

GUIDELINES

to the

United Nations international Framework Classification

Ad Hoc Group of Experts on Harmonization of Energy Reserves
and Resources Terminology
9-11 November 2005

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Text

- 1. Introduction**
- 2. Objective**
- 3. Application of the UN Framework Classification**
- 4. Systems integration and reporting of mineral reserves/resources figures**
- 5. The terms Reserve and Resources**
- 6. Definition of Reserve and Resource Classes**
- 7. World Energy Resource Survey**
- 8. Codification**

Appendices

- 1. Definitions of Terms to be used in the English Language version of the UNFC for R/R - Solid Fuels and Mineral Commodities**
 - Definitions of Stages of Feasibility Assessment**
 - Definitions of Stages of Geological Study**
 - Definitions of Economic Viability Categories**
 - Schematic Illustration of UNFC**
 - Definition of Competent Person**
- 2. List of the More Important Items to be Addressed in a Geological Study**
- 3. List of the More Important Items to be Addressed by Feasibility Assessment**
- 4. Codification**

1. Introduction

UNFC is an effort to introduce universally acceptable and internationally applicable scheme for classifying and reporting reserve/resource data

Three ways: geological assessment activities, consecutive stages of feasibility assessment, activity related classes correlated with conventional descriptive classes

Umbrella system

2. Objective

Guidelines are aimed at both technical and non-technical persons to assist them in incorporating the numerous conventional classifications into the UNFC in order to make them comparable

UNFC is not intended to regulate the methods of estimation or to control national or in-house procedures for estimating and accounting - it is also designed to be as flexible as possible

3. Application of the UNFC

- a number of countries have started to apply UNFC on a national level**
- other countries are considering applying it**
- several countries without their own national system are commencing to formulate a national system on the basis of the UNFC**
- geological assessment, feasibility assessment, economic viability**

4. Systems integration and reporting of mineral Reserves/Resources figures

UN International Framework		Detailed Exploration	General Exploration	Prospecting	Reconnaissance
National System					
Feasibility Study and/or Mining Report		1 (111) 2 (211)	usually		
Pre-feasibility Study		1 (121) + (122) 2 (221) + (222)	not relevant		
Geological Study *)		1-2 (331)	1-2 (332)	1-2 (333)	? (334)

Economic Viability Categories: 1 = economic 1-2 = economic to potentially economic (intrinsically economic)
 2 = potentially economic ? = undetermined

Code: (123) (see item 6. Codification on page 8)

Date :

4. Systems integration and reporting of mineral Reserves/Resources figures

integrated reporting form

Deposit / Mine	Feasibility Study and/or Mining Report		Prefeasibility Study		Geological Study			
	Economic	Potentially economic	Economic	Potentially economic	Detailed Exploration	General Exploration	Prospecting	Reconnaissance
	(111)	(211)	(121) (122)	(221) (222)	(331)	(332)	(333)	(334)
Total								

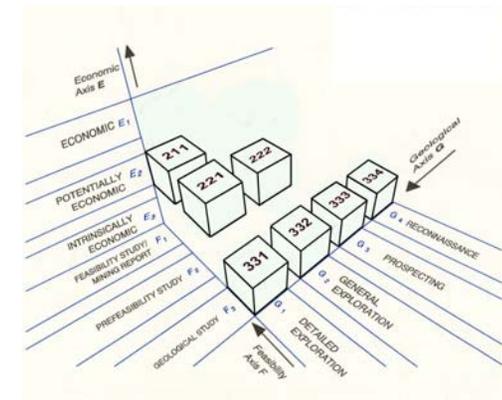
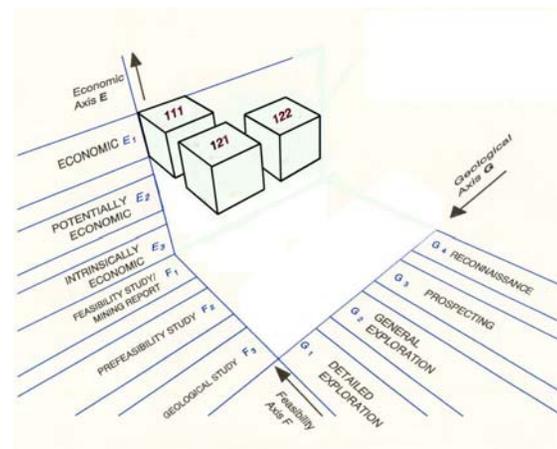
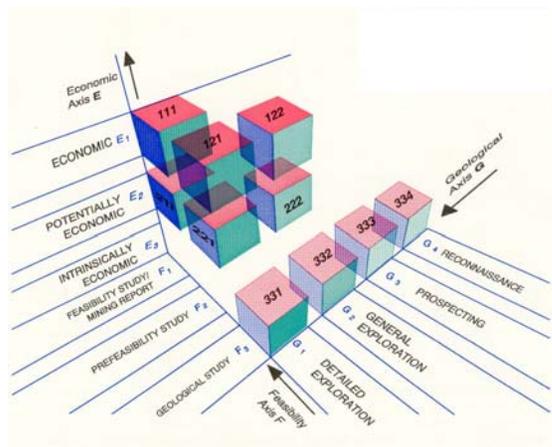
 = National System

Date :

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5. The terms Reserve and Resource

Resources = Reserves + Resources
true only if Reserves = 0



Total resources - Reserves = Remaining Resources
 Total resources = Reserves + Additional Resources

6. Definition of Reserve and Resource Classes (look at Table 1, page 12)

UN International Framework	National System	Detailed Exploration	General Exploration	Prospecting	Reconnaissance
Feasibility Study and / or Mining Report		1 Proved (111) Mineral Reserve 2 Feasibility (211) Mineral Resource	usually	not	
Prefeasibility Study		1 Probable Mineral Reserve (121) + (122) Prefeasibility Mineral Resource (221) + (222)			relevant
Geological Study		1-2 Measured (331) Mineral Resource	1-2 Indicated (332) Mineral Resource	1-2 Inferred (333) Mineral Resource	? Reconnaissance (334) Mineral Resource

Economic Viability Categories:

1 = economic
2 = potentially economic

1-2 = economic to potentially economic (intrinsically economic)
? = undetermined

Code: (123)

Date :

7. World Energy Resource Survey

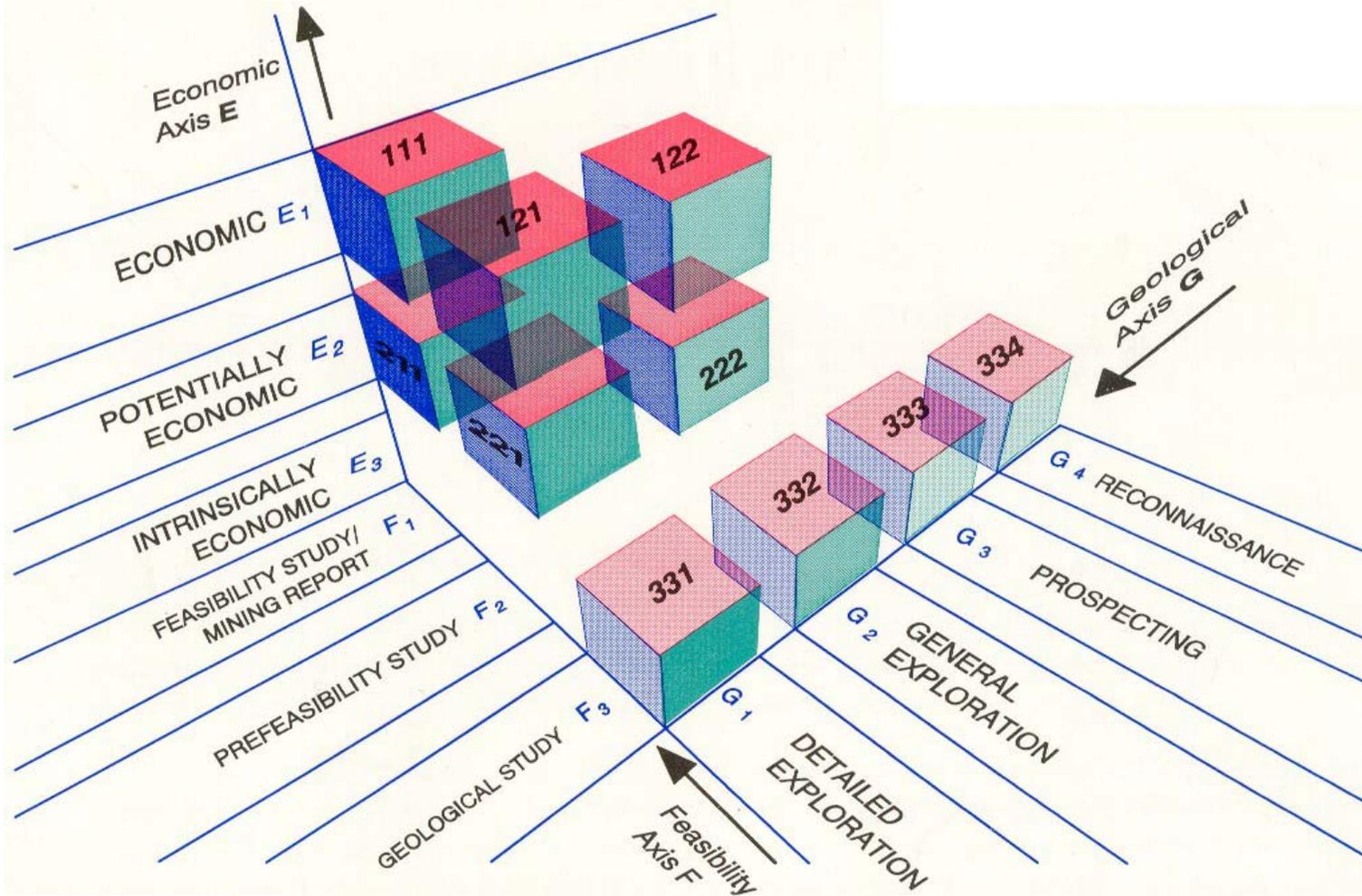
Countries	Prefeasibility Study, Feasibility Study and / or Mining Report		Geological Study	
	Economic	Potentially Economic	Detailed & General Exploration	Prospecting & Reconnaissance
	(111) (121) (122)	(211) (221) (222)	(331) (332)	(333) (334)
	Reserve	Remaining or Additional Resource		
Total World				

 = International System

Date :

Code: (123)

8. Codification



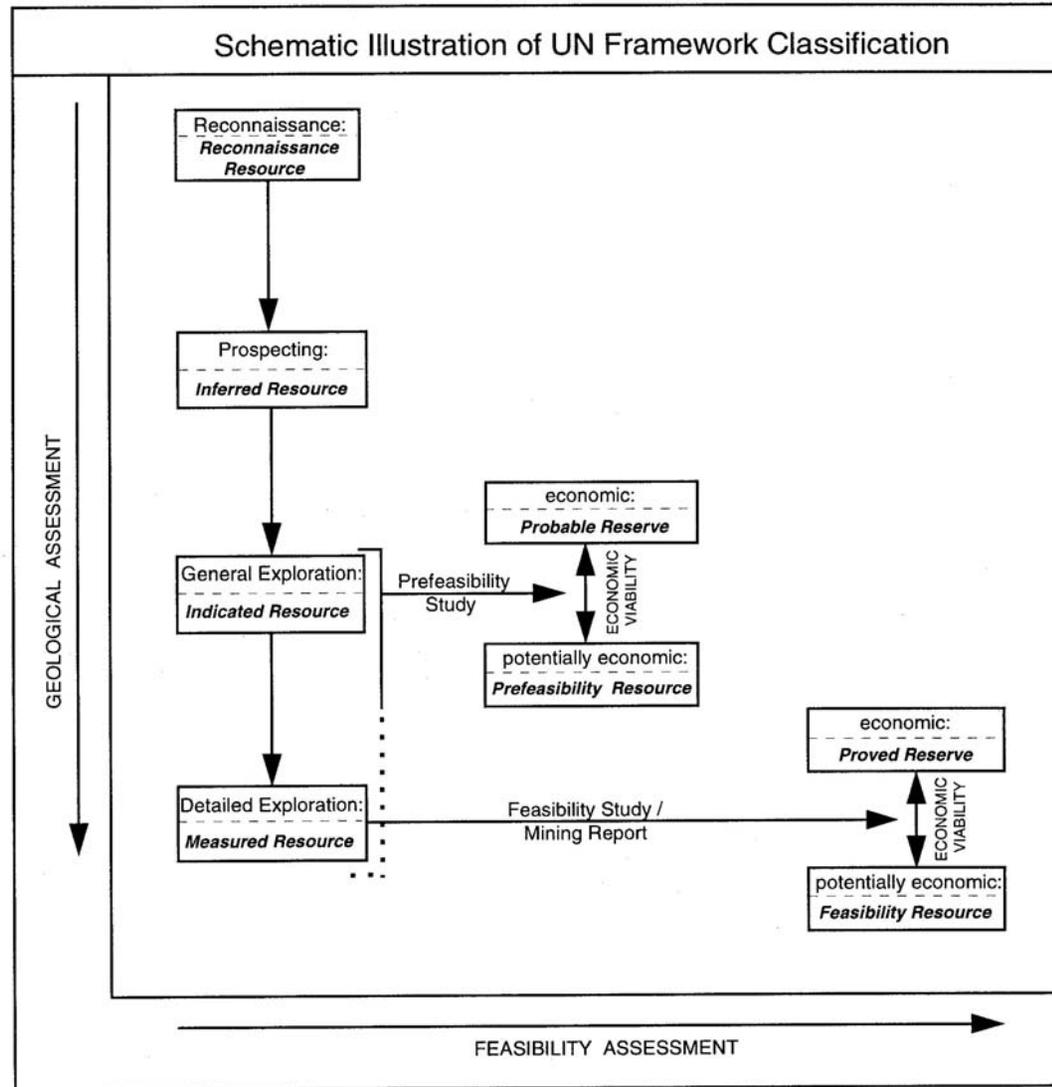
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Appendix I

Definitions in English Language Version

- **Geological Assessment: Reconnaissance, Prospecting, General Exploration, Detailed Exploration**
- **Feasibility: Mining Report, Feasibility Study, Permissibility Study, Geological Study**
- **Economic Viability Categories: Economic (Normal, Exceptional - Conditional), Potentially Economic (Marginal, Submarginal), Economic to Potentially Economic (Intrinsically Economic)**

Appendix I



Appendix I

Definition of Competent Person

A Competent person is defined as one who is qualified for the position by training and who has relevant experience in assessing resources and reserves of the type of deposit in question. The qualifications and experience required will vary between countries, for example in some countries licensing may be required

Appendix II

List of the More Important Items to be Addressed in a Geological Study

- Summary**
- Introduction**
- Property description, Location and Access, History**
- Geoscientific Investigations: Geology, Investigation methods**
- The Mineral Deposit: Features of Deposit, Sampling details, Analysis details, Quality/Grade, Resource estimation**
- Preliminary Viability estimation**

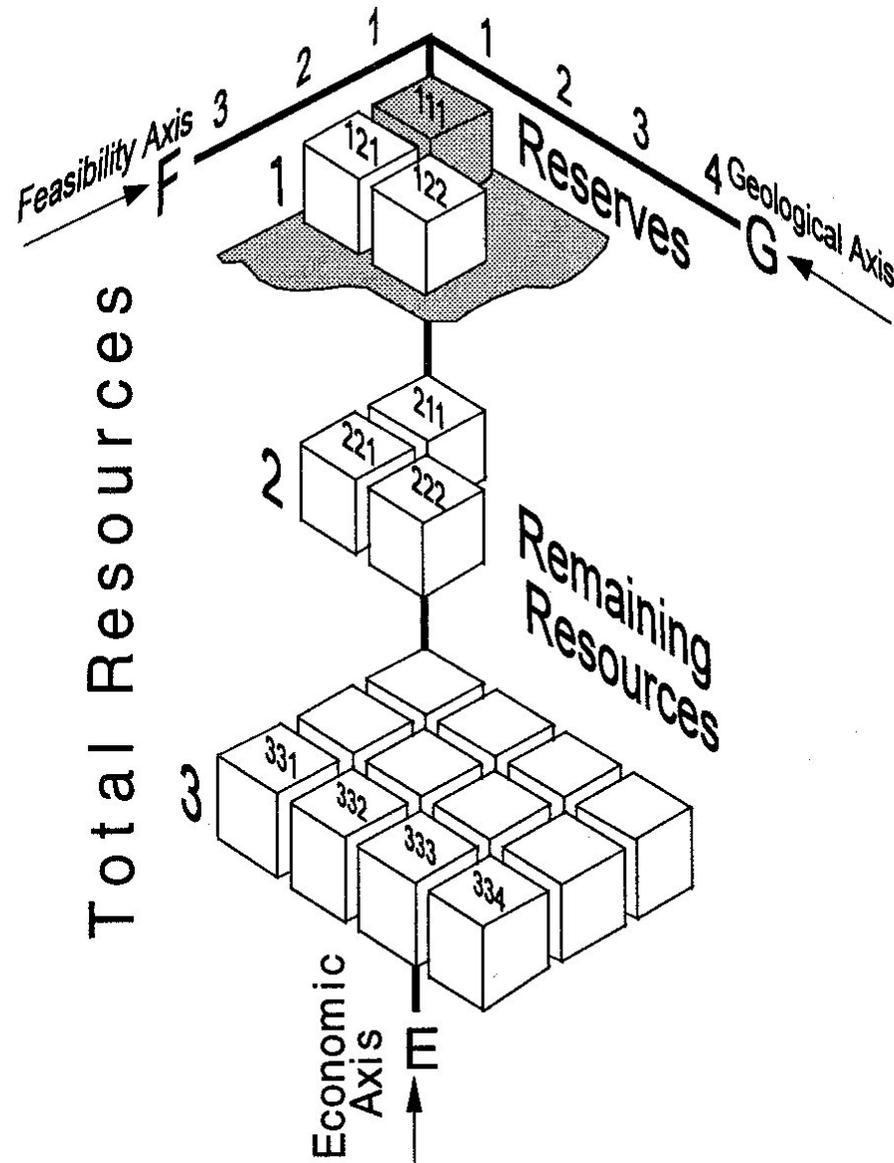
Appendix III

List of the More Important Items to be Addressed by Feasibility Assessment

- **Prefeasibility study**
- **Feasibility study**
 - **technical part: geology, reserves, mining, processing, infrastructure and services**
 - **costing: capital costs, operating costs, capitalized costs**
 - **marketing: marketing overview, specific market aspects**
 - **economic viability: cashflow forecasts, inflation effects, sensitivity studies**
 - **other factors: independent verification, statutory requirements, labour relations**

Appendix II

Codification



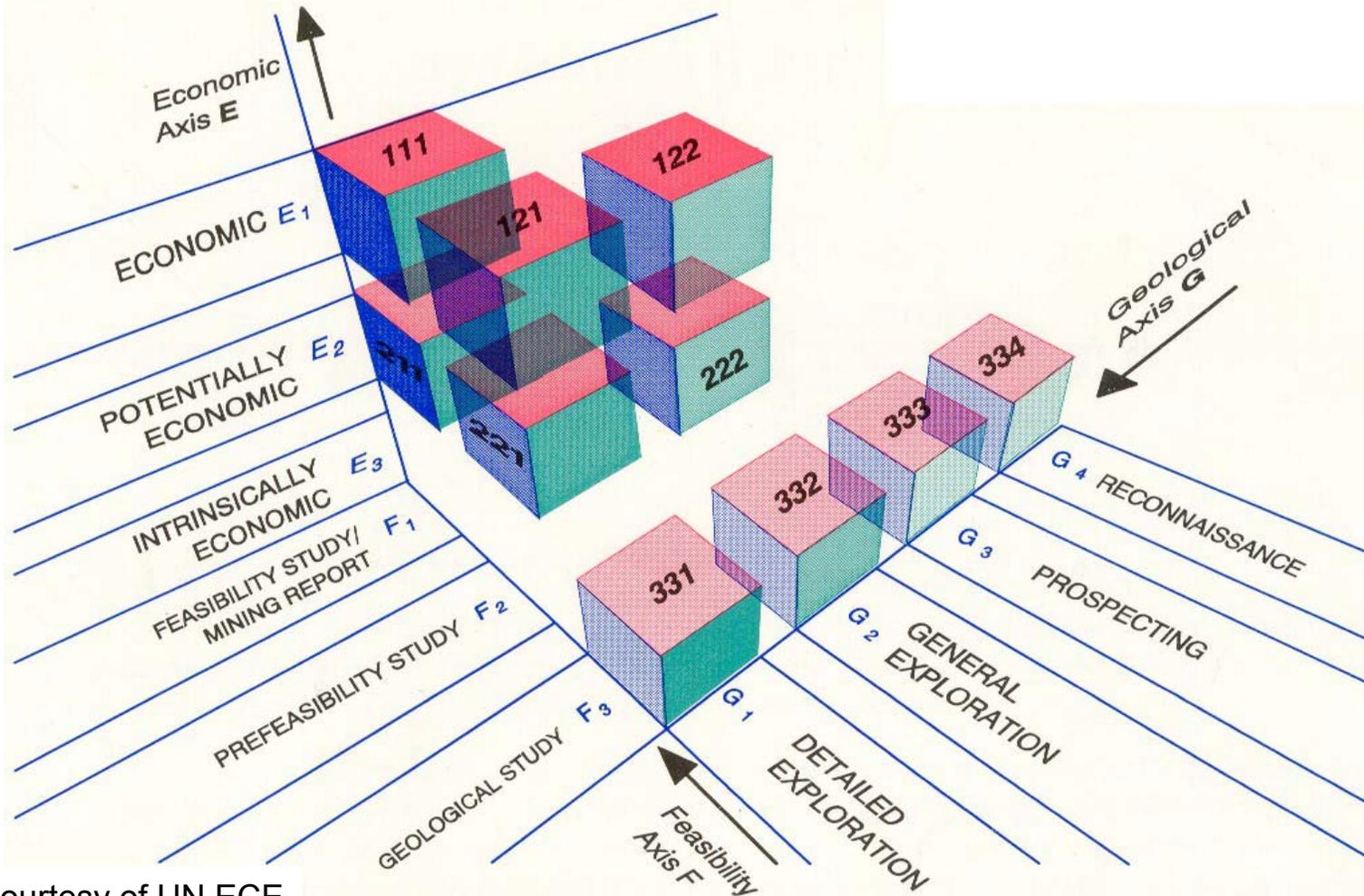
KEY
for the
Classification
of
Reserves/Resources

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Two principles of the key:

- answering to the pre-designed questions and following instructions for corresponding answers**
- different procedures for medium to high risk projects and low to no risk projects**

Low cost (low risk) commodities reserves



By courtesy of UN ECE

Contents of the “Key”:

- application of the UNFC**
- classification key**

Table 1: start-up of classification

**Table 2: medium to high-risk
projects**

Table 3: low to no-risk projects

- glossary**
- references**