science. SPE also requires the estimator and auditor to have competency relating to geological mapping, reservoir analogues, reservoir simulation, seismic, probabilistic and deterministic methodologies, production licensing and fiscal systems, and ethics training.

ASX listing rules require the reserve estimator to hold a degree in geology, geophysics, petroleum engineering or a related discipline, and practicing or teaching for a minimum of five years. The ASX has no auditing requirements.

ASIC requires the reserve estimator to have ten years' experience in the petroleum industry and at least five years' experience in the assessment or valuation of petroleum assets.

Conclusion

The management of reserve reporting in Australia is perplexing and potentially misleading. The supervisor and regulator are not in agreement regarding the reporting of petroleum reserves. The Australian petroleum market is experiencing substantial growth. Investors' confidence in petroleum reserves reporting underpins this growth. It is in the best interests of the petroleum industry for the reserves reporting regulations to be consistent throughout market and government jurisdictions. ■



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