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SEEA classifications of energy resources

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Two dimensions are relevant for SEEA:

1) Classification by type of energy ressource: Coal, oil, gas, etc.

SEEA 2003:

EA.1 Natural resources

EA.11 Mineral and energy resources

EA.111 Fossil fuels

EA.112 Metallic minerals

EA.113 Non-metallic minerals

EA.12 Soil resources

EA.13 Water resources

EA.14 Biological resources

2) Classification by ”quality”/uncertainty:

SEEA 2003: Reference to proven, probable and possible reserves (McKelvey type classification)

SNA 2008: 12.17 …sub-soil assets are defined as those proven subsoil resources … that are economically exploitable, given current technology and relative prices.

Classification by type of energy ressource:

New overall asset classification of EA.11 Mineral and energy

- EA.1 Natural Resources
  - EA.11 Mineral and energy resources
    - EA.111 Petroleum resources
      - EA.111.1 Natural gas (including NGL and condensate)
      - EA.111.2 Crude Oil
      - EA.111.3 Natural bitumen, extra heavy oil, shale oil , sand oil and others n.e.c.
    - EA.112 Non-metallic minerals and solid fossil energy reources
      - EA.112.1 Non-metallic minerals except coal and peat
      - EA.112.2 Coal
      - EA.112.3 Peat
    - EA.113 Metallic minerals
      - EA.113.1 Uranium ores
      - EA.113.2 Other metallic minerals
  - EA.12 Soil resources
  - EA.13 Water resources
  - EA.14 Biological resources

Should oil shale and tar sand, etc. be classified as petroleum or solid energy?

International Energy Agency (IEA)
Oil shale production and direct use *should be covered under coal*. The production of shale oil (secondary product) is covered *under oil*.

UNSD Energy Statistics Section
Oil Shale: A *sedimentary rock* containing a high proportion of organic matter (kerogen), which can be converted to crude oil or gas by heating.

World Resouces Institute:
Unconventional oil—which includes tar sands, heavy oil, bitumen, or shale oil—refers to any type of crude-like resource that does not flow easily and is hence difficult to produce.
"The Oil and Gas Journal reclassified 174 billion barrels of Canadian oil sands to "established reserves" in 2002, catapulting the country to second behind Saudi Arabia in terms of total *petroleum reserves*".

World Energy Council: "The total world resource of shale oil is estimated at 2.8 trillion *barrels*"

Classification by asset characteristics

New SEEA classification based on the UNFC abbreviated classification

UNFC: United Nations Framework Classification for Fossil Energy and Mineral Resources

Why include such a classification:

- Adds information on the “quality” of he resources
- Helps determine which part of the resources that should be subject for monetary valuation

UNFC 2008 and SEEA

UNFC 2008 abbreviated classification:	Suggested SEEA assets classification
Known deposits:	
Commercial projects	Commercial recoverable resources
Potentially commercial projects	Potentially commercial recoverable resources
Non-commercial projects	Non-Commercial and Other Known Deposits
Additional quantities in place	
Potential deposits:	Not included
Exploration projects	
Additional quantities in place	

Definition of the classes

Table 2 SEEA mineral and energy classification by resource characteristics

	Classes	UNFC -2008 categories		
		E Economic and social viability	F Field Project Status and Feasibility	G Geological knowledge
Known Deposit	**A. Commercial Projects** [1)]	E1 Extraction and sale has been confirmed to be economically viable.	F1 Feasibility of extraction by a defined development project or mining operation has been confirmed.	Quantities associated with a known deposit that can be estimated with a high (G1), moderate (G2) or low (G3) level of confidence.
	B. Potential Commercial Projects [2)]	E1 Extraction and sale has been confirmed to be economically viable. or E2. Extraction and sale is expected to become economically viable in the foreseeable future.	F2.1Project activities are ongoing to justify development in the foreseeable future. or F2.2 Project activities are on hold and/or where justification as a commercial development may be subject to significant delay.	
	C. Non-Commercial Projects and Other Known Deposits [3)]	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.	F2.2 Project activities are on hold and/or where justification as a commercial development may be subject to significant delay. or F2.3 There are no current plans to develop or to acquire additional data at the time due to limited potential. or F4. No development project or mining operation has been identified	
Potential deposit (not included in SEEA-E)	Exploration Projects	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.	F3. Feasibility of extraction by a defined development project or mining operation cannot be evaluated due to limited technical data. or	Estimated quantities associated with a potential deposit, based primarily on indirect evidence (G4).
	Additional Quantities in Place		F4. No development project or mining operation has been identified	

SEEA

SEEA:
G1 + G2=
Moderate/best estimate

Mapping of national classifications against abbreviated UNFC/SEEA

- Should not cause big problems due to the high level of aggregation

  Generally, the moderate (*best) estimate of Commercial Recoverable resources* can be obtained by selecting the *proved and probable reserves* from the e.g. CRIRSCO and SPE-RPMS classification.

- Mapping schemes worked out by the UNFC Ad Hoc Group of Experts

Next steps:

UNFC 2009 is currently being finalised by the UNECE Group of Experts on Harmonization of Fossil Energy and Mineral Resources Terminology

Align SEEA classification with SEEA 2009

Questions

1) Do you agree with the classification of energy resources within the classification of natural resources presented in table 1?

2) Do you agree in principle with the SEEA classification by resource characteristics presented in table 2 (subject to the finalisation of UNFC 2009).