Additionality questions for suppliers

1.2.3. CO_2 Removal Supplier shall be able to demonstrate additionality, meaning that the project must convincingly demonstrate that the CO_2 removals are a result of carbon finance. Even with substantial non-carbon finance support, projects can be additional if investment is required, risk is present, and/or human capital must be developed. To demonstrate additionality, CO_2 removal Supplier must provide full project financials and counterfactual analysis based on Baselines that shall be project-specific, conservative and periodically updated. Suppliers must also show that the project is not required by existing laws, regulations, or other binding obligations. [i3]

Note: In Puro Standard and related verification, a project specific additionality assessment is required. Puro Standard does not work with automatic additionality criteria or positive lists.

Notice. These answers are public information

Question	No/yes	Project response
Is the project required by existing laws, regulations, or other binding obligations	No	Not its not
Is the Project dependent on carbon finance?	yes	Yes, our "biochar business case" can only work, if the respective operator can sell all three elements: (1) green heat, (2) biochar and (3) carbon credits. If one of the three pillars breaks away, a project becomes non-fundable. With a retail price of min. 145€ per carbon credit, we can finance the project over a 15 years' time frame. A higher price would allow us for faster scaling as capital would be bound over a shorter period (e.g., 10 years). A lower price (e.g., 100€) would require an extended payback period. Carbon Finance as such will give us the possibility to create additionality in the following areas: A. Reducing our revenue risk (risk insurance and an enabling vehicle to plan ahead) B. Support our scaling operations globally

		C. Offer biochar at a convenient, marketable price D. Stimulate the increase of future biochar output E. Give us the opportunity to work further on pilot- and R&D projects Overall, we will be responsible for fundamentally cutting large amounts of CO_2 emissions, double our output by 2024 and will reach a removal level of 1Mt a year by 2030. Thus, climate financing will help us to get closer to reaching this milestone and work towards an economy which operates within the planetary boundaries.
Is investment required	yes	While we already pre financed the pyrolysis plant at Dörth, TKRE and Grevesmühlen overall it is to say yes, investment in terms of carbon finance is generally still required and will be required in the future. Because a baseline (counterfactual) scenario would simply be that without carbon finance, we would not be able to offer affordable biochar. As an effect, we would not generate necessary sales, which has the effect of lower, to zero production output. Ultimately, we would not be able to scale our business and the necessary pyrolysis technology. Conclusively, we would not be able to remove the necessary tons of CO_2 from the atmosphere. In fact, without our usage of biomass, it would be left for degradation or combustion, releasing tons of CO_2 back into the atmosphere, contributing negatively to the already high level of atmospheric CO_2.
Is there a need to develop human capital, is there lack of skilled activity locally?	No	
Is your project first-of-its-kind?	No	
How is the project economically not feasible without carbon finance?		Our "biochar business case" can only work, if the respective operator can sell all three elements: (1) green heat, (2) biochar and (3) carbon credits. If one of the three pillars breaks away, a project becomes non-fundable. With a retail price of min. 150€ per carbon credit, we can finance the project over a 15-20 years' time frame. A higher price would allow us for faster scaling as capital would be bound over a shorter period (e.g., 10 years). A lower price (e.g., 100€) would require an extended payback period.
Attach a simple cost analysis and sensitivity analysis.		Please find the cost analysis and business model attached and see an extract of the key variables below.

		<table><tr><td>PnL per t biochar</td><td></td></tr><tr><td>Production costs / t</td><td>547 €</td></tr><tr><td>Financing costs / t</td><td>550 €</td></tr><tr><td>Total costs / t</td><td>1.096 €</td></tr><tr><td>Biochar sales / t</td><td>680 €</td></tr><tr><td>Gap / t</td><td>- 416 €</td></tr><tr><td>Green energy sales / t</td><td>195 €</td></tr><tr><td>Gap / t</td><td>- 221 €</td></tr><tr><td>Carbon credit sales / t</td><td>238 €</td></tr><tr><td>Net cash flow / t</td><td>17 €</td></tr></table> With the following hypothesis: • 200€ Credit Price • 8% registry + 20% sink provider • 680€ / t biochar (ouput, not dry mass) • 0,05€ green heat

What are the key variables impacting the cost analysis?		**There are two main buckets:**
		• Production costs (50%)
		• Financing costs (50%)
		
		Production costs can be split into:
		• CAPEX (ca. €8m - €13m – depending on project size)
		  ○ Pyrolysis equipment (60-80% of CAPEX)
		  ○ Buildings and surrounding equipment (20-40% of CAPEX)
		• OPEX (ca. €0.9m - €1.6m – depending on project size)
		  ○ Input material (ca. 40%)
		  ○ Maintenance & repair (ca. 25%)
		  ○ Staff (ca. 15%)
		  ○ Insurance (ca. 5%)

		○ Other costs (ca. 15%) **Financing costs can be split into:** • Repayment of loans (ca. 60%) • Interest payments (ca. 40%)
What else is preventing your project implementation? For example, do you have to change industry norms or market practises or to build new infrastructure to carry out the project?		It is to say that scaling support for CDR technologies in Europe is low: Conservative, risk-averse patterns are deeply rooted in our (inter-) national operative and institutional systems, which makes fundraising and project financing a pain. Also, it seems that there is a general tendency to risk-aversion for hard tech and CDR companies, leading to time-consuming processes for pre-financing opportunities which then create a strong barrier to scale (in time).
What is the baseline activity and related emissions and removals that would occur if this activity did not take place (business-as-usual, counterfactual)?		We know that a baseline (counterfactual) scenario would simply be that without our usage of the biomass, it would be left for degradation or combustion, releasing tons of CO_2 back into the atmosphere, contributing negatively to the already high level of atmospheric CO_2. Additionally, looking at heat generation we are actively counteracting the usage of fossil fuels for heat production through our provision of regenerative heat in industries: We know that the counterfactual scenario for this would be a "no other option" scenario for most industries, as they need to use fossil fuels when producing heat, leading to high volumes of CO_2 emitted yearly.
Attach a simple emission and removal analysis.		You already received the full LCA for TKRE, giving holistic insight into the emissions and removal projections. Otherwise please specify.

I hereby declare that all information provided is truthful and precise to the best of my knowledge.

Date, Place:

X

Representative name, title, organization