



The United Nations Framework Classification for Fossil Energy and Mineral Resources

George Kowalski

Former Director, Sustainable Energy Division, UNECE

Charlotte Griffiths

Programme Officer, UNECE Group of Experts on the Harmonization of Fossil Energy and Mineral Resources Terminology

United Nations Economic Commission for Europe
Geneva, Switzerland

UN Economic Commission for Europe (UNECE)

- **Economic and Social Council**
- **Five UN Regional Commissions**
- **UNECE: Europe, CIS, North America, Turkey & Israel**
- **Based in Geneva, 56 Governments**
- **Mission to foster sustained economic growth and cooperation among its member countries**
- **Assist countries with transition and developing economies**
- **9 programmes of work, including energy**

History of UNFC

Early Focus on Solid Fuels & Minerals

Petroleum & Other Minerals

Global System

1992

German Government proposes 3-D classification to UNECE Working Party on Coal to meet the need for an internationally acceptable reserve/resource classification system capable of integrating transitioning economies from Eastern Europe and Former Soviet Union

1997

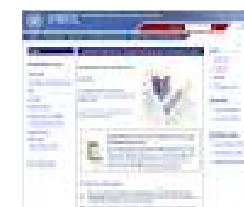
UN Economic & Social Council (ECOSOC) invites global application of the UNFC for Solid Fuels & Mineral Commodities through ECOSOC Resolution 1997/226

2001

UNECE creates Group of Experts to extend the UNFC to petroleum and other mineral resources (e.g. uranium)

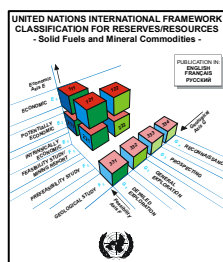
2004

UN ECOSOC recommends appropriate measure taken for global application of UNFC for petroleum & minerals "UNFC 2004" in Resolution 2004/233



1996

UNECE Working Party on Coal adopts UNFC for Solid Fuels & Mineral Commodities



1999

UNECE Task Force & Council for Mining & Metallurgy Institutions (now Committee for Mineral Reserves International Reporting Standards) integrate existing definitions for minerals into a single, universally applicable set of definitions

2003

UNECE Committee on Sustainable Energy adopts UNFC for petroleum & minerals

2004 - Present

UNECE Ad Hoc Group of Experts developing UNFC as global common code

One common code for multiple users...

- **Energy policy formulation**
- **National resource management**
- **Business process management**
- **Financial reporting**

United Nations Framework Classification for Fossil Energy and Mineral Resources (UNFC) is for both minerals and fossil energy (coal and petroleum)

Classification of Resources and Reserves in Compliance with International Standards

- **UNFC is an umbrella system to which other classifications can map, and a system on its own**
- **UNFC is harmonized with SPE PRMS (Petroleum) and CRIRSCO (Minerals) systems**
- **UNFC is developed by stakeholders (including the UN ECOSOC) with the assistance of professional organisations**
- **UNFC (2004) is being simplified in 2009**

ONE COMMON SYSTEM IS ACHIEVED THROUGH UNFC

Proposed Revision of the UNFC

- Simplify the 2004 UNFC
- Facilitate harmonization with the 2006 CRIRSCO (Minerals industry) template and the 2007 SPE/WPC/AAPG/SPEE Petroleum Resources Management System (SPE-PRMS) and others.
- Elements of first order importance for application in energy statistics are more or less in place. Comments are essential: Deadline 6 February.
- Elements of second order importance may be introduced in the form of specifications yet to be developed.

<http://www.unece.org/energy/se/reserves.html>



UNECE United Nations Economic Commission for Europe

Home About UNECE Programmes Information Meetings Contact Us

SUSTAINABLE ENERGY DIVISION

Energy Reserves and Resources

including

- (j) United Nations Framework Classification (UNFC) for Fossil Energy and Mineral Resources; and
- (k) Ad Hoc Group of Experts on Harmonization of Fossil Energy and Mineral Resources Terminology

Activities & Information

- UNECE works for your future energy resources
- Ad Hoc Group of Experts on Harmonization of Fossil Energy and Mineral Resources Terminology (formerly Ad Hoc Group of Experts on the Supply of Fossil Fuels) Watch Video Presentation
- Practical Application of the United Nations Framework Classification (UNFC) in Selected Countries: Case Studies
- Documentation

Draft UNFC-2008 and Draft Explanatory Note to UNFC-2008
COMMENTS INVITED

The Revision Task Force of the UNECE Ad Hoc Group of Experts on the Harmonization of Fossil Energy and Mineral Resources Terminology invites the Group of Experts and other interested parties to review and comment on the draft revision of the 2004 United Nations Framework Classification of Fossil Energy and Mineral Resources (UNFC). The draft UNFC is accompanied by a draft Explanatory Note, to which comments are also invited. **Please note that both documents are available in English and Russian.**

Deadline for comments: 6 February 2009

For more information and/or to comment click here.

Press Release: 10 December 2008 "Revised UNFC aims to simplify reporting of energy and mineral reserves and resources in a globalized world".

Report of the UNFC Mapping Task Force: In July 2007, the Group of Experts charged a special Task Force to prepare a mapping of the SPE, CRIRSCO, Russian Federation and UNFC systems. The Task Force was led by Ms. Muelala Ersoy and Mr. Feri Ersoy, with Mr. Neil Weatherstone, Mr. Feri Camisani-Calzolari, Mr. John F. Hargrave, Mr. Kiril Kavun, Mr. James Ross and Mr. Andrej Subelj as members. This Report was the subject of significant discussion at the Fifth Annual session of the group of experts held in Geneva, 15-16 April.

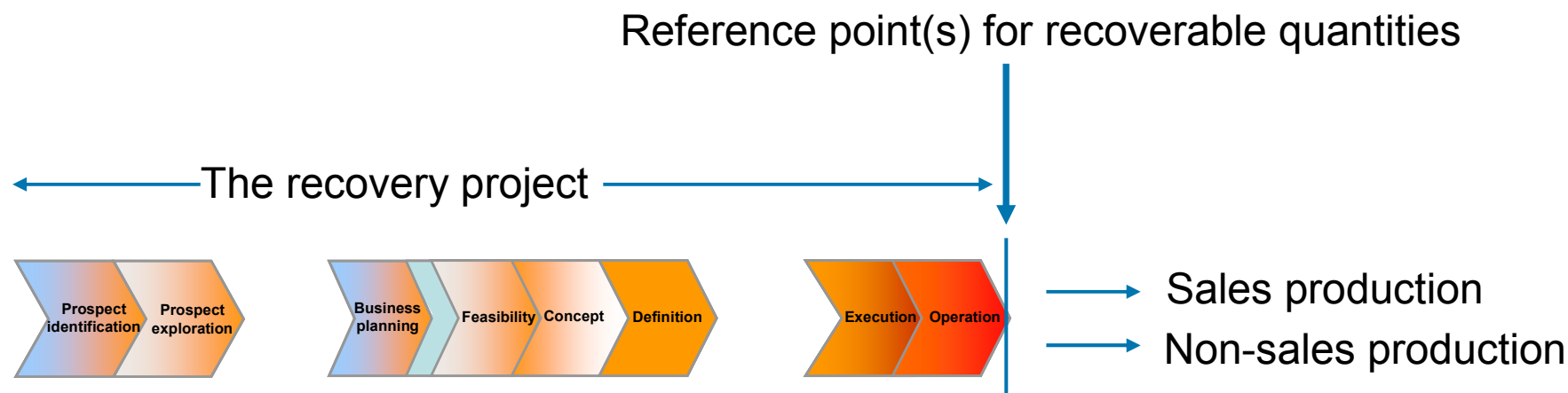
Comments on CRIRSCO/SPE Mapping Document
Comments from the Bureau of the UNECE Ad Hoc Group of Experts to the Joint Report on Mapping of Petroleum and CRIRSCO and SPE to the International Accounting Standards Board (IASB) Extractive Activities Working Group. The Working Group. Please note these comments reflect the views of the Bureau and not necessarily the views of the Group of Experts.
• Comment by Bureau of the UNECE Ad Hoc Group of Experts on the Harmonization of Fossil Energy and Mineral Resources

Comments on 2007 SPE/WPC/AAPG/SPEE Resource Management System
Comments from the Bureau of the UNECE Ad Hoc Group of Experts to the proposed 2007 SPE/WPC/AAPG/SPEE Resource Management System. Please note these comments reflect the views of the Bureau and not necessarily the views of the full Group of Experts.
• UNECE Cover Letter to SPE re Comments on Proposed Petroleum Reserves and Resources Classification
• UNECE Comments to the Draft 2007 Petroleum Reserves and Resources Classification, Definitions and Glossary

United Nations Framework Classification for Fossil Energy and Mineral Resources
The United Nations Framework Classification (UNFC) for Fossil Energy and Mineral Resources is a universally applied reserves resources.

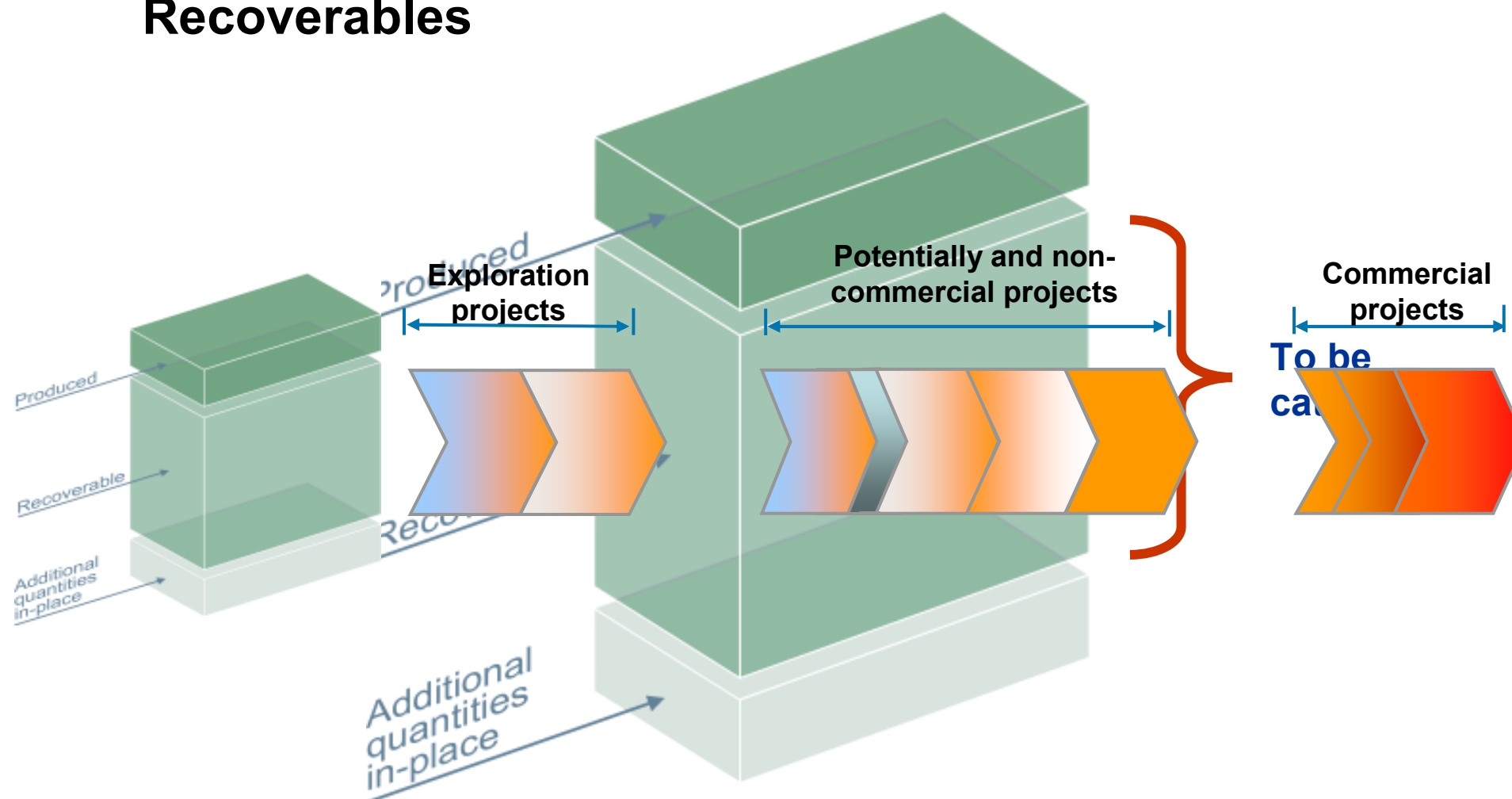
It must become an integral part of IRES/SEEA-E

The UNFC in Standards for Energy Statistics

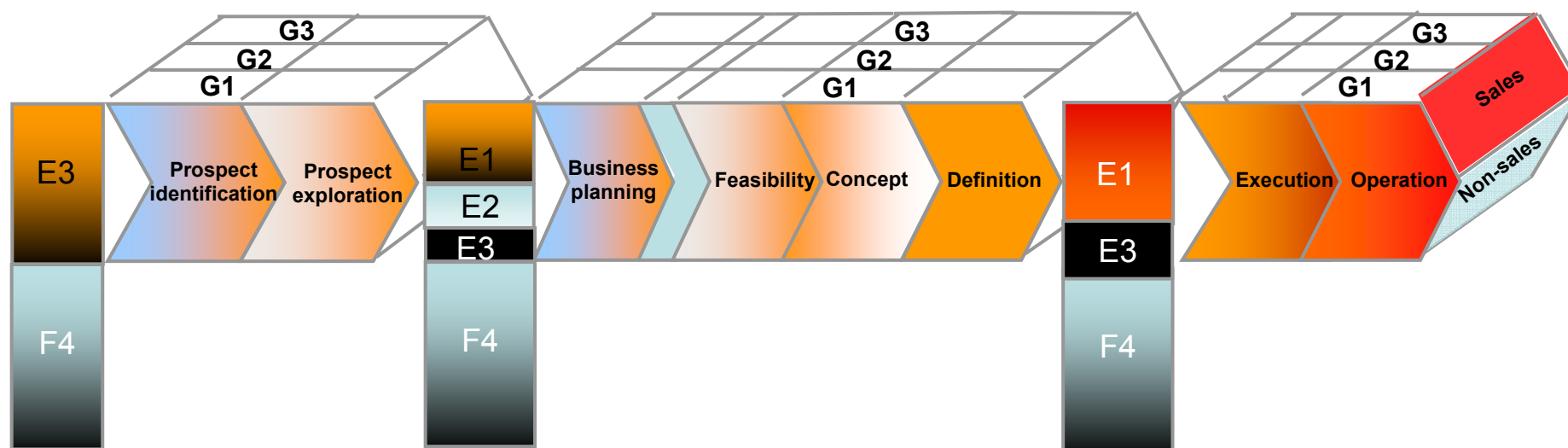


- The UNFC classifies quantities that will be:
 - Recovered and sold,
 - Recovered but not sold
 - Will not be recovered
- Recovered quantities, their qualities and values are measured or estimated at the reference point.
- Recoverable quantities are seen as products of recovery projects, affording coherence with statistical information relating to recovery efforts.
- Early geologic classifications saw recoverable quantities (reserves) as a property of the accumulation or deposit without explicit reference to recovery projects. This fails to meet the requirement for coherence.

Going from Quantities in Place to Project Recoverables



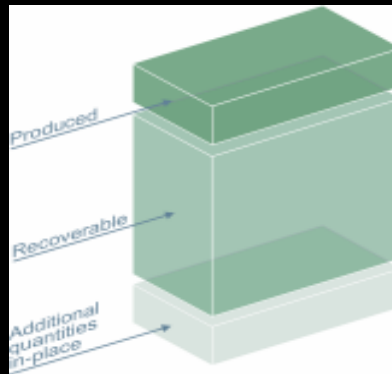
... in detail



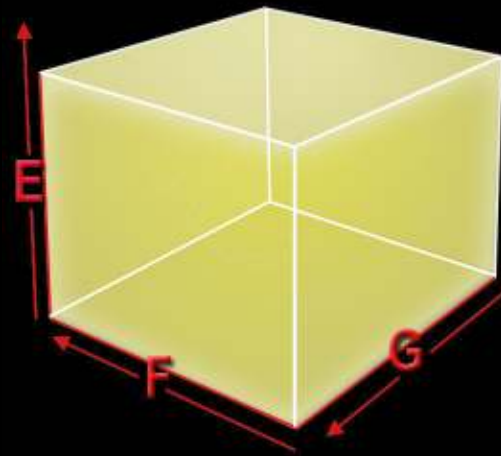
UN Framework Classification (UNFC) for Petroleum



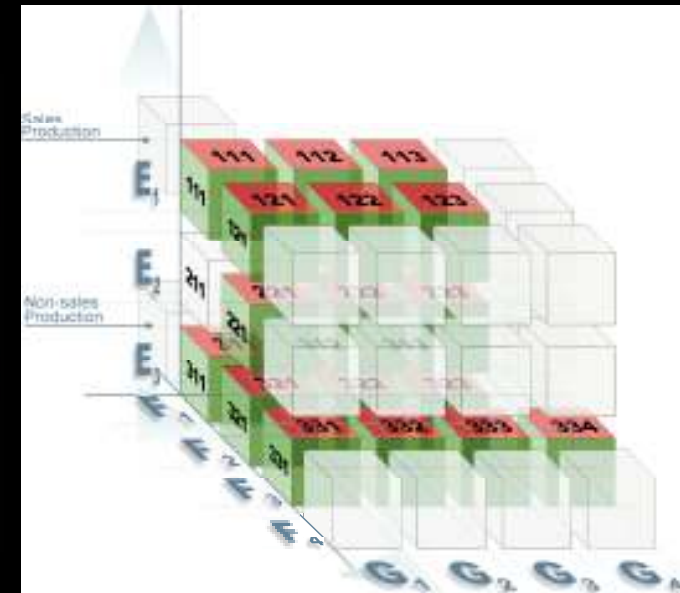
Total in-place



Principles



Classification



Economic and commercial viability

- ♦ E1 Confirmed to be economic
- ♦ E2 Expected to become economic
- ♦ E3 not expected to become economic

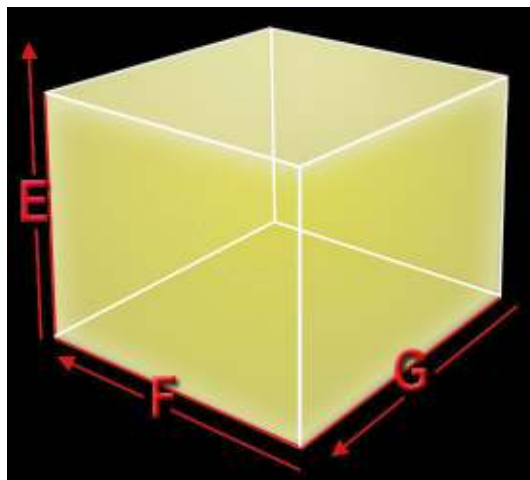
Field project status and feasibility

- ♦ F1 feasibility confirmed
- ♦ F2 feasibility subject to evaluation
- ♦ F3 No feasibility
- ♦ F4 No project identified

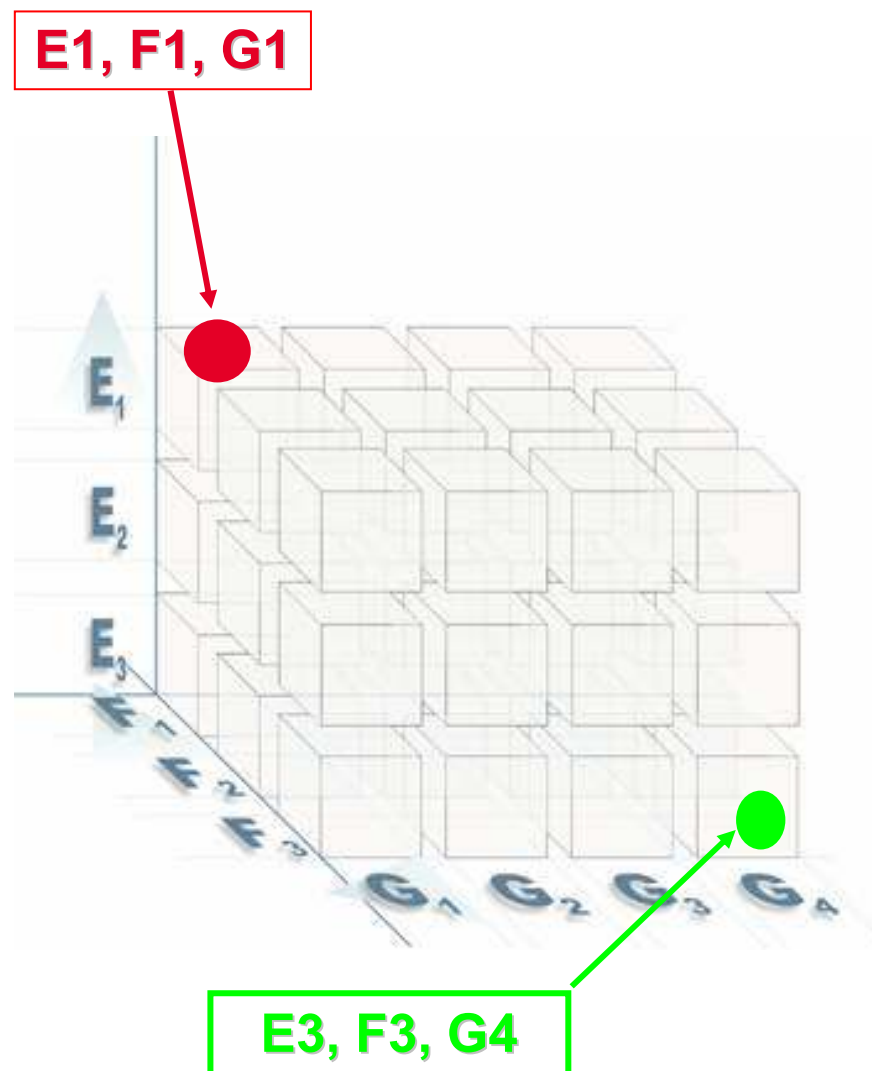
Geological knowledge

- ♦ G1 High confidence
- ♦ G2 moderate confidence
- ♦ G3 Low confidence
- ♦ G4 Potential

Codification

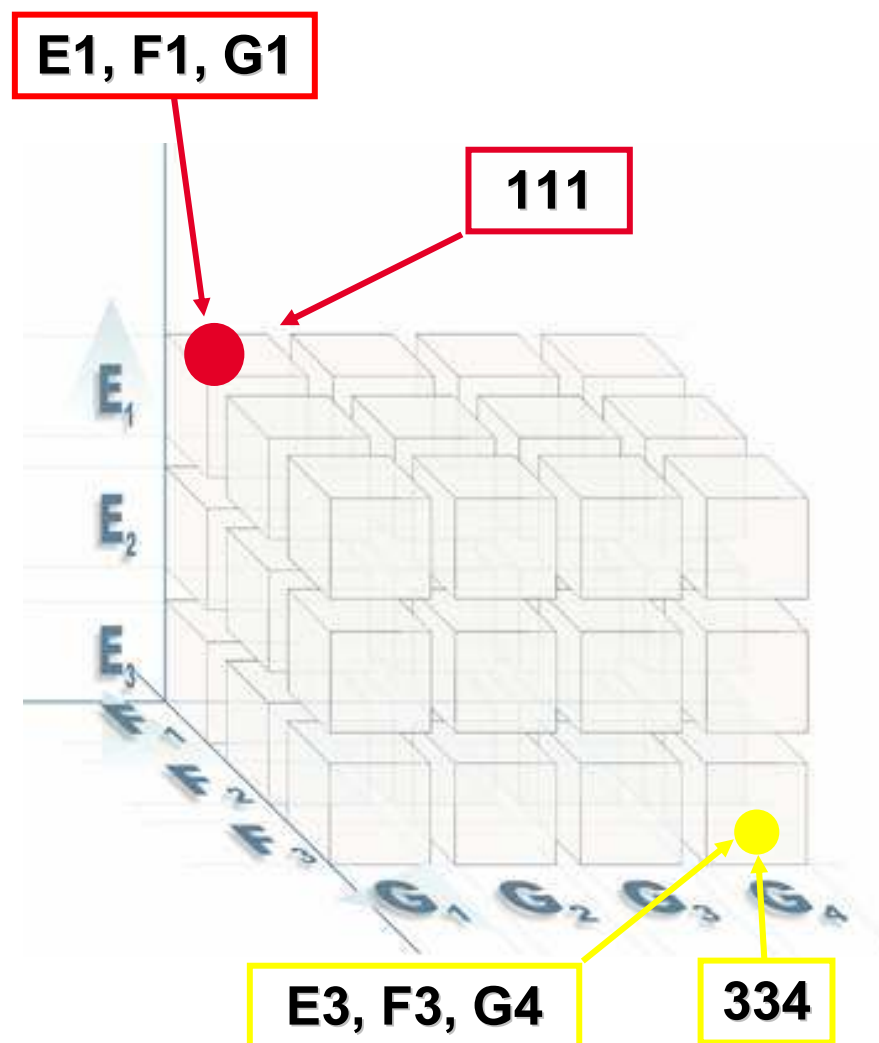


- The criteria (E, F, G) are divided into categories (1, 2, 3, 4).
- Resource quantities are classified by an E, an F and a G category



Codification *continued*

- The categories are quoted in fixed order: **EFG**
- The category letters are removed, but the numbers are retained.
- The resources are identified by a number code (111), (334), etc.
- Codification facilitates communication independent of alphabet.



Draft Revised UNFC - Details

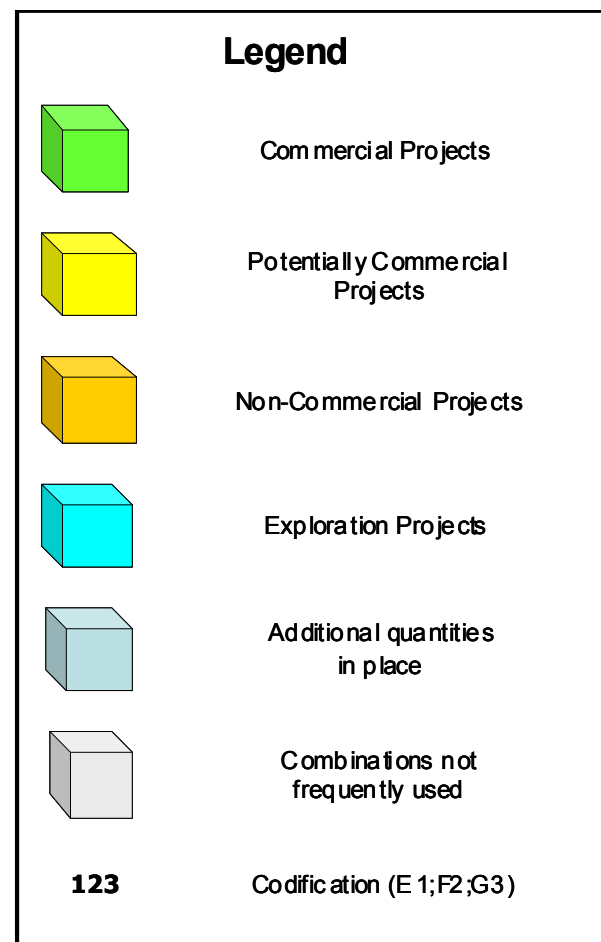
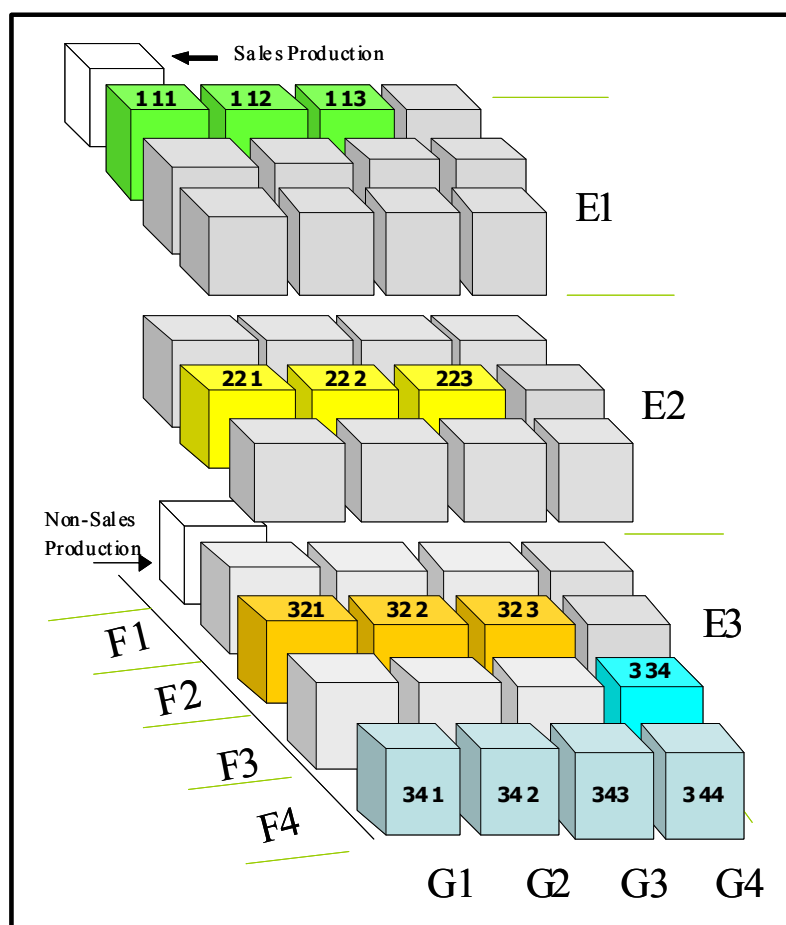
Mapping of UNFC to Other Classifications

- UNFC Mapping Task Force established June 2007
- Mapping of UNFC to the SPE PRMS, CRIRSCO Template and Russian Federation Classification Systems
- Mapping was built upon results from SPE and CRIRSCO mapping for IASB research project for reporting extractive activities
- Results presented at the 5th Group of Experts Meeting April 2008

Draft Revised UNFC

- **Section 1 - Scope**
Fossil energy and mineral resources classified to help energy and mineral studies, government resource management, business process management and financial reporting
- **Section 2 – Categories reflect real restrictions in:**
 - The social and economic domain
 - The technical and industrial domain
 - The geological domain
- **Section 3 – A simple core**
- **Section 4 – Expansion to meet common needs**
- **Section 5 – Expansion to meet local needs**
- **Section 6 – Maintenance**
- **Annexes 1 and 2: Definition of categories and subcategories**

Section 2



Section 3: Abbreviated version of UNFC, showing primary classes

Total commodity initially in place	Past Production	Sales Production			
		Non-sales Production ¹			
		Class	Categories		
			E	F	G ²
	Future recovery by commercial development projects or mining operations	Commercial Projects ³	1	1	1, 2, 3
	Potential future recovery by contingent development projects or mining operations	Potentially Commercial Projects ⁴	2 ⁵	2	1, 2, 3
		Non-Commercial Projects ⁶	3	2	1, 2, 3
	Additional quantities in place associated with known deposits ⁷		3	4	1, 2, 3
Potential future recovery by successful exploration activities	Exploration Projects	3	3	4	

¹ Future non-sales production is categorized as E3.1. Resources that will be extracted but not sold can exist for all classes of recoverable quantities. They are not shown in the figure.

² G categories may be used discretely, particularly when classifying solid minerals and quantities in place, or in cumulative form (e.g. G1+G2), as is commonly applied for recoverable fluids.

³ Commercial Projects have been confirmed to be technically, economically and socially feasible. Recoverable quantities associated with Commercial Projects are defined in many classification systems as Reserves, but the term Reserves is widely misunderstood.

⁴ Potentially Commercial Projects are expected to be developed in the foreseeable future, in that the quantities are assessed to have reasonable prospects for eventual economic extraction, but technical and/or commercial feasibility has not yet been confirmed. Consequently, not all Potentially Commercial Projects may be developed.

⁵ In some cases, Potentially Commercially Projects may satisfy the requirements for E1.

⁶ Non-Commercial Projects include those that are at an early stage of evaluation in addition to those that are considered unlikely to become technically and commercially feasible developments within the foreseeable future.

⁷ A portion of these quantities may become recoverable in the future as commercial circumstances change or technological developments occur. Depending on the commodity type and recovery technology (if any) that has already been applied, some or all of these quantities may never be recovered due to physical and/or chemical constraints.

Section 4: UNFC Classes and Sub-Classes Defined by Sub-Categories

UNFC Classes defined by categories and sub-categories						
Total commodity initially in place	Recovered	Sales Production				
		Non-sales Production				
	Class		Sub-class	Categories		
				E	F	G
	Known Deposit	Commercial Projects	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 (economic)	1	2.1	1, 2, 3
			Development Pending (marginal)	2	2.1	1, 2, 3
			Development On Hold	2	2.2	1, 2, 3
		Non-Commercial Projects	Development Unclassified	3.2	2.2	1, 2, 3
			Development Not Viable	3.3	2.3	1, 2, 3
		Additional quantities in place			3.3	4
Potential Deposit	Exploration Projects	None defined ¹	3.2	3	4	
	Additional quantities in place		3.3	4	4	

¹ Generic sub-classes have not been defined here, but it is noted that in petroleum the terms Prospect, Lead and Play are commonly adopted.