



PPSDM, November 3rd, 2017

Company decision-making for geothermal projects

(GEOCAP course 1.07)

Topic: geothermal resource classification

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Public document (GEOCAP-2016-REP-TNO-1.07-xx)

Purpose of resource classification

1. Reporting to authorities
 - Consistent evaluation basis important to allow consolidation of national resources & national planning
2. Internal company reporting
 - Portfolio management: consolidating projects, finances etc.
 - Consolidating operating companies by Holding company.
3. External company reporting
 - Disclosures to shareholders (annual report etc.)
 - Disclosures to Stock Exchange (Securities Exchange Commission)

➤ Direct relationship with production forecasting

- Reserves must be = integral over time of forecast production rate.

Reporting standards, see e.g. UNFC

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UNFC resource classification system

- United Nations Economic Commission for Europe Expert Group on Resource Classification
- Specifications for the application of the United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC-2009) to Geothermal Energy Resources
- Draft document prepared by the Geothermal Working Group, v.30May2016
 - DRAFT FOR PUBLIC COMMENT

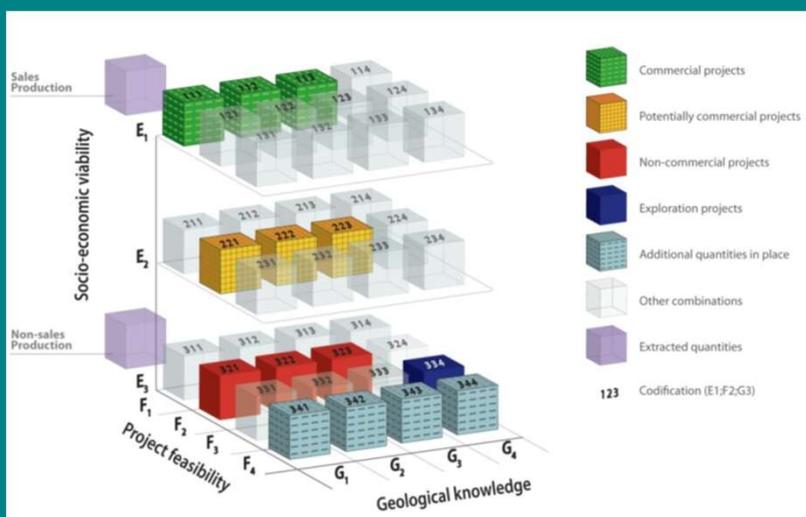


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UNFC resource classification system



3D categorisation method using three axes:

1. E = Economic viability
2. F = project Feasibility
3. G = Geological knowledge

Website:

<https://www.unece.org/energy/welcome/unfc-and-resource-classification.html>

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Geothermal resource classification

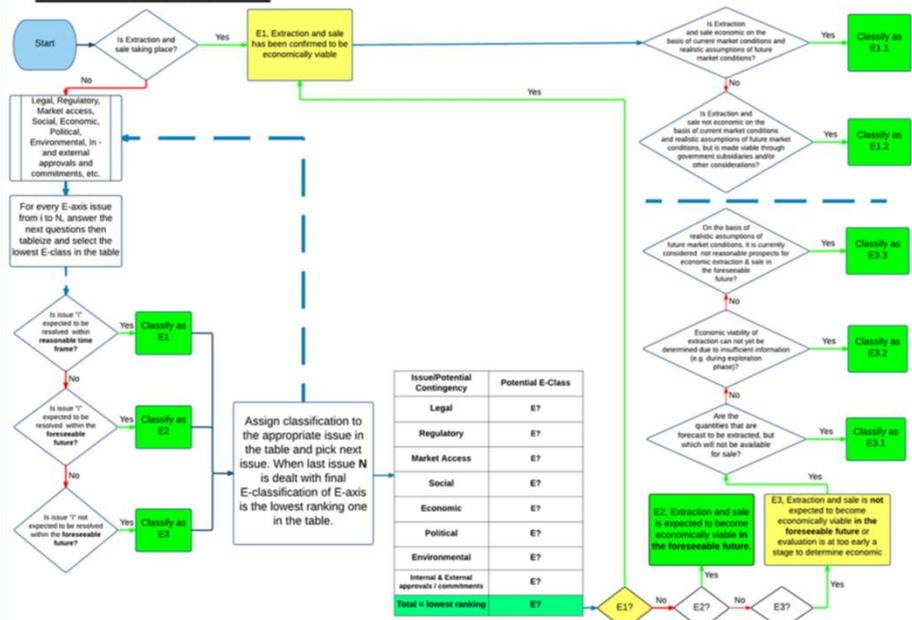
- The resource classification process consists of defining a *Project*, or *Projects*, associated with a *Geothermal Energy Source* (field), estimating the quantities of energy that can be recovered and delivered as *Geothermal Energy Products* by each *Project*, including any regenerative potential.
- *Geothermal Energy Resources* are the cumulative quantities of *Geothermal Energy Products* that will be extracted from the *Geothermal Energy Source*, from the Effective Date of the evaluation forward (till the end of the *Project Lifetime/Limit*)
- The *Project* is the link between the *Geothermal Energy Source* and quantities of *Geothermal Energy Products* and provides the basis for economic evaluation and decision-making.

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E-axis decision tree



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