Developing UNFC guidelines for the assessment and management of CMM, AMM and VAM projects
Integrating best practices and experiences
The fourth industrial revolution

- Transformative
- Win-win
- Equitable
- Productive
- Resilient
- Reliable
- Creative

“The Third Wave entrepreneurs will need to build partnerships across sectors ...”

Steve Case, Co-founder, AOL in *The Third Wave* (2016)
Co-located resources – commodity to service

Energy - No more a commodity!

- Commodity: A useful or valuable thing
- Product - Differentiated and value added
- Service - A system supplying a public need

New Business Models Needed

Innovate at all costs
Five critical areas in the value-chain

Total resource industry life-cycle

- Policy framework aligned to SDGs
- Resource management system
- Economic allocation
- New models
- Operational capability

Tailored to local situation

A single management framework to integrate policy, implementation, financial capital, business process and human capability.
RESOURCES REDefined

UNFC uses a unique project maturity based model for classifying and managing resources.

UNFC is the only system that is capable of integrating all aspects of geological domain knowledge, technological maturity as well as economic, social and environmental considerations in resources management.
Why UNFC is best suited for classification of co-located resources?

- Applicable to solids and fluids
- Uniquely structured in 3 tiered documentation
- Differentiates “in place” and “recoverable” quantities
- Project maturity and technological readiness
- High levels of granularity
- Embeds project risks
- Helps investment decision making
Complex reservoirs – Challenge or opportunity?

- **Socio-economics**: Ramps up to peak production with time
- **Project feasibility**: Critical desorption pressure for gas to flow, Diffusion + Darcy Flow, High to extreme permeability variation
- **Geological knowledge**: Continuous accumulation, Sorbed gas content
Classification of CMM resources

- **Socio-economics**
  - Safety
  - Utilisation
  - Conservation
  - Environmental benefits
  - Local use

- **Project feasibility**
  - Fractures
  - Structures
  - Dewatering
  - Gas trap
  - Recoverability
  - Material balance
  - Numerical simulation modelling
  - Decline curve analysis
  - Field analogs
  - Probabilistic methods
  - Volumetric methods

- **Geological knowledge**
UNFC Resource Consciousness

Commercial Projects
- Potentially Commercial Projects
- Non-Commercial Projects
- Exploration Projects

Top – down section of knowledge

Bottom – up flow of information

Vision
Policy
Regulations

To be in sync with the top-down process
Compare results and options
Realistic assumptions
Collect, check and use available data across E, F and G
UNFC CMM GUIDELINES

To ensure that CMM resources at national and regional levels and individual projects are assessed in a consistent and globally accepted framework.

SOCIO-ECONOMICS
- Appropriation
- Valuation
- Accounting
- Disclosure
- Safety
- Environmental considerations
- Alternate business models

FEASIBILITY
- Co-production of coal and CMM
- Innovation (increasing productivity, minimize wastes)

GEOLICAL KNOWLEDGE
- Status of CMM resource
- Estimation issues
- Levels of uncertainty
Thank you!

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