



COMMITTEE FOR MINERAL RESERVES
INTERNATIONAL REPORTING STANDARDS



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The relationship between the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) Template 2013 and the United Nations

Framework Classification (UNFC 2009)
South African Representative, CRIRSCO
Jaipur, November 7th 2016



- United Nations Economic and Social Council (ECOSOC)
- Committee on sustainable energy
- Expert Group on Resource Classification (EGRC);
- EGRC Bureau
- Technical Advisory Group (TAG)
- United Nations Framework Classification For Fossil Energy and Mineral resources. (UNFC)
1997, 2004, 2009

- UNFC 1997
- 1999 Geneva accord solid minerals only (CMMI)
- UNFC 2004 common definitions modified-oil and gas added
- 2004 CRIRSCO re-constituted
- Member ad hoc group of experts - Mapping UNFC 2004, Template and PRMS
- Member EGRC;
- Specifications Task Force II – UNFC 2009
- Member of TAG

To promote best practice in the international public reporting of Mineral Exploration Results, Mineral Resources and Mineral Reserves.

CRIRSCO is an international advisory body without legal authority, relying on its constituent members to ensure regulatory and disciplinary oversight at a national level.

It recognises the truly global nature of the minerals industry and the agreed need for international consensus on reporting standards.

INTERNATIONAL REPORTING TEMPLATE

for the public reporting of

EXPLORATION RESULTS, MINERAL RESOURCES
AND MINERAL RESERVES

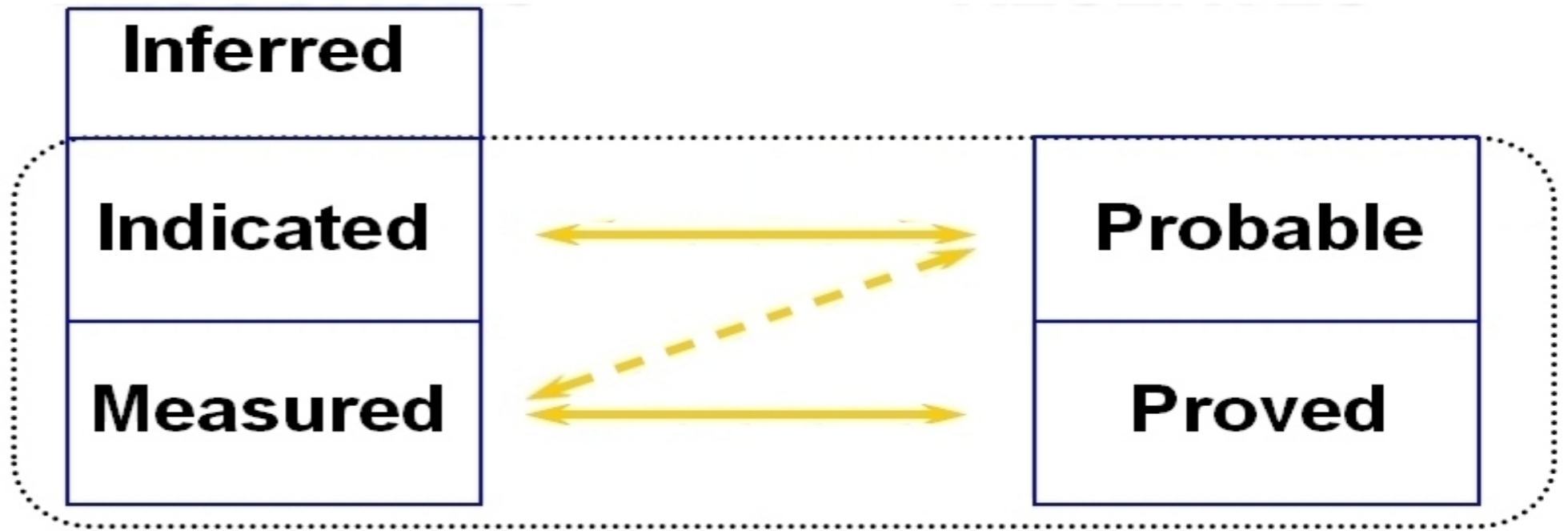
NOVEMBER 2013

Exploration Results

MINERAL RESOURCES

MINERAL RESERVES

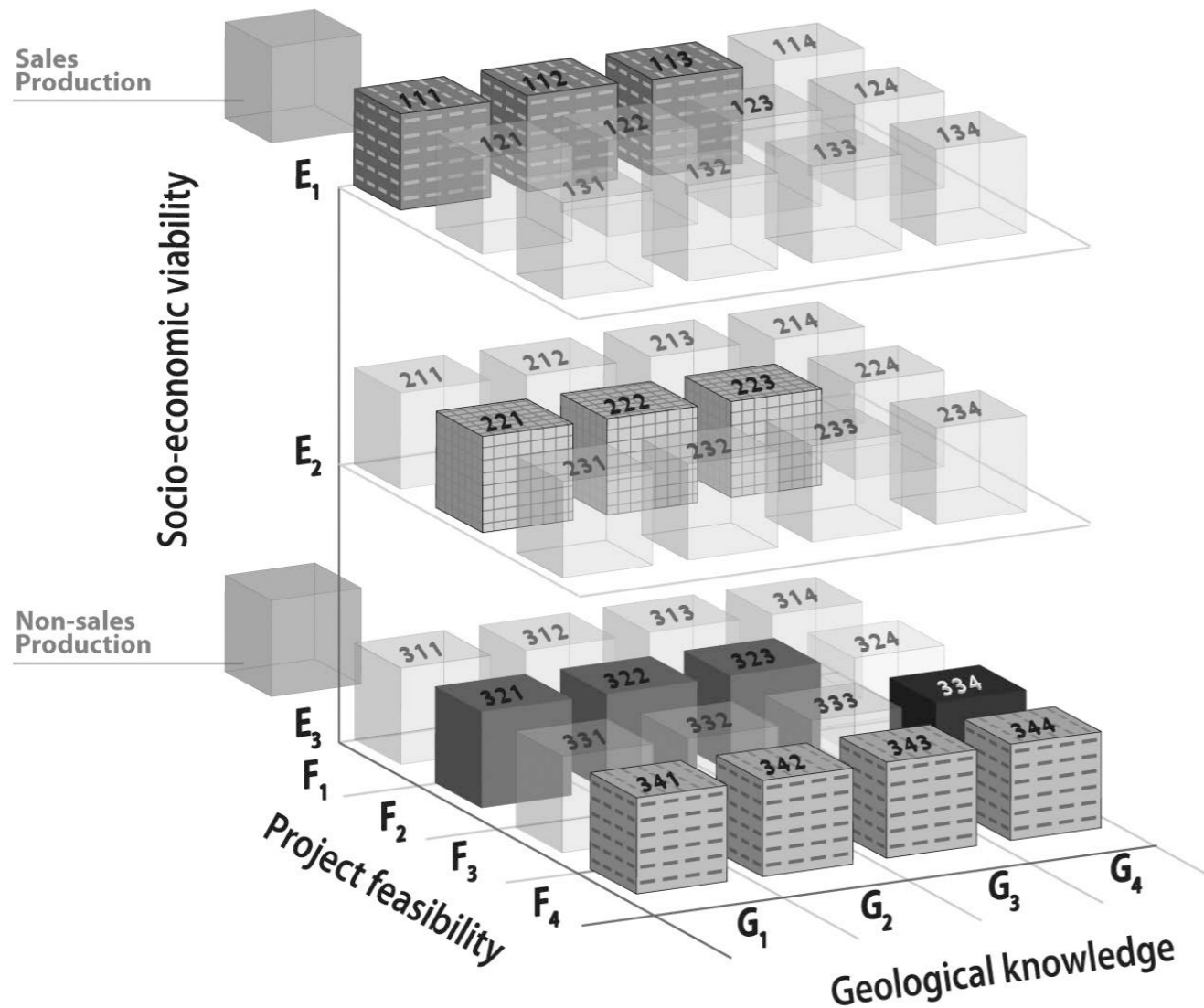
Increasing level of geological knowledge and confidence

Consideration of mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the "Modifying Factors").



- Advisory only
- National Standards/Codes take precedence
- Model for development of new codes



Generic, Principle based

3 Axis

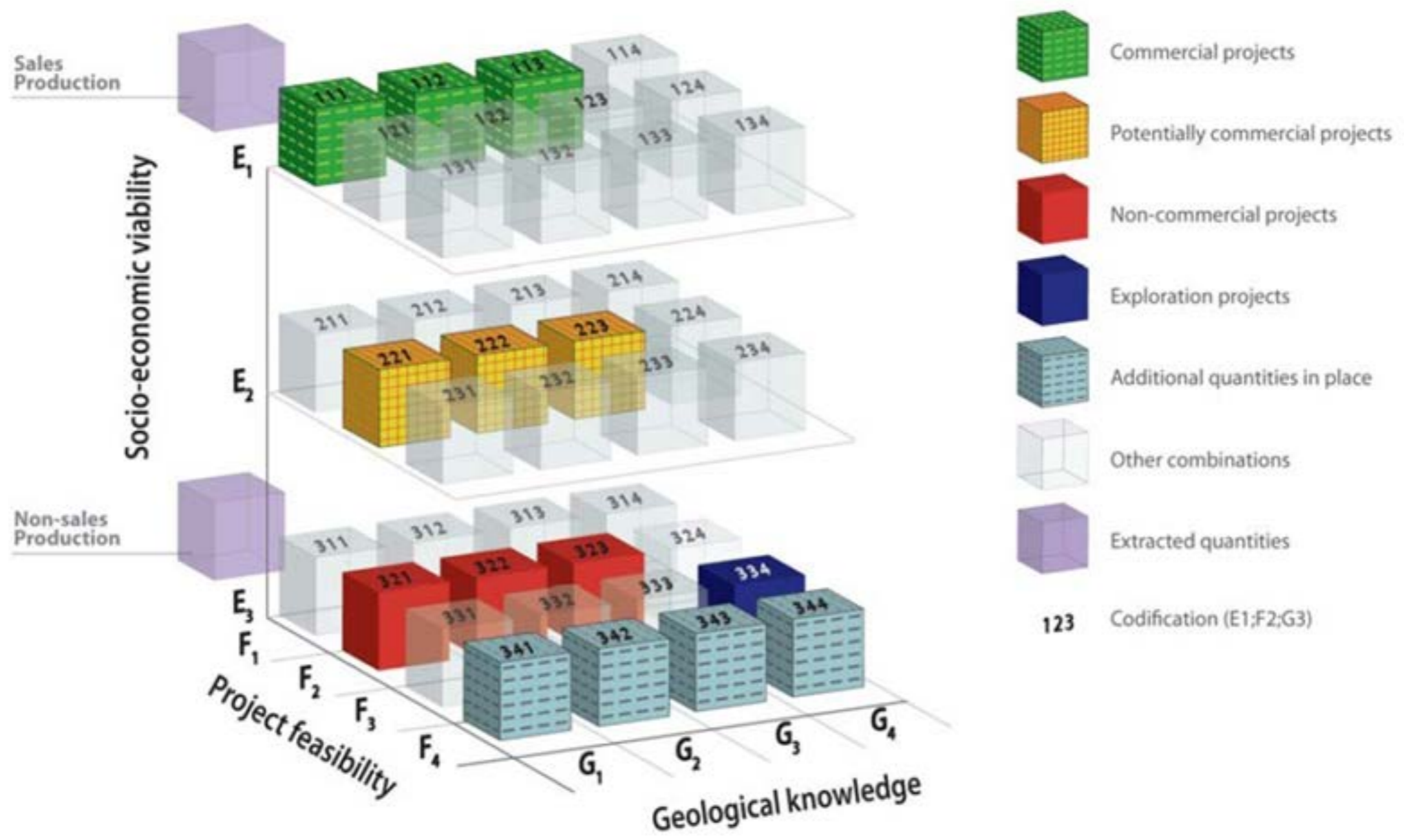
Economic and social,

Feasibility and project status

Geological

Numerical code

Applied directly or as harmonizing tool

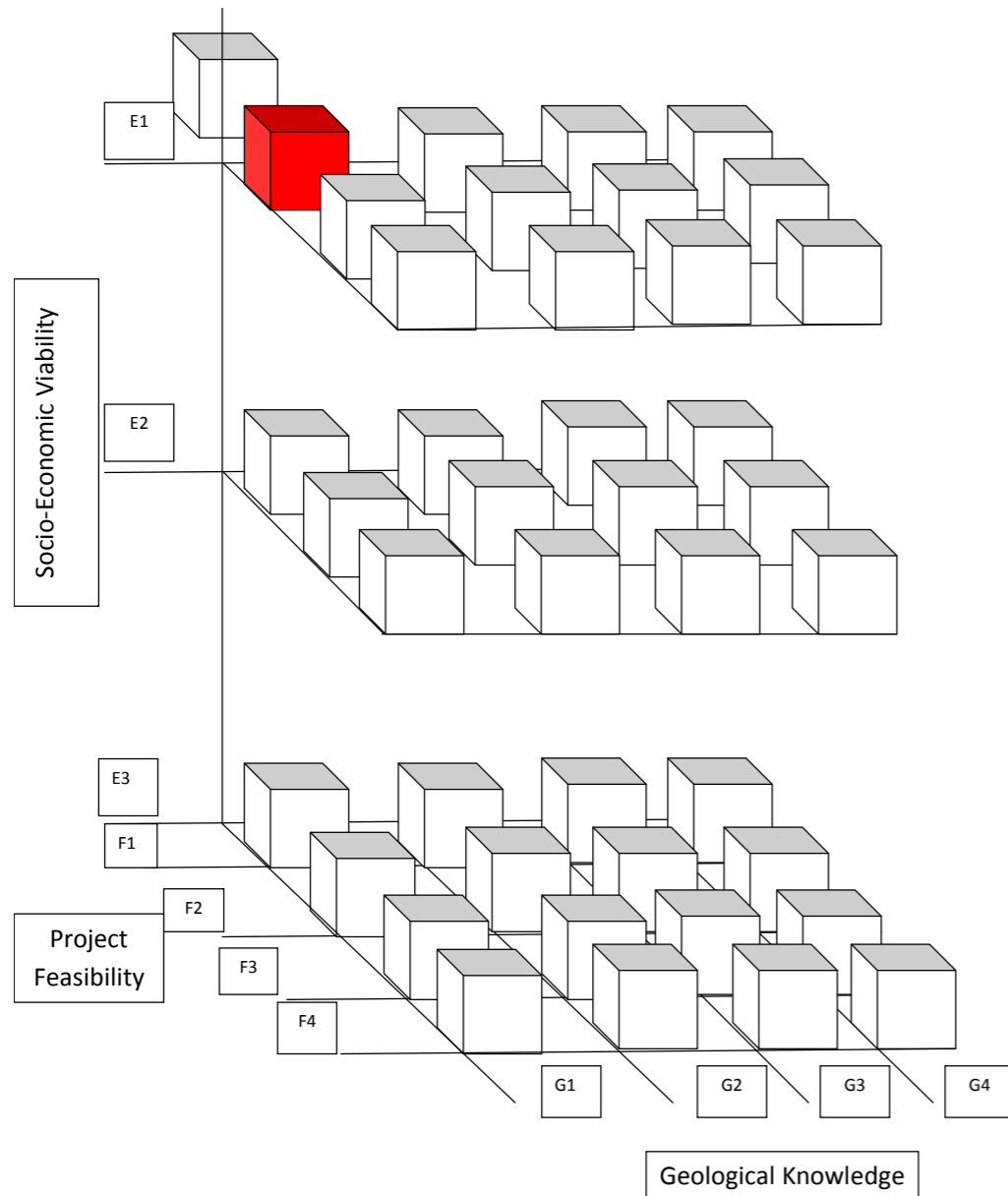


- Generic classification system applicable to Fossil Energy and Mineral Reserves and Nuclear fuels;
- Provides a single framework on which to build international energy and mineral studies;
- Allows for non-economic mineralisation
- Soon to be applicable to renewable energy

Important tool for harmonized generic terminology at a level suitable for global communication

Total commodity initially in place	Production	Sales Production			
		Non-sales Production			
		Class	Categories		
			E	F	G
	Future recovery by commercial development projects of mining operations	Mineral Reserves	1	1	1,2
	Potential future recovery by contingent development projects or mining operations	Mineral Resources	2	2	1,2,3
		Discovered Not Economic	3	2	1,2,3
	Discovered Unrecoverable		3	4	1,2,3
	Potential future recovery by successful exploration activities	Exploration Results	3	3	4
	Undiscovered Unrecoverable		3	4	4

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



UNFC (2009)

E1; F1; G1

111

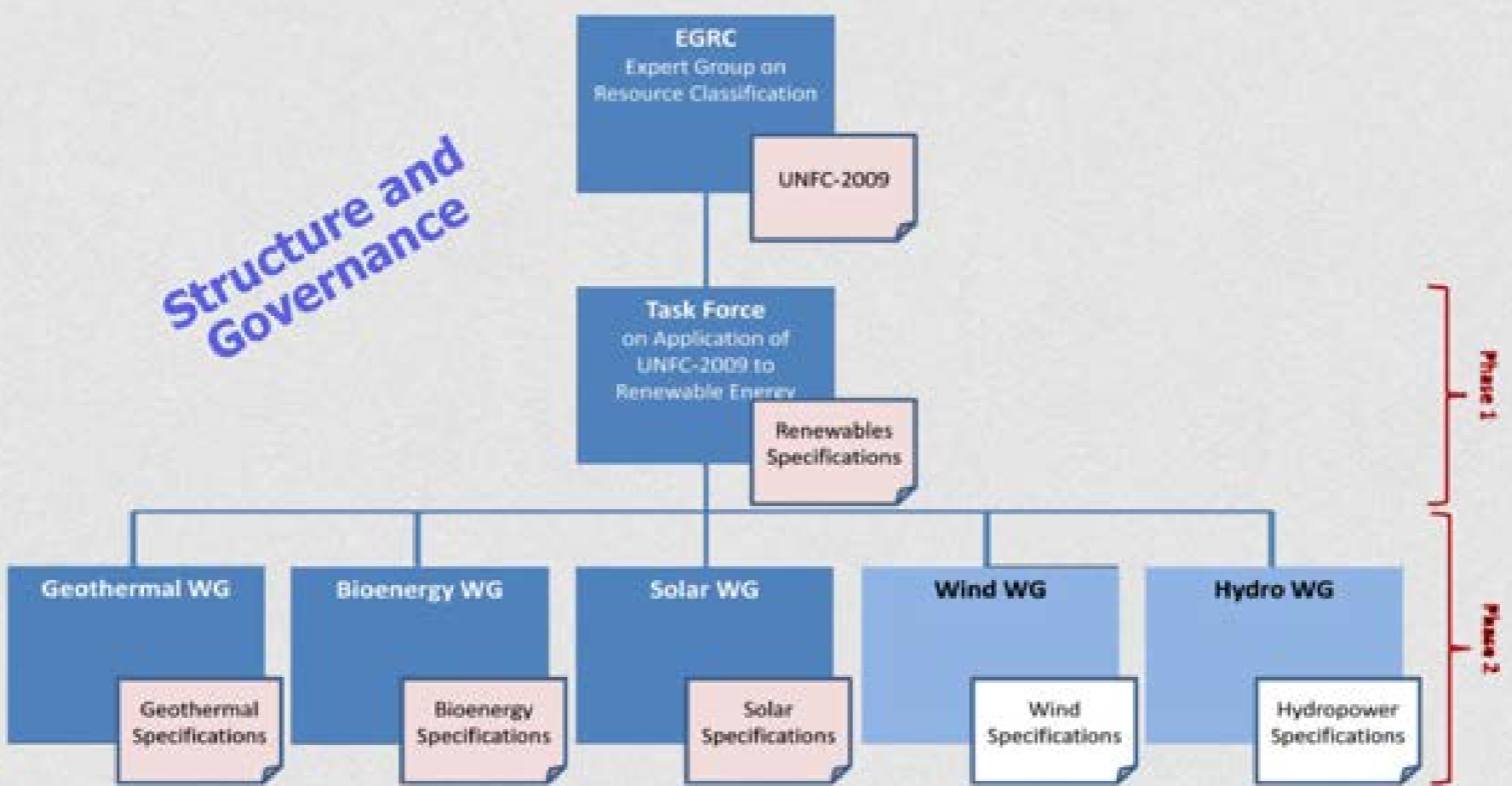
The “Red Book”

Nuclear fuels and Thorium

- Mapped to CRIRSCO Template
- Mapped to UNFC 2009

Renewable Energy focus

iPad 4:35 PM unece.org 68%



Structure and Governance

Phase 1

- EGRC Expert Group on Resource Classification
- UNFC-2009
- Task Force on Application of UNFC-2009 to Renewable Energy
- Renewables Specifications

Phase 2

- Geothermal WG
- Bioenergy WG
- Solar WG
- Wind WG
- Hydro WG
- Geothermal Specifications
- Bioenergy Specifications
- Solar Specifications
- Wind Specifications
- Hydropower Specifications

Timing

Effective 30 September 2016, the Renewable Energy Specifications became operational. They are to be used in conjunction with UNFC incorporating Specifications for its Application (ECE Energy Series No. 42) and the aligned commodity-specific specifications (currently under development) for specific types of Renewable Energy Resources. Within those specifications, the Geothermal Specifications are completed and just published, the Bioenergy Specifications are well advanced and the development of the Solar Specifications has been initiated. Work on Wind Specifications and Hydropower Specifications will start in 2017. The project is expected to be completed by end-2020 with an integrated Renewable Resource Classification System covering Geothermal, Bioenergy, Solar, Wind and Hydropower available to the Renewable Energy industry and all its stakeholders

For more information, contact: reserves.energy@unece.org

- Name change; addition of Renewable Energy to Fossil Energy and Mineral Reserves;
- Renaming and redefining G axis
- Guidance on Competent Person
- Guidance on social impact on E axis



ALL SLIDES

WWW.CRIRSCO.COM

UNECE.ORG SUSTAINABLE ENERGY

UNFC-2009 CLASSIFICATION					CRIRSCO TEMPLATE		NEA/IAEA CLASSIFICATION		
UNFC CLASSES AND SUB-CLASSES		UNFC CATEGORIES			CRIRSCO CLASSES AND SUB-CLASSES				
CLASS	SUB-CLASS	E	F	G	CLASS	SUB-CLASS	IAEA-NEA CATEGORIES		STATUS
COMMERCIAL PROJECTS	ON PRODUCTION	1	1.1	1	MINERAL RESERVES	PROVED	IDENTIFIED RESOURCES	RAR **	EXISTING
				2		PROBABLE			
	APPROVED FOR DEVELOPMENT	1	1.2	1		PROVED			COMMITTED
				2		PROBABLE			
	JUSTIFIED FOR DEVELOPMENT	1	1.3	1		PROVED			
				2		PROBABLE			
POTENTIALLY COMMERCIAL PROJECTS	DEVELOPMENT PENDING	2	2.1	1	MINERAL RESOURCES	MEASURED	IDENTIFIED RESOURCES	RAR **	PROSPECTIVE
				2		INDICATED			
				3		INFERRED			
	DEVELOPMENT ON HOLD	2	2.2	1		MEASURED			
				2		INDICATED			
				3		INFERRED			
NON-COMMERCIAL PROJECTS	DEVELOPMENT UNCLARIFIED	3.2	2.2	1	INVENTORY (NOT DEFINED IN TEMPLATE)	DEVELOPMENT UNCLARIFIED	IDENTIFIED RESOURCES	RAR **	UNCLARIFIED
				2		(NOT DEFINED IN TEMPLATE)			
				3					
	DEVELOPMENT NOT VIABLE	3.3	2.3	1		NOT VIABLE			NOT VIABLE
				2		(NOT DEFINED IN TEMPLATE)			
				3					
EXPLORATION PROJECTS		3.2	3.1	4	EXPLORATION RESULTS		UNDISCOVERED RESOURCES	PROGNOSTICATED RESOURCES	
		3.2	3.2, 3.3	4				SPECULATIVE RESOURCES	