

## Geothermal energy in the EU Sustainable Finance draft Delegated Act

Robust guidance directing capital flows to sustainable investments that do no harm is critical to solving the climate and economic crisis, accelerating the energy transition and ensuring sustainable development. Recognition of geothermal energy as a solution contributing to "*climate change mitigation and adaptation*" is an important milestone for this critical renewable energy solution to decarbonise heating, cooling, electricity as well as the sustainable supply of raw materials such as lithium. A fair competition with an equal treatment between all energy categories is needed.

The draft Delegated Act proposes technical screening emission criterion incorporating indirect emissions for geothermal energy in:

- Section 4.6 (Annex 1, page 85) Electricity generation from geothermal energy;
- Section 4.18 (Annex 1 page 110) Cogeneration of heat, cool and power from geothermal energy;
- Section 4.22 (Annex 1 page 119) Production of heat and cool from geothermal energy.

**We recommend the emission thresholds are deleted for geothermal energy** because of:

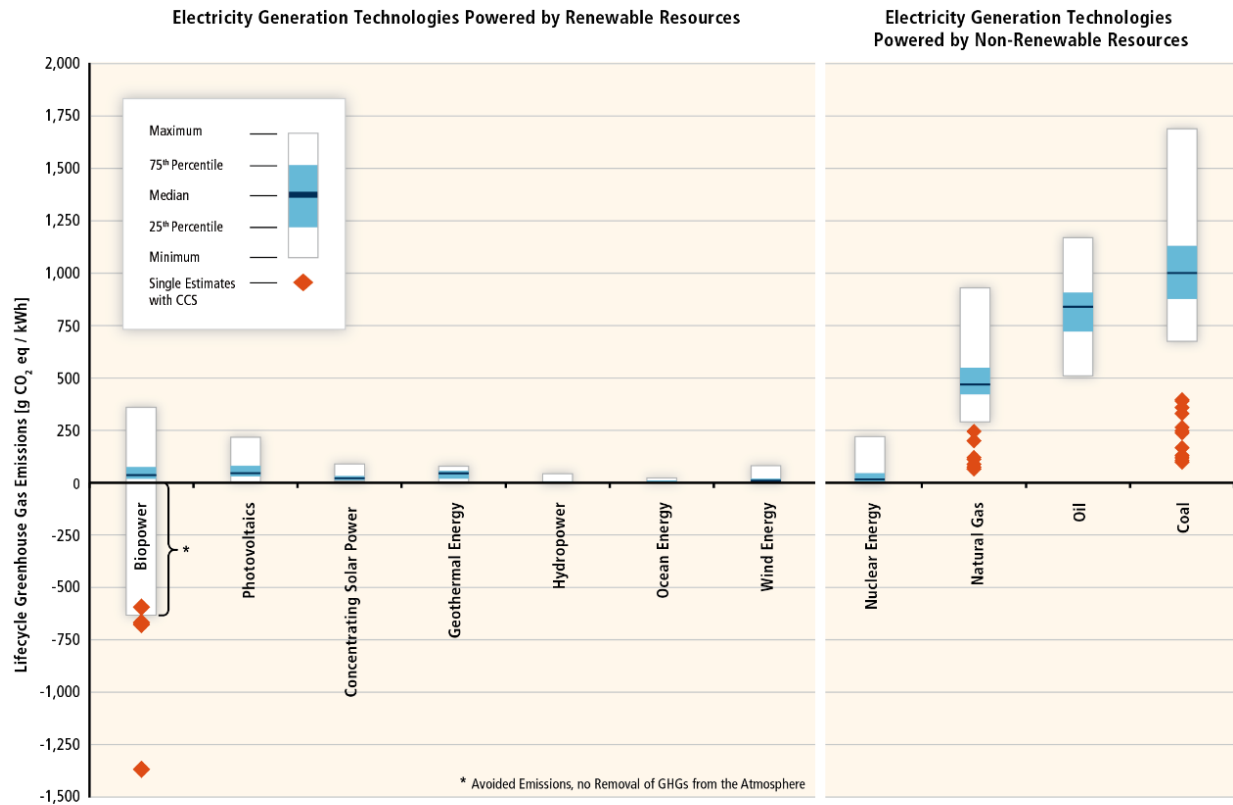
- **Inconsistency of the application of direct and indirect emissions:** As with all renewable energy technologies there are indirect emissions through their respective supply-chains. However, for example, the draft Delegated Act excludes this criterion for solar photovoltaic and other renewable energies but not geothermal energy. This is highlighted in Figure 1.

Figure 1: Political decisions in the draft Delegated Act

Section 4.1 (Annex 1 page 72) Electricity generation using solar photovoltaic technology	Section 4.6 (Annex 1, page 85) Electricity generation from geothermal energy
<p>Construction or operation of electricity generation facilities that produce electricity using solar photovoltaic (PV) technology.</p> <p>Where the activity is an integral element of the activity 'Installation, maintenance and repair of renewable energy technologies' under 'Construction and real estate activities', the criteria for 'Installation, maintenance and repair of renewable energy technologies' apply.</p> <p>The activity is classified under NACE codes D35.11 and F42.22 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.</p>	<p>Construction or operation of electricity generation facilities that produce electricity from geothermal energy.</p> <p>The activity is classified under NACE codes D35.11 and F42.22 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.</p> <p>Technical screening criteria</p> <p>Substantial contribution to climate change mitigation</p> <p><b>Life-cycle GHG emissions</b> from the generation of electricity from geothermal energy are lower than 100gCO<sub>2</sub>e/kWh.</p> <p><b>Life-cycle GHG emission savings</b> are calculated using Commission Recommendation 2013/179/EU or, alternatively, using ISO 14067 or ISO 14064-1.</p> <p><b>Quantified life-cycle GHG</b> emissions are verified by an independent third party</p>

The CO<sub>2</sub> emissions from the production and/or imports of equipment, steel and cement used in wind or chemicals used for solar photovoltaics are not applied to wind and solar energy standards yet they too produce indirect emissions as highlighted in Figure 2. However, indirect emissions are applied to the geothermal industry.

Figure 2: Life Cycle Emissions of renewable and fossil fuels



Count of Estimates	222(+4)	124	42	8	28	10	126	125	83(+7)	24	169(+12)
Count of References	52(+0)	26	13	6	11	5	49	32	36(+4)	10	50(+10)

**Source:** Intergovernmental Panel on Climate Change (IPCC), WG3 – Special Report on Renewable Energy (2014), Summary for Policy Makers. Page 19.

To be consistent, **the emission threshold should be removed for geothermal energy applications.**

- **A lack of incorporation of EU environmental standards:** It is not reflective of EU environmental legislation, which has significantly higher environmental, water and air standards than Turkey, Iceland and the US – which form the basis of the Geothermal Energy and the Climate Bond Standard Version 1.0<sup>1</sup> used to set these thresholds.

<sup>1</sup> Climate Bonds Initiative - Geothermal Energy and the Climate Bond Standard (Version 1.0) <https://www.climatebonds.net/files/files/standards/Geothermal/Geothermal%20Energy%20Background%20paper%20and%20Criteria.pdf>

- **The flawed assessment in the Climate Bonds Initiative Standard:** The standard developed by the Climate Bonds Initiative does not incorporate data from EU geothermal electricity, cogeneration and heat plants. Instead it incorporates outliers into its standard. For example, regarding direct emissions its assessment is based on the outlier case in New Zealand<sup>2</sup> rather than any geothermal power plants in Member States with the largest capacity of geothermal capacity such as Germany, France, Italy, Hungary, Portugal and Croatia.

Furthermore, the assessment is not reflective of geothermal heating and cooling plants in Member States such as Poland, the Netherlands, Czechia, Slovakia, Romania, Sweden, Denmark, Slovenia, France, Germany, Italy, Hungary, Croatia, etc.

- The Horizon 2020 **GeoENVI** project ([www.geoenvi.eu](http://www.geoenvi.eu)) developed a Life-Cycle Emission protocol based on proven environmental impacts of geothermal plants in the EU. This was because there was no credible standard based on strict EU environmental and climate standards. It should be the basis to assess the environmental impact of the geothermal sector.

Geothermal energy is spread across many sections therefore there is a need for a Better Regulation approach to ensure administrative hurdles do not undermine investment in this vital technology. We recommend:

- **Representation:** The Sustainable Finance Platform requires representation from one or all of the technologies given its unique position of its **heating and cooling** aspects incorporated into numerous sections of the Delegated Act - Section 4.18 for cogeneration, Section 4.22 for heating and cooling; Section 4.11 for underground thermal storage; Section 4.15 for District heating and cooling; and 4.16 for electrical heat pumps.
- **Simplification:** There is a risk that administrative thresholds requiring compliance with all of the sections outlined above are required to develop geothermal heating and cooling thresholds.
- **Inclusion of geothermal lithium:** Geothermal energy capacity utilising brine also contain lithium hydroxide deposits, which are essential for sustainable mobility and portable technologies. The safe extraction of lithium hydroxide must be included in the Delegated Act.

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<sup>2</sup> Geothermal Energy and the Climate Bond Standard (Version 1.0) uses the example of binary plants and identifies an outlier confined to New Zealand into the its greenhouse gas threshold. The report states, "However, in rare cases in a binary system NCGs [non-condensable gases] may be vented rather than re-injected with the rest of the fluid" (Page 9). This is a one-off instance that is not replicated in the EU because it is prohibited by environmental legislation.