

Environmental Study for Farmless FOAK

Publieke samenvatting / Public summary

Aanleiding

Traditionally, proteins are sourced from meat, dairy products, eggs and protein-rich crops. Consequently, one of the most common industrial processes to obtain protein-rich powders is whey protein isolation. This process makes use of whey, a co-product captured from large-scale cheese producers. Whey isolation and processing is highly energy-intensive, making use of large quantities of natural gas for drying and steam generation, and its CO₂ emissions are significant. Protein isolates from soy or eggs are also common in the market, even though their GHG emissions are still considerable. Moreover, both animal and crop farming are drivers of climate change, deforestation and biodiversity loss.

Doelstelling

The objective of this study is to investigate the technological and economic feasibility of large-scale protein production from microbial mass with a renewable feedstock that can be obtained from CO₂. The study will furthermore investigate all the necessary technical, site and permit pre-requisites for initiating the construction of the demonstration. The goal is to gather all information needed to achieve a positive final investment decision for the demonstration project.

Korte omschrijving

The questions posed will be answered in different work packages (WP). WP1 will answer questions on the technical requirements and adaptations needed for the design of the demonstration project. A big part of the study consists of conceptual and basic

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engineering activities (WP2). This WP will deliver a detailed technical and economic blueprint which will de-risk the implementation, answering most of the feasibility questions this study wants to address. The identification of required permits and the environmental study (WP3) will be performed after the completion of the basic engineering study with the aim of obtaining required documentation for the application of necessary permits, aiding its future implementation. The data acquired will provide a comprehensive overview of the necessary processes and materials, allowing for a cost estimation and the realization of the techno-economic model (WP4), including reasonably accurate estimates of the CAPEX and OPEX. These estimates enable the calculation of key financial indicators for the investment decision. This WP4 will therefore provide the final answers to the questions on the economic feasibility of the demonstration project.

Resultaat

The intended result of the study is the collection of critical data to enable Farmless to take a final investment decision for the demonstration of their close-to-zero-emissions industrial protein production process. The knowledge built during the study will provide full insight into the investment needed, its legal and technical requirements, an updated business plan, an overview of measures needed to ensure continuous and stable operations of all the integrated components.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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