

Karbon Brewing: Sustainable Brewing Handbook



BETTER BEER FOR A BETTER WORLD



Background

Karbon Brewing is on a mission to become Canada's first net-zero brewery. Through modifications across their value chain, this can come to fruition.

Our research objective focuses on analyzing the fermentation and water treatment processes, examining where carbon dioxide (CO₂) capture can be incorporated within a brewing organization, and what alterations can be made to make packing biodegradable in order to create a more sustainable business.

Our research developed through examining various stakeholders and pieces of academia. This included peer-reviewed articles, gray literature, journal articles, websites, and podcasts.

Fermentation

Current Issues:

The value chain requires adaptations to lower CO₂ emissions generated by the mixing of barley, wheat, and hops, and find ways to incorporate sustainable sourcing and methodologies in the process.

Recommendations:

Sourcing ingredients from sustainable agriculture initiatives (SAI). Investing in lab-generated enzymes in place of barley, and Bakers yeast in place of hops to lower CO₂ emissions and resource intensive cultivation. Utilizing carbon capture and monitoring technologies to boost sustainable productivity.

CO₂ Capture

Current Issues:

Still in grassroots phase of introducing CO₂ capture to the industry and not sufficiently incorporated in aspects along the value chain.

Recommendations:

Use Greenhouse gas (GHG) reports to identify the most emission dense areas of the value chain as well as business externality reporting scopes to decide where to incorporate CO₂ capture most effectively.

More information on reporting scopes can be found using the QR code

Water Treatment

Current Issues:

Breweries struggle with unsustainable water use, risking security and the environment, while also needing to cut water use and remove contaminants for safe reuse, which is costly and affects water availability.

Recommendations:

Invest in efficient wastewater treatment using anaerobic digestion and reverse osmosis. Implement water-saving technologies like rainwater harvesting and process optimization to reduce water use.



Biodegradable Packaging

Current Issues:

Packaging within breweries is often made of plastic products which accumulate in landfills and are environmentally toxic.

Recommendations:

Switching to biodegradable and more sustainable alternatives which can be reused overtime such as biodegradable and reusable beer rings, and biodegradable beer labels.



For more information, please visit the QR code