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International Business Assignment

Case Study on the Internationalisation of Carbon Engineering

Note:

1) The case is based on publicly available information. The internationalisation of Carbon Engineering is purely hypothetical. It does not represent what the company is planning to do.

2) You are encouraged to find and read other publicly available information on this company. However, we request you to NOT contact the company directly. Please ask your UpGrad teaching assistant instead.

Climate change is wreaking havoc on the world, generating extreme climate events such as severe cyclones, bushfires, dry spells, and increased temperatures, as well as significantly affecting food output and disrupting wildlife habitat. The major environmental hazard posed by the current energy system is climate change as a result of CO_2 emissions from fossil fuels. When CO_2 is discharged into the environment as a consequence of a human action or process, it is referred as carbon emissions. CO_2 is thought to be responsible for around half of the anthropogenic greenhouse effect at the moment.

Carbon Engineering is a company working towards reducing global carbon dioxide emissions and addresses the problem of CO_2 emitted in the atmosphere in large quantities. It uses the technology of Direct Air Capture (DAC) to capture the CO_2 directly from the air and synthesize it into clean fuels.

Carbon Engineering was founded in 2009 by David Keith who is a professor at Harvard University. The company is backed by Bill Gates and several other governments and sustainability-focused companies. They aim to bring this technology to capture carbon and convert it into clean energy.

The company is focused on the global deployment of this technology so it can have a huge impact on climate change issues. They are working to capture CO_2 on a megaton basis (1 million tons) from the atmosphere each year which is equivalent to the work of approximately 40 million trees. DAC does this by pulling air, extracting CO_2 through chemical reactions and releasing clean air back into the atmosphere. This process is faster than trees and provides CO_2 in a compressed form that can be stored and reused in the future.

Carbon Engineering Industrial Plants

Carbon Engineering has 2 large-scale industrial plants. These are:

1. DAC + Storage plants: Direct Air Capture and storage plants help in capturing CO_2 from the atmosphere at a large scale and stores it by burying it underground through geologic storage. Geological storages are safe and have been used by industries for decades with more than 200 million tons of CO_2 stored in geological sites all over the world. They can be built anywhere on non-arable land and in most climates. They can also be sized according to the customer's needs.

   [CE Technology 2022a]

2. Air to Fuels^{tm} plants: It combines DAC technology with fuel synthesis to create low carbon-intensive synthetic fuels like diesel, gasoline, etc. The process includes Direct Air Capture, renewable electricity generation, green hydrogen production and sustainable fuel synthesis. As CO_2 is unlimited, it can produce clean fuels at a global scale to meet the growing demand.

   [CE Technology 2022b]

Carbon Engineering Partnerships

To develop the new retail service, Carbon Engineering (CE) and BeZero Carbon (BeZero), a London-based Climate Risk and Hazard Control solutions provider, have teamed together. BeZero has pre-purchased a specific amount of carbon removal capacity for its clients to acquire as part of a solution package or as separate DAC removal units. Customers of BeZero may pre-order DAC removal devices, which absorb carbon dioxide from the atmosphere and retain it effectively using geological sequestration. Customers can also select for BeZero's ten-ton premium removal basket, which combines one DAC removal unit with an optimised range of extra removal options with an AA+ certification.

The Direct Air Capture (DAC) technology service also allows other companies such as its customers to achieve their climate targets by reserving a specified capacity from DAC which will remove carbon emissions on their behalf. Some of the renowned companies who are DACs customers include Shopify, Swiss Re and Audi.

[CE Partnerships]

Carbon Engineering Products and Services

1. Permanent Carbon Removal: Under this service, Carbon Engineering offers companies to achieve their carbon reduction goals by removing vast amounts of carbon emissions from the air on their behalf. It can be done by using the Direct Air Capture technology at any point in time and at a fixed cost. The amount of carbon captured is also measured to keep a track of the client's carbon removal targets.

2. Low Carbon Intensity Fuels: This service enables fuel distributors, refiners or large volume fuel purchasers as its customers to access the synthetic carbon-neutral fuels made by air, water and renewable energy with the help of its 'Air to Fuels^{tm}' industrial plant. The crude synthetic can be converted into gasoline, diesel and jet powering fuel which can be used for powering transportation vehicles like airplanes, ships, trucks, or cars in a sustainable way and meets the organisation's net-zero plans.

3. Low Carbon Intensity Products: Carbon Engineering provides pure compressed CO_2 that is captured from the atmosphere using Direct Air Capture technology. This pure compressed CO_2 can be used in industrial operations, product manufacturing, producing sustainable materials like steel, fillers and concrete, chemicals like fertilizers and carbonates, etc. Utilising atmospheric CO_2 is a cost-effective way to reduce carbon footprint and work towards net zero plans.

[CE Products and Services 2022c]

Carbon Engineering (CE) has also been listed on the 'Global Cleantech 100' list by Cleantech Group. It has also been awarded the 2021 North American Company of the Year Award [CE awards]. CE is looking to set up its DAC and Air to Fuels^{tm} plants in other regions including the UK, Asia-Pacific and Europe and further expanding its services across the globe. Their future aim is to restore the safe levels of CO_2 in the atmosphere and play a significant role in achieving net-zero emissions by 2050.

[CE mission & vision]

Given the context and current offerings of Carbon Engineering, your task is to create a country report for Assignment 1, wherein you will investigate the key country factors relating to cultural, political, legal and economic considerations and make a suggestion regarding whether Australia's environment is suitable for its entry.

References

- CE Technology 2022a (link)
- CE Technology 2022b (link)
- CE Products and Services 2022c (link)
- CE Partnerships (link)
- CE Awards (link)
- CE Mission & Vision (link)