

Baseline and Additionality Assessment

The baseline and additionality assessment is a requirement for eligibility under the Puro Standard. The assessment is made by the CO₂ Removal Supplier and verified by the independent 3rd party auditor. The assessment made in this document will be publicly available in the Puro Registry.

The Puro Standard only certifies durable carbon removals from the atmosphere that are net-negative and does not certify emissions reductions or avoidance. The CORCs (Carbon dioxide removal certificates), issued therefore represent a net carbon removal (1 tCO₂eq. net) from the atmosphere to a durable storage of minimum 100 years, from which are subtracted any supply-chain emissions from the project, any re-emissions over the guaranteed storage time, and any baseline removals taking place in a baseline scenarios.

The CO₂ Removal Supplier must in this assessment:

- **Define** and quantify all reasonable **baseline alternatives** to the proposed project activity to remove carbon with carbon financing. A baseline is a scenario that reasonably represents the natural and anthropogenic carbon removals to a permanent storage (storage durability over 100 years) in the absence of the carbon removal activity proposed by the CO₂ Removal Supplier. Although anthropogenic emissions may take place in the baseline scenarios, these emissions do not constitute a reference point for the quantification of CORCs (only the baseline removals do).
- Demonstrate **carbon additionality to the baseline**, meaning that the project must convincingly demonstrate that it is resulting to higher volumes of carbon removals than the likely baseline alternatives (question A1.).
- Demonstrate **regulatory additionality**, meaning that the project is not required by existing laws, regulations, or other binding obligations (question A2.).
- Demonstrate **financial additionality**, meaning that the CO₂ removals achieved are a result of carbon finance and that the project activity would not be economically viable without the carbon finance. The project activity can have substantial other non-carbon income sources, if the carbon finance through CORCs is significant for the economic viability of the project. To demonstrate financial additionality, CO₂ removal Supplier must provide the responses in this form and must be able to provide full project financials for verification.

Reference documents: [Puro Standard general Rules v3.0](#), rule 2.1.3 and [Additionality Assessment requirements](#)

Activity name	Activity description	Removals to storage (100+ yr) due to project activity (human activity)	Natural removals to storage (100+ yr)
Baseline: Biochar production	<i>The biochar produced since the pilot facility started operation in 2021 has been applied at Caebardd, sold mixed with compost, or to a large extent, used in university soil trials</i>	None / Some (please quantify)	None / Some (please quantify)
Alternative scenario 1: [Name]	<i>(Other likely activity that can replace the baseline activity, if none leave blank)</i>	None / Some (please quantify)	None / Some (please quantify)
Alternative scenario 2: [Name]	<i>(Other likely activity that can replace the baseline activity, if none leave blank)</i>	None / Some (please quantify)	None / Some (please quantify)
Alternative scenario 3: [Name]	<i>(Other likely activity that can replace the baseline activity, if none leave blank)</i>	None / Some (please quantify)	None / Some (please quantify)
Project activity: [Name]	<i>(Other likely activity that can replace the baseline activity, if none leave blank)</i>	None / Some (please quantify)	None / Some (please quantify)

A1. Does the project lead to higher volumes of carbon removal than the baseline?	Yes / No
The biochar operation is currently not profitable when all costs are allocated. Expansion is dependent on achieving CORC revenues. The revenue from carbon credit sales not only supports infrastructure expansion but also supports Carbon Hill's plans to sell or license its biochar technology with aim of multiple operations at farms in the UK.	Yes

A2. Is the project required by existing laws, regulations, or other binding obligations ?	Yes / No
There are no regulations that mandate the use of hedgerow cuttings or green waste from parks or gardens as biochar.	No

A3. Is the project first-of-its-kind?	Yes / No
To their knowledge this is the first biochar operation in the UK to use this feedstock. Carbon Hill has developed proprietary technology for their technology.	Yes

A4. Is the project dependent on carbon finance?	Yes / No
In particular the expansion	Yes

A5. Does the project need a large investment to achieve carbon removal ?	Yes / No
Investments have been made into human capital and new competences, but these investments are not considered large investments	No

A6. If investment is needed, is/was carbon finance considered when the investment decision is/was made?	Yes / No
The project needs carbon finance to provide sufficient revenue for it to become profitable and to cover the production cost and ongoing maintenance or expansion of the facility.	Yes

Some projects may demonstrate additionality through simple cost analysis: this is applicable for projects where ex-ante investment analysis is not applicable, because a large investment is not needed. Example of such project could be charcoal producers starting to produce biochar for soil applications using existing equipment with minor adaptations.

Financial Additionality – large investment is not needed (Answer to A5 is “no”)	Project response
<p>Please describe adaptations needed and the related cost items and include evidence in attachment.</p>	<p>Carbon Hill has undertaken considerable investments to develop and test the pyrolysis system while hoping to benefit from the carbon credit market to bring stability to its business.</p> <p>To manage the biochar production and sales business, the company has had to develop considerable human capital and new competencies. Operation and production of biochar requires skill and knowledge which Carbon Hill has had to develop. Revenues from the sale of CORCs have been reinvested. in repairs, improvements, and development of their technology. The existence of the carbon revenue reduces the price risk from biochar sales and helps offset rising costs of production.</p>
<p>Please summarize the simple cost analysis here and provide additional calculation spreadsheet in attachment. All formulas used in the spreadsheet shall be readable to the verifier and all relevant cells shall be viewable and unprotected. Mark confidential when needed.</p>	<p>The carbon finance is very important. When considering purely financial factors, a certain amount of fixed and variable external costs will be incurred, such as the cost of carbon project developers and sales, materials and equipment, and training workers and end-users.</p> <p>Given the uncertainties due to rising interest rates, inflation and the risk of a long-term recession, carbon revenue is becoming increasingly vital for Carbon Hill. They are expected to deploy multiple pyrolysis units in the next years. The business model is likely to rely on carbon credits at a rate of about 50%.</p>

If large investment is needed, , CO2 Removal Suppliers can be guided by the CDM Methodological Tool 27 of the UNFCCC Clean Development Mechanism [“Investment Analysis”](#) to demonstrate financial additionality.

Financial Additionality – large investment is needed (Answer to A5 is “yes”)	Project response
<p>Please show your calculations to determine the benchmark rate for either equity IRR or WACC, whichever you are using. Please include documentation of how the rate is suitable for the technology and region.</p>	
<p>Please state how CORC revenues change the expected IRR or NPV of the project.</p>	
<p>Please conduct a sensitivity analysis in relation to the investment analysis and summarize the results here.</p>	

<p>Please provide full calculation spreadsheet file as an attachment. All formulas used in the spreadsheet shall be readable to the verifier and all relevant cells shall be viewable and unprotected. Mark confidential when needed.</p>	
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I hereby declare that all information provided is truthful and precise to the best of my knowledge.

Gregor Morrison

Date:

Nov 3rd 2023, Rome, Italy

Gregor Morrison, Accend, PoA Carbon Hill