Specifications for the Application of UNFC-2009

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UNFC Workshop
Geneva
April 2013

Specifications Task Force

Task Force Members	
Per Blystad (Phase One only)	Kjell Reidar Knudsen
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Specifications for UNFC-2009

- **What are specifications?**
- **Development process**
- **Proposed generic specifications**
- **Proposed bridging documents**
- **Recommendations**

What are Specifications?

Definitions

Specifications

Guidelines

Classification Framework

Application Rules

Non-Mandatory Guidance

What are Specifications?

- **Specifications set out the basic rules that are considered necessary to ensure an appropriate level of consistency in application**

- **They provide additional instructions on how the definitions must be applied in specific circumstances**

What are Specifications?

- **Examples of Specifications in PRMS**
  - **"If probabilistic methods are used, there should be at least a 90% probability that the quantities actually recovered will equal or exceed the estimate"**
  - **"There must be a reasonable expectation that all required internal and external approvals will be forthcoming, and there is evidence of [a] firm intention to proceed with development within a reasonable time frame"**

What are Specifications?

- **Examples of Specifications in the CRIRSCO Template**
  - **“Under no circumstances can an Indicated Mineral Resource be converted directly to a Proved Mineral Reserve”**
  - **“The reported Mineral Reserve figures must not be added to the reported Mineral Resource figures”**

Specifications for UNFC-2009

- What are specifications?
- Development process
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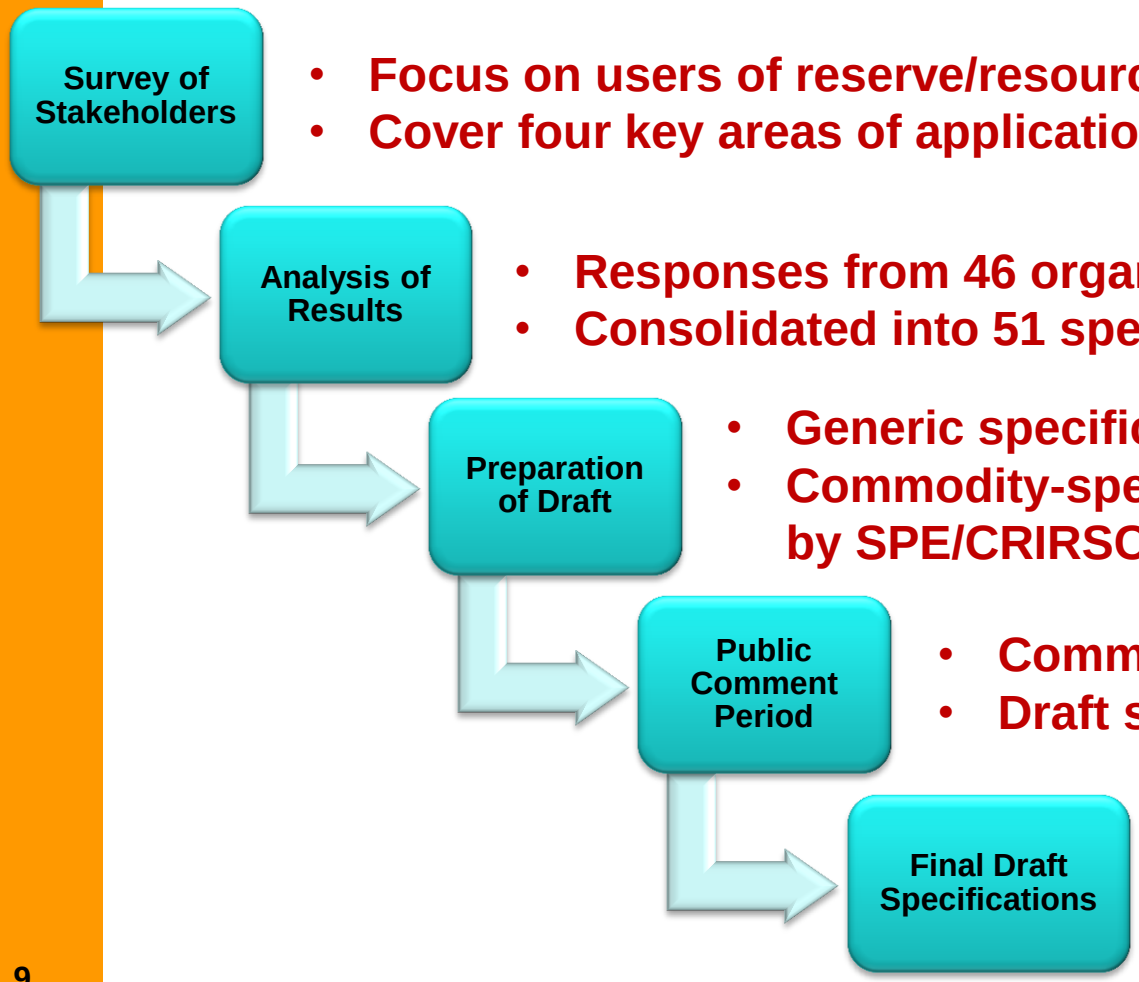
Development Process



- Focus on users of reserve/resource data
- Cover four key areas of application

- Responses from 46 organizations
- Consolidated into 51 specification issues

- Generic specifications developed for UNFC
- Commodity-specific specifications provided by SPE/CRIRSCO

- Comments from 15 experts/bodies
- Draft specifications updated

- 20 generic specifications
- Bridging documents with PRMS/CRIRSCO Template

Specifications for UNFC-2009

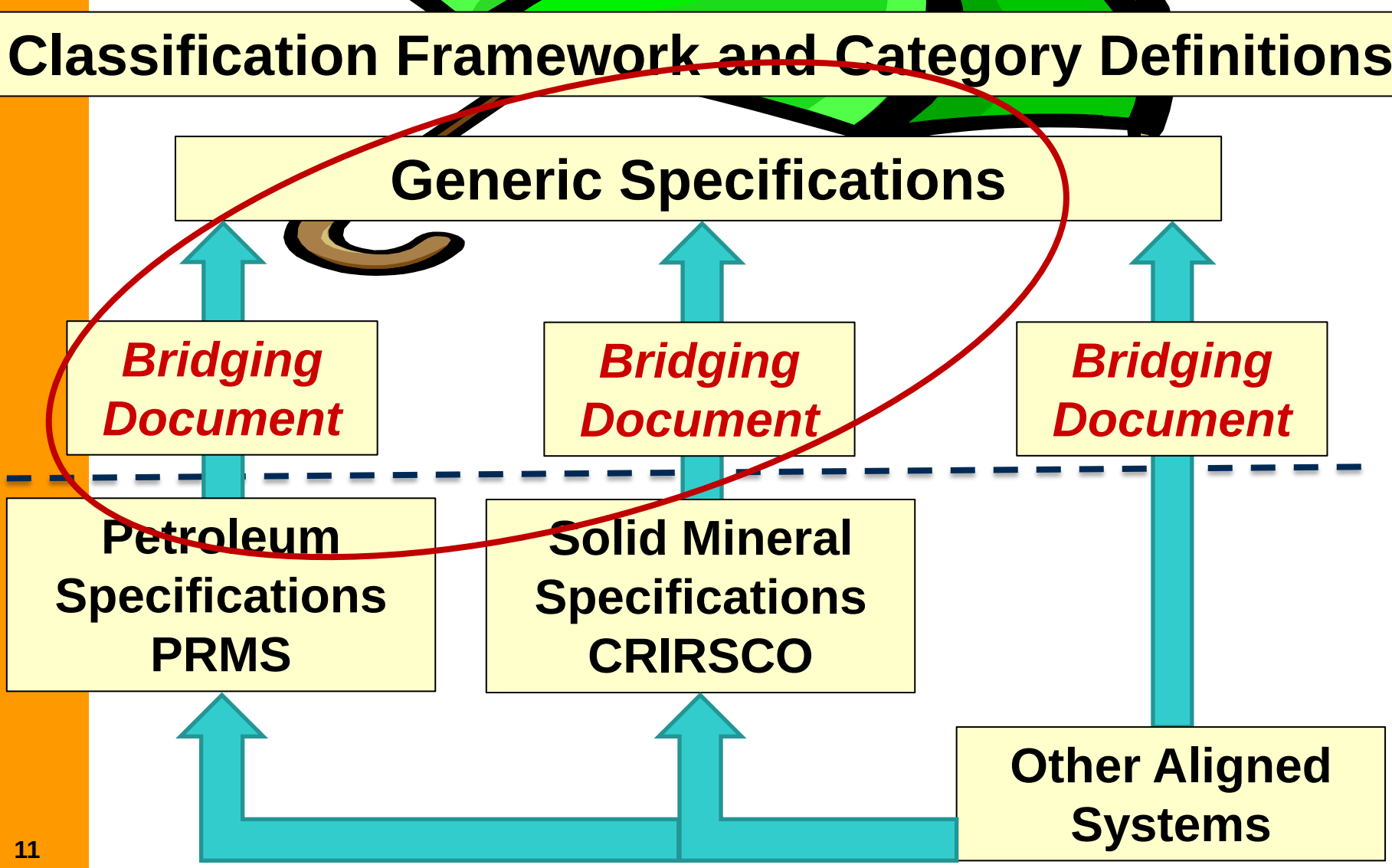
Two documents prepared in draft form for the EGRC:

- **Specifications document, including:**
  - **Generic specifications**
  - **Bridging documents with CRIRSCO Template and PRMS**
- **Specifications task force report, outlining process and basis for recommendations**

Both documents have the full consensus of the Specifications Task Force and the Bureau

UNFC

Classification Framework and Category Definitions



Draft Specifications Document

Draft Table of Contents (main body)

- **Introduction**
- **Environmental and social considerations**
- **Commodity-specific specifications and the relationship with other resource classification systems**
- **National resource reporting**
- **Disclosure**
- **Generic specifications (20 issues)**

Draft Specifications Document

Draft Table of Contents (annexes)

I. **Glossary of terms**
II. **Guidelines on the application of key instructions in UNFC-2009**
III. **Bridging document between the CRIRSCO Template and UNFC-2009**
IV. **Bridging document between PRMS and UNFC-2009**
V. **Guidelines on the use of project maturity to sub-classify projects using UNFC-2009**

Draft Specifications Document

Introduction

- **Provides an overview of the contents of document**

Draft Specifications Document

Environmental and social considerations

- **Highlights the fact that the E-axis category definitions explicitly include consideration of such issues**

- **Emphasises the need for a "social licence to operate" both before and during extractive activities**

Draft Specifications Document

Commodity-specific specifications and the relationship with other resource classification systems

- **Alignment of UNFC-2009 with the CRIRSCO Template and PRMS**
- **Agreements with CRIRSCO/SPE to provide commodity-specific specifications**
- **Other systems can be used, provided they are "aligned"**

Draft Specifications Document

Commodity-specific specifications and the relationship with other resource classification systems (cont.)

- **Bridging Documents subject to evaluation by the TAG and endorsement by EGRC to ensure alignment**
- **Quantities can be estimated in "aligned system" or directly, provided all specifications are honoured**
- **Need for generic specifications in order to provide a common basis for reporting at UNFC level**

Draft Specifications Document

National resource reporting

- **Government level reporting usually at aggregated level**
- **Not necessarily the same as corporate estimates**
- **Aggregation methodology to be disclosed**

Draft Specifications Document

Disclosure

- **UNFC-2009 is a voluntary system**
- **Unless mandated or restricted by government or other regulatory body, disclosure of resource quantities is at the discretion of the reporter**
- **However, certain generic specifications requiring disclosure of information relevant to the reported estimates are mandatory**

Specifications for UNFC-2009

- What are specifications?
- Development process
- Proposed generic specifications
- Proposed bridging documents
- Recommendations

Generic Specifications

- **In these generic specifications, the following words have specific meanings:**
  - **“Shall” is used where a provision is mandatory;**
  - **“Should” is used where a provision is preferred; and,**
  - **“May” is used where alternatives are equally acceptable.**
- **Mandatory generic specifications set a minimum standard for reporting**
  - **Commodity-specific specifications for the same issue may be adopted provided they fully meet the requirements**

Generic Specifications

Mandatory disclosure issues

- **UNFC numerical codes**
- **Bridging document**
- **Effective date**
- **Commodity or product type**
- **Basis for estimate**
- **Reference point**

Generic Specifications

Optional additional sub-categories

- **Expansion of G4 to account for uncertainty**
- **Expansion of F3 to account for maturity**
- **Expansion of F4 to account for technology**

Generic Specifications

Reference to additional guidance in Annex V on the distinction between UNFC-2009 sub-classes

UNFC Classes defined by categories and sub-categories						
Total commodity in	Known Deposit	Sales Production				
		Non-sales Production				
				Sub-class	Categories	
					E	F	G
				On Production	1	1.1	1, 2, 3
				Approved for Development	1	1.2	1, 2, 3
				Justified for Development	1	1.3	1, 2, 3
		Potentially Commercial Projects		Development Pending	2	2.1	1, 2, 3
				Development On Hold	2	2.2	1, 2, 3
		Non-Commercial Projects		Development Unclarified	3.2	2.2	1, 2, 3
				Development Not Viable	3.3	2.3	1, 2, 3
		Additional quantities in place			3.3	4	1, 2, 3
	Potential Deposit	Exploration Projects		[No sub-classes defined]	3.2	3	4
		Additional quantities in place			3.3	4	4

Generic Specifications

Distinction between E1, E2 and E3

- **Based on "reasonable prospects for economic extraction in the foreseeable future"**
- **Reference to commodity-specific systems for more detailed discussion of "foreseeable future"**
- **Any change in a non-technical issue (e.g. social licence to operate) which leads to a suspension or termination of extractive activities requires a reclassification from E1 to E2 or to E3**

Generic Specifications

Confidence levels for G1, G2 and G3

- **Based on “high”, “medium” and “low” confidence**
- **Not specified more precisely at generic level due to fundamental differences between approaches used for commodities extracted as solids or fluids**
- **Reference to commodity-specific systems for more detailed discussion of levels of confidence**

Generic Specifications

Distinction between recoverable quantities and in situ (in-place) quantities

- **Other than quantities classified as F4:**
  - **All quantities must be "potentially recoverable"**
  - **Associated with actual or possible future projects**
  - **Based on existing technology or technology under development**
  - ***In situ* estimates must have "reasonable prospects for economic extraction and sale"**
  - **If extraction methodology is expected to lead to significant losses/dilution, this must be disclosed**
  - **For commodities extracted as fluids, recovery factor should be taken into account**

Generic Specifications

Aggregation of quantities

- **Requires justification and disclosure of methodology**
- **Requires disclosure of UNFC codes for aggregated classes (e.g. 111+112+221+222)**
- **For projects not classified as E1F1, requires footnote to highlight risk that project(s) may not achieve commercial operation**

Generic Specifications

Economic assumptions

- **Assumption of "future market conditions" should reflect either:**
  - **The view of the organization responsible for evaluation**
  - **The view of a competent person or independent evaluator**
  - **An externally published view that is reasonable**
- **The basis (not the forecast) must be disclosed**

Generic Specifications

Evaluator qualifications

- **Must possess an appropriate level of expertise and relevant experience associated with the type of deposit under evaluation**
- **More detailed specifications in Aligned System**
- **Possible regulatory requirements for corporate reporting (i.e. for a “competent person”)**

Generic Specifications

Units and conversion factors

- **SI Units recommended**
- **Other traditional units permitted**
  - **Conversion factors to SI units must be provided**
- **Where quantities are converted to energy equivalents (for example), conversion factors must be disclosed**

Generic Specifications

Documentation

- **“Estimates of resource quantities shall be documented in sufficient detail that would allow an independent evaluator or auditor to clearly understand the basis for estimation of the reported quantities and their classification”**

- **Not a requirement for external disclosure**

Generic Specifications

Optional labels for estimates

- **In addition to numerical codes, the following terms may be used in conjunction with classification on the G-axis:**
  - **Low estimate (G1)** **e.g. 111**
  - **Best estimate (G1+G2)** **e.g. 111+112**
  - **High estimate (G1+G2+G3)** **e.g. 111+112+113**

Generic Specifications

Extracted quantities that may be saleable in the future

- **Extracted quantities not available for sale (E3.1)**
  - **Used, lost, destroyed, disposed of during extraction process and not available for future sales**
  - **e.g. flared gas**

- **Extracted quantities that are "stored" and available for possible future sales (E3.3)**
  - **e.g. produced gas injected back into a rock formation**
  - **e.g. thorium**

Specifications for UNFC-2009

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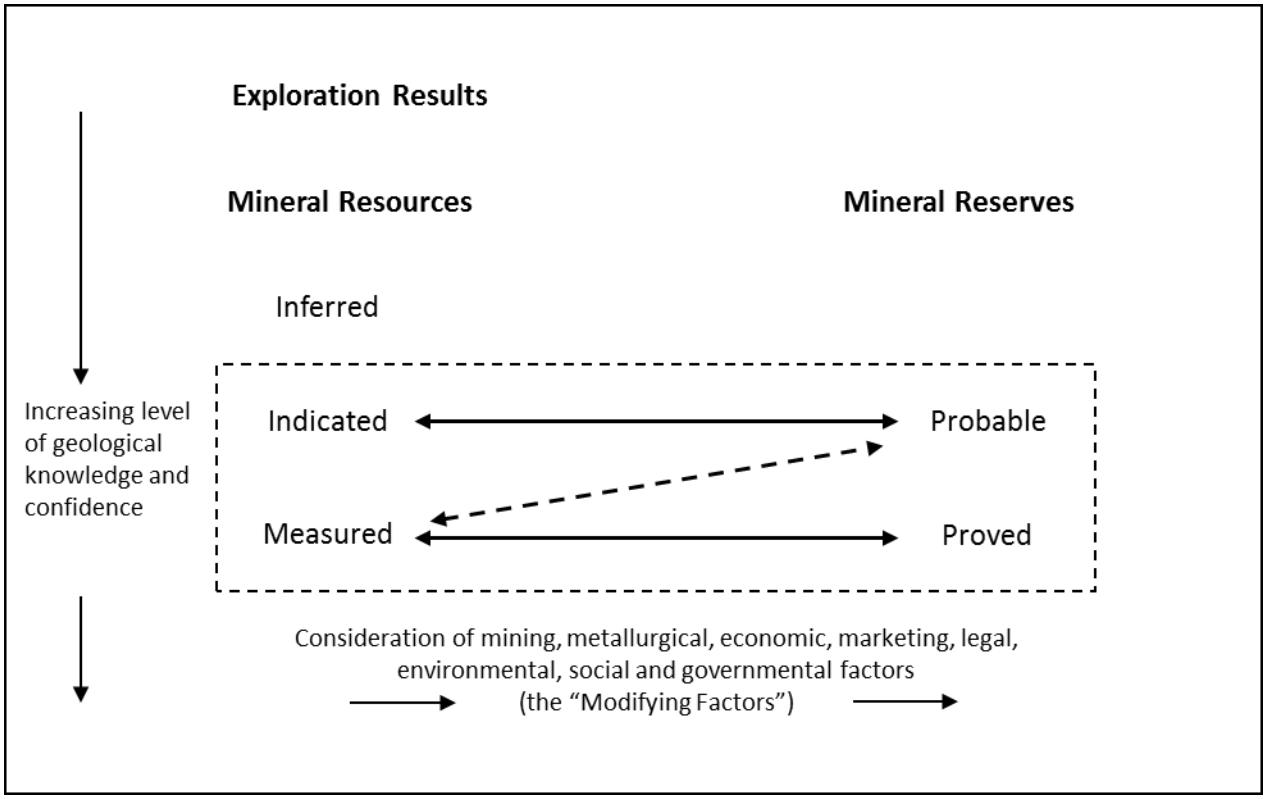
Bridging Documents

General

- **Explains the relationship between an Aligned System and UNFC-2009**
- **Consistent format**
- **Generally more granularity in UNFC-2009**
- **Facilitates transfer of quantities to correct class or sub-class**

Bridging Documents

CRIRSCO Template



Bridging Documents - CRIRSCO

Using Categories only

CRIRSCO Template		UNFC-2009 "minimum" Categories			UNFC-2009 Class
Mineral Reserve	Proved	E1	F1	G1	Commercial Projects
	Probable			G2	
Mineral Resource	Measured	E2	F2	G1	Potentially Commercial Projects
	Indicated			G2	
	Inferred			G3	
Exploration Results		E3	F3	G4	Exploration Projects

Bridging Documents - CRIRSCO

Using Sub-categories

	F1.1	F1.2	F1.3	F2.1	F2.2	F2.3	F3	F4
E1.1	1	2	3	4				
E1.2	1	2	3					
E2			4	4	5			
E3.1	12	12	12	12	12	12		
E3.2			6	6	6		8	
E3.3			7	7	7	7		11

			UNFC-2009 Sub-Classes
Mineral Reserve		1	On Production
		2	Approved for Development
		3	Justified for Development
Mineral Resource		4	Development Pending
		5	Development On Hold
Inventory (not defined in Template)		6	Development Unclarified
		7	Development Not Viable
		11	Additional Quantities in Place
Exploration Results		8	
Special Cases	Classification not in Template	12	
	Less Common Mappings		

Bridging Documents

Petroleum Resources Management System (PRMS)

- **Society of Petroleum Engineers (SPE)**
- **World Petroleum Council (WPC)**
- **American Association of Petroleum Geologists (AAPG)**
- **Society of Petroleum Evaluation Engineers (SPEE)**
- **Society of Exploration Geophysicists (SEG)**

Bridging Documents - PRMS

Using Categories only

PRMS Class		UNFC-2009 "minimum" Categories			UNFC-2009 Class
Discovered	Reserves	E1	F1	G1,G2,G3	Commercial Projects
	Contingent Resources	E2	F2	G1,G2,G3	Potentially Commercial Projects
		E3	F2	G1,G2,G3	Non-Commercial Projects
	Unrecoverable	E3	F4	G1,G2,G3	Additional in Place*
Undiscovered	Prospective Resources	E3	F3	G4	Exploration Projects
	Unrecoverable	E3	F4	G4	Additional in Place*

Bridging Documents - PRMS

G-axis, using Categories only

PRMS Categories		UNFC-2009 Categories
Reserves (Incremental)	Proved	G1
	Probable	G2
	Possible	G3
Reserves (Scenario)	Proved (1P)	G1
	Proved plus Probable (2P)	G1+G2
	Proved plus Probable plus Possible (3P)	G1+G2+G3
Contingent Resources	Low Estimate (1C)	G1
	Best Estimate (2C)	G1+G2
	High Estimate (3C)	G1+G2+G3
Prospective Resources	Low Estimate	G4.1
	Best Estimate	G4.1+G4.2 (=G4)
	High Estimate	G4.1+G4.2+G4.3

Bridging Documents - PRMS

Using Sub-categories

	F1.1	F1.2	F1.3	F2.1	F2.2	F2.3	F3.1	F3.2	F3.3	F4
E1.1	1	2	3	4						
E1.2	1	2	3							
E2			4	4	5					
E3.1	12	12	12	12	12	12				
E3.2			6	6	6		8	9	10	
E3.3			7	7	7	7				11

Reserves	On Production		1
	Approved for Development		2
	Justified for Development		3
Contingent Resources	Development Pending		4
	Development Unclarified or On Hold	On Hold	5
		Unclarified	6
	Development Not Viable		7
	Unrecoverable		11
Undiscovered	Prospective Resources	Prospect	8
		Lead	9
		Play	10
	Unrecoverable		11
Special Cases	Defined but not classified in PRMS		12
	Less Common Mappings		

Bridging Documents - PRMS

Using Sub-categories

		Low Estimate	Best Estimate	High Estimate
Prospective Resources	Prospect	E3.2,F3.1,G4.1	E3.2,F3.1,G4.1+G4.2	E3.2,F3.1,G4.1+G4.2+G4.3
	Lead	E3.2,F3.2,G4.1	E3.2,F3.2,G4.1+G4.2	E3.2,F3.2,G4.1+G4.2+G4.3
	Play	E3.2,F3.3,G4.1	E3.2,F3.3,G4.1+G4.2	E3.2,F3.3,G4.1+G4.2+G4.3

		Low Estimate	Best Estimate	High Estimate
Unrecoverable	Discovered	E3.3,F4,G1	E3.3,F4,G1+G2	E3.3,F4,G1+G2+G3
	Undiscovered	E3.3,F4,G4.1	E3.3,F4,G4.1+G4.2	E3.3,F4,G4.1+G4.2+G4.3

Bridging Documents - PRMS

Using Sub-categories

PRMS Sub-class		E axis "minimum" Category or Sub-Category	F axis "minimum" Sub-Category	UNFC-2009 Sub-class
Contingent Resources	Development Pending	E2	F2.1	Development Pending
	Development Unclarified or on Hold	E2	F2.2	Development on Hold
		E3.2	F2.2	Development Unclarified
	Development not Viable	E3.3	F2.3	Development not Viable

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Recommendations

- **The EGRC endorses the draft specifications document and explanatory report**
- **All input received during the stakeholder survey and public comment period that related to possible modifications to UNFC-2009 will be reconsidered when the EGRC decides to update UNFC-2009**
- **All future feedback regarding application of the specifications is appropriately documented and reviewed as part of any future updates**