

THE SOUTH AFRICAN CODE FOR THE REPORTING OF OIL AND GAS RESERVES, RESOURCES AND THEIR VALUATION

(THE SAMOG CODE)

2025 EDITION

Prepared by:
The South African Oil and Gas Committee (SAMOG) Working Group
www.samcode.co.za

Table of Contents

REPORTING OF OIL AND GAS RESOURCES	3
Part 1 APPLICATION	4
Part 2 COMPETENCIES AND RESPONSIBILITY	5
Part 3 REPORTING TERMINOLOGY	5
Part 4 REQUIREMENTS APPLICABLE TO ALL DISCLOSURE	6
4.1 Application of Part 4	6
4.2 Disclosure of <i>reserves</i> and other information	6
4.3 <i>Reserves and Resources</i> Classification.....	7
4.4 <i>Oil and Gas</i> Resources and Sales	7
4.5 <i>Future Net Revenue</i> Not Fair Value	8
4.6 Consent of Qualified Reserves Evaluator	8
4.7 Disclosure of Less Than All <i>Reserves</i>	8
4.9 Analogous Information.....	9
4.10 Net Asset Value and Net Asset Value per Share	10
4.11 Reserve Replacement.....	10
4.12 Netbacks – If Netbacks are disclosed the following information must be included:.....	10
4.13 Disclosure using Oil and Gas Metrics	10
4.14 Prohibited Disclosure: Summation of Resource Categories.....	10
4.15 Disclosure of High-Case Estimates of Reserves and of Resources	11
Part 5 DEFINITIONS	12
Part 6 FORM 1	17

REPORTING OF OIL AND GAS RESOURCES

During 2014/15 an Oil and Gas Working Group (the Working Group) deliberated upon the position that the SAMOCODES Standards Committee (SSC) should take with respect to providing reporting rules and guidelines to Qualified Reserves Evaluators (QRE) preparing public reports relating to Oil and Gas Resources in South Africa.

At the outset, it was recognised that there are international efforts to standardise the definitions of Oil and Gas Reserves and Resources.

Building on work initiated by the Society of Petroleum Evaluation Engineers (SPEE) and the Society of Petroleum Engineers (SPE) a definitions standard was first published in 1987. In the same year, the World Petroleum Council (WPC, then known as the World Petroleum Congress), working independently, published Reserves definitions that were strikingly similar. In 1997, the two organisations jointly released a single set of definitions for Reserves that could be used worldwide. In 2007, the American Association of Petroleum Geologists (AAPG), SPEE and the World Petroleum Council (WPC) jointly developed a classification system known as the Petroleum Resources Management System (PRMS).

The SPE Oil and Gas Reserves Committee was extended with members from the Society of Exploration Geophysicists (SEG), Society of Petrophysicists and Well Log Analysts (SPWLA) and European Association of Geoscientists and Engineers (EAGE) and in 2018 the PRMS was updated and consolidated. PRMS now provides fundamental principles for the evaluation and classification of Petroleum Reserves and Resources. It is understood that the definitions and guidelines allow flexibility for entities, governments and regulators to tailor applications for their needs.

In 2002, the Calgary Chapter of the SPEE working with industry and regulators developed the Canadian Oil and Gas Evaluation Handbook (COGEH) which was adopted by the Canadian Securities Administrators (CSA) as the technical reference for the Oil and Gas Reserves and Resources disclosure rules (NI 51-101). In 2007, the second edition of the COGEH adopted the PRMS classification system. COGEH was updated in 2018 and published as consolidated volumes online. The Alberta Securities Commission (ASC) leads the oversight of NI 51-101 (*Standards of Disclosure for Oil and Gas Activities*) on behalf of the CSA, which is the umbrella organisation of Canada's provincial and territorial securities regulators.

Although the PRMS and COGEH guidelines are very closely aligned as both are built on the prior SPE guidance, there are some important differences. The SAMOG Code was originally based on NI 51-101 and both COGEH and PRMS were adopted as guidelines, however in order to simplify and clarify the evaluation process only the PRMS guide is now referred to.

Under these circumstances, the SSC decided not to create a separate set of rules and guidelines but has rather developed its position with respect to the recognition of the international standard for best practice, definitions and guidelines for preparing a report by a *reporting entity* using an existing standard. The SAMOG committee originally developed a working relationship with the Alberta Security Commission in order to assist with the initial release of the SAMOG Code which was primarily based upon the NI 51-101.

The SSC's position is that the reports should be compliant with this SAMOG Code.

From this release onwards the SAMOG Code will be maintained independently of any other system, but the SSC will maintain surveillance of any changes to PRMS that may influence the interpretation and application of the SAMOG Code.

Part 1 APPLICATION

The SAMOG Code sets out a required minimum standard for Public Reporting of Resource and Reserve information on Oil and Gas Activities. Such reports must comply with the SAMOG Code and be reported in the manner prescribed by Form 1.

The terms below define the scope of the application of this SAMOG Code and its interpretation. Throughout this SAMOG Code, unless otherwise stated or the content requires otherwise, an expression which denotes any gender includes other genders.

Oil and Gas Activities:

(i) Include any of the following:

- (A) The search for **product types** in their natural locations;
- (B) The acquisition of property rights or properties for the purpose of exploring for or removing **product types** from their natural locations on those properties;
- (C) The activities necessary to remove **product types** from their natural locations, including construction, drilling, mining, production, and the acquisition, construction, installation and maintenance of field gathering and storage systems including product treatment, field processing and field storage; and
- (D) The production of **product types**.

(ii) But do not include any of the following:

- (A) Activities that occur after the *first point of sale*;
- (B) Activities relating to the extraction of natural resources other than **product types** and their by- products; or
- (C) The extraction of hydrocarbons as a consequence of the extraction of geothermal steam.

Product Type means any of the following:

(i) Liquid hydrocarbons:

(ii) Gaseous hydrocarbons, any of the following:

(iii) Non-Hydrocarbon types - it is advised to refer to the SPE section on : Extension of PRMS Principles to Non-Hydrocarbon/Non-Traditional Situations" (<https://www.spe.org/en/industry/reserves/non-hydrocarbons/>). This reference deals with:

- A) Gaseous Extraction:
 - a. Carbon Dioxide
 - b. Helium
 - c. Hydrogen
- B) Solution Extraction
- C) Geothermal Water/Heat Sources

Public Reports are reports prepared to inform investors or potential investors and their professional advisers on Oil and Gas activities. They include but are not limited to company reports, media releases, information memoranda, technical papers, social media announcements, website postings and public presentations.

The following principles should be considered in the application of the SAMOG Code:

Materiality

A **Public Report** contains all the relevant information that investors and their professional advisers would reasonably require, and expect to find, for the purpose of making a reasoned and balanced judgement.

Transparency

The reader of a **Public Report** must be provided with sufficient information, the presentation of which is clear and unambiguous including the methodology, to understand the report and not be misled.

Competency

The **Public Report** is based on work that is the responsibility of suitably qualified and experienced persons who are subject to an enforceable professional code of ethics.

Part 2 COMPETENCIES AND RESPONSIBILITY

Oil and Gas Reserves and Resources evaluation that will be disclosed to the public must be prepared by a Qualified Reserves Evaluator (QRE). To qualify as a QRE an individual needs to prove the following:

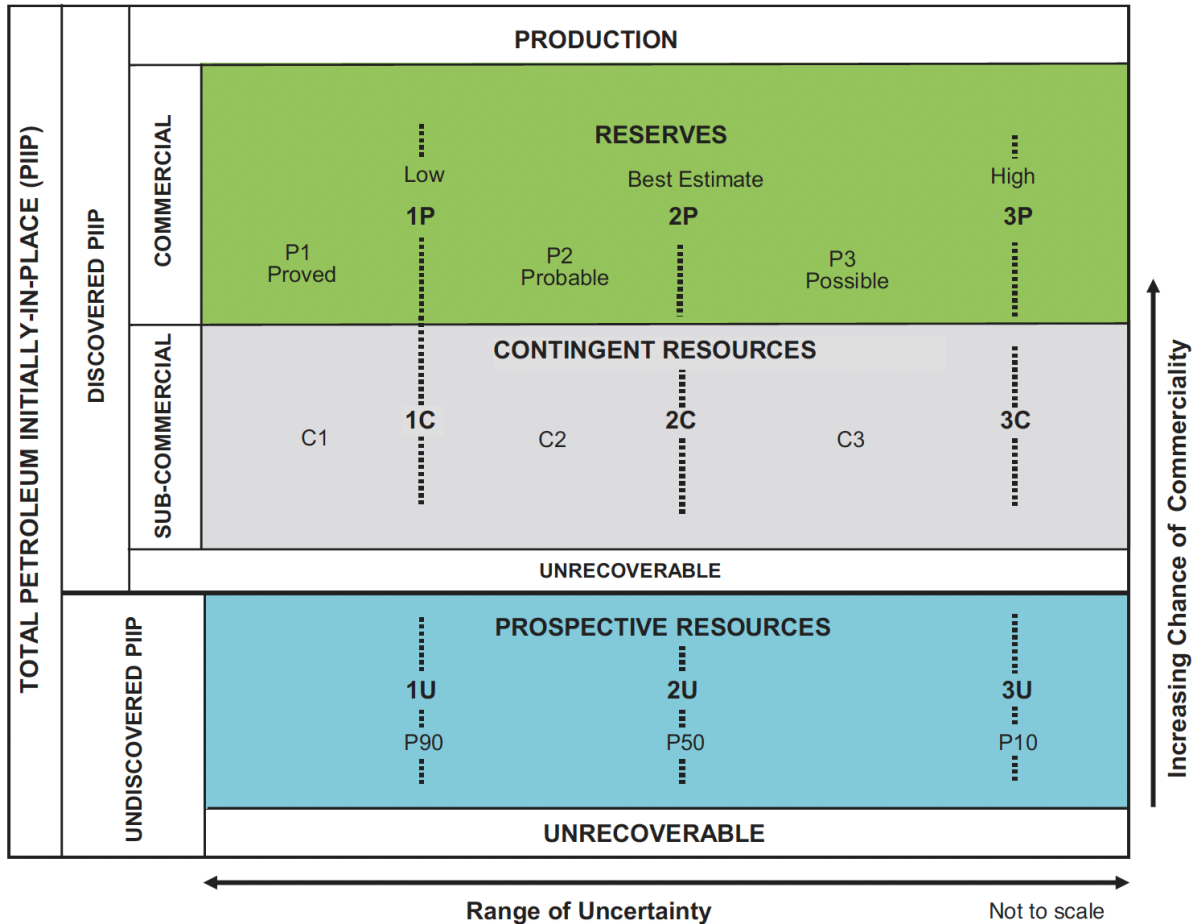
- Registration as a professional in good standing, with SACNASP, ECSA, SAGC, SPEE or SPE, a Certified Oil and Gas Geologist with the American Association of Petroleum Geologists (AAPG) and/or a member of any other Recognised Professional Organisation (RPO). A complete list of recognised organisations will be promulgated by the SSC from time to time;
- Have a minimum of ten years' practical experience in oil and gas engineering, geology or geophysics, with at least three recent years of such experience in the evaluation of Reserves and Resources (Reserves Information);
- Be current and competent in the methods and practices of Reserves and Resource Evaluation; and
- Be conversant with the content of the SAMOG Code.

Part 3 REPORTING TERMINOLOGY

All reports should be prepared having taken into account the principles incorporated in PRMS. For the purpose of reporting in South Africa, preparers are specifically required to adhere to Part 4 of this Code Applicable to All Disclosure.

Figure 1 represents the globally accepted standard for Oil and Gas Reserves and Resource classifications.

Figure 1



Part 4 REQUIREMENTS APPLICABLE TO ALL DISCLOSURE

4.1 Application of Part 4

This Part applies to any **Public Report** made by or on behalf of a reporting entity:

4.2 Disclosure of reserves and other information

If a *reporting entity* makes disclosure of reserves or other information of a type that is specified in *Form 1*, the reporting entity must ensure that the disclosure satisfies as a minimum the following requirements:

- (a) Estimates of reserves or future net revenue must:
 - (i) disclose the *effective date* of the estimate;
 - (ii) have been prepared by a *QRE*;
 - (iii) have been prepared in accordance with *PRMS*;

- (iv) be based on a general discussion in Form 1, that avoids misleading statements. The discussion should include the technologies used to establish the appropriate level of certainty for the reserve estimates. This discussion should describe methodologies used for the reserve bookings, and how in-place volumes were calculated, production tests were interpreted, and recovery factors assigned.
 - (v) have been made assuming that development of each *property*, in respect of which the estimate is made, will occur, without regard to the likely availability to the *reporting entity* of funding required for that development, where reported under the category 'Justified for Development'; and
 - (vi) in the case of estimates of possible reserves and related future net revenue disclosed in writing, also include a cautionary statement that is proximate to the estimate to the following effect:

"Possible reserves are those additional reserves that are less certain to be recovered than probable reserves. There is a 10% probability that the quantities actually recovered will equal or exceed the sum of proved plus probable plus possible reserves".
- (b) For the purpose of determining whether *reserves* should be attributed to a particular property, reasonably estimated future abandonment and reclamation costs related to the property must have been taken into account;
 - (c) In disclosing aggregate *future net revenue* the disclosure must comply with the requirements for the determination of *future net revenue* specified in *Form 1*; and
 - (d) A statement of the reserves data and other information stated in Form 1 should be disclosed as at the last day of the reporting entity's most recent financial year or a later date if more than six months have elapsed since the most recent financial year
 - (e) A statement indicating the methodology (deterministic or stochastic) used to estimate the reserves and other information which was used in the estimation.

4.3 Reserves and Resources Classification

- (1) Disclosure of reserves or resources must apply the Reserves and Resources classes, definitions and categories set out in PRMS and must relate to the most specific category of *reserves* or *resources* in which the *reserves* or *resources* can be categorised.
- (2) The Author of the report prepared under the SAMOG Code must indicate that it was prepared under PRMS.
- (3) Categories as defined in PRMS should be shown separately and not be aggregated.

4.4 Oil and Gas Resources and Sales

- (1) Disclosure of resources or of sales of product types or associated by-products should be made with respect to the first point of sale;

- (2) Despite subsection (1), a reporting entity may disclose resources or sales of product types or associated by-products with respect to an alternate reference point if, to a reasonable person, product types or associated by-products would be marketable at the alternate reference point; and
- (3) If a reporting entity discloses resources or sales of product type or associated by-products with respect to an alternate reference point, the reporting entity must: -
 - (i) State that the disclosure is made with respect to an alternate reference point,
 - (ii) Disclose the location of the alternate reference point, and
 - (iii) Explain why disclosure is not being made with respect to the first point of sale.

4.5 Future Net Revenue Not Fair Value

Disclosure of an estimate of *future net revenue*, whether calculated without discount or using a discount rate, must include a statement to the effect that the estimated values disclosed do not represent fair value

4.6 Consent of Qualified Reserves Evaluator

A statement must be included that the QRE has ensured that the information disclosed in the report is in compliance with the SAMOG Code and that the QRE report may be published in its current form and context by the reporting entity.

4.7 Disclosure of Less Than All Reserves

If a reporting entity that has more than one property makes written disclosure of any reserves attributable to a particular property:

- (a) the disclosure must include a cautionary statement to the effect that "The estimates of reserves and future net revenue for individual properties may not reflect the same confidence level as estimates of reserves and future net revenue for all properties, due to the effects of aggregation; and

the document containing the disclosure of any *reserves* attributable to one *property* must also disclose total *reserves* of the same classification for all *properties* of the *reporting entity* in the same country (or, if appropriate and not misleading, in the same *foreign geographic area*).

4.8 Disclosure of Resources other than Reserves

- (1) If a *reporting entity* discloses *anticipated results* from *resources* which are not currently classified as *reserves*, the *reporting entity* must also disclose in writing, in the same document:-
 - (a) the *reporting entity's* equity holding in these resources;
 - (b) the location of these *resources*;
 - (c) the *product types* reasonably expected;
 - (d) a description of the project including:
 - (a) each significant event in the project and the specific time period in which each event is expected to occur

- (b) the recovery technology; and
 - (c) whether the project is a conceptual or pre-development study:
- (e) the classification and the categorisation of these *Resources as described in the PRMS*; and
- (f) in the case of *Unproved Property*, if its value is disclosed,
 - (i) the basis of the calculation of its value; and
 - (ii) Whether the value was prepared by an *independent* party.
- (2) If disclosure referred to in subsection (1) includes an estimate of a quantity of resources in which the reporting entity has an interest or intends to acquire an interest, or an estimated value attributable to an estimated quantity, the estimate must:
 - (a) have been prepared by a *QRE*;
 - (b) relate to the most specific category of *resources* in which the *resources* can be classified, as set out in PRMS and must identify what portion of the estimate is attributable to each category; and
 - (c) be accompanied by the following information:
 - (i) the *effective date* of the estimate;
 - (ii) the significant positive and negative factors relevant to the estimate;
 - (iii) in respect of *Contingent Resources*, the specific contingencies which prevent the classification of the *resources* as *reserves*; and
 - (iv) a cautionary statement in bold that is proximate to the estimate to the effect that:
 - (A) in the case of discovered resources or a subcategory of discovered resources other than reserves:
 “There is no certainty that it will be commercially viable to produce any portion of the resources.” or
 - (B) in the case of *undiscovered resources* or a subcategory of *undiscovered resources*:
 “There is no certainty that any portion of the resources will be discovered. If discovered, there is no certainty that it will be commercially viable to produce any portion of the resources.”

4.9 Analogous Information

- (1) Sections 4.2 and 4.8 do not apply to the disclosure of analogous information provided that the reporting entity discloses the following:
 - (a) The source and date of the analogous information;
 - (b) Whether the source of the analogous information was independent;
 - (c) If the *reporting entity* is unable to confirm that the *analogous information* was prepared by a *QRE* or in accordance with PRMS, a cautionary statement to that effect proximate to the disclosure of the *analogous information*; and

- (d) The relevance of the *analogous information* to the *reporting entity's oil and gas activities*.
- (2) For greater certainty, if a *reporting entity* discloses information that is an *anticipated result*, an estimate of a quantity of *reserves* or *resources*, or an estimate of value attributable to an estimated quantity of *reserves* or *resources* for an area in which it has an interest or intends to acquire an interest, that is based on an extrapolation from *analogous information*, sections 4.2, 4.3 and 4.8 apply to the disclosure of the information.

4.10 Net Asset Value and Net Asset Value per Share

If written disclosure of net asset value or net asset value per share is provided, a description of the methods used to value assets and liabilities and the number of shares used in the calculation must be disclosed.

4.11 Reserve Replacement

Written disclosure concerning *reserve* replacement must include an explanation of the method of calculation applied and be in line with the PRMS.

4.12 Netbacks – If Netbacks are disclosed the following information must be included:

- (a) Reflect netbacks calculated by subtracting royalties and operating costs from revenues; and
- (b) State the method of calculation.

4.13 Disclosure using Oil and Gas Metrics

- (1) If a reporting entity discloses an oil and gas metric, other than an estimate of volume or value of resources prepared in accordance with section 4.2 or 4.8 or a comparative or equivalency measure under Part 2,3,4,5 or 6 of Form 1, the reporting entity must include disclosure that:
 - (a) Identifies the standard and source of the oil and gas metric;
 - (b) Provides a brief description of the method used to determine the oil and gas metric;
 - (c) Provides an explanation of the meaning of the oil and gas metric;
 - (d) Cautions readers as to the reliability of the oil and gas metric.
- (3) If there is no identifiable standard for an oil and gas metric, the reporting entity must also include disclosure that:
 - (a) Provides a brief description of the parameters used in the calculation of the oil and gas metric; and
 - (b) States that the oil and gas metric does not have any standardised meaning and should not be used to make comparisons.

4.14 Prohibited Disclosure: Summation of Resource Categories

- (1) A *reporting entity* must not disclose a summation of an estimated quantity, or estimated value, of two or more of the following:
 - (a) *Reserves*;
 - (b) *Contingent Resources*;

- (c) *Prospective resources;*
 - (d) The unrecoverable portion of *discovered oil and gas initially-in-place;*
 - (e) The unrecoverable portion of *undiscovered oil and gas initially-in-place;*
 - (f) *Discovered oil and gas initially-in-place;* and
 - (g) *Undiscovered oil and gas initially-in-place.*
- (2) Despite subsection (1), a *reporting entity* may disclose an estimate of *total oil and gas initially-in-place*, *discovered oil and gas initially-in-place* or *undiscovered oil and gas initially-in-place* if the *reporting entity* includes, proximate to that disclosure, an estimate of each of the following, as applicable:
- (a) *Reserves;*
 - (b) *Contingent Resources;*
 - (c) *Prospective Resources;*
 - (d) The commercial portion of *discovered oil and gas initially-in-place;*
 - (e) The sub-commercial portion of *discovered oil and gas initially-in-place;*
 - (f) The unrecoverable portion of *discovered oil and gas initially-in-place;*
 - (g) The unrecoverable portion of *undiscovered oil and gas initially-in-place;*
 - (h) *Discovered oil and gas initially-in-place;* and
 - (i) *Undiscovered oil and gas initially-in-place.*
- (3) A *reporting entity* may disclose an estimate of *total oil and gas initially-in-place*, *discovered oil and gas initially-in-place* or *undiscovered oil and gas initially-in-place* as the most specific category that it can assign to its *resources* if, proximate to its disclosure, the *reporting entity*
- (a) explains why *total oil and gas initially-in-place*, *discovered oil and gas initially-in-place* or *undiscovered oil and gas initially-in-place*, as the case may be, is the most specific assignable category; and
 - (b) Includes
 - (i) In the case of disclosure of *discovered oil and gas initially-in-place*, the cautionary statement required by clause 4.8(2) (c) (iv) (A), or
 - (ii) In the case of disclosure of *total oil and gas initially-in-place* or *undiscovered oil and gas initially-in-place*, the cautionary statement required by clause 4.8 (2) (c) (iv) (B).

4.15 Disclosure of High-Case Estimates of Reserves and of Resources

- (1) If a *reporting entity* discloses an estimate of *proved plus probable plus possible reserves*, the *reporting entity* must also disclose the corresponding estimates of *proved* and *proved plus probable reserves* or of *proved* and *probable reserves*.
- (2) If a *reporting entity* discloses a high case estimate of *resources*, the *reporting entity* must also disclose the corresponding low and best case estimates.

Part 5 DEFINITIONS

Throughout this SAMOG Code, unless otherwise stated or the content requires otherwise, an expression which denotes any gender includes other genders and the following terms will have the meanings set out below. Definitions in this section is also applicable to Form 1. For the sake of clarity for any definitions not mentioned in the Code, reference should be made to the PRMS.

Abandonment, Decommissioning and Restoration (ADR)

The process of returning part or all of a project to a safe and environmentally compliant condition when operations cease. Examples include, but are not limited to, the removal of surface facilities, wellbore plugging procedures, and environmental remediation.

ADR costs means all costs associated with ADR. In some instances, there may be salvage value associated with the equipment removed from the project. ADR costs are presumed to be without consideration of any salvage value, unless presented as “ADR net of salvage”.

Alternate reference point

Alternate reference point means a location at which quantities and values of a product type are measured before the first point of sale (Reference Point as per PRMS).

API

American Petroleum Institute

Analogous Information

Information about an area outside the area in which the reporting entity has an interest or intends to acquire an interest, which is referenced by the reporting entity for the purpose, in the opinion of a reasonable person, of drawing a comparison or conclusion to an area in which the reporting entity has an interest or intends to acquire an interest and may include:

- (i) historic information concerning reserves;
- (ii) estimates of the volume or value of reserves;
- (iii) historic information concerning resources;
- (iv) estimates of the volume or value of resources;
- (v) historic production amounts;
- (vi) production estimates; or
- (vii) information concerning a field, well, basin or reservoir.

Anticipated Results

Information that may, in the opinion of a reasonable person, indicate the potential value or quantities of resources in respect of the reporting entity's resources or a portion of its resources which may include:

- (i) an estimate of volume;
- (ii) an estimate of value;
- (iii) a real extent;
- (iv) anticipated pay thickness;
- (v) flow rates; or

- (vi) hydrocarbon content;

Bitumen

Bitumen means the naturally occurring viscous mixture, consisting mainly of pentanes and heavier hydrocarbons, with a viscosity greater than 10 000 mPa's (cP) measured at the mixture's original temperature in the reservoir and at atmospheric pressure on a gas-free basis

BOE (Barrels of Oil Equivalent)

The term allows for a single value to represent the sum of all the hydrocarbon products that are forecast as resources. Typically, condensate, oil, bitumen, and synthetic crude barrels are taken to be equal (1 bbl = 1 BOE). Gas and NGL quantities are converted to an oil equivalent based on a conversion factor that is recommended to be based on a nominal heating content or calorific value equivalent to a barrel of oil. For the purpose of the Code, the gas volumes must be first converted to the same temperature and pressure before aggregating. Common industry gas conversion factors usually range between 1 barrel of oil equivalent (BOE) = 5,600 standard cubic feet (scf) of gas to 1 BOE = 6,000 scf. The conversion factor must be documented in Form 1

By-product

By-product means a hydrocarbon or non-hydrocarbon that is recovered as a consequence of producing a product type.

Coal bed Methane

Natural gas contained in coal deposits. Coalbed gas, although usually mostly methane, may be produced with variable amounts of inert or even non-inert gases. [Also called coal-seam gas (CSG) or natural gas from coal (NGC).]

Contingent resources data

Contingent resources data means an estimate of contingent resources and related future net revenue, estimated using forecast prices and costs.

Crude Oil:

Crude oil is the portion of petroleum that exists in the liquid phase in natural underground reservoirs and remains liquid at atmospheric conditions of pressure and temperature (excludes retrograde condensate). Crude oil may include small amounts of non-hydrocarbons produced with the liquids but does not include liquids obtained from the processing of natural gas.

ECSA

Engineering Council of South Africa

Effective Date

- 1) the cut-off date for all geological, engineering, and financial data after which no new information can be included in the evaluation; and
- 2) It is the date to which all future net revenue or other cash flow forecasts are discounted to determine net present values.

Entity

An Entity is a corporation, joint venture, partnership, trust, individual, principality, agency, or other person engaged directly or indirectly in

- (i) the exploration for, or production of, oil and gas;
- (ii) the acquisition of properties or interests therein for the purpose of conducting such exploration or production; or
- (iii) the ownership of properties or interests therein with respect to which such exploration or production is being, or will be, conducted. [SPE audit standards].

First point of Sale

First point of sale means the first point after initial production at which there is a transfer of ownership of a product type. (Same as Reference Point in the PRMS).

Future Net Revenue

Future net revenue means a forecast of revenue, estimating using forecast prices and costs or constant prices and costs, arising from the anticipated development and production of resources and reserves net of the associated royalties, operating costs, development costs, ADR costs. Corporate general and administrative expenses and financing costs are not deducted. Net present values of future net revenue must be calculated using a discount rate and without discount rate.

Gas hydrates

Naturally occurring crystalline substances composed of water and gas, in which a solid water lattice accommodates gas molecules in a cage-like structure or clathrate. At conditions of standard temperature and pressure, one volume of saturated methane hydrate will contain as much as 164 volumes of methane gas. Gas hydrates are included in unconventional resources, but the technology to support commercial maturity has yet to be developed.

Hydrocarbon

Hydrocarbon means a compound consisting of hydrogen and carbon, which, when naturally occurring, may also contains other elements such as sulphur.

McfGE's (Thousand cubic feet of Gas Equivalent)

Converting oil volumes to the gas equivalent is customarily done on the basis of the nominal heating content or calorific value of the fuel. Common industry conversion factors range from barrel crude oil = 6 McfGE to 5.6 McfGE. The conversion factor must be documented in Form 1.

Natural gas

Portion of petroleum that exists either in the gaseous phase or is in solution in crude oil in a reservoir, and which is gaseous at atmospheric conditions of pressure and temperature. Natural gas may include some amount of non-hydrocarbons.

Natural gas liquids

A mixture of light hydrocarbons that exist in the gaseous phase in the reservoir and are recovered as liquids in gas processing plants.

NGL's differ from condensate in two principal respects: (1) NGLs are extracted and recovered in gas plants rather than lease separators or other lease facilities, and (2) NGLs include very light hydrocarbons (ethane, propane, or butanes) as well as the pentanes-plus that are the main constituents of condensates.

Net back

The price of oil or gas at any interim point in the production and processing flow calculated based on the price of the derived sales products at a defined reference point. Net Back calculations are used in the hydrocarbon product price determination at reference point to reflect the revenue of one unit of sales after the costs associated with bringing the product to a market (e.g., transportation and processing) are removed.

Oil and Gas metric

Oil and Gas metric means a numerical measure of a reporting entity's oil and gas activities.

Property

A volume of the Earth's crust wherein a corporate entity or individual has contractual rights to extract, process, and market a defined portion of specified in-place minerals (including petroleum). Defined in general as an area but may have depth and/or stratigraphic constraints. May also be termed a lease, concession, or license.

Prospective Resources data

Prospective resources means an estimate of prospective resources and related future net revenue, estimated using forecast prices and costs.

Reporting Entity

The entity submitting the Resources and Reserves information. (See above)

(Could also be Reporting Issuer):

- (a) A "reporting issuer" as defined in securities legislation; or
- (b) In a jurisdiction in which the term is not defined in securities legislation, an issuer of securities that is required to file financial statements with the securities regulatory authority.

Reserve Data

Estimates of proved reserves and probable reserves and related future net revenue estimated using forecast prices and costs.

Reserves Information

Reserves Information consists of various estimates pertaining to the extent and value of oil and gas properties. Reserves Information will include:

Estimates of oil and gas reserves and may, but will not necessarily, include estimates of

- (i) the future production rates from such reserves,
- (ii) the future net revenue from such reserves, and
- (iii) the present value of such future net revenue. All such Reserves Information should be estimated and classified as appropriate to stated reserves definitions

SACNASP

The South African Council for Natural Scientific Professions.

SAGC

The South African Geomatics Council.

Synthetic gas

Synthetic gas means a gaseous fluid:

- (A) generates as a result of the application of an in situ transformation process to coal or other hydrocarbon-bearing rock type; and
- (B) comprised of not less than 10% by volume of methane.

Synthetic crude oil

A mixture of hydrocarbons derived by upgrading (i.e., chemically altering) natural bitumen from oil sands, kerogen from oil shales, or processing of other substances such as natural gas or coal. Synthetic crude oil may contain sulphur or other non-hydrocarbon compounds and has many similarities to crude oil.

Unproved property

A *property* or part of a *property* to which no *reserves* have been specifically attributed.

Part 6 FORM 1

FORM 1 OIL AND GAS PUBLIC REPORT AND OTHER OIL AND GAS INFORMATION TABLE OF CONTENTS

GENERAL INSTRUCTIONS

PART 1	DATE OF STATEMENT
Item 1.1	Relevant Dates
PART 2	DISCLOSURE OF <i>RESERVES AND RESOURCES</i>
Item 2.1	Reserves Data (Forecast Prices and Costs)
PART 3	PRICING ASSUMPTIONS
Item 3.1	Constant Prices Used in Supplemental Estimates
Item 3.2	Forecast Prices Used in Estimates
PART 4	RECONCILIATION OF CHANGES IN <i>RESERVES</i>
Item 4.1	Reserves Reconciliation
PART 5	ADDITIONAL INFORMATION RELATING TO <i>RESERVES DATA</i>
Item 5.1	Undeveloped Reserves
Item 5.2	Significant Factors or Uncertainties affecting Reserves Data
Item 5.3	Future Development Costs
PART 6	OTHER <i>OIL AND GAS INFORMATION</i>
Item 6.1	Oil and Gas Properties and Wells
Item 6.2	Significant factors or Uncertainties relevant to properties with Resource disclosure
Item 6.3	Forward Contracts
Item 6.4	Tax Horizon
Item 6.5	Costs Incurred
Item 6.6	Exploration and Development Activities
Item 6.7	Production Estimates
Item 6.8	Production History

This is the form referred to in Part 1, Part 5.2 and 5.14 of the SAMOG Code Standards of Public Disclosure for Oil and Gas Activities.

GENERAL INSTRUCTIONS

- (1) Terms for which a meaning is given in **the SAMOG Code** have the same meaning in this **Form 1**.
- (2) It is not necessary to include the headings or numbering, or to follow the ordering of Items, in this **Form 1**. Information may be provided in tables.
- (3) To the extent that any Item or any component of an Item specified in this **Form 1** does not apply to a **reporting entity** and its activities and operations, or is not

***material**, no reference need be made to that Item or component. It is not necessary to state that such an Item or component is "not applicable" or "not material".*

- (4) This **Form 1** sets out minimum requirements. A **reporting entity** may provide additional information not required in this **Form 1** provided that it is not misleading and not inconsistent with the requirements of **the SAMOG Code**, and provided that material information required to be disclosed is not omitted.
- (5) A **reporting entity** may satisfy the requirement of this **Form 1** for disclosure of information "by country" by instead providing information by **foreign geographic area** in respect of countries outside South Africa as may be appropriate for meaningful disclosure in the circumstances.

PART 1 DATE OF STATEMENT

Item 1.1 Relevant Dates

1. Date the statement.
2. Disclose the *effective date* of the information being provided.
3. Disclose the *preparation date* of the information being provided.

INSTRUCTIONS

- (1) The same **effective date** applies to **reserves and resources** of each category reported and to related **future net revenue**. References to a change in an item of information, such as changes in **production** or a change in **reserves and resources**, mean changes in respect of that item during the twelve months ended on the **effective date**.
- (2) Because of the interrelationship between certain of the **reporting entity's reserves and resource data** and other information referred to in this **Form 1** and certain of the information included in its financial statements, the **reporting entity** should ensure that its financial auditor and its **qualified reserves evaluators** are kept apprised of relevant events and transactions, and should facilitate communication between them.
- (3) If the **reporting entity** provides information as at a date more recent than the **effective date**, in addition to the information required as at the **effective date**, also disclose the date as at which that additional information is provided. The provision of such additional information does not relieve the **reporting entity** of the obligation to provide information as at the **effective date**.

PART 2 DISCLOSURE OF RESERVES AND RESOURCES

Item 2.1 Reserves Data (Constant or Forecast Prices and Costs)

1. Breakdown of Reserves Disclose, by country and in the aggregate, *reserves, gross and net*, estimated using constant or *forecast prices and costs*, for each *product type*, in the following categories:
 - (a) *proved developed producing reserves*;
 - (b) *proved developed non-producing reserves*;
 - (c) *proved undeveloped reserves*;
 - (d) *proved reserves (in total – 1P)*;
 - (e) *probable reserves (in total)*; and
 - (f) *proved plus probable reserves (in total – 2P)*; and
 - (g) if the *reporting entity* discloses an estimate of *possible reserves* in the statement:
 - (i) *possible reserves (in total)*; and
 - (ii) *proved plus probable plus possible reserves (in total – 3P)*.
2. The reporting entity shall provide a general discussion in Form 1, that avoids misleading statements. The discussion should include the technologies used to establish the appropriate level of certainty for the reserve estimates. This discussion should describe methodologies used for the reserve bookings, and how in- place volumes were calculated, production tests were interpreted and recovery factors assigned.
3. Net Present Value of Future Net Revenue– Disclose, by country and in the aggregate, the net present value of *future net revenue* attributable to the *reserves* categories referred to in section 1 of this Item, estimated using constant or *forecast prices and costs*, before and after deducting *future income tax expenses*, calculated without discount and using discount rates of 5 percent, 10 percent, 15 percent and 20 percent.
4. Additional Information Concerning Future Net Revenue
 - (a) This section 3 applies to *future net revenue* attributable to each of the following reserves categories disclosed under item 2.1 (1) estimated using constant or forecast prices and costs:
 - (i) *proved reserves (in total – 1P)*;
 - (ii) *proved plus probable reserves (in total – 2P)*; and
 - (iii) if paragraph 1(g) of this Item applies, *proved plus probable plus possible reserves (in total – 3P)*.
 - (b) Disclose, by country and in the aggregate, the following elements of *future net revenue* estimated using constant or *forecast prices and costs* and calculated without discount:
 - (i) revenue;
 - (ii) royalties;
 - (iii) *operating costs*;
 - (iv) *development costs*;
 - (v) abandonment costs and reclamation costs;
 - (vi) *future net revenue* before deducting *future income tax expenses*;
 - (vii) *future income tax expenses*; and

- (viii) *future net revenue* after deducting *future income tax expenses*.
 - (b) Disclose, by *product type* in each case with associated by-products, and on a unit value basis for each product type, in each case with associated by-products (e.g., \$/Mcf or \$/bbl using *net reserves*), the net present value of *future net revenue* (before deducting *future income tax expenses*) estimated using constant or *forecast prices and costs* and calculated using a discount rate of 10 percent.
5. Contingent Resources or Prospective Resources
- If the reporting entity publicly discloses contingent resources or Prospective resources in the Qualified Reserve Evaluator Report, they should be disclosed separately from the disclosure required by items 1, 2 and 3 of section 2.1 of Form 1 as follows:
- (a) The contingent resources or prospective resources, as applicable, gross and net, estimated using constant or forecast prices and costs, for each product type, in each of the following categories:
 - (i) Contingent resources (1C)
 - (ii) Contingent resources (2C)
 - (iii) Contingent resources (3C)
 - (iv) Prospective resources (low estimate (1U))
 - (v) Prospective resources (best estimate (2U))
 - (vi) Prospective resources (high estimates(3U)); and
 - (b) The net present value of future net revenue attributable to each category of contingent resources referred to in paragraph (a) of this item, estimated using constant or forecast prices and costs, before deducting future income tax expenses, calculated using discount rates of 0 percent, 5 percent, 10 percent, 15 percent and 20 percent.

INSTRUCTIONS

- (1) *Disclose all of the reserves over which the reporting entity has a direct or indirect ownership, working or royalty interest.*
- (2) *If the reporting entity's disclosure of resources would, to a reasonable person, be misleading, and if stated without an explanation of the reporting entity's ownership of or control over those resources, explain the nature of the reporting entity's ownership of no control over resources disclosed in the Form 1 report*
- (3) *If a reporting entity voluntarily discloses contingent resources or prospective resources and the 1C or loss estimate, as applicable, has a negative net present value at any of the discount rates referred to in paragraph 4 (b), the reporting entity must disclose the negative net present value.*
- (4) **Constant prices and costs** are prices and costs used in an estimate that are:
 - (a) *the **reporting entity's** prices and costs as at the **effective date** of the estimation, held constant throughout the estimated lives of the **properties** to which the estimate applies;*
 - (b) *if, and only to the extent that, there are fixed or presently determinable future prices or costs to which the **reporting entity** is legally bound by a contractual or other obligation to supply a physical product, including those for an extension period of a contract that is likely to be extended, those prices or costs rather than the prices and costs referred to in paragraph (a).*

*For the purpose of paragraph (a), the **reporting entity's** prices will be the posted price for oil and the spot price for gas, after historical adjustments for transportation, gravity and other factors.*

PART 3 PRICING ASSUMPTIONS

Item 3.1 Constant Prices

For each product type, disclose the benchmark reference prices for the countries or regions in which the reporting entity operates, as at the last day of the reporting entity's most recent financial year, reflected in the reserves data disclosed in response to Item 2.1

Item 3.2 Forecast Prices Used in Estimates

- 1 For each *product type*, disclose the pricing assumptions used in estimating *reserves data, contingent resources or prospective resource data* disclosed for each of at least the following five financial years; and generally, for subsequent periods.
- 2 The disclosure in response to section 1 must include the benchmark reference pricing schedules for the countries or regions in which the *reporting entity* operates, and inflation and other forecast factors used.
- 3 If the pricing assumptions specified in response to part 1 were provided by a *qualified reserves evaluator* who is *independent* of the *reporting entity*, disclose that fact and identify the QRE.

INSTRUCTIONS

- (1) *Benchmark reference prices may be obtained from sources such as public product trading exchanges or prices posted by purchasers.*
- (2) *The term "**constant prices and costs**" and the defined term "**forecast prices and costs**" include any fixed or presently determinable future prices or costs to which the **reporting entity** is legally bound by a contractual or other obligation to supply a physical product, including those for an extension period of a contract that is likely to be extended.*

*In effect, such contractually committed prices override benchmark reference prices for the purpose of estimating **reserves data, contingent resources data or prospective resource data**. To ensure that disclosure under this Part is not misleading, the disclosure should reflect such contractually committed prices.*

- (3) *Under subsection 5.8 of the **SAMOG Code**, the **reporting entity** must obtain the written consent of the QRE to disclose his or her identity in response to part 3 of this Item.*

PART 4 RECONCILIATION OF CHANGES IN RESERVES

Item 4.1 Reserves Reconciliation

1. Provide the information specified in part 2 of this Item in respect of the following *reserves* categories as published in terms of Item 2.1:

- (a) *Proved Reserves (in total) 1P;*
- (b) *Probable Reserves (in total) – 2P; and*
- (c) *Proved plus Probable Reserves (in total) -3P.*

2. Disclose changes between the *reserves* estimates made as at the *effective date* and the corresponding estimates ("prior-year estimates") made as at the last day of the preceding year of the *reporting entity*:
 - (a) by country;
 - (b) for each of the following:
 - (i) light crude oil;
 - (ii) medium crude oil
 - (iii) heavy crude oil;
 - (iv) bitumen;
 - (v) natural gas liquids;
 - (vi) synthetic crude oil;
 - (vii) any other unconventional oil;
 - (viii) conventional natural gas;
 - (ix) unconventional natural gas;
 - (x) gas hydrates;
 - (xi) synthetic gas;
 - (xii) Gaseous Extraction:
 - a. Carbon Dioxide
 - b. Helium
 - c. Hydrogen
 - (xiii) Solution Extraction
 - (xiv) Geothermal Water/Heat Sources
 - (c) separately identifying and explaining each of the following (may not be applicable for initial listing reporting):
 - (i) extensions and improved recovery;
 - (ii) technical revisions;
 - (iii) discoveries;
 - (iv) acquisitions;
 - (v) dispositions;
 - (vi) economic factors; and
 - (vii) *production*.

INSTRUCTIONS

- (1) The reconciliation required under this Item 4.1 must be provided in respect of **reserves** estimated using **constant** or **forecast prices and costs**, with the price and cost case indicated in the disclosure.
- (2) For the purpose of this Item 4.1, it is sufficient to provide the information in respect of the products specified in paragraph 2(b), excluding **solution gas**, **natural gas liquids** and other associated by products.

- (3) The **PRMS** provides guidance on the preparation of the reconciliation required under this Item 4.1.
- (4) **Reporting entities** must not include infill drilling reserves in the category of technical revisions specified in clause 2(c) (ii). **Reserves** additions from infill drilling must be included in the category of extensions and improved recovery in clause 2(c) (i) (or, alternatively, in an additional separate category under paragraph 2(c) labelled “infill drilling”).

PART 5 ADDITIONAL INFORMATION RELATING TO RESERVES DATA

Item 5.1 Undeveloped Reserves

1. For proved undeveloped reserves:
 - (a) discuss generally the basis on which the reporting entity attributes proved undeveloped reserves, its Field Development plans (including timing) for developing the proved undeveloped reserves and, if applicable, its reasons for deferring the development of particular proved undeveloped reserves during the following five years.
2. For probable undeveloped reserves:
 - (a) discuss generally the basis on which the reporting entity attributes probable undeveloped reserves, its plans (including timing) for developing the probable undeveloped reserves and, if applicable, its reasons for deferring the development of particular probable undeveloped reserves during the following five years.

INSTRUCTIONS

- (1) The phrase “first attributed” refers to the initial allocation of an undeveloped volume of oil or gas reserves by a reporting entity. Only previously unassigned undeveloped volumes of oil or gas may be included in the first attributed volumes for the applicable reporting period. For example, in 2023 a reporting entity allocated by way of an acquisition, discovery, extension and improved recovery 300 Mcf of proved undeveloped conventional natural gas reserves, that would be the first attributed volume for 2023.
- (2) The discussion for a reporting entity’s plan for developing undeveloped reserves or the reporting entity’s reasons for deferring the development of undeveloped reserves must enable a reasonable investor to assess the efforts made by the reporting entity to convert undeveloped reserves to developed reserves.

Item 5.2 Factors or Uncertainties affecting Reserves Data

1. Identify and discuss economic factors or uncertainties that materially affect particular components of the reserves data.

INSTRUCTION

- (1) A reporting entity must, under this Item, include a discussion of any abandonment costs and reclamation costs, unusually high expected **development costs** or **operating costs**, or contractual obligations to produce and sell a significant portion of production at prices substantially below those which could be realised but for those contractual obligations. If the information required by this Item is presented in the reporting entity’s financial statements and notes thereto for the most recent financial year ended, the reporting entity satisfies this Item by directing the reader to that presentation.

Item 5.3 Future Development Costs

1. (a) Provide the information specified in paragraph 1(b) in respect of *development costs* deducted in the estimation of *future net revenue* attributable to each of the following *reserves* categories:
 - (i) *proved reserves* (in total) estimated using constant or *forecast prices and costs*; and
 - (ii) *proved plus probable reserves* (in total) estimated using constant or *forecast prices and costs*.
- (b) Disclose, by country, the amount of *development costs* estimated
 - (i) in total (life of Field as per development plan), calculated using no discount; and
 - (ii) by year for each of the first five years estimated.
2. Discuss the *reporting entity's* expectations as to:
 - (a) the sources (including internally-generated cash flow, debt or equity financing, farm-outs or similar arrangements) and costs of funding for estimated future *development costs*; and
 - (b) the effect of those costs of funding on disclosed *reserves* or *future net revenue*.
3. If the *reporting entity* expects that the costs of funding referred to in section 2, could make development of a *property* uneconomic for that *reporting entity*, disclose that expectation and its plans for the *property*.

PART 6 OTHER OIL AND GAS INFORMATION

Item 6.1 Oil and Gas Properties and Wells

1. Identify and describe generally the *reporting entity's material properties*, plants, facilities and installations:
 - (a) identifying their location (e.g. province, country etc.);
 - (b) indicating whether they are located onshore or offshore;
 - (c) in respect of *properties* to which *reserves* have been attributed and which are capable of *producing* but which are not *producing*, disclosing how long they have been in that condition and discussing the general proximity of pipelines or other means of transportation;
 - (d) describing any statutory or other mandatory relinquishments, surrenders, back-ins or changes in ownership; and
 - (e) any material factor that could impact the legal status.
2. State, separately for *oil wells* and *gas wells*, the number of the *reporting entity's* producing wells and non-producing wells, expressed in terms of both *gross wells* and *net wells*, by location.

Item 6.2 Significant Factors or Uncertainties Relevant to Properties with Resource Disclosure

If disclosure is made under Item 2.1 (4) then identify and discuss significant economic factors or significant uncertainties that affect the anticipated developments or production activities on properties.

INSTRUCTIONS

- (1) *A reporting entity must, under this Item, include a discussion of any significant abandonment costs and reclamation costs, unusually high expected **development costs** or **operating costs**, or contractual obligations to produce and sell a significant portion of production at prices substantially below those which could be realised but for those contractual obligations.*
- (2) *If the information required by this Item is presented in the reporting entity's financial statements and notes thereto for the most recent financial year ended, the reporting entity satisfies this Item by directing the reader to that presentation.*

Item 6.3 Forward Contracts

1. If the *reporting entity* is bound by an agreement (including a transportation agreement), directly or through an aggregator, under which it may be precluded from fully realizing, or may be protected from the full effect of, future market prices for *oil* or *gas*, describe generally the agreement, discussing dates or time periods and summaries or ranges of volumes and contracted or reasonably estimated values.
2. If the *reporting entity's* transportation obligations or commitments for future physical deliveries of *oil* or *gas* exceed the *reporting entity's* expected related future *production* from its *proved reserves*, estimated using constant or *forecast prices and costs* and disclosed under Part 2, discuss such excess, giving information about the amount of the excess, dates or time periods, volumes and reasonably estimated value.

Item 6.4 Tax Horizon

If the *reporting entity* is not required to pay income taxes for its most recently completed financial year, discuss its estimate of when income taxes may become payable.

Item 6.5 Costs Incurred (Capital and Operational Expenses)

1. Disclose by country for the most recent financial year each of the following:
 - (a) *property acquisition costs*, separately for *proved properties* and *unproved properties*;
 - (b) *exploration costs*; and
 - (c) *development costs*.

INSTRUCTIONS

- (1) *If the costs specified in paragraphs (a) (b) and (c) are presented in the reporting entity's financial statements and the notes to those statements for the most recent financial year ended, the reporting entity satisfies this Item by directing the reader to that presentation*

Item 6.6 Exploration and Development Activities

1. Disclose, by country and separately for *exploratory wells* and *development wells*:
 - (a) the number of *gross wells* and *net wells* completed in the *reporting entity's* most recent financial year; and

- (b) for each category of wells for which information is disclosed under paragraph (a), the number completed as *oil* wells, *gas* wells and *service wells* and the number that were dry holes.
2. Describe generally the *reporting entity's* most important current and likely exploration and development activities, by country.

Item 6.7 *Production Estimates*

1. Disclose, by country, for each *product type*, the volume of *production* estimated for the first year reflected in the estimates of *gross proved reserves* and *gross probable reserves* disclosed under Item 2.1.
2. If one *field* accounts for 25 percent or more of the estimated *production* disclosed under section 1, identify that *field* and disclose the volume of *production* estimated for the *field* for that year.

Item 6.8 *Production History*

1. For each important *field*, and in total, disclose the *reporting entity's production* volumes for the most recent financial year, for each *product type*.

INSTRUCTION

*In providing information for each **product type** for the purpose of Item 6.8, it is not necessary to allocate among multiple **product types** attributable to a single well, **reservoir** or other **reserves** entity. It is sufficient to provide the information in respect of the principal **product type** attributable to the well, reservoir or other **reserves** entity. Resulting netbacks may be disclosed on the basis of units of equivalency between **Oil and Gas** (e.g. **BOE**) but if so that must be made clear and disclosure must comply with section 5.14 of the **SAMOG Code***