United Nations Framework Classification for Resources

Sustainable management of all resources

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Workshop on UNFC Mexico Petroleum Pilot Project
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The Problem of Classification

- How to Classify?
- By genre
- By artist
- By composer
- By instruments
- By tempo
- By date recorded
- By date purchased

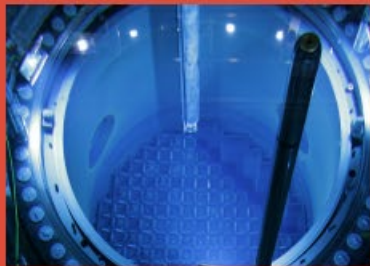## Consistent classification and management of all resources
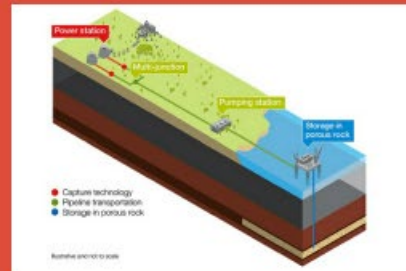
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Minerals — Petroleum — Renewables

Uranium — Injection — Anthropogenic

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Governments
management of national resources

Fx

UNFC

Industry
to provide data and information
necessary to deploy technology,
management and finance to serve
host countries, shareholders and
stakeholders

Creators of energy & mineral
studies
to facilitate formulation of consistent
and far-sighted policies

Financial community
to provide information
necessary to allocate capital
appropriately so reducing costs

Expert Group on Resource Management

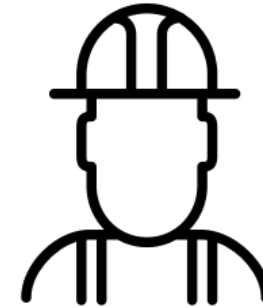A global community representing all users

UNECE

Academia

Governments (UNECE and non-UNECE)

Industry

EGRM

International organizations

Financial Sector Incl. standard setters

Professional Societies & Associations

UNFC and ECOSOC
A call for global application

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The Economic and Social Council (ECOSOC) is at the heart of the United Nations system to advance the three dimensions of sustainable development – economic, social and environmental.

ECOSOC Decision 2004/233

Member States of the United Nations, international organizations and regional commissions to consider taking appropriate measures for ensuring worldwide application of the Framework Classification.
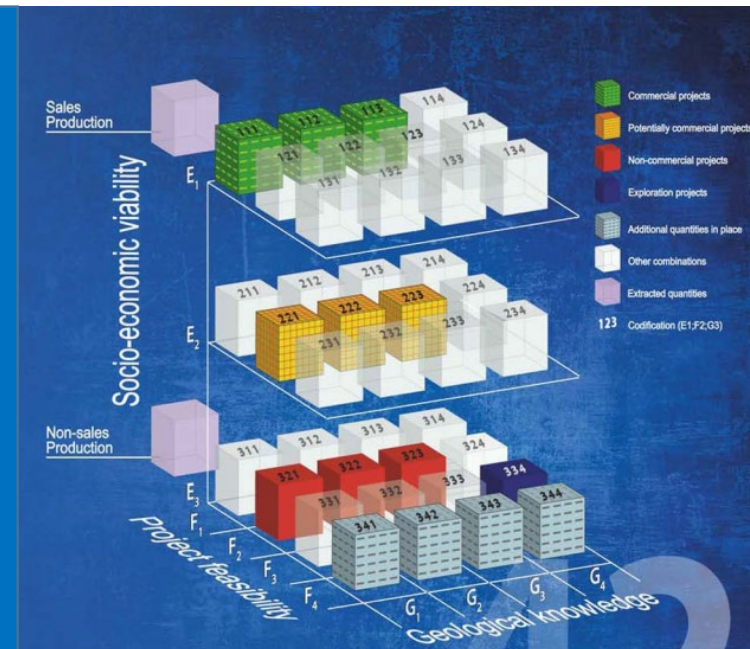
Why UNFC?

- The structure to understand and manage all resources in alignment to the SDGs.

- Applicable horizontally and vertically to all sectors

- Embeds all project risks and opportunities

UNFC promotes clear thinking and a shared vision

Resources Redefined
Resource progression is critical

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- UNFC is a project maturity-based, resource-progression oriented tool for the management resources.

- UNFC provides a balanced view of socio-economic factors, technology and uncertainties involved in the classification of resources and provides a progression pathway for projects.

- UNFC puts emphasis on figuring in social and environmental considerations at the centre of resource management.
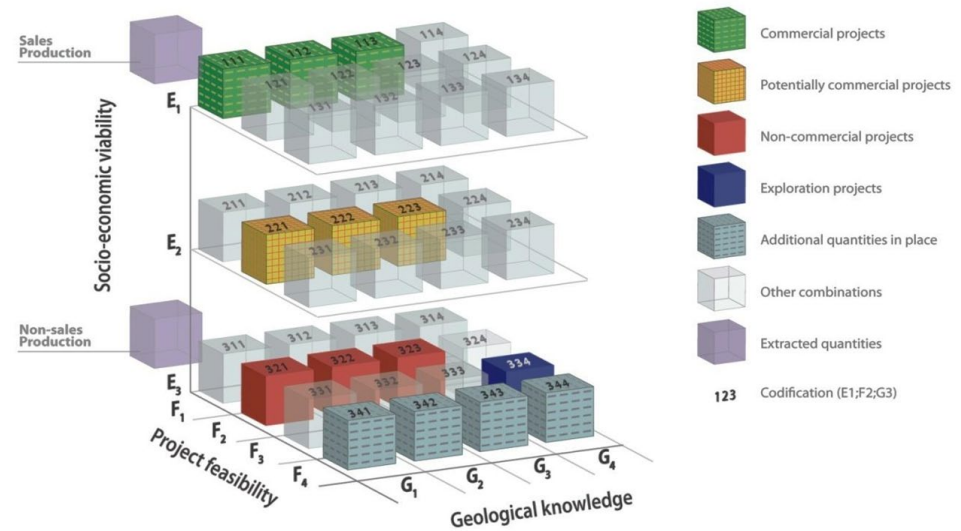
UNFC is different from other resource classification and management tools in being responsive to requirements of the Global Agenda 2030, the aspirations of the society and the modern outlook of the industry.
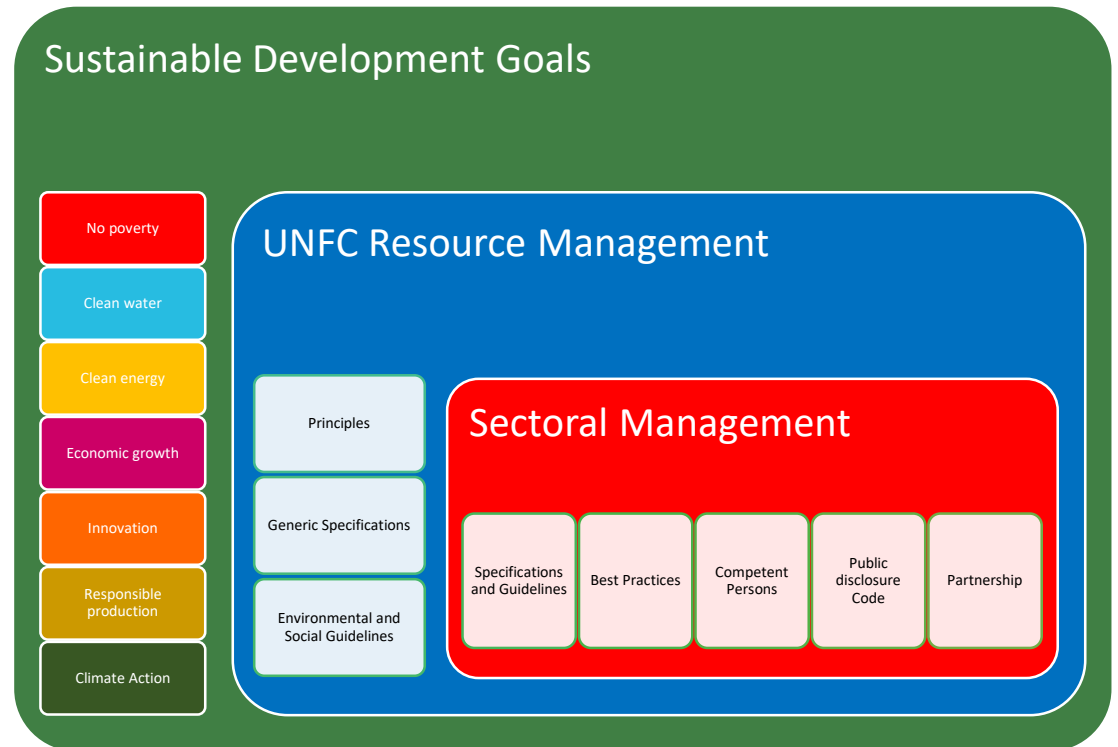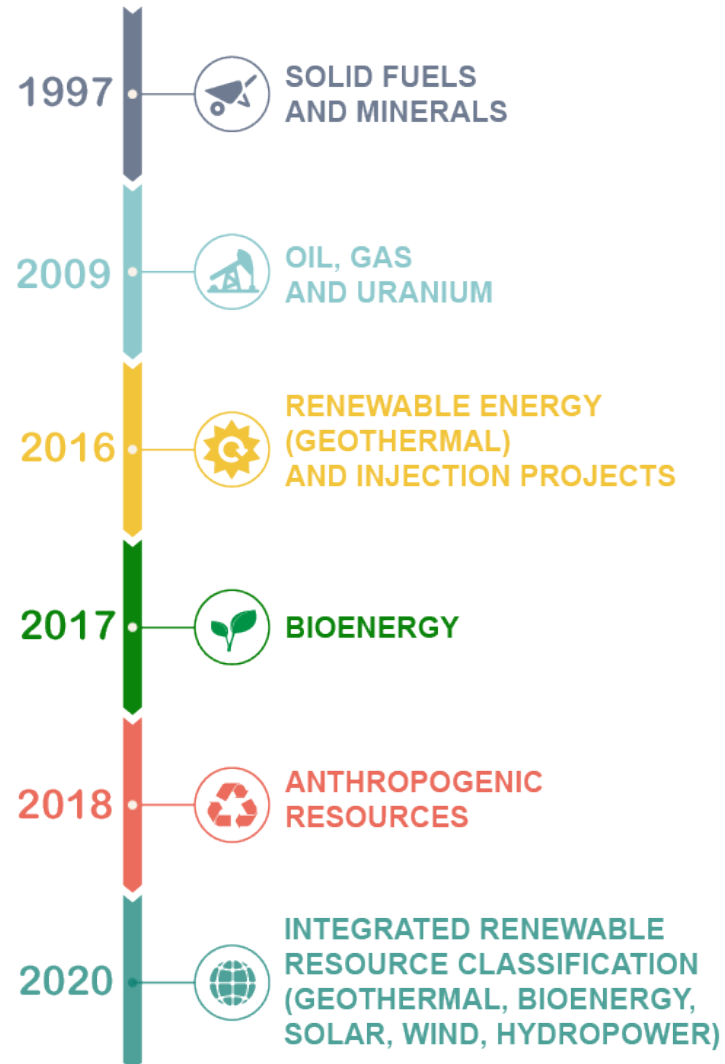
UNFC approach

- Structured within overarching SDG framework
- Long-term policy making and planning
- Shorter-term actions - Make resource projects competitive through innovative approaches
- Efficient financial capital allocation
- Reduce environmental burden, carbon foot-print and negative public perception
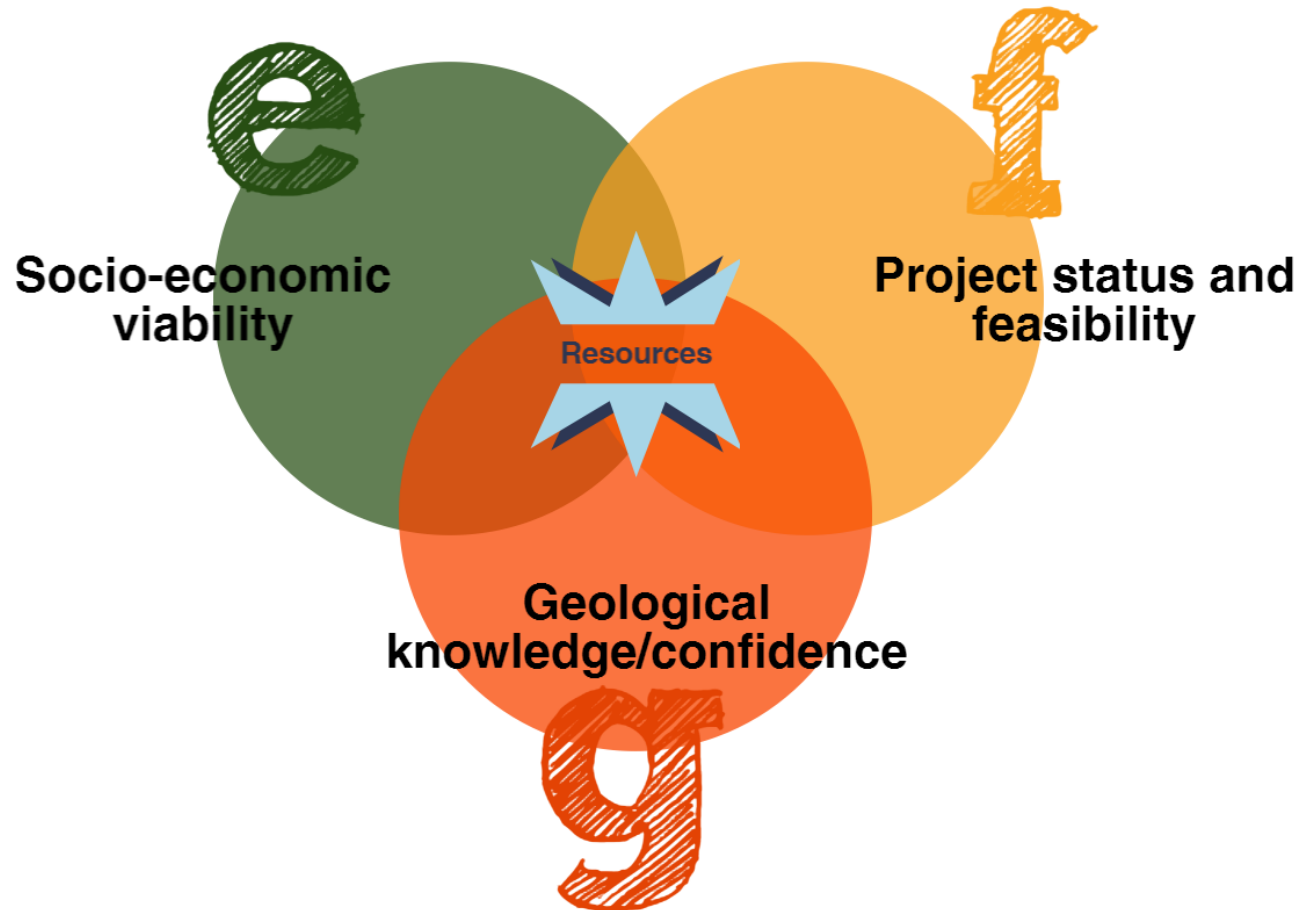- Increase collaboration globally

Sustainable Development Goals

No poverty

Clean water

Clean energy

Economic growth

Innovation

Responsible production

Climate Action

UNFC Resource Management

Principles

Generic Specifications

Environmental and Social Guidelines

Sectoral Management

| Specifications and Guidelines | Best Practices | Competent Persons | Public disclosure Code | Partnership |

Growing applications of UNFC

- **1997** — SOLID FUELS AND MINERALS
- **2009** — OIL, GAS AND URANIUM
- **2016** — RENEWABLE ENERGY (GEOTHERMAL) AND INJECTION PROJECTS
- **2017** — BIOENERGY
- **2018** — ANTHROPOGENIC RESOURCES
- **2020** — INTEGRATED RENEWABLE RESOURCE CLASSIFICATION (GEOTHERMAL, BIOENERGY, SOLAR, WIND, HYDROPOWER)

Defining resources with UNFC

The 3 Criteria

Socio-economic viability

Project status and feasibility

Resources

Geological knowledge/confidence

Criteria and Categories

Numerical coding system based on the three criteria, sub-divided by categories:

Economic and social viability
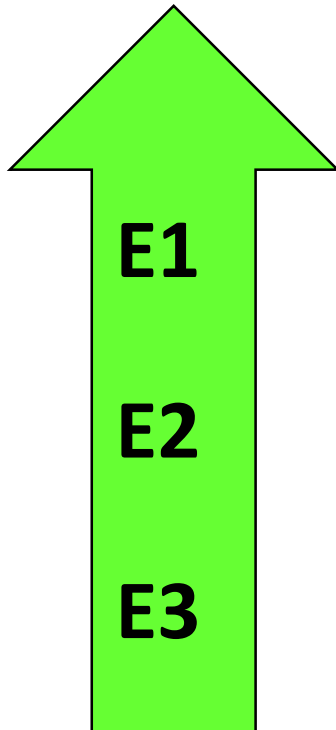
Field project status and feasibility

Geological knowledge

E1

E2

E3

F1

F2

F3

F4

G1

G2

G3

G4
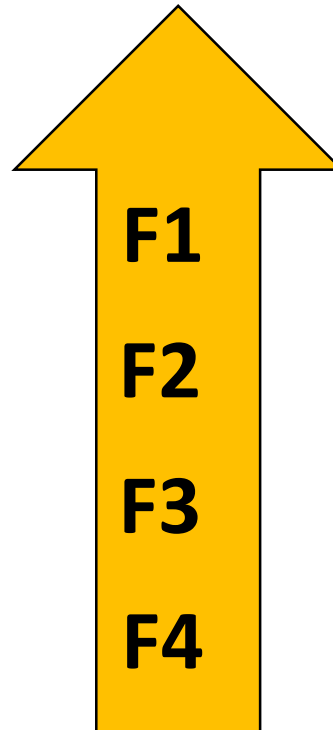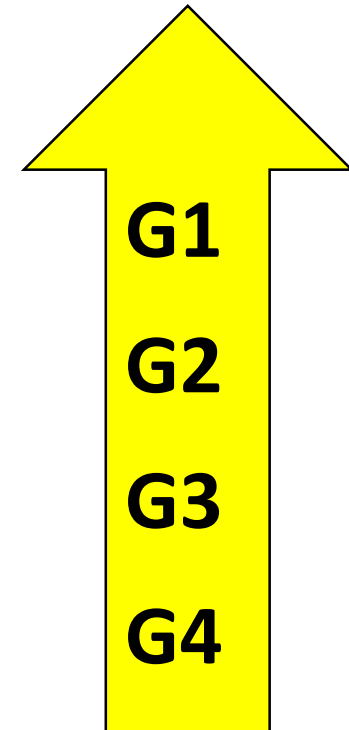
UNFC – E Axis

- **Degree of favourability of social and economic conditions in establishing the commercial viability of the project**

- **Includes consideration of market prices and relevant legal, regulatory, environmental and contractual conditions**

- **E1, E2 and E3 categories**

- **E1 is "best"**

- **Definitions should always be read in conjunction with supporting explanation**

E axis category definitions

Category	Definition
E1	Extraction and sale has been confirmed to be economically viable.
E2	Extraction and sale is expected to become economically viable in the foreseeable future.
E3	Extraction and sale is not expected to become economically viable in the foreseeable future or evaluation is at too early a stage to determine economic viability.

The phrase "economically viable" encompasses economic (in the narrow sense) plus other relevant "market conditions", and includes consideration of prices, costs, legal/fiscal framework, environmental, social and all other non-technical factors that could directly impact the viability of a development project.

UNFC – How it works

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- **The category definitions are the building blocks of the system:**
  - Select the correct category for each of the three criteria

- **These are combined (E, F, G) in the form of classes**

- **Class 111** means that the reported quantities have satisfied the definitions for:
  - E1, F1 and G1

- **There are no constraints on combinations, but not all will be meaningful**

UNFC – How it works
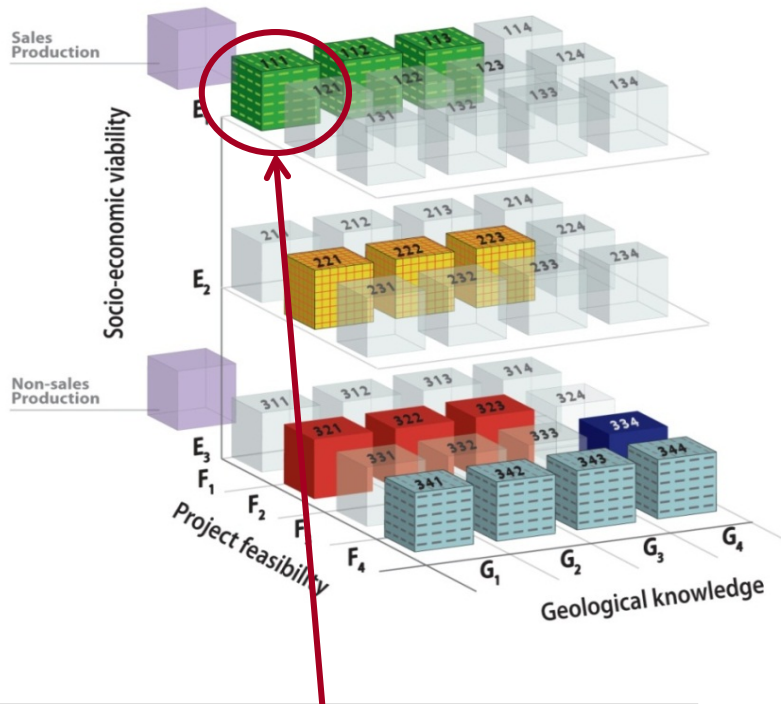
UNFC Class: 111

Category	Definition
E1	Extraction and sale has been confirmed to be economically viable.

Category	Definition
F1	Feasibility of extraction by a defined development project or mining operation has been confirmed.

Category	Definition
G1	Quantities associated with a known deposit that can be estimated with a high level of confidence.

UNFC using all sub-categories

UNFC Classes defined by categories and sub-categories					
Extracted	**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**	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

Total commodity initially in place

Specifications and Aligned Systems

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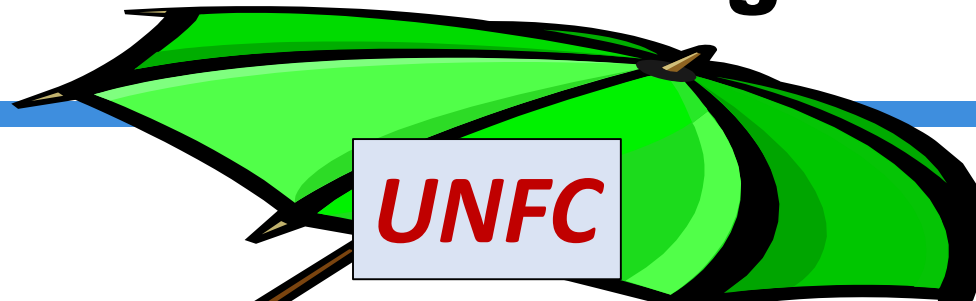
Classification Framework and Category Definitions

Generic Specifications (UNFC 2009)

Commodity-Specific Specifications

Minerals	Nuclear Fuels	Petroleum	Injection & Geological Storage	Renewables					Anthropogenic
				Geothermal	Bioenergy	Solar	Wind		

Aligned Systems

CRIRSCO Template	NEA/IAEA Red Book	PRMS	RF2013

CCMR-1999	CCPR-2004
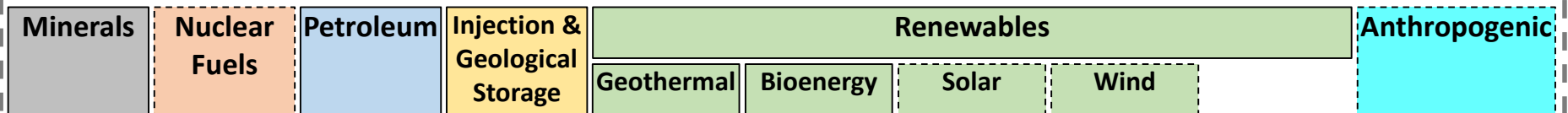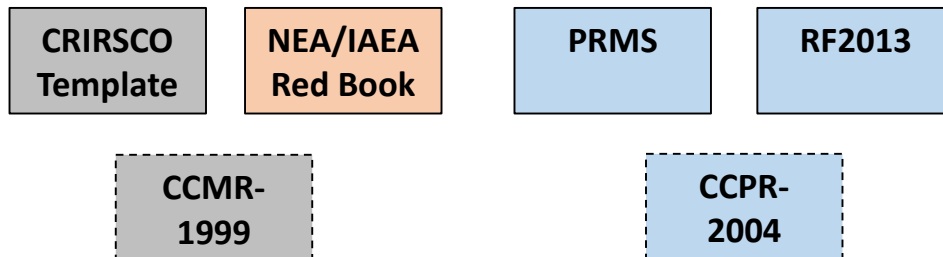
Generic specifications

- **Minimum standards for using UNFC**
- **Mandatory requirements**
  - Use of numerical codes
  - Effective date
  - Clarity in aggregated estimates (provide disaggregated data as possible)
  - Aggregation should include proper justification
  - Basis of classification to be clear
  - Reference point to me mentioned.
  - Reclassification in case of suspension of a project
  - Include only potentially recoverable quantities.
  - Clarity in economic assumptions.
  - Use of SI units (or conversion factors to be given)
  - Provide documentation with sufficient details

UNFC advantages
A view in 3 dimensions

- Provides definitions, rules and guidelines
- Not a single resource project is the same

Each resource project needs
a defined progression pathway

Principles

Rules

Guidelines

Social & environmental considerations

Understanding the system boundaries

- EGRM has a Working Group to examine the social and environmental aspects of the classification. Two guidance notes are available:

1. **Accommodating environmental and social considerations in UNFC**

2. **Clarification of terminology and concepts related to UNFC**

UNFC Evaluator / Competent Person

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- "Evaluators must possess an appropriate level of expertise and relevant experience in the estimation of quantities associated with the type of deposit under evaluation."

- Two guidance notes developed:

- 1. UNFC Specification for Evaluator Qualifications – **Top-level guidance**

- 2. Competent Person Requirements and Options for Resources Reporting – **Detailed guidance on generic requirements for public reporting and disclosures for all commodities**

In summary ...

- **UNFC is a generic, principles-based system**
  - **Applicable to both solid minerals and fluids**
  - **Uses a numerical coding system**

- **Based on three fundamental criteria**
  - **Economic and social viability**
  - **Field project status and feasibility**
  - **Geological knowledge**

- **Each criterion is sub-divided into 3 or 4 defined categories**
  - **Optional use of sub-categories for more granularity**

- **Classes are defined by a combination of a single category or sub-category for each of the three criteria**
  - **Numerical category or sub-category for E, for F and for G**
  - **Always quoted in same sequence: E – F – G**
  - **Axis letters can be dropped: e.g. Class 221**

Recent publications

More information

http://unece.org/energy/se/reserves.html

Thank you!

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Mexico City, 14 June 2019**

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