

# Baseline and Additionality Assessment

## Introduction

The Bordet company was founded in 1860 and was the first Carbonization and Distillation factory where only acetate of lime and Charcoal were manufactured.

It now produces pure plant charcoal with a carbon content of over 90%. They offer maximum performance, opening the way to many industrial applications. The Leuglay site now has 25 employees and produces nearly 4,000 tons of charcoal per year.

Today, charcoal is mainly intended for restaurants and individuals. Tomorrow, these markets will be retained, but industrial applications (water treatment, air treatment, etc.) should develop significantly and become the majority for BORDET. The objective is therefore to anticipate new markets by adapting the production tool, with both an increase in capacity and finished products which will be partly different from current products (as such, BORDET has already set up a charcoal grinding unit for products intended for industrial markets).

In this context, BORDET wishes to initiate a program to modernize its production tool, so that it best responds to future markets. This modernization plan also includes an improvement in the productivity of the tool and increased energy performance.

- **The transformation plan for the production unit is the following:**

- ✓ Renewal of the biomass boiler. (The old one is 70 years old), to optimize and control the wood drying line before carbonization.

→ Committed

- ✓ Research and Development continues to develop new applications; return to the ground, low-carbon construction.

→ Committed

- ✓ The investment in the crusher makes it possible to meet the technical specifications of the customers on precise granulometries.

→ Committed

- ✓ From a global point of view: Improve the overall energy performance of the unit, and in particular return to the autonomy it originally had in terms of electricity consumption.

→ Committed

- ✓ The modernization or renewal of its cogeneration equipment

→ Coming soon

## Additionality of the production unit modernization plan

### Choice of the reference situation

Today, no French regulation does not require historical coal producers such as the Bordet Group to modernize to produce biochar. The regulatory reference situation therefore does not exist in France.

Thus, the reference situation retained for the Bordet Group will be the initial situation, that is to say, the production unit as it existed historically. The production of Biochar by the Bordet Group is the result of a choice of strategic orientation after multiple feasibility studies and research and development work opening up new applications for storing carbon rather than emitting it.

The objective is to produce more and more Biochar compared to historical coal production in order to store carbon and enable action to be taken in the fight against climate change.

To date, there are no other alternatives applicable to historical coal producers other than new "return to the earth" applications of the product, or use in bio-sourced materials, in particular by Biochar. The other production alternatives available are always linked to the use of coal combustion and therefore GHG emissions.

Activity name	Activity description	Removals to storage (100+ yr) due to project activity (human activity)	Natural removals to storage (100+ yr)
Baseline: Initial situation	Continuation of the historical production of vegetable charcoal for combustion purposes in the restaurant sector, domestic use in barbecue and industrial uses	None	None
Alternative scenario 1: Biochar production	Process optimisation  Produce biochar rather than historical charcoal production.	- Biogenic carbon storage du to Biochar and new applications	None

## Modernization plan

### Context

The modernization plan of the production unit must make it possible to maintain the existing historical production capacities of vegetable coals.

Indeed, the demand from historical markets: catering, individuals, industry, and other industrial processes is still active and must be maintained. The site is already in operation and must be modernized and optimized while maintaining historical production and developing Biochar production.

A1. Does the project lead to higher volumes of carbon removal than the baseline?	Yes / No
The baseline consists only of greenhouse gas emissions because of the charcoal combustion. Switching on biochar production opens news applications which represent an important carbon sink.	YES

A2. Is the project required by existing laws, regulations, or other binding obligations ?	Yes / No
There is no regulatory obligation in terms of biochar production for a production unit like the Bordet Group	NO

A3. Is the project first-of-its-kind?	Yes / No
<p>The Bordet group is one of the French pioneers in the biochar production, he is conducting significant research and development work but is not the only one.</p> <p>We can mention the following major innovations:</p> <ul style="list-style-type: none"> <li>• 1st certified organic activated carbon in the world in 2021 and obtaining EBC AgroOrganic and agricultural certification (Carbon credit)</li> <li>• The Bordet Group was the first carboniser to set up co-generation on the industrial site.</li> </ul>	YES

The production of Biochar required significant R&D work to respond to new applications and the opening of new markets. Moreover, the production of biochar requires significant investments, both in terms of capital (Capex) and operational expenses (Opex).

### Capex versus Opex

Before going into detail in the modernization plan for the Leuglay production unit, it is necessary to differentiate between the Capex and Opex axes. Indeed, the latter are not financed in the same way and must be assessed differently from an accounting and financial point of view, here are some general points by way of introduction.

#### 1) Capital investments (Capex) necessary for the production of biochar:

- a) *Biochar production technologies*: Biochar production differs significantly from traditional charcoal making. Specialized advanced pyrolysis equipment capable of processing different types of biomass and producing high quality biochar is essential. The acquisition and installation of these technologies represent major investments. The reuse of wasted energies is particularly a key point for optimal net-negativity.

- b) Adaptation of existing infrastructures: To produce biochar efficiently and in sufficient quantity for new applications, it is necessary to adapt the infrastructures of the production unit. This may include setting up new systems for drying, grinding, and storing biochar-specific biomass.
- c) Improved environmental and safety controls: Biochar production may require adjustments to meet stricter environmental and safety standards. This involves investing in emission control systems, filtering equipment and measures to ensure worker safety.

**2) Operational expenses (Opex) essential for sustainable production:**

- a) Staff training: The shift from charcoal to biochar production requires specific staff training to handle the new infrastructure and production processes. This training is crucial to optimize the efficiency of the industrial tool overall and its carbon storage potential.
- b) Selection and supply of suitable biomass: To respond to new biochar production applications, the biomass used must be carefully selected or even undergo complex pre-treatment. In the case of the Bordet Group, the historical production of very high quality coal, the modernization plan for the production of biochar did not require additional costs related to the supply of biomass. Indeed, the deposits were already PEFC / FSC deposits.
- c) Research and development of new applications: To maximize the potential of biochar, and its multiple applications, research and development efforts are necessary to explore new applications in sectors such as agriculture, construction, or depollution. The Bordet Group is one of the pioneers in this field and major R&D programs have been at work since 2018, in collaboration with renowned organizations such as Cnrs or Inrae.

A4. Is the project dependent on carbon finance?	Yes / No
Carbon finance allows the improvement of the industrial process which will produce biochar of better quality and in larger volumes.	YES

A5. Does the project need a large investment to achieve carbon removal ?	Yes / No
<p>All of the financials details of modernization plan is available in the following document : <a href="#">Leuglay modernization plan.docx</a></p> <p>A color-coding system has been implemented to distinguish between projects that have already been initiated for the upcoming audit and projects for which investment has already been made, or partially made, but for the output production of the following audit:</p> <ul style="list-style-type: none"> <li>- <b>Actual expenditure post-output production audit</b></li> <li>- <b>Actual expenditure during output production audit"</b></li> </ul>	YES

A6. If investment is needed, is/was carbon finance considered when the investment decision is/was made?	Yes / No
The Bordet Group considered carbon finance as soon as it obtained EBC AgroOrganic and agricultural certification (Carbon credit) in 2021, together with the launch of the plant modernization plan.	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><b>Please describe adaptations needed and the related cost items and include evidence in attachment.</b></p>	<p>This involves the ongoing process improvement, where only OPEX and CAPEX are taken into consideration. It's a small cost analysis requested by Nina.</p> <p>As said in A5 section, All of the financials details of modernization plan is available in the following document : <a href="#">Leuglay modernization plan.docx</a></p>
<p><b>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.</b></p>	<p>Without CORC revenues, the IRR of the project would be negative.</p> <p>financials cost analysis of Corcs revenu in comparaison with modernization plan is available in the following document : <a href="#">Leuglay modernization plan.docx</a></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><b>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.</b></p>	
<p><b>Please state how CORC revenues change the expected IRR or NPV of the project.</b></p>	
<p><b>Please conduct a sensitivity analysis in relation to the investment analysis and summarize the results here.</b></p>	
<p><b>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.</b></p>	