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Resume

This document describes how the sale of CarboRock stocks will proceed and ArrCO2's role in the carbon negative industry. It also describes the basic development plans of the CarboRock startup in the short term and in the longer term. It also describes the requirement for the prototypes, which will provide specific information about productivity rates and costs. This specific information will help investors to estimates their return on investment and the break even time. This is useful information for the evaluation of CarboRock stocks.

1 Scope of this document

This document should provide potential investors for the CarboRock startup company, which will be developing the carbon negative industry project. It gives limited strategic, fiscal and legal information concerning investment in the CaroRock startup company.

2 ArrCO2's role in the carbon negative industry

One of the main roles of ArrCO2 is to deliver the latest information about the carbon negative industry relevant to investors. This information includes cost and news about the latest prototypes and also chemical and biological process. ArrCO2 also delivers to investors details about the latest prospection of raw materials and interesting potential sites for the development of the carbon negative industry. This information includes an analysis of quantity and chemical quality concerning raw materials such as ashes and wasted salts for fertilizer production. The analysis of potential implementation sites will include data about solar spectral radiation, CO_2 production of biogas reactors and nitrates concentration. These information will give potential investors insights about a specific industrial ecosystem.
ArrCO2 also organizes the sale of different CarboRock stocks. This service will be offered free of charge regarding the initial sale of stocks. However in order to align ArrCO2 and investor interests, to encourage longterm share holding and finance ArrCO2 activities to keep the CarboRock startup a competitive edge, ArrCO2 will charge a fee upon the resale of CarboRock stocks when a profit is made. This fee will correspond to 2% of the profit made. Financial contribution made to ArrCO2 will be deductible to this fee and can bring the fee to zero but cannot become negative. Currently financial contribution made to ArrCO2 are not tax deductible as ArrCO2 is not yet recognized of public utility.
ArrCO2 has been structured to produce and try prototypes and do research directly related to the carbon negative industry. Its legal structure is adapted for a

learned society working on scientific experiments and environmental improvement projects. This legal form has some draw backs regarding its high rigidity. However it has advantages over commercial structures regarding the taxation of capital. Indeed the tax rate on capital of commercial structures is much higher than for ArrCO2, whose tax rate on capital is 2.5‰. ArrCO2 will also try to become recognized of public interest and contributions could even become tax deductible.
This structure can also facilitate the development of partnership with other institutions. It will also allow to test third party technologies in order to integrate it in the carbon negative industry. ArrCO2 will centralize the R&D of the four sectors of the carbon negative industry, namely the microPBR4D research, the strains selection research, the optimization of fertilizer production and the high value compounds refinery research. It will allow to rationalize investment in research infrastructures and provide synergies.

3 CarboRock startups development plans

The carbon negative industry is a large and complex project involving very different technologies. It requires a high level of coordination and at the same time a high level of expertise in different fields (biology, chemistry, physic, programming, finance etc.). The industrial ecosystem forming the carbon negative industry also involves different economic niches. There are basically five very different main businesses.
The first one is about selling buildings (probably 3D printed) and all the proprietary technologies inside the algae farm.
The second one is about selling fertilizer by mining urban mines for raw materials, process it, package it for microPBR4D and distribute it to the final customers.
The third one is about screening and breeding algae strains to sell exclusive starter cultures with specific compounds in demand and providing the optimal growth culture conditions program for the microPBR4D.
The fourth one is about refining and transforming the raw materials (oil, protein cake, complex sugars, carbonate particles) in order to produce final products for customer like omega-3 extracts, bio-plastics for 3D printing, sugars extracts for the food industry or vitamins and other complex compounds for the pharmaceutical industry and among many other planned applications.
However different these businesses might look, they are all bound to one another and if they are working harmoniously, they will benefit from the industrial ecosystem created.
Finally a fintech business is planed to connect all the other CarboRock businesses. Since the beginning of the carbon negative industry project, CarboRock unique selling proposition is to put on the market a financial products that combines CO_2 offset based on the production of algae farms. The business model is to sell CO_2 offset certificates combined with future contracts on the different raw materials or purified and transformed CarboRock products. The idea is to attract money spent in carbon offset schemes to be invested in the carbon negative ecosystems for it to yield a return on capital. This financial product will be the first one to offer a physically based CO_2 offset certificates that can pay for themselves over time. At the same time, this product will solve financing issues

farmers may be facing when it comes to investments in a capital intensive production facility like a microPBR4D.
For all the reasons mentioned previously, the CarboRock startup is planed to form a consortium of enterprises. These businesses are planned to be founded according to a logical sequence following the advancement of research in their respective field:

CarboRock *MicroPBR4D*
CarboRock *Cells*
CarboRock *Fertilizer*
CarboRock *Refinery*
CarboRock *Financial*

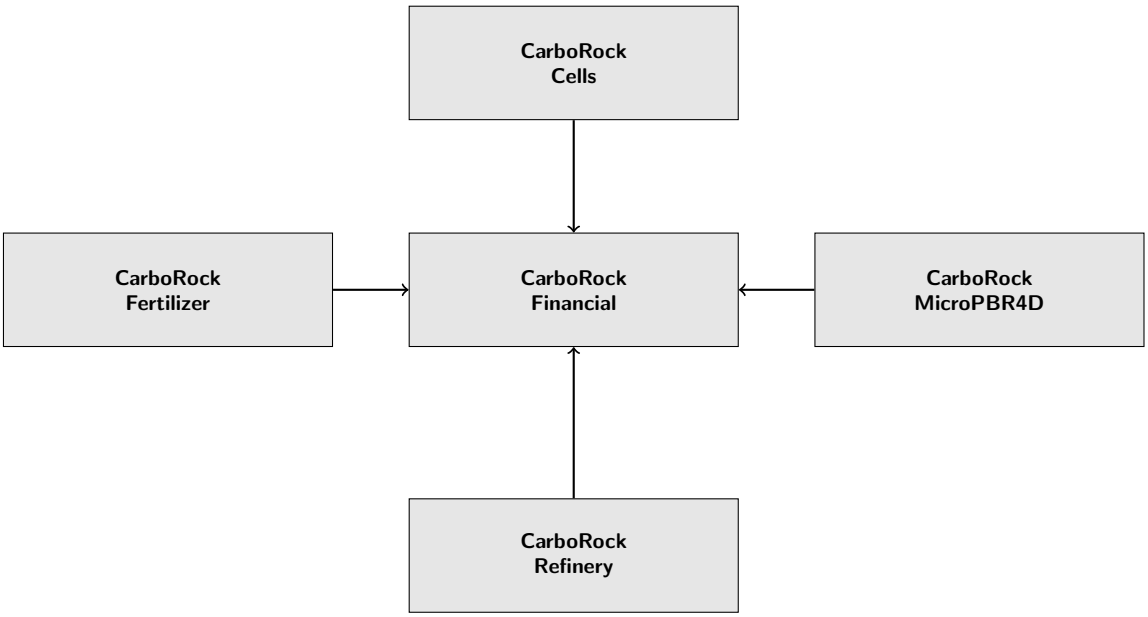

Figure 1: CarboRock planned consortium structure.

This consortium structure makes it easier to manage such a large project by using one board of directors for the consortium and separate and independent management teams for each business units. It also offers an attractive tax rate, for instance in Neuchâtel it can be as low as 15%.
Finally it gives investor a choice to invest in the business they understand best and in which they envision the best prospects or potential synergies with their current holding.

4 Goal and milestones for the carbon negative industry project

The goal of ArrCO2 is to do all the preliminary scientific research to test all the innovations proposed by the CarboRock startup company (high density culture,

digital photosynthesis, energy production rate and storage capacity of the microPBR4D and fertilizer from industrial wastes) in order for it to be ready for commercial exploitation.

4.1 Milestones prototypes

1. *The heliostat system for microPBR4D*
   The design for the first generation of heliostat system is ready. Efficient and cheap production techniques are starting to be tested at small scales. The automation system to track the sun needs to be tested.
   The experimental results will provide a way to validate and calibrate existing solar simulations using the microPBR4D heliostat system. It will also provide experimental results about wind resistance.

2. *The laboratory lamellar photobioreactor*
   ArrCO2 has been ready for more than a year to test in an official laboratory several 3D printed photobioreactors. These reactors will allow to test and experiment with high density algae cells culture. According to ArrCO2 discussed partnership agreement, some results might lead to scientific articles that could be published in scientific journals.
   These experimental results will provide a way to validate the high density cell hypothesis. Results will allow to calculate the size and ratio between the heliostat and the lamellar culture volume for a specific geographic location. These bioreactors will also be equipped with an automated culture management system. This system will provide to the other CarboRock business units a tool for further research like strains and fertilizers testing.

3. *Light Processing Unit, LPU*
   This unit is at the heart of the microPBR4D technology. This unit converts infrared radiations into electrical power, optimize and increases PAR (Photosynthetic Active Radiation) and distribute light in an optimal manner for the lamellar system. Before any prototyping of this unit, several patents will have to be secured. They will be part of CarboRock patents portfolio.

4. *Small scale fully functional microPBR4D*
   All previous prototypes results will be used to build a fully functional microPBR4D at a scale small enough to be convenient but big enough to test scaling up effects. It should also allow to test fertilizers made from industrial wastes, its packaging and its delivery system.

5. *Virtual farms and industrial ecosystem computer model*
   Finally all data resulting from previous experiments will be used to build a predictive computer model of the industrial ecosystem with a virtual farm. This model will be predictive enough to provide an accurate production rate for a specific ecosystem and the overall cost of production.

5 Conclusions

Although the information given in this document are accurate, they are potentially non exhaustive as some relevant data and information might have not been disclosed by certain institutions to ArrCO2 or the CarboRock startup project holder. The CarboRock business model and development strategy have changed substantially during the last decade. The development strategy presented here is up to date but might still be subject to some changes.
The financial plan to set up ArrCO2 research infrastructure and the medium term plan for the different milestones prototypes are under way but can vary greatly depending on the speed and scope expected.
Finally the legal venue to settle any disputes is currently in Neuchâtel but might be moved somewhere else in Switzerland.

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Founder and director of ArrCO2 and CarboRock project holder:
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