
Understanding Carbon Emissions Reporting

NC Environmental Stewardship Initiative
July 2022

Certified



Corporation

bcorporation.net

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Sustainability Specialist



NEW BELGIUM.

BORN
ON A
BIKE SEAT



1988



Co-founded by a SOCIAL WORKER

- **Outside Magazine's Best Places to Work**
- **Wall Street Journal's Best Small Businesses**
- **100% employee owned**
- **Platinum-level Bicycle Friendly Business**
- **World Blu's most democratic U.S. businesses**
- **Certified B Corp— using business as a force for good**



FIRST wind powered brewery in the U.S.

FIRST employee-owned brewery in the U.S.

FIRST greenhouse gas assessment for beer

FOUNDED and co-lead
Brewers' Association
Sustainability Committee

FOUNDED
Glass Recycling Coalition

OVER \$30 MILLION donated to
charitable causes

CLEAR IMPACT & RISK TO BEER BUSINESS

In a First, U.S. Declares Shortage on Colorado River, Forcing Water Cuts

Arizona farmers will take the initial brunt, but wider reductions loom as climate change continues to affect flows into the river.



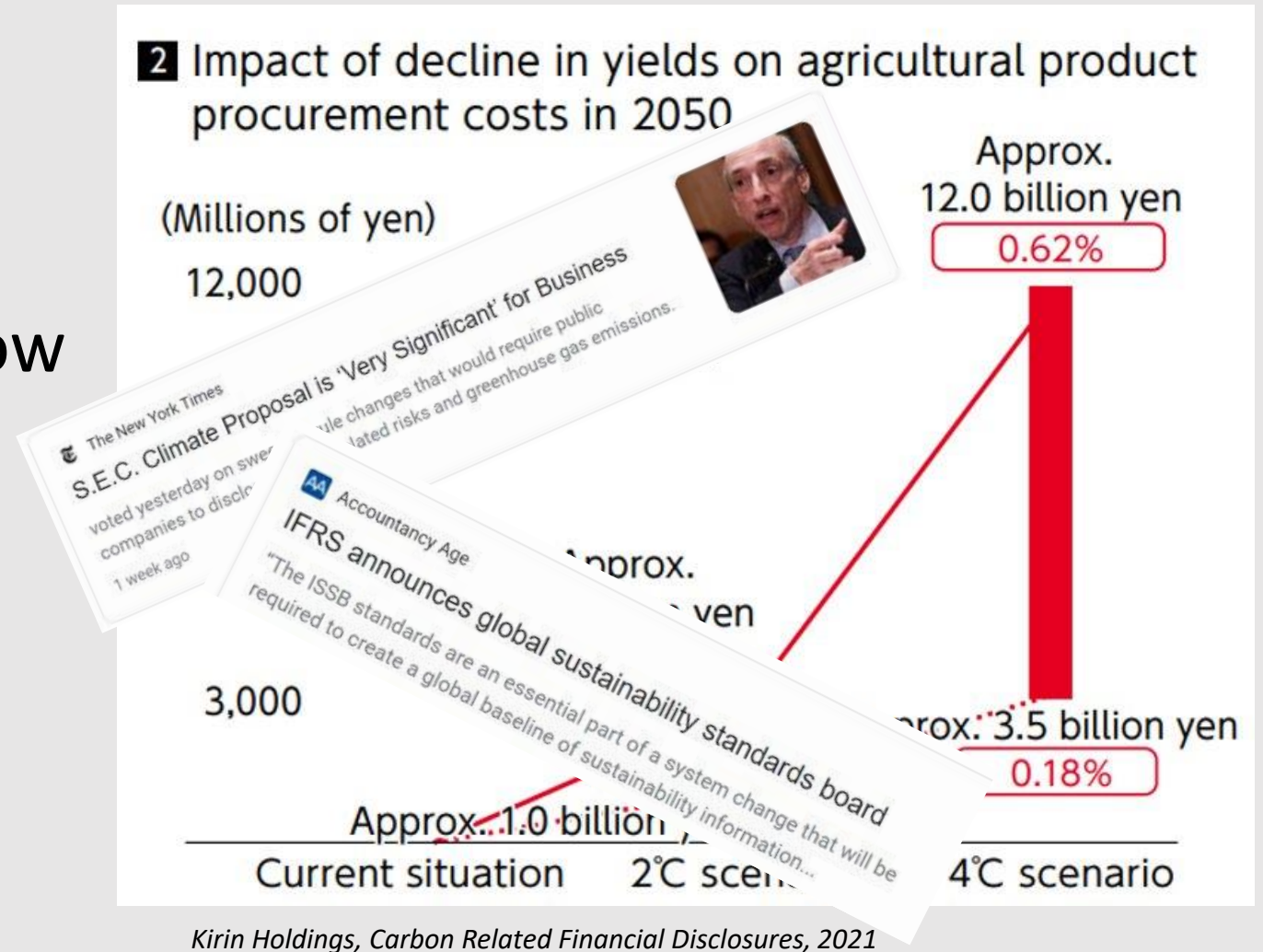
Drought Forces North America Farmers to Turn Food Crops to Hay

- Failed wheat, barley fields are being fed to hungry cattle
- Crops that should be 'armpit high' are 'boot-high at best'

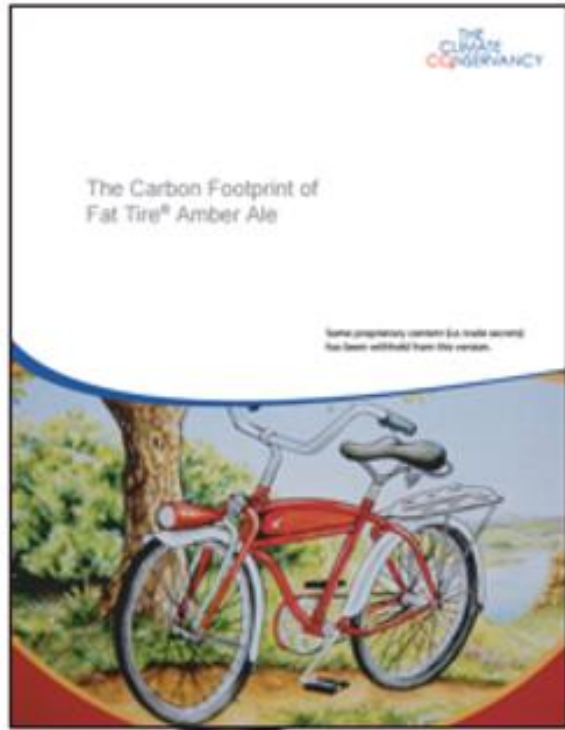


Climate's impact to the bottom line is so obvious now that companies are making aggressive voluntary investments.

For those not paying attention, regulation is imminent.



MATERIALITY ASSESSMENT



GREENHOUSE GAS EMISSIONS

SCOPE 1: 8.3%

DIRECT EMISSIONS

Emissions directly occurring from sources that are owned or controlled by the institution, including: on-campus stationary combustion of fossil fuels; mobile combustion of fossil fuels and "fugitive" emissions.

SCOPE 2: 6.1%

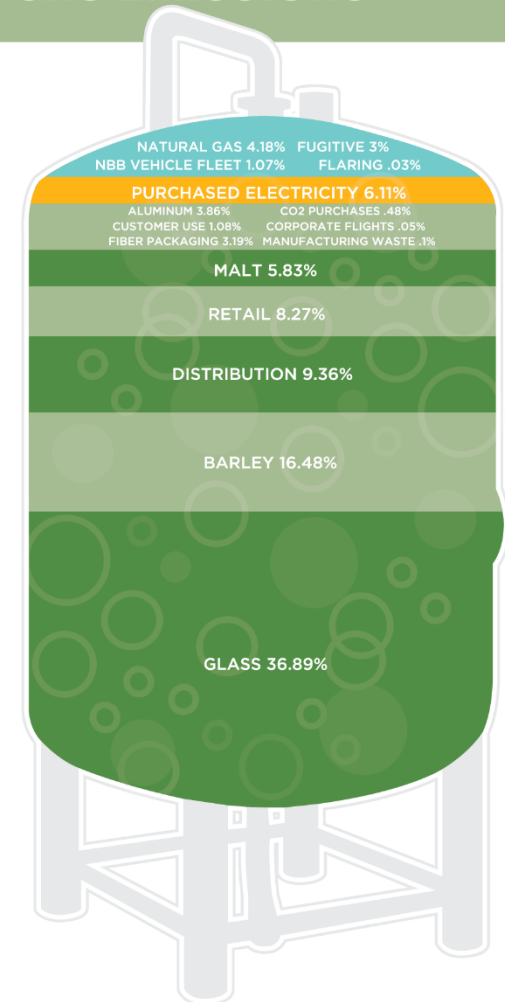
INDIRECT EMISSIONS

Indirect emissions generated in the production of electricity consumed by the institution.

SCOPE 3: 85.6%

INDIRECT EMISSIONS

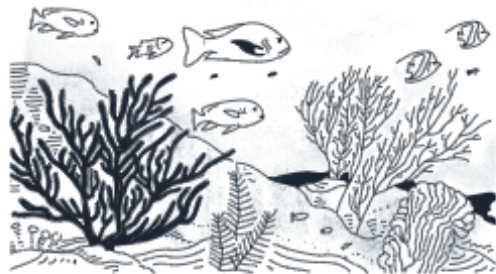
All the other indirect emissions that are a consequence of the activities of the institution, but occur from sources not owned or controlled by the institution.



BRIGHT TANK INFOGRAPHIC IS ONLY REPRESENTATIVE OF 100%, NOT ANY PARTICULAR OBJECT OR MATERIAL

AMERICA'S FIRST CARBON NEUTRAL BEER

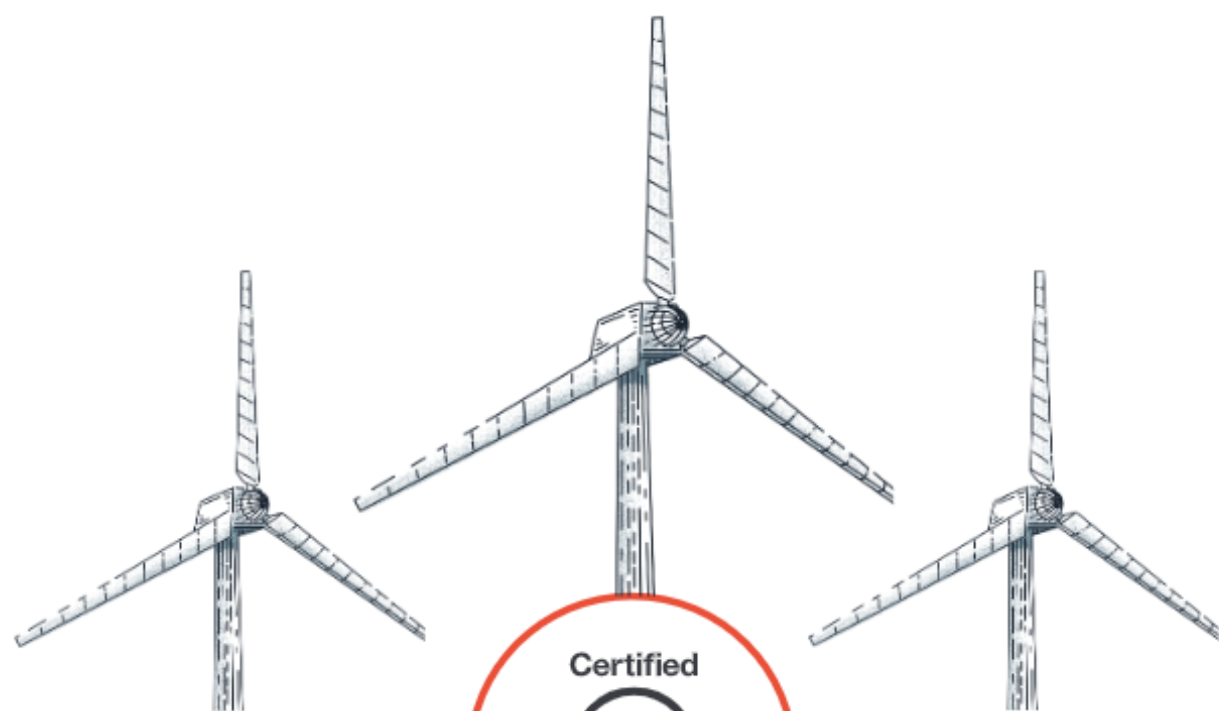
After 30 years of striving to reduce our impact, Fat Tire is America's first certified carbon neutral beer. That's really all you need to know, but if you're looking to get into the nitty gritty details of how we did it, then read on, you sustainability enthusiast!



We achieved carbon neutrality by participating in renewable energy initiatives and developing energy efficiency solutions. We also leveraged carbon offsets, funding regenerative agriculture across North America, sustainable forest management in the Southeast, and energy efficiency education in the Midwest. While we're working to eliminate the need for carbon offsets, we're proud of the work these initiatives are doing to address climate change.

Fat Tire is also a certified TRUE Zero Waste company and part of 1% for the Planet, an organization whose members contribute at least one percent of annual sales to environmental causes.

The bottom line is that we're always working to make our business more sustainable, because we care about the future of the planet... which just happens to mean the future of beer too.



NEW BELGIUM: BUSINESS AS A FORCE OF GOOD

Fat Tire is crafted by New Belgium Brewing. As a certified B Corp, New Belgium has always been committed to using the power of business to help solve our biggest social and environmental challenges.

Not only is New Belgium committed to making our entire business carbon neutral by 2030, we're also constantly looking for ways to leverage clean energy, craft sustainable packaging, and encourage bike riding. Who says helping the planet can't involve a little two-wheeled fun?

2030 CLIMATE GOALS

✓ **BY 2020**

**First Certified Carbon
Neutral Beer in the U.S.**



□ **BY 2030**

**100% Carbon Neutral
(all brands)**



□ **BY 2030**

**100% Renewable
Electricity**



□ **BY 2030**

**Reduce absolute GHGs
by 55% (Sc.1-2), 30% (Sc.3)
from 2019-2030**



What does “carbon neutral” actually mean?

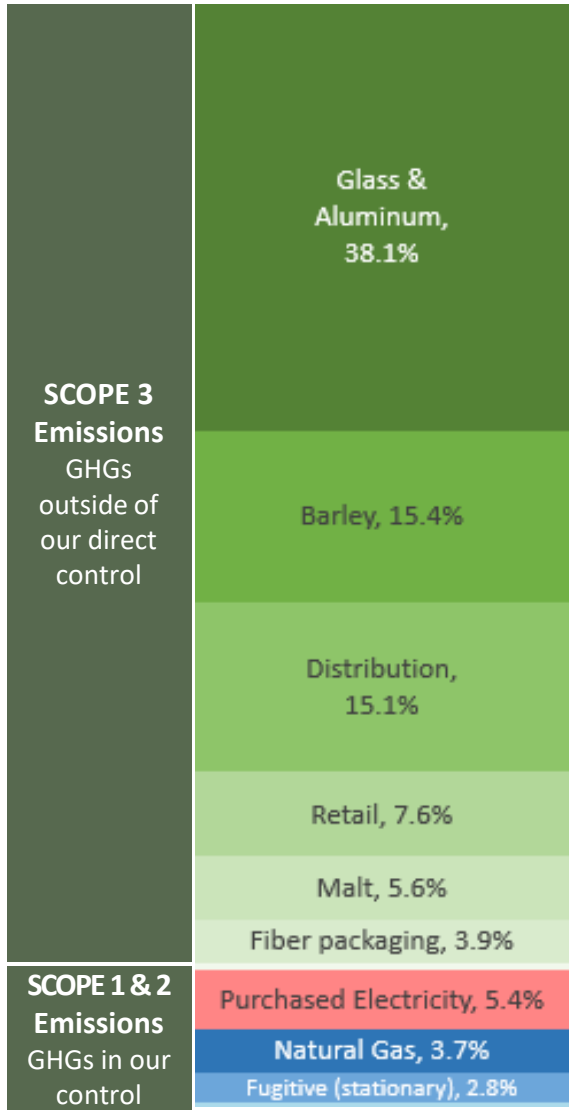
Carbon neutral = Measure greenhouse gasses (GHGs) emitted into the atmosphere throughout the lifecycle of your product and buy carbon offsets to avoid or sequester GHGs elsewhere.

Net Zero = Reduce GHG emissions to a residual level across the lifecycle of your product and buy minimal offsets for remaining GHGs.

Real Zero = Truly emit no GHG emissions



PATH TO CARBON NEUTRAL BEER



REDUCE ACTUAL GHGs
Scope 1&2 -55%, Scope 3 -30% from 2019-2030

BUY OFFSETS
All beers 2030

GET CERTIFIED

MEASURE GHGs



CARBON NEUTRAL TOOLKIT

FOR CRAFT BREWERIES



Making real progress to solve the climate crisis will require all breweries to take action. We've taken all the work we've done to achieve carbon neutrality and released a detailed "how-to" toolkit to help any brewery join the movement by measuring carbon emissions and taking steps to become carbon neutral.

AutoSave Off Drink_Sustainably_GHG_Accounting_Tool.xlsx - Read-Only Search (Alt+Q) Sarah Fraser

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B1 Welcome to the Drink Sustainably GHG Accounting Tool!

Welcome to the Drink Sustainably GHG Accounting Tool!

Provided as a free resource for craft brewers from New Belgium Brewing

This tool is designed to provide small and medium-sized brewers with a self-service method to estimate their greenhouse gas (GHG) emissions footprint. This tool is not to be used or adapted for other purposes or by other entities.



ORIENTATION

Throughout this workbook, each tab contains either data inputs, reports, or reference material. Tabs are organized into 5 color-coded sections:

TAB COLOR	TYPE	CONTENTS
Red	REPORT	Tabs are output-only, dynamically generated summaries of your brewery emissions
Blue	BREWERY OPERATIONS	Tabs are for inputs related to activities within the brewery
Yellow	UPSTREAM	For inputs related to activities that happen prior to arrival at the brewery
Green	DOWNSTREAM	For inputs related to activities after departure from the brewery
Grey	REFERENCES	Contain reference values and overall guidance

Within each tab, cells are color-coded to indicate where data inputs are required by the user and where data is being automatically calculated:

CELL COLOR	DATA TYPE	INSTRUCTIONS
Yellow, Black Text	Manually Entered Data	INPUT REQUIRED. Data to be input annually based on brewery-specific information. Many yellow cells currently contain "placeholder" values for demonstration purposes which should be updated with your brewery data.
Yellow, Red Text	Manually Entered Data	INPUT OPTIONAL. These cells contain data which New Belgium has provided based on our experience. If your brewery has a different value, it can be input instead. Otherwise values in these cells are a reasonable estimation.
Green, Black Text	Emission Factor	INPUT REQUIRED. Emission Factor should be updated based on your location/brewery

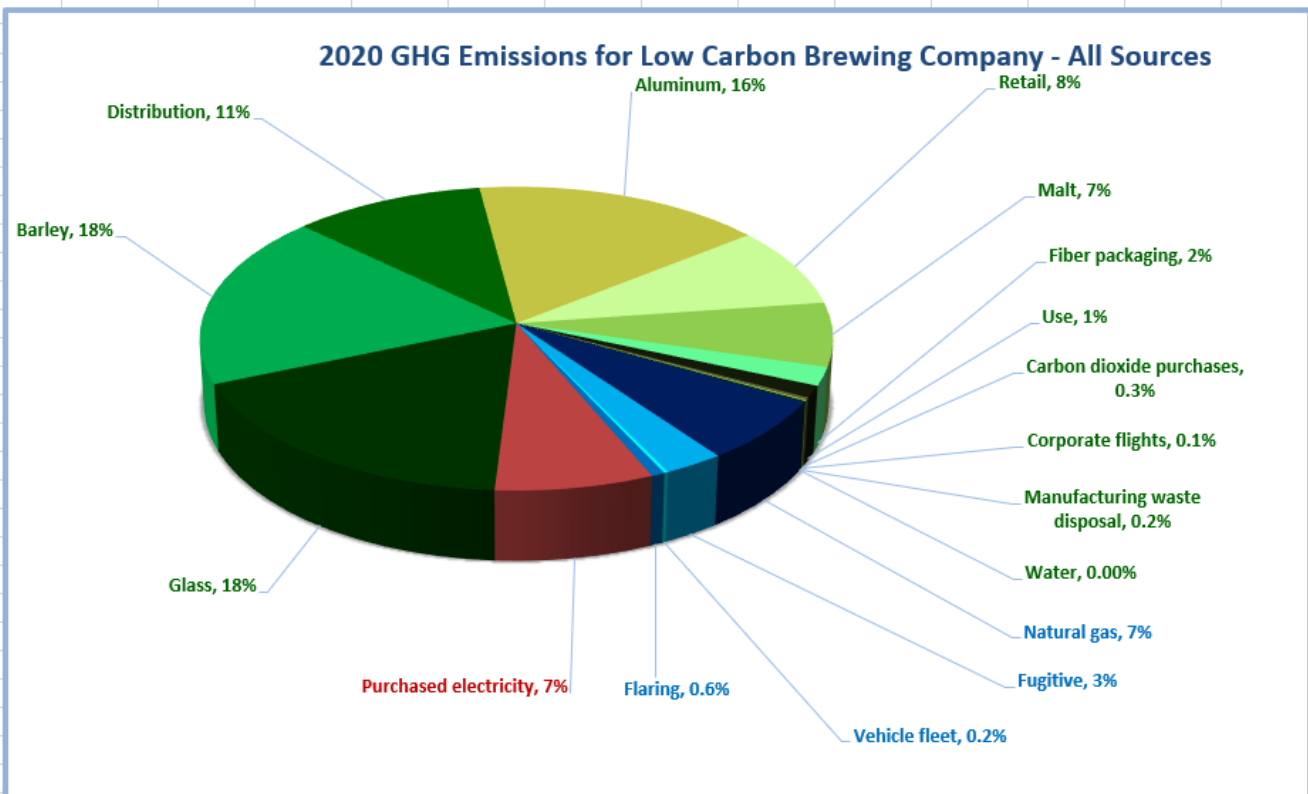
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GHG Emissions for Low Carbon Brewing Company - All Sources		
Natural gas	7%	10.3%
Fugitive	3%	
Vehicle fleet	0.2%	
Flaring	0.6%	
Purchased electricity	7%	7.4%
Glass	18%	82.3%
Barley	18%	
Distribution	11%	
Aluminum	16%	
Retail	8%	
Malt	7%	
Fiber packaging	2%	
Use	1%	
Carbon dioxide purchases	0.3%	
Corporate flights	0.1%	
Manufacturing waste disposal	0.2%	
Water	0.00%	
	100.00%	



Scope 1: Direct Emissions Emissions directly occurring "from sources that are owned or controlled by the	Scope 2: Indirect Emissions Indirect emissions generated in the production of electricity consumed by the	Scope 3: Indirect Emissions All the other indirect emissions that are "a consequence of the activities of the
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Control Data - Standard Brewery Data					
					Data Entry Notes:
Yellow Highlights = Data entry needed. See color legend on Welcome tab for more info.					<i>The individual amounts for the beer brewed, packaged, and sold during numbers are the basis for many other calculations within this tool.</i>
Control Data MAIN - 2020		Control Data 2ND - 2020		Control Data ALL - 2020	
hL Brewed	140,817	hL Brewed	82,143	hL Brewed	222,961
Bbl Brewed	120,000	Bbl Brewed	70,000	Bbl Brewed	190,000
hL Packaged	123,215	hL Packaged	88,011	hL Packaged	211,226
Bbl Packaged	105,000	Bbl Packaged	75,000	Bbl Packaged	180,000
hL Packaged (Bottles)	41,072	hL Packaged (Bottles)	23,470	hL Packaged (Bottles)	64,541
Bbl Packaged (Bottles)	35,000	Bbl Packaged (Bottles)	20,000	Bbl Packaged (Bottles)	55,000
hL Packaged (Kegs)	11,735	hL Packaged (Kegs)	5,867	hL Packaged (Kegs)	17,602
Bbl Packaged (Kegs)	10,000	Bbl Packaged (Kegs)	5,000	Bbl Packaged (Kegs)	15,000
hL Packaged (Cans)	70,409	hL Packaged (Cans)	58,674	hL Packaged (Cans)	129,083
Bbl Packaged (Cans)	60,000	Bbl Packaged (Cans)	50,000	Bbl Packaged (Cans)	110,000

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Electricity

Data Entry Notes:

Enter the monthly electricity usage in kWh from each meter that serves the brewery from your utility bills. This template can hold the data for up to 5 meters.
 Find your "eGRID" emissions factor for each brewery location using the link provided, and then enter them in the sections below (the emission factors below are placeholders.)

Highlights = Data entry needed. See color legend on Welcome tab for more info.
[Essary/FAQ](#)

Main Brewery Total Electricity Usage

Year	Month	Amount	Unit
2020	January	185,000	kWh
2020	February	185,000	kWh
2020	March	185,000	kWh
2020	April	185,000	kWh
2020	May	185,000	kWh
2020	June	185,000	kWh
2020	July	185,000	kWh
2020	August	185,000	kWh
2020	September	185,000	kWh
2020	October	185,000	kWh
2020	November	185,000	kWh
2020	December	185,000	kWh
Total		2,220,000	kWh

Month	Meter 1	Meter 2	Meter 3	Meter 4	Meter 5	Total
January	125,000	35,000	20,000	5,000		185,000
February	125,000	35,000	20,000	5,000		185,000
March	125,000	35,000	20,000	5,000		185,000
April	125,000	35,000	20,000	5,000		185,000
May	125,000	35,000	20,000	5,000		185,000
June	125,000	35,000	20,000	5,000		185,000
July	125,000	35,000	20,000	5,000		185,000
August	125,000	35,000	20,000	5,000		185,000
September	125,000	35,000	20,000	5,000		185,000
October	125,000	35,000	20,000	5,000		185,000
November	125,000	35,000	20,000	5,000		185,000
December	125,000	35,000	20,000	5,000		185,000
Total	1,500,000	420,000	240,000	60,000	0	2,220,000

Subregion for all emission factors: [Region] eGRID Link

CO2 Emissions from Electricity - All Meters MAIN

2,220,000	Total kWh
1,273.6	Emission Factor-[Region] (lb CO2/MWh)
577.7	Emission Factor (kg CO2/MWh) (1 kg = 2.2046 lb)
0.578	Emission Factor (kg CO2/kWh) (1 MWh = 1000 kWh)
1,282,497	Emissions from electricity (kg CO2)
1	GWP
1,282,497	Emissions (kg CO2e)

CH4 Emissions from Electricity - All Meters

2,220,000	Total kWh
0.123	Emission Factor (lb CH4/MWh)
0.056	Emission Factor (kg CH4/MWh) (1 kg = 2.2046 lb)
5.58E-05	Emission Factor (kg CH4/kWh) (1 MWh = 1000 kWh)
124	Emissions from electricity (kg CH4)
28	GWP
3,468	Emissions from CH4 (kg CO2e)

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Comments

A2

Fugitive Emissions - Stationary Sources

Yellow Highlights = Data entry needed. See color legend on Welcome tab for more info. [Glossary/FAQ](#)

Data Entry Notes: Enter the refrigerants purchased by type and location in the highlighted fields - these represent "fugitive" greenhouse gases. Common types are already included and there is a placeholder to add a refrigerant that may not be listed already.

MAIN Fugitive Emissions Data

HVAC Refrigeration (R-134a Refrigerant)			HVAC Refrigeration (R-407C Refrigerant)		
10	R-134a Refrigerant emissions (lb)		10	R-407C Refrigerant emissions (lb)	
0.454	Conversion Factor (lb to kg)		0.454	Conversion Factor (lb to kg)	
4.53592	R-134a Refrigerant emissions (Kg)		4.54	R-407C Refrigerant emissions (Kg)	
1430	GWP		2110	GWP	
6,486	Emissions from R-134a Refrigerant (kg CO2)		9,571	Emissions from R-407C Refrigerant (kg CO2)	
123,215	hL Packaged		123,215	hL Packaged	
0.053	Emissions from R-134a Refrigerant (kg CO2/hL)		0.078	Emissions from R-407C Refrigerant (kg CO2/hL)	
HVAC Refrigeration (R-22 Refrigerant)			HVAC Refrigeration (R-404A Refrigerant)		
10	R-22 Refrigerant emissions (lb)			R-404A Refrigerant emissions (lb)	
0.454	Conversion Factor (lb to kg)		0.454	Conversion Factor (lb to kg)	
4.54	R-22 Refrigerant emissions (Kg)		0.00	R-404A Refrigerant emissions (Kg)	
1700	GWP		3922	GWP	
7,711	Emissions from R-22 Refrigerant (kg CO2)		0	Emissions from R-404A Refrigerant (kg CO2)	
123,215	hL Packaged		123,215	hL Packaged	
0.063	Emissions from R-22 Refrigerant (kg CO2/hL)		-	Emissions from R-404A Refrigerant (kg CO2/hL)	

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A2

Barley Production

Yellow Highlights = [Data entry needed. See color legend on Welcome tab for more info.](#)
[Glossary/FAQ](#)

Data Entry Notes:
 Malt purchases data comes from the Upstream-Malt tab automatically.
 Enter average distance from farm to maltster(s).

MAIN Barley - Agriculture	
1.29	Seed Production (g CO2e/12 oz)
6.77	Agricultural Machinery (g CO2e/12 oz)
30.17	Irrigation (g CO2e/12 oz)
18.41	Fertilizer (g CO2e/12 oz)
17.63	Soil Emissions (g CO2e/12 oz)
74.27	Total barley emission factor (g CO2e/12 oz)
1000	Conversion (g to kg)
0.074	Total barley emissions (kg CO2e/12oz)
120,000	Beer brewed (bbls)
55.11	Conversion: bbls to 6-pack
6,613,333	Beer brewed (6-pack equivalents)
6	Conversion: Number of bottles in 6-pack
39,680,000	Beer brewed (bottle equivalents)
2,947,034	Total agriculture emissions (kg CO2e)

2ND Barley - Agriculture	
1.29	Seed Production (g CO2e/12 oz)
6.77	Agricultural Machinery (g CO2e/12 oz)
30.17	Irrigation (g CO2e/12 oz)
18.41	Fertilizer (g CO2e/12 oz)
17.63	Soil Emissions (g CO2e/12 oz)
74.27	Total barley emission factor (g CO2e/12 oz)
1000	Conversion (g to kg)
0.074	Total barley emissions (kg CO2e/12oz)
70,000	Beer brewed (bbls)
55.11	Conversion: bbls to 6-pack
3,857,778	Beer brewed (6-pack equivalents)
6	Conversion: Number of bottles in 6-pack
23,146,667	Beer brewed (bottle equivalents)
1,719,103	Total agriculture emissions (kg CO2e)

MAIN Barley - Transportation	
950	Total malt purchased from maltster(s) (tons)

2ND Barley - Transportation	
400	Total malt purchased from maltster(s) (tons)

2030 CLIMATE ACTION PLAN



- SBTI Scopes 1-2 -55% by 2030
- RE100 by 2030

SCOPE: Direct Reductions, Sc.1-2
 TIMELINE: 2020-2030
 TEAMS: CSR, Ops, F&A



- SBTI Scope 3 -30% by 2030
- TBD% Recycled Content in Pkg

SCOPE: Direct Reductions, Sc.3
 TIMELINE: 2020-2030
 TEAMS: CSR, Purchasing NBB+LION



CARBON NEUTRAL CERTIFIED
 BY SCS GLOBAL SERVICES

- All beers Certified Carbon Neutral by 2030

SCOPE: Offsets, Sc.1,2,3
 TIMELINE: FT 2020, +brands 2021-30
 TEAMS: CSR, Marketing



- Invest in Climate Justice
- Invest in climate-resilient barley

SCOPE: Investing in Resilience, Sc.3
 TIMELINE: ongoing
 TEAMS: CSR



POLICY ADVOCACY

- Effective climate & energy policy to increase pace & reduce cost

SCOPE: Cost Savings, Sc.1-3
 TIMELINE: ongoing
 TEAMS: CSR



RENEWABLE ENERGY



ENERGY EFFICIENCY



REFRIGERANTS



FLEET



CONTRACTUALLY BIND CARBON REDUCTIONS



SPONSOR RE+EE CONSULTANT FOR SUPPLIER CN GOALS



ENROLL BARLEY FARMERS INTO REGEN AG OFFSETS



INCREASE RECYCLED CONTENT IN PACKAGING



CLIMATE JUSTICE



BARLEY BREEDING RESEARCH

POLICY ADVOCACY AT LOCAL, STATE, FEDERAL LEVEL

BICEP

BUSINESS for INNOVATIVE CLIMATE & ENERGY POLICY

a project of Ceres

AMERICA IS ALL IN



Thank you!