

Application of UNFC to Renewable Energy

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Chair
Task Force
on Application of UNFC to Renewable Energy

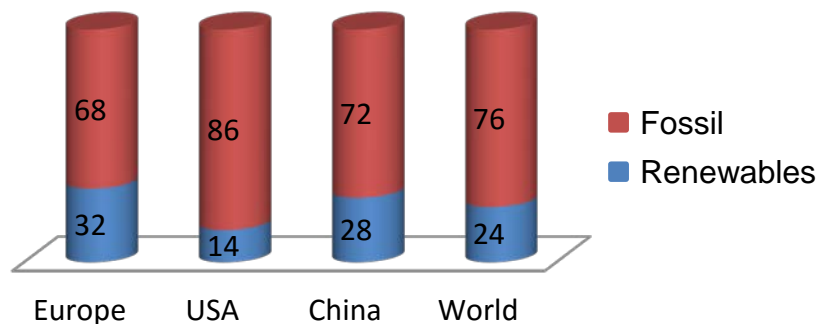


**7TH INTERNATIONAL
FORUM ON
ENERGY FOR
SUSTAINABLE DEVELOPMENT**

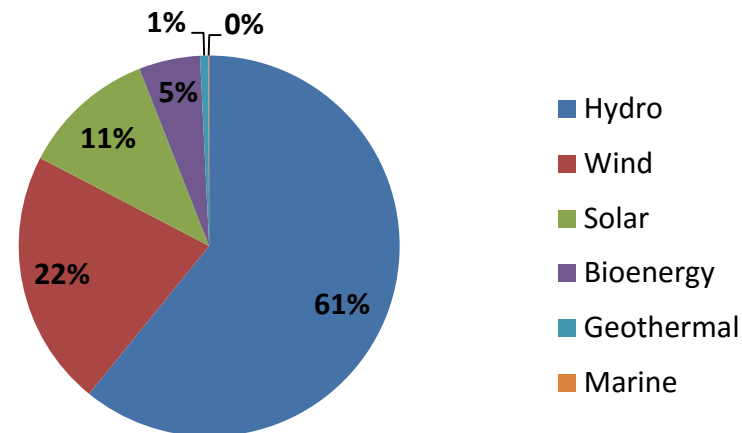
18-21 OCTOBER 2016 • BAKU-AZERBAIJAN

2015 Renewable Energy Landscape

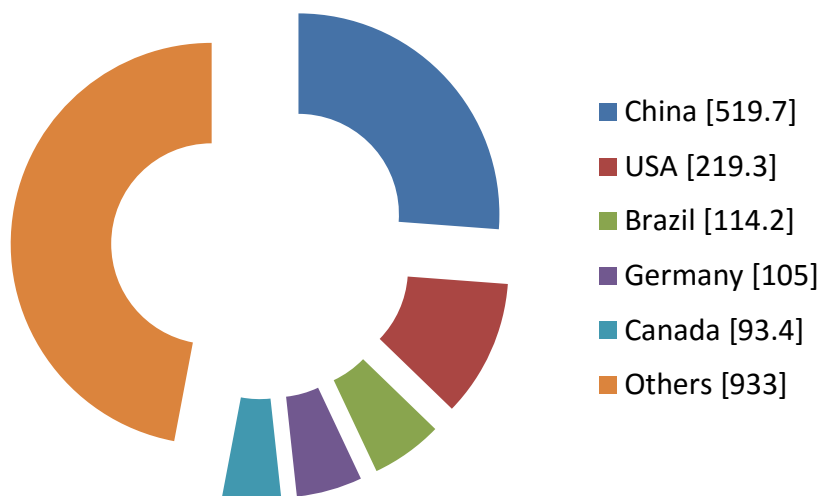
Renewable % Energy Production



World Production of Renewable Energy (%)

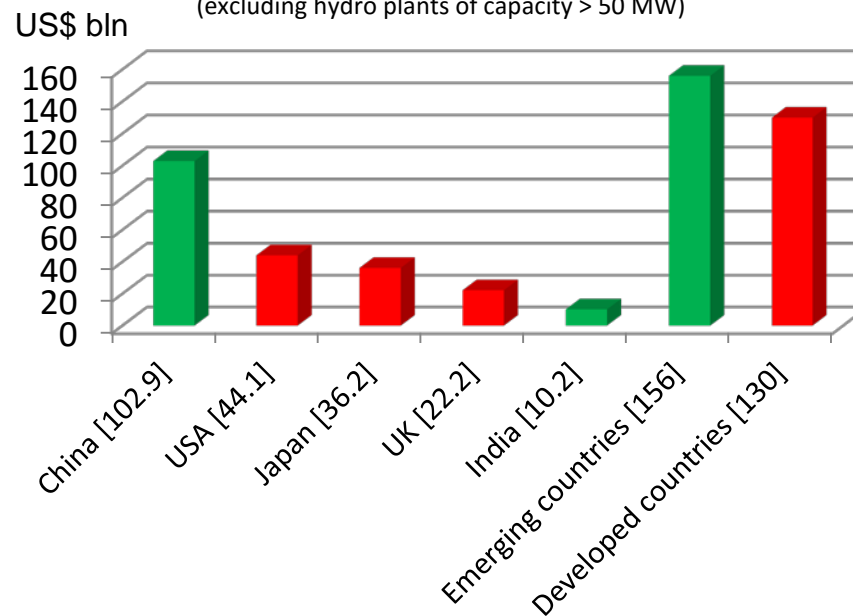


Production Capacity (GW)



New Investments in Renewable Energy

(excluding hydro plants of capacity > 50 MW)



Energy Resource Classification

WHY?

- **Energy resources are not equal**
- They may differ in terms of:
 - Technical maturity (**feasibility**)
 - Commercial, social & environmental maturity (**viability**)
- Energy resource estimates also carry some level of **uncertainty**
- **An energy resource classification allows differentiation** between energy resources in a structured and consistent way directly related to their “value”
- **An “integrated” classification will foster transparency** about all energy resources using a “whole systems approach” enabling conscious choices during the energy transition expected in this decade to come

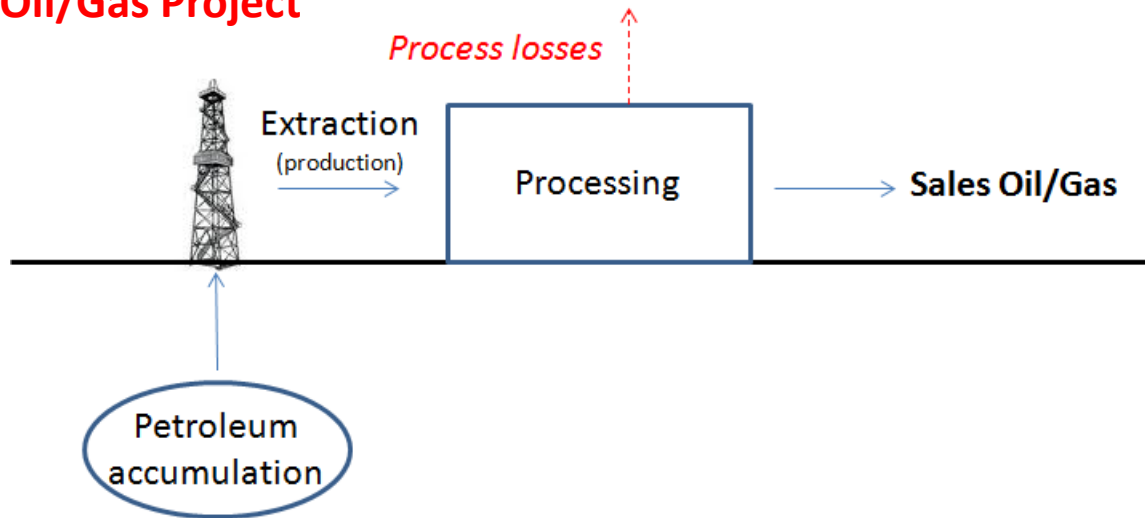
Renewable Energy Classification Task Force History

- In 2012, UNECE called upon Expert Group on Resource Classification (EGRC) to “*develop ideas on how UNFC could apply to and integrate renewable energy by December 2013*”
- In mid-2013, EGRC established a **Task Force** to develop Specifications for application of UNFC to Renewable Energy Resources
- **Task Force** developed **Generic Renewable Specifications**. Approved after public consultation and issued in 2016
- To date, the **Task Force** has initiated 3 **Working Groups** (**Geothermal**, **Bioenergy** and **Solar**) to develop **Commodity-specific Specifications**
- **Geothermal Specifications** are finalized and have just been published. **Bioenergy** and **Solar Specifications** are making good progress.

The UNFC Concept

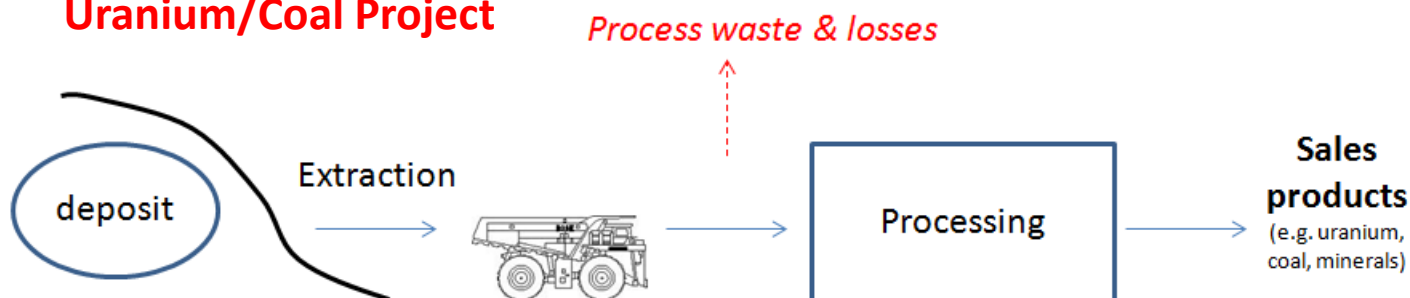
A “Project-Based” Classification

Oil/Gas Project



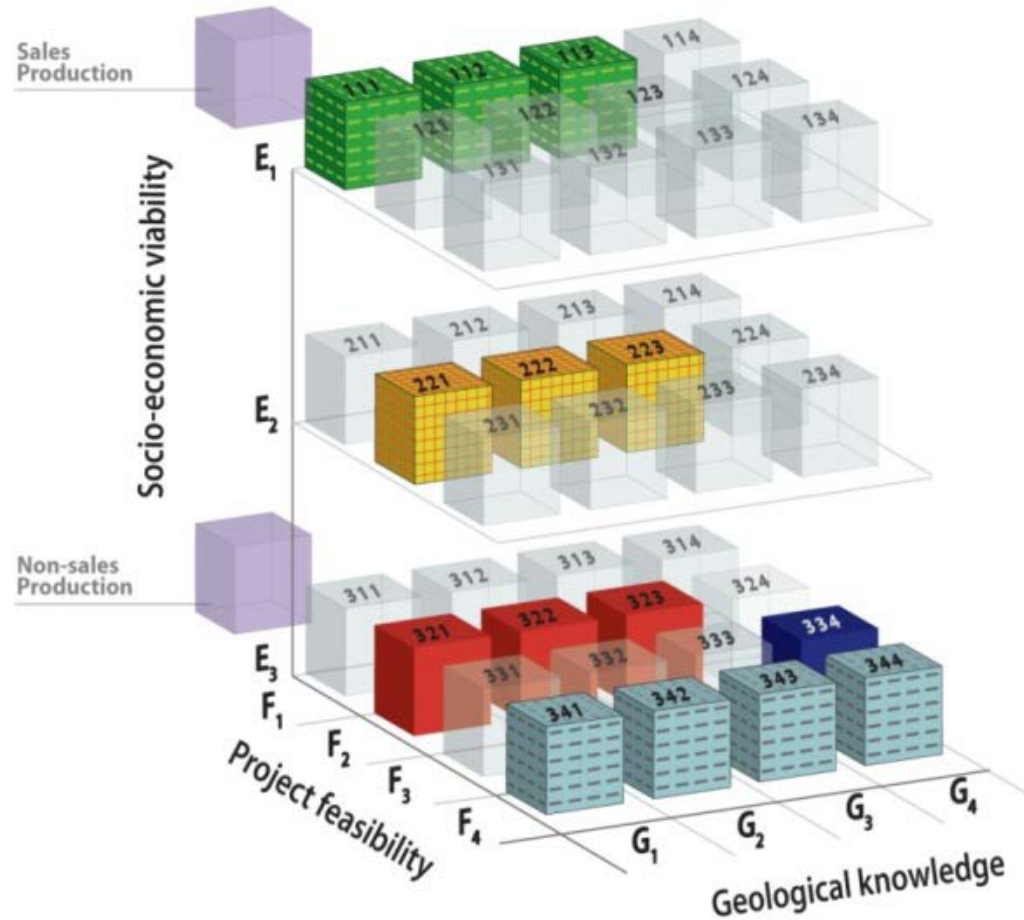
The **Project** represents the level where a decision is made to proceed (i.e., spend money or not to produce the resource)

Uranium/Coal Project

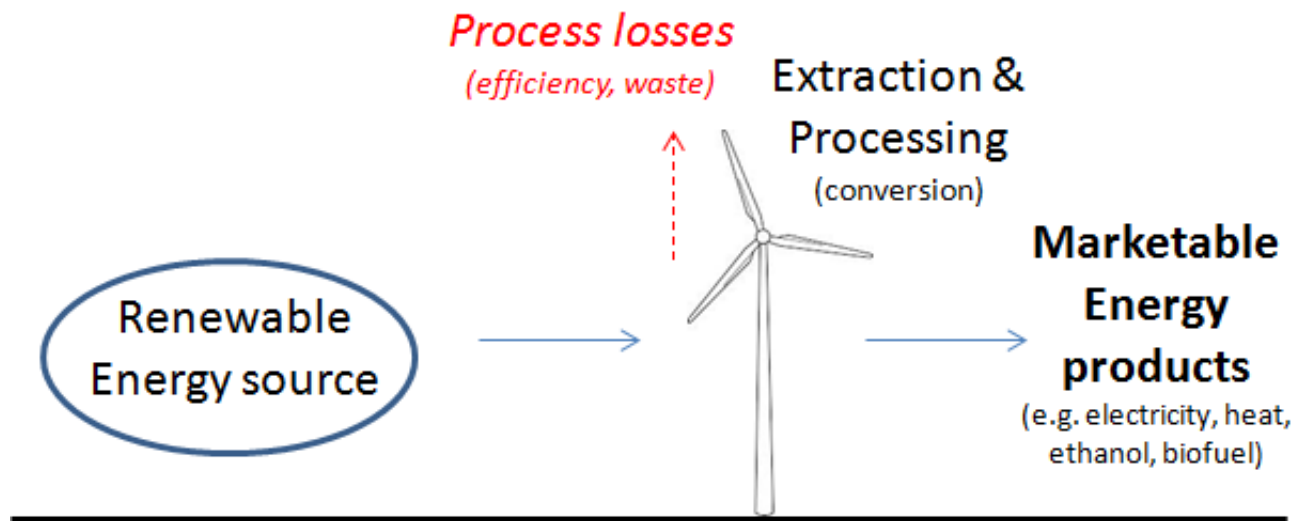


The UNFC Model

A 3-Axis E-F-G Cube



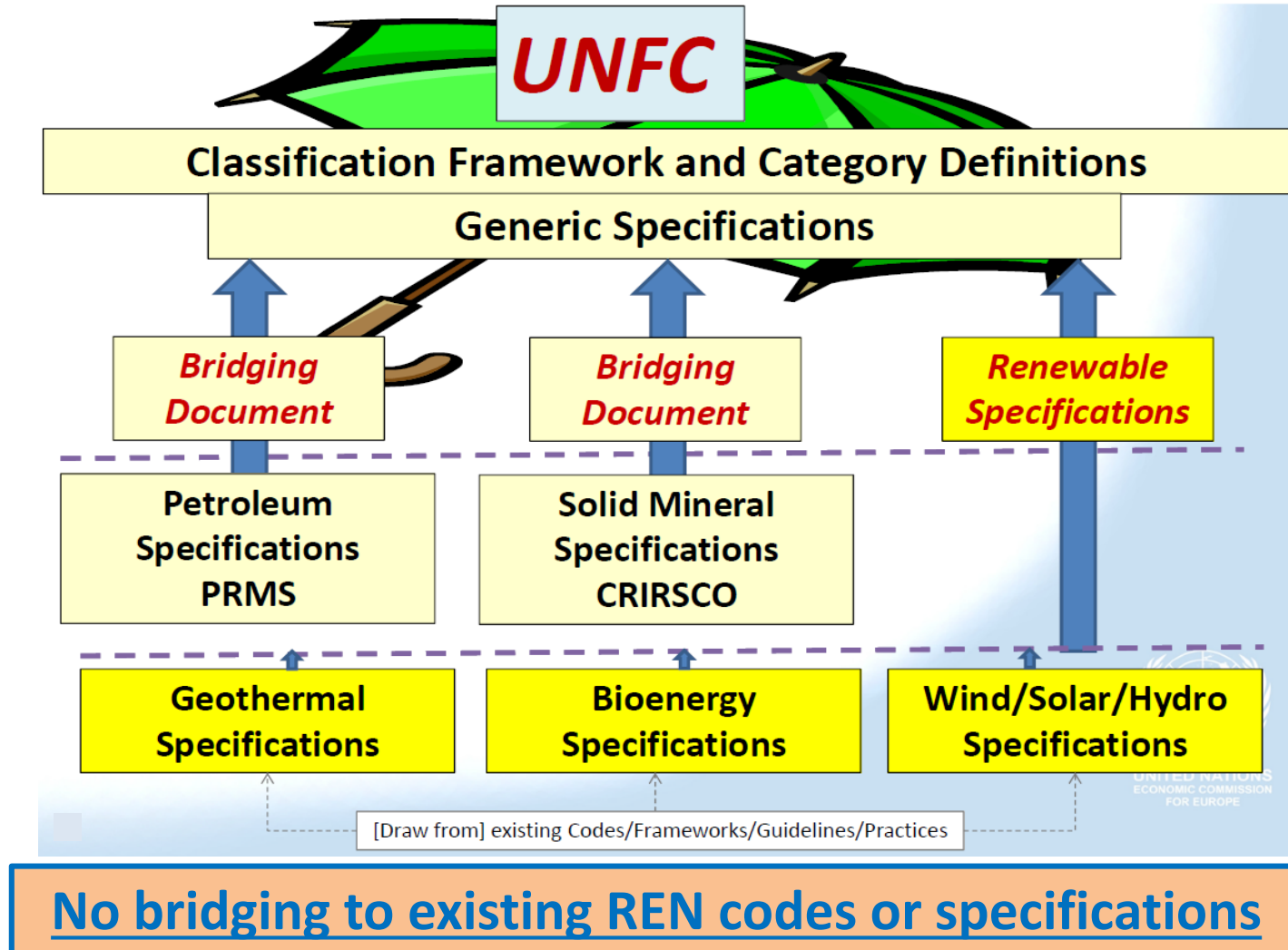
Broadening UNFC to Renewable Energy Projects



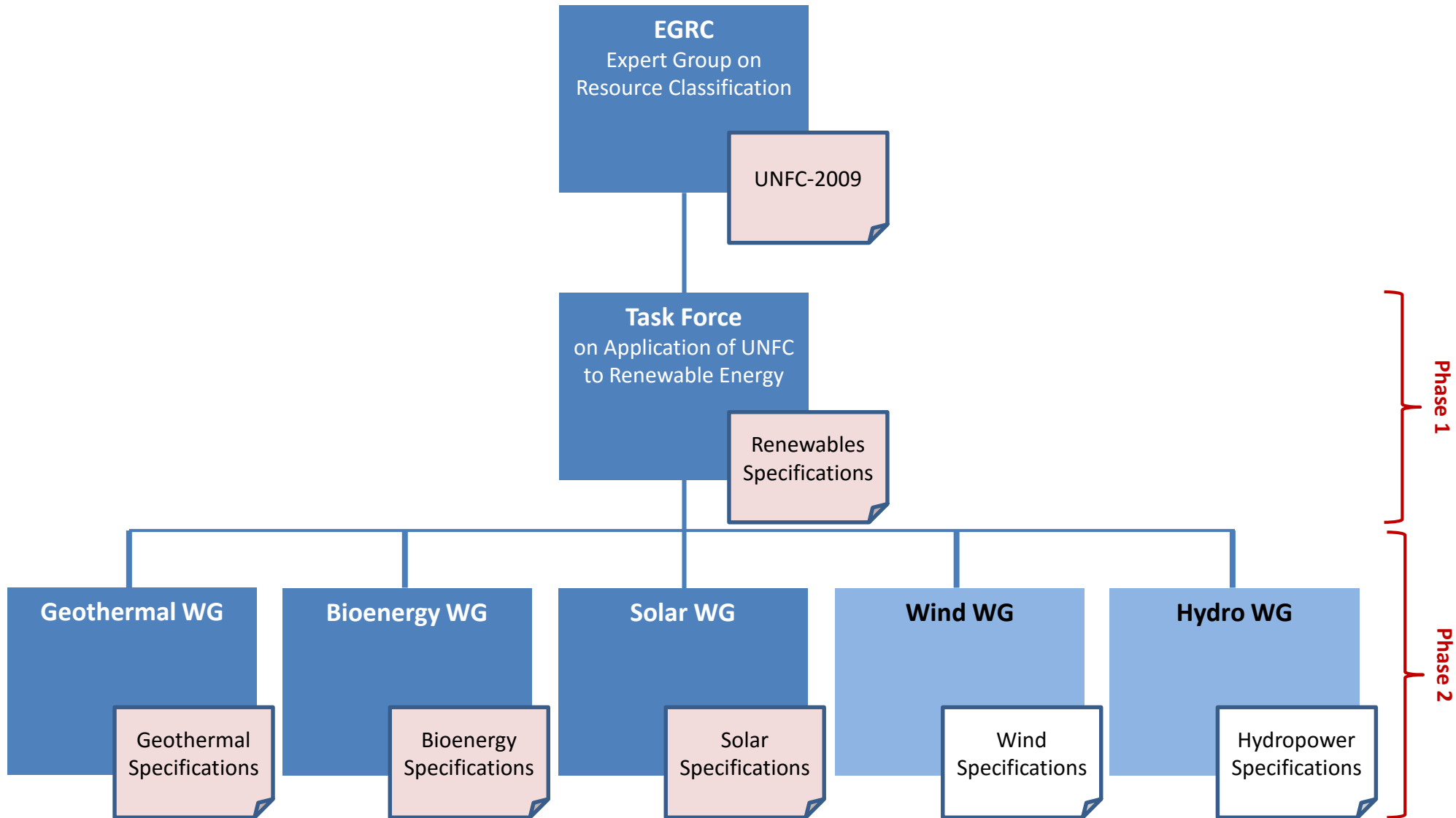
The **Project** is the link between the Renewable Energy Source and sales quantities of Energy Products.

The **Project** provides the basis for economic evaluation and decision-making

UNFC for Fossil & Renewable Energy



Renewable Energy Classification Task Force Structure and Governance



Work Plan 2016-2020

1. Communicate **Renewable Specifications** for application of UNFC to Renewable Energy
2. Communicate and support adoption & application of **Geothermal Specifications** by all relevant stakeholders
3. Continue development and finalize **Specifications** for application of UNFC to **Bioenergy** and **Solar**
4. Initiate and complete new Work Streams on **Wind** and **Hydropower**
5. Develop **guidelines & case studies** to help adoption & application of **Specifications**
6. Engage **key stakeholders** for adoption & application of Specifications
7. Design **governance and support model** to ensure “evergreen” Specifications
8. To help implementation, develop and conduct a **communication & training programme** combined with a **change management plan** addressing both **knowledge and behaviors**



Example: Solar Working Group

Initiated the Solar Working Group



June to August, 2016

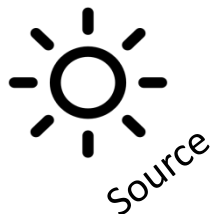
Prepared Zero Draft Solar Specifications (August 2016)

Held a Virtual Workshop (6-7 October 2016)



Reviewed Zero Draft Solar Specifications

Currently exploring key concepts ... !



Where should the reference point(s) be?

What to do in the case of net metering?

Should direct use be counted?



Capture



Storage



Direct use



Net metering



Sale

UNFC-Based Energy Classification Vision ... by 2020

Total Community Viability in Place	Sales Production		Non-Sales Production*	
	Class	E	F	G ²
Future recovery by commercial development projects	1	3	1, 2, 3	
Potential future recovery by continuing development projects	2	2	1, 2, 3	
Additional quantities in place associated with potential deposits?	3	4	1, 2, 3	
Potential future recovery by successful exploration activities	4	4		4
Additional quantities in place associated with potential deposits?	3	4	4	

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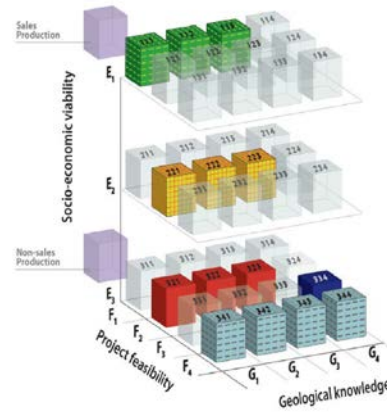
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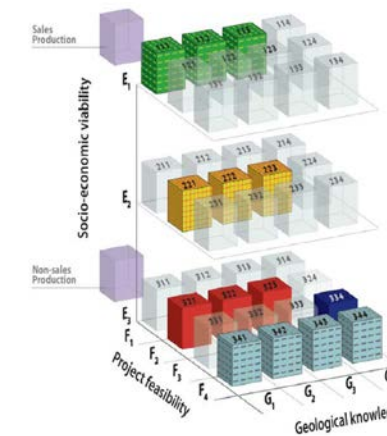


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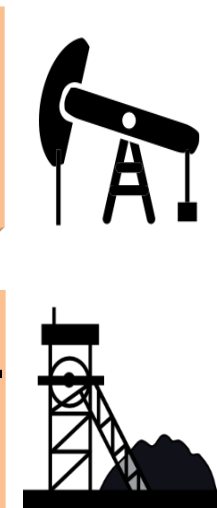
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Renewable Energy project assessments



Oil & Gas reporting standard



Minerals reporting standard

Conclusions and Recommendations

- **Environmental & societal pressures** to “de-carbonize ways of living” rapidly ↑
- **Growing energy demands** of future generations must be answered in sustained and environmentally-friendly way
- **Renewable energy plays critical role** - must be developed urgently, used most effectively
- Yet, investors need **compelling business cases** to finance Renewable Energy projects ...
- ... and all energy stakeholders demand a **transparent & common “language”** to guide their assessments and decisions
- **UNFC applied to Renewable Energy** provides universally recognized, transparent and common system to help build these business cases and **foster Renewable Energy growth**



What we need from you / how you can be engaged ...

- Candidates to lead and join the Wind Working Group
- Candidates to lead and join the Hydropower Working Group
- Global organizations to support the Wind and the Hydropower Working Groups
- Real case studies to illustrate and foster application of specifications
- Ambassadors to communicate our work and its results and engage potential users
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Contacts

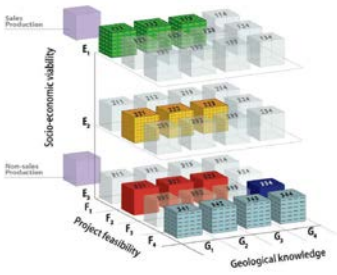
If you have questions or comments, or wish to join the Task Force or one of the Working Groups, or help create the Wind or Hydro WGs, please contact:

- Task Force or Wind and Hydro WGs: Frank Denelle, frdenelle@gmail.com
- Geothermal WG: Prof. Gioia Falcone, g.falcone@cranfield.ac.uk
- Bioenergy WG: James Primrose, james.primrose@uk.bp.com
- Solar WG: Jeremy Webb, jezza.webb@gmail.com
- UNECE/UNFC/EGRC: Charlotte Griffiths, reserves.energy@unece.org

UNECE Resource Classification Week
Palais des Nations, Geneva
24 – 28 April 2017



More information on UNECE Sustainable Energy website:
www.unece.org/energy/se/reserves.html



Thank you for
your attention!

Q&As ?