



**Welcome to
ESI Environmental Benchmarking Series Webinar**

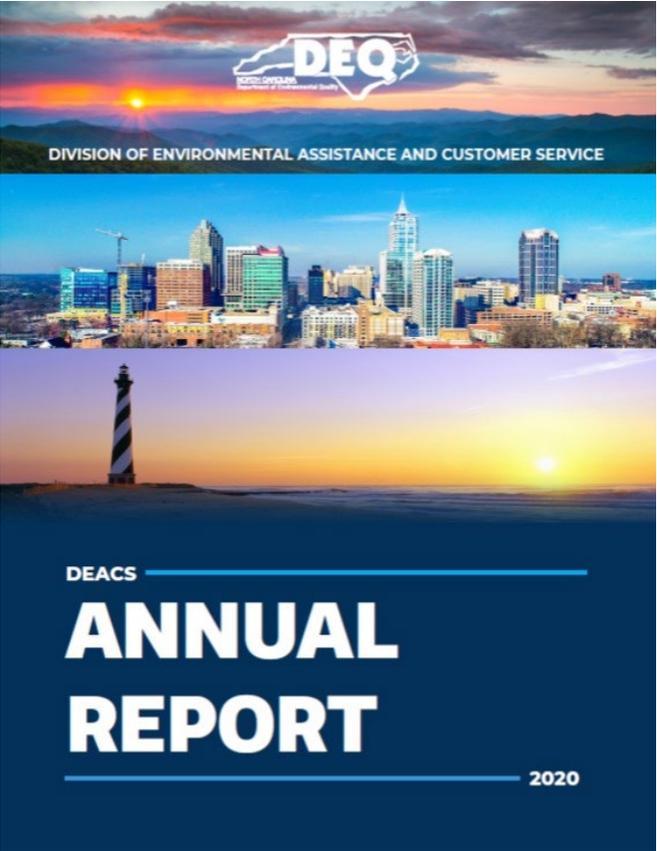
Sierra Nevada – Bigger than Beer

March 30, 2021

10:00 am – 12:00 pm EDT

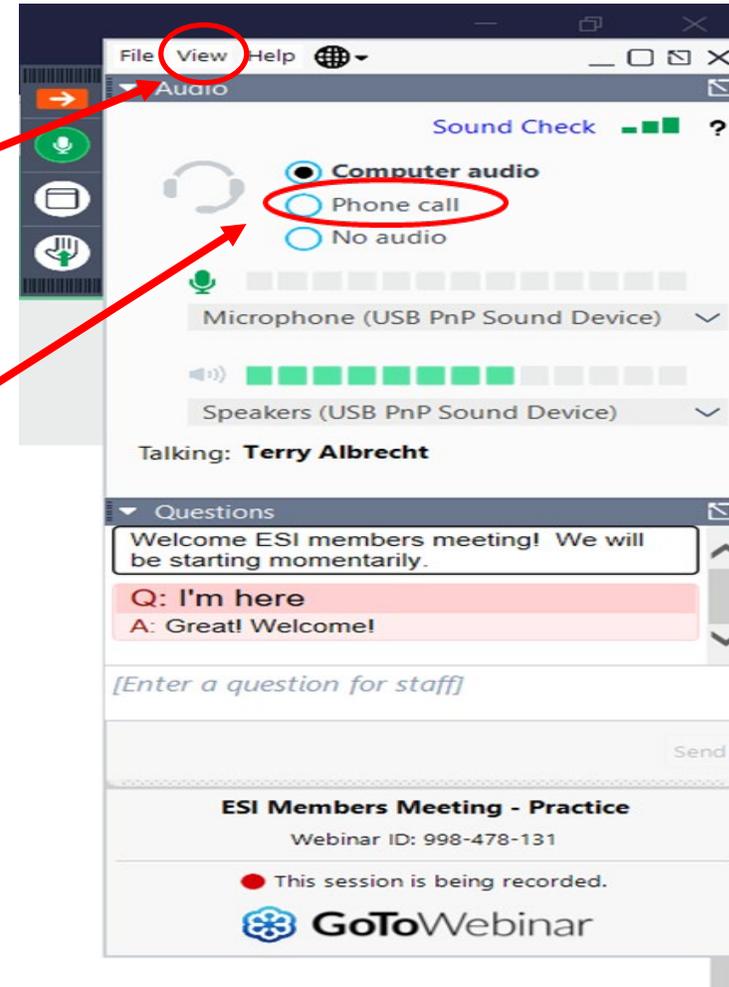


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Webinar Housekeeping

- Hide your GoToWebinar control panel by clicking the red arrow
- Edit your control panel settings by clicking “View” in menu
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- Slides and recording will be sent out and will be posted to “events” section of www.ncesi.org



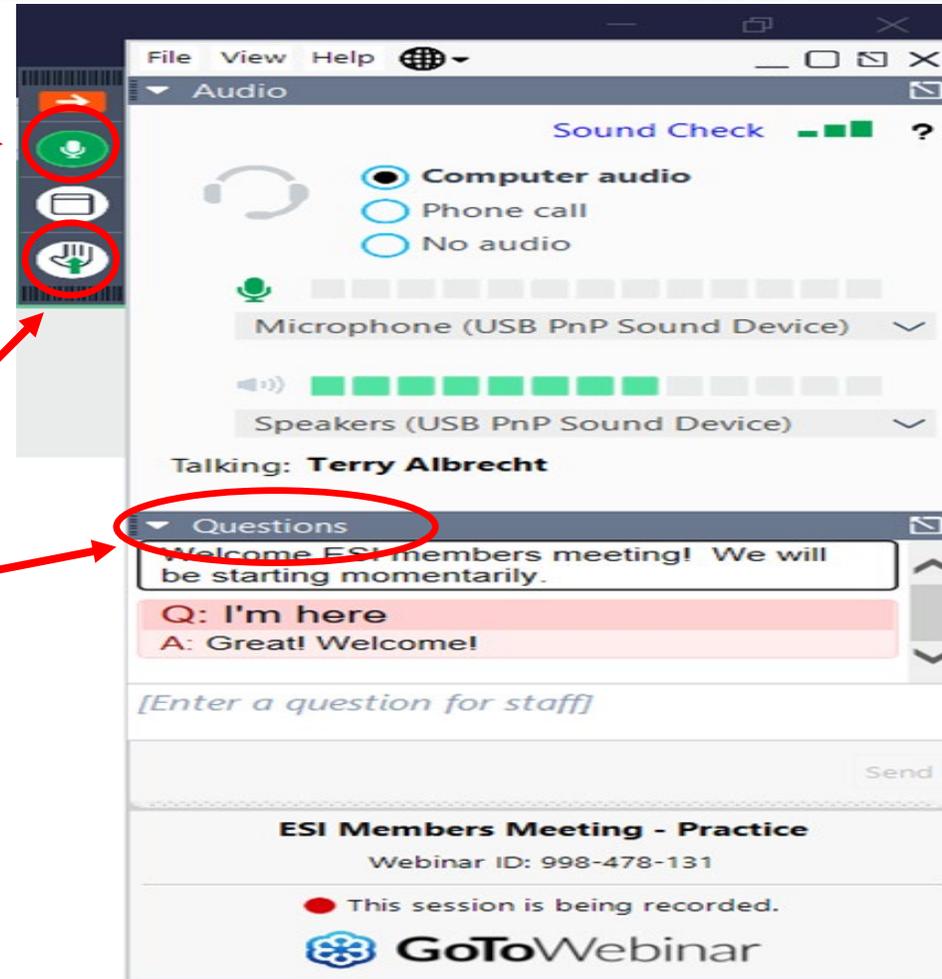
Participation

Mute/Unmute

- Everyone has been brought in muted (red)

How to Ask Questions:

- Raise your hand
- or
- Use the Questions Box



Environmental Stewardship Initiative (ESI)



- Recognition/leadership program
- **Free and voluntary**
- Promotes P2 strategies
- Personalized Coach
- Technical and compliance assistance
- Member marketing
- Networking opportunities, peer mentorship
- No-cost training
- ~200 sites across state

Contact:

Angela Barger (919) 707-8126
angela.barger@ncdenr.gov

Don Burke (919) 707-8131
don.burke@ncdenr.gov

2019 ESI MEMBERS REPORTED RESULTS			
REDUCTIONS	Air Emissions	247	Tons
	Greenhouse Gas Emissions *	24,190	Metric Tons CO _{2e}
	Hazardous waste	158	Tons
	Landfilled waste	803	Tons
	Energy	838,230	mmBtu
	Water Use	1,050,057,201	Gallons
	Material Consumption	265	Tons
	Wastewater Pollutants	399,871	Tons
	Wastewater Volume	3,630,628,382	Gallons
REUSE	Biomass Recovery**	77,361	Tons
	Total Recycled Volume	186,998	Tons
		TOTAL COST SAVINGS \$ 11,287,397	



ESI Membership Levels*



Stewards

- Set aggressive environmental goals
- Integrate EMS into core business functions
- Communicate with local community
- Agree to mentor other ESI members



Rising Stewards

- Demonstrate mature EMS
- Commit to go beyond compliance
- Set long-term environmental goals



Partners

- Establish environmental goals
- Report annually on goals and compliance
- Not be under criminal indictment/conviction

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*Membership requirements are added as you move up the hierarchy; e.g., Stewards must also meet the member requirements at the Partner and Rising Steward levels.

ESI Members



Waste Reduction Partners



- Non-regulatory and typically no cost
- Consultative services by 40 retired engineers and scientists
- Improve environmental management through P2 strategies
- Conduct on-site assessments to identify cost-saving strategies and efficiencies to reduce impacts
- \$137 M cost savings and 5.66 Trillion BTUs in energy savings by WRP clients since 2000



Contact: Terry Albrecht (828) 251-7475
talbrecht@wrpnc.org
www.wastereductionpartners.org

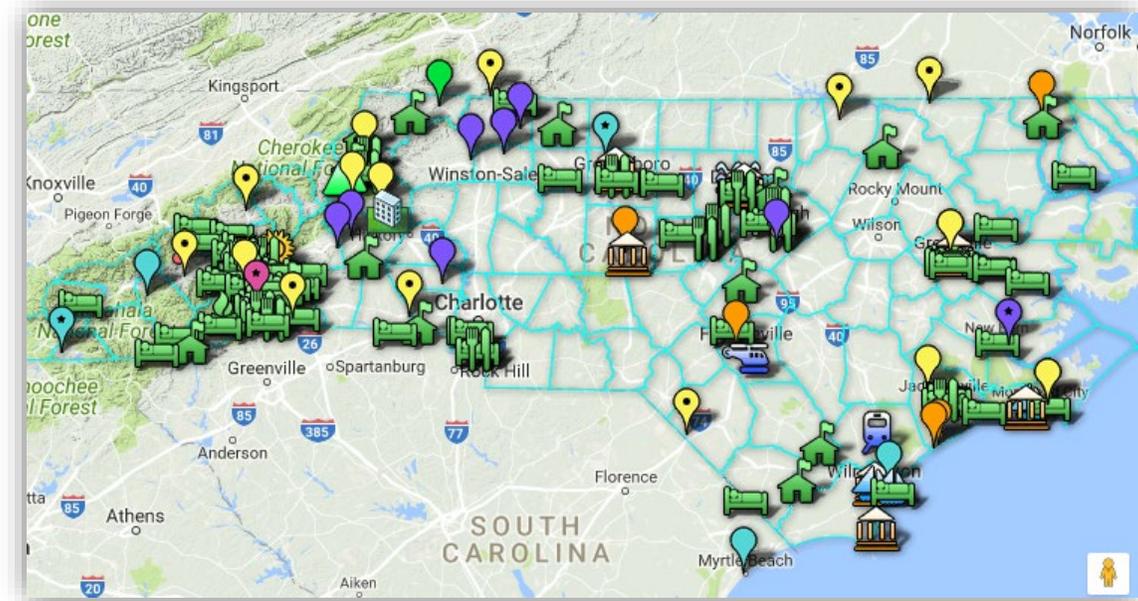


Sustainable Tourism

Tom Rhodes at tom.rhodes@ncdenr.gov

Find a NC [Green Travel Business](#)

- Recognizes environmental stewardship at tourism-oriented businesses and attractions
- Promotes and expands sustainable tourism in NC
- Recognition used by members to attract visitors and support economic growth
- More than 200 currently recognized destinations



Bigger than Beer

PEER-TO-PEER PROMOTION OF ENVIRONMENTAL EXCELLENCE



- Leah Cooper from Sierra Nevada



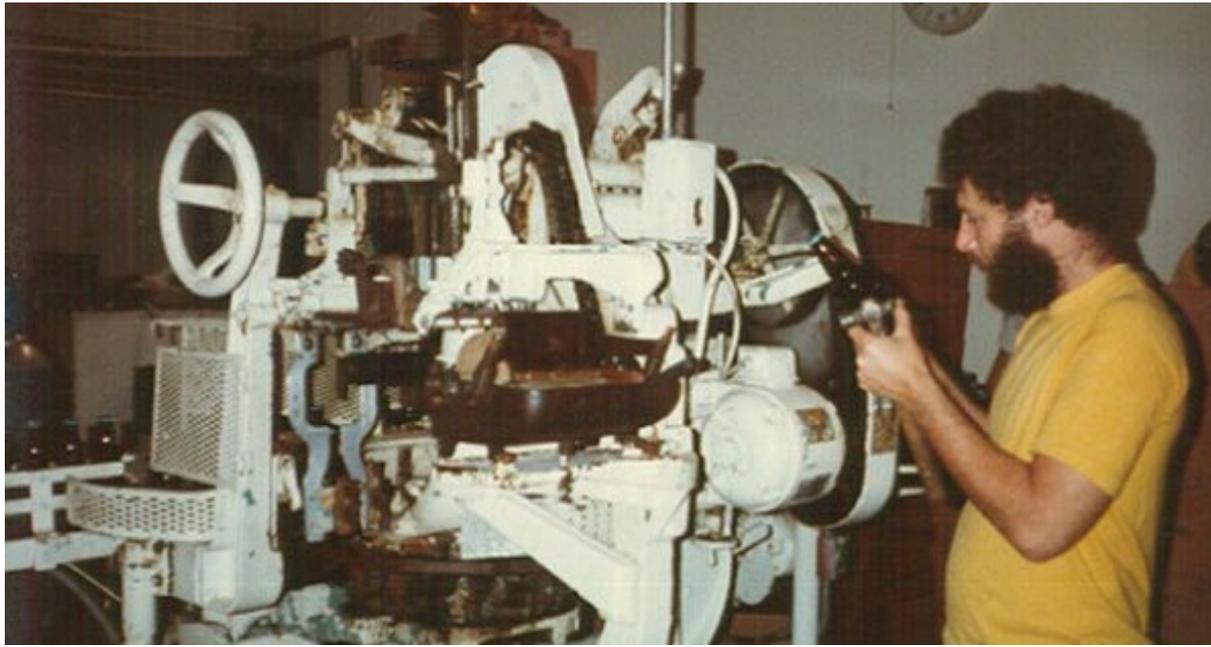
- Mike Greene – DEACS Recycling and Materials Management Section and NC's Recycling Business Assistance Center

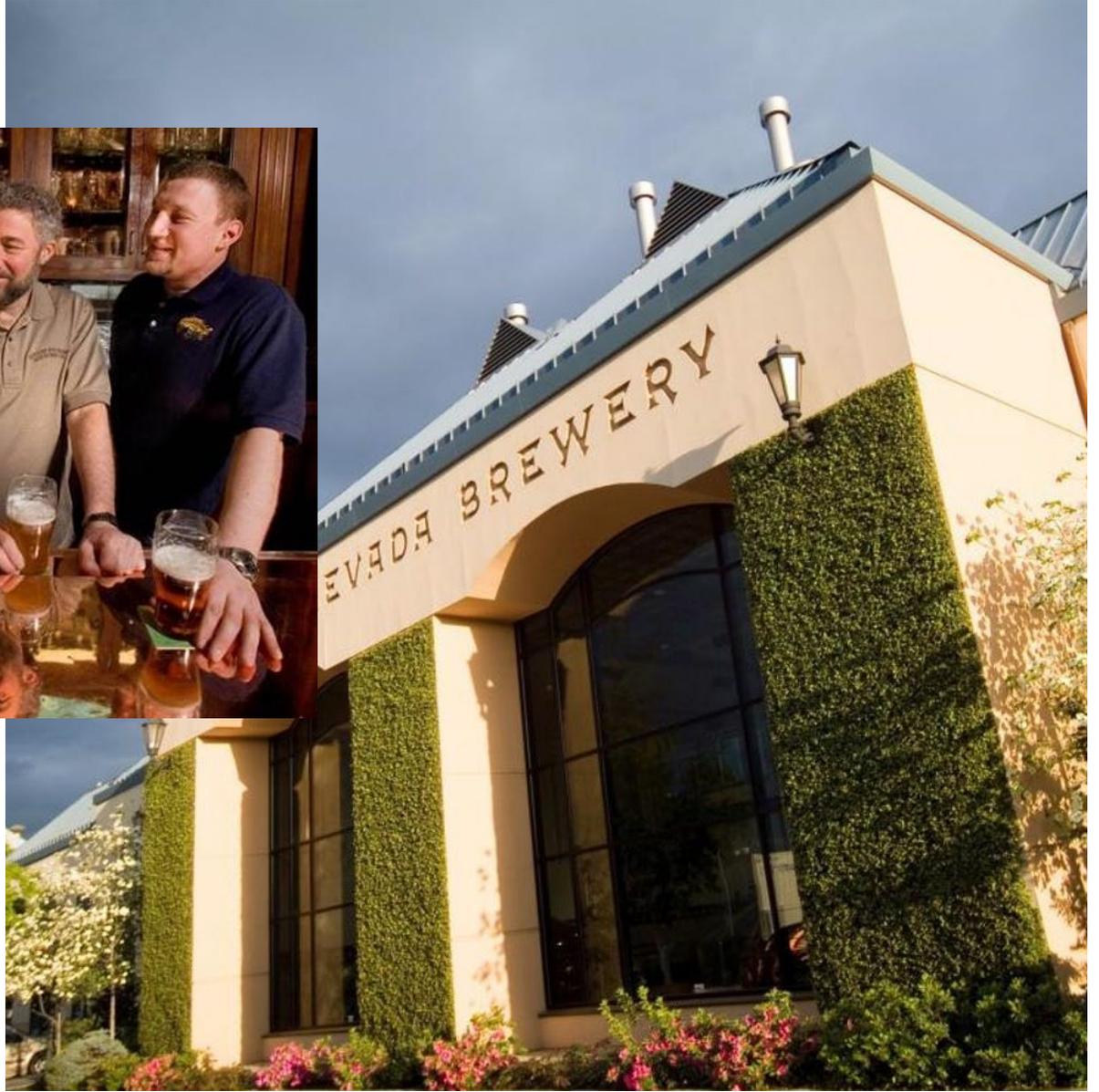


SIERRA NEVADA BREWING CO.

ESI Benchmarking Series







DEFINING SUSTAINABILITY AT SIERRA NEVADA

Social Equity

- Employee wellness, safety, equity & inclusion
- Community & philanthropy
- Advocacy

Environmental Resiliency

- GHG Reduction/align with Paris Agreement
- Closed Loop Philosophy
- Zero Waste

Economic Stability

- Operating costs are met with the ability to reinvest, give back, & plan for the future



SUSTAINABILITY INITIATIVES AIM TO BE:



Climate Resilient

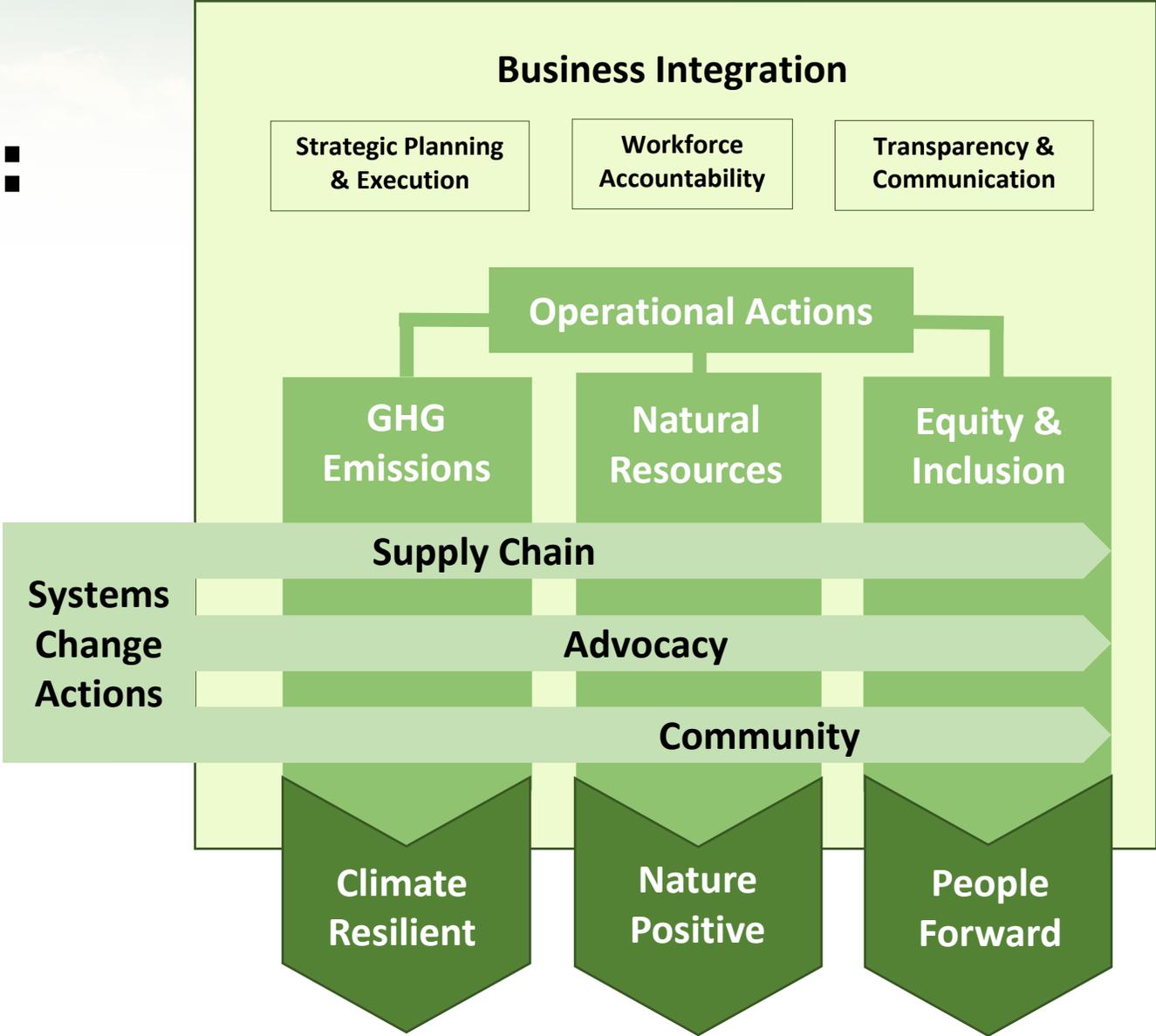


Nature Positive



People Forward

OUR APPROACH:



DESIGNING FOR BUILDING PERFORMANCE AND EFFICIENCY





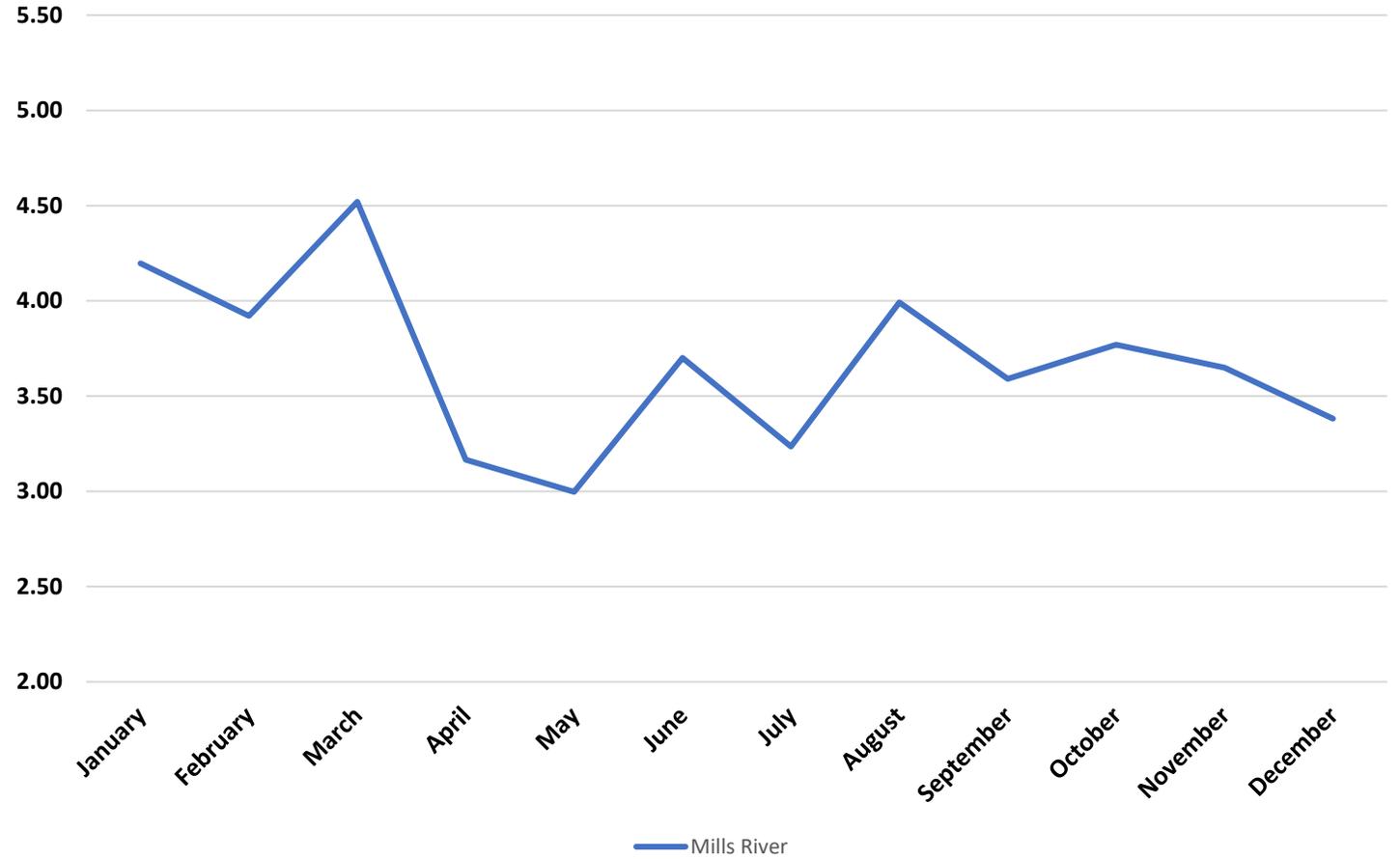




Water Usage (bbl/bbl)



BBL Water / BBL Packaged - 2020







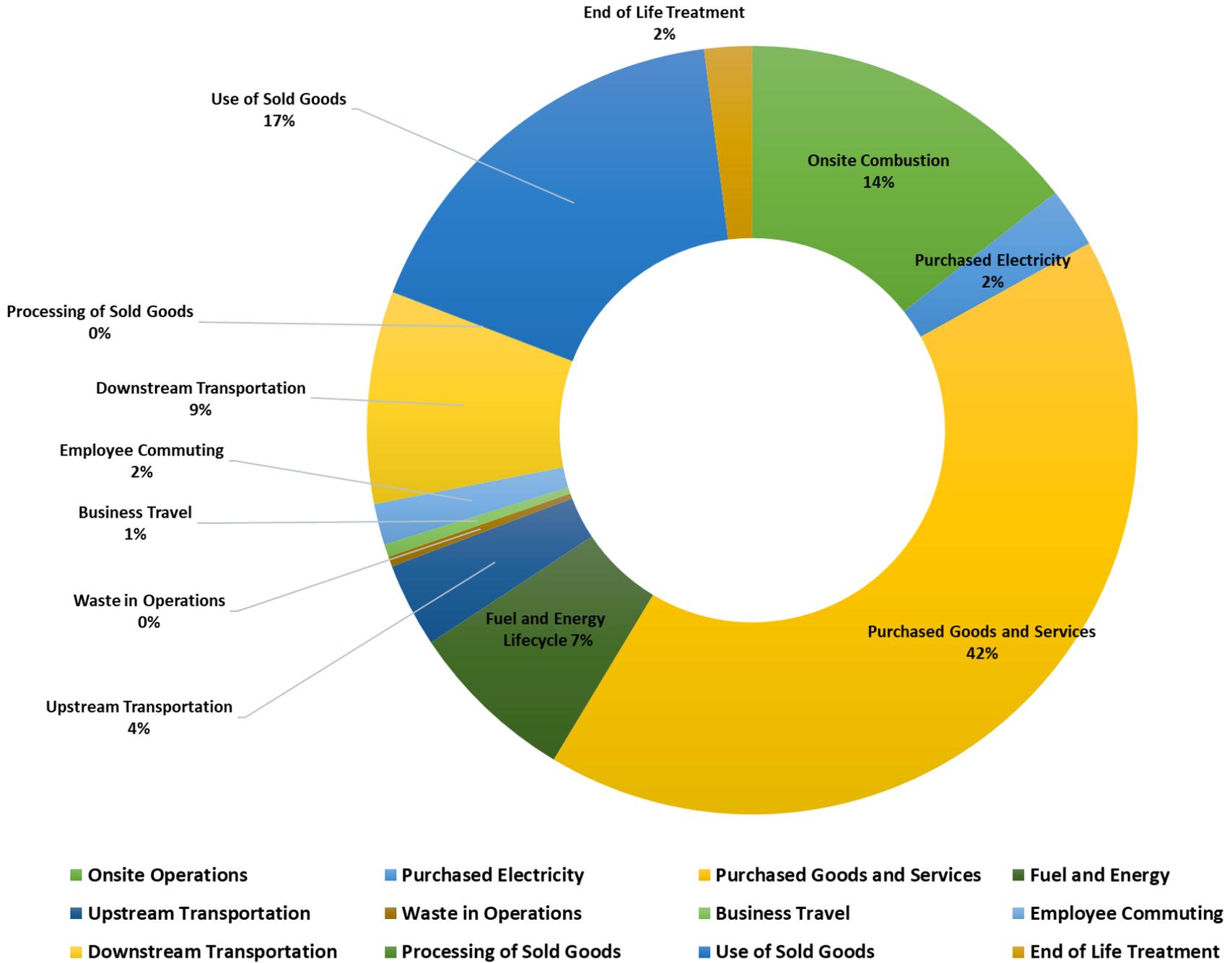


RIDE
Program

The logo for the RIDE Program, featuring the word "RIDE" in large, bold, black letters, followed by "Program" in a smaller font. Below the text are three icons: a bicycle, a person walking, and a bus. To the right of these icons is a large, green, upward-pointing arrow.



SIERRA NEVADA'S GHG FOOTPRINT



USING GHG DATA TO INFLUENCE DECISION MAKING AND DRIVE CONTINUOUS IMPROVEMENT

Excel | O365 - SNB - Sustainability > Emission Reduction Projects | Emissions Calculator - Saved

File Home Insert Formulas Data Review View Help Tell me what you want to do Open in Desktop App

Undo Paste Copy Format Painter Clipboard Font Alignment Number Tables Cells Ed

H40

Raw Materials Emissions Calculator

Input available data into the applicable, white cells below to calculate emissions. All colored cells are pre-calculated and should not be edited.

Raw Material Total Emissions

The below emissions are in CO2 equivalents (CO2e) and represent the production, transportation, and disposal of purchased materials. These emissions are an average intended to provide a general idea of the environmental impacts of materials purchased but not used. Contact Sustainability with questions.

EPA Comparison	Total lbs of CO2e	0.00	The Cost of Carbon:	\$0.00
	Total MT of CO2e	0.00		

Raw Ingredients

Fill out the below, white cells with the total pounds of material destroyed. Malt is inclusive of malted barley, oats, wheat, and rye.

Lbs of material	Material type	Lbs CO2e
	Malt (including oats, wheat, and rye)	0
	Hops (including whole cone, pellets, and lup)	0
	Dextrose	0

Packaging Materials

Fill out the below, white cells with the total number of units (each) of destroyed packaging material.

Product Packaging

Number of Units	Packaging Type	Lbs of CO2e
	Bottles (all sizes)	0
	Cans (all sizes)	0

< > How to Use the Calculator Utilities Calculator **Raw Materials Calculator** Unsold Product Calculator DO NOT EDIT_Raw Data +

Calculation Mode: Automatic Workbook Statistics

CASE STUDY: IMPERFECTLY PERFECT BEER BUCKS

The sum of the greenhouse gas emissions you entered above is of Carbon Dioxide Equivalent. This is equivalent to:

8,450 Pounds

Greenhouse gas emissions from

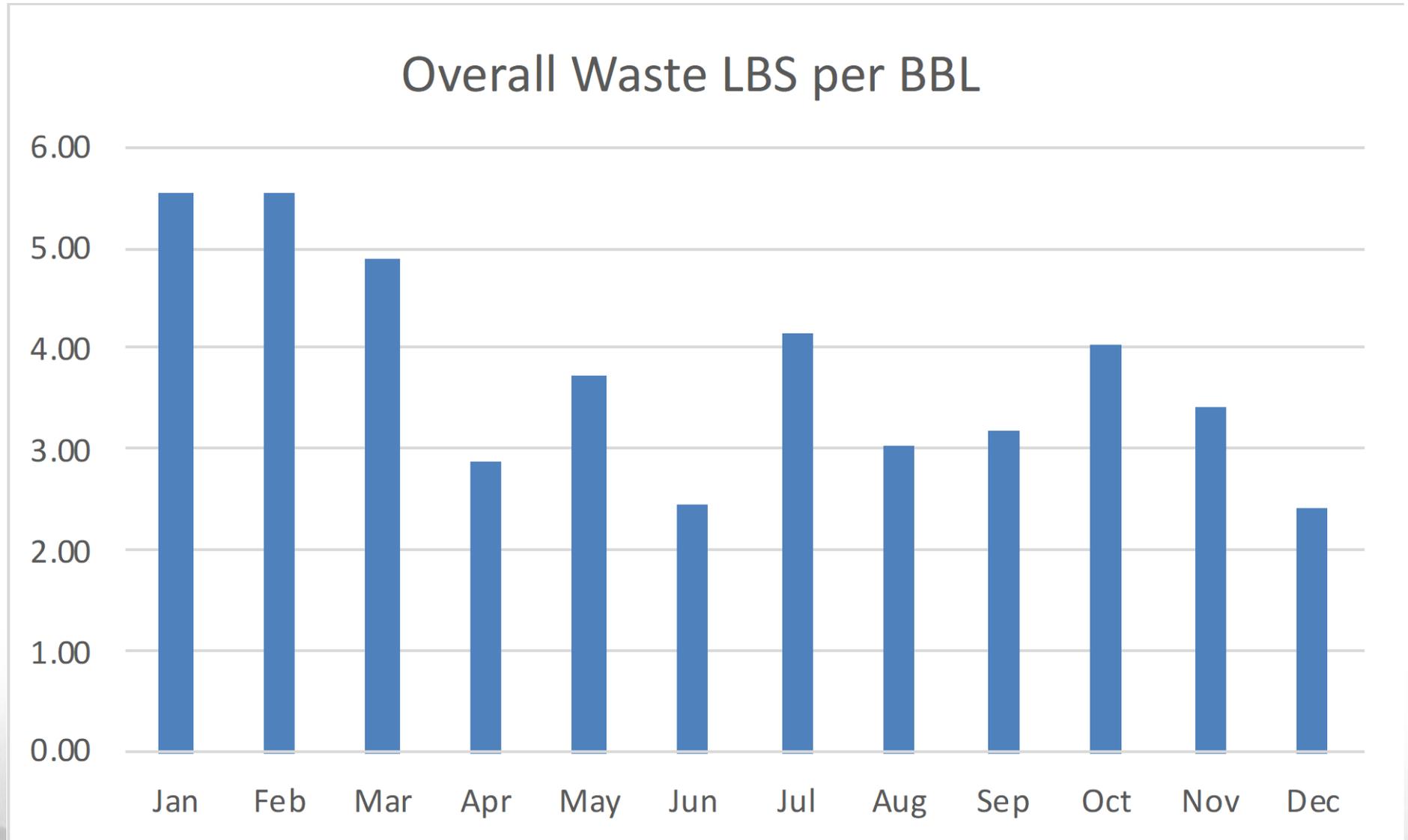


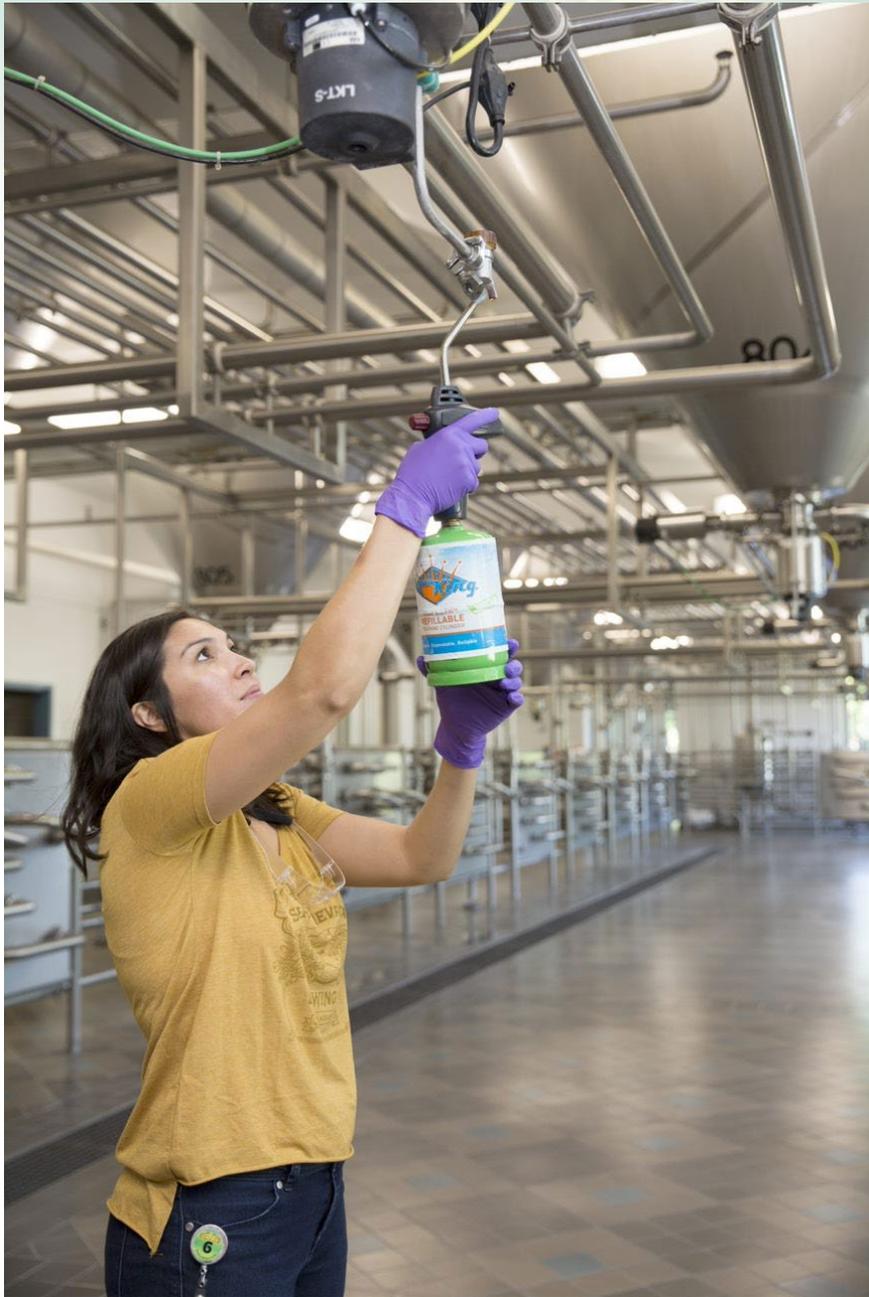
CO₂ emissions from



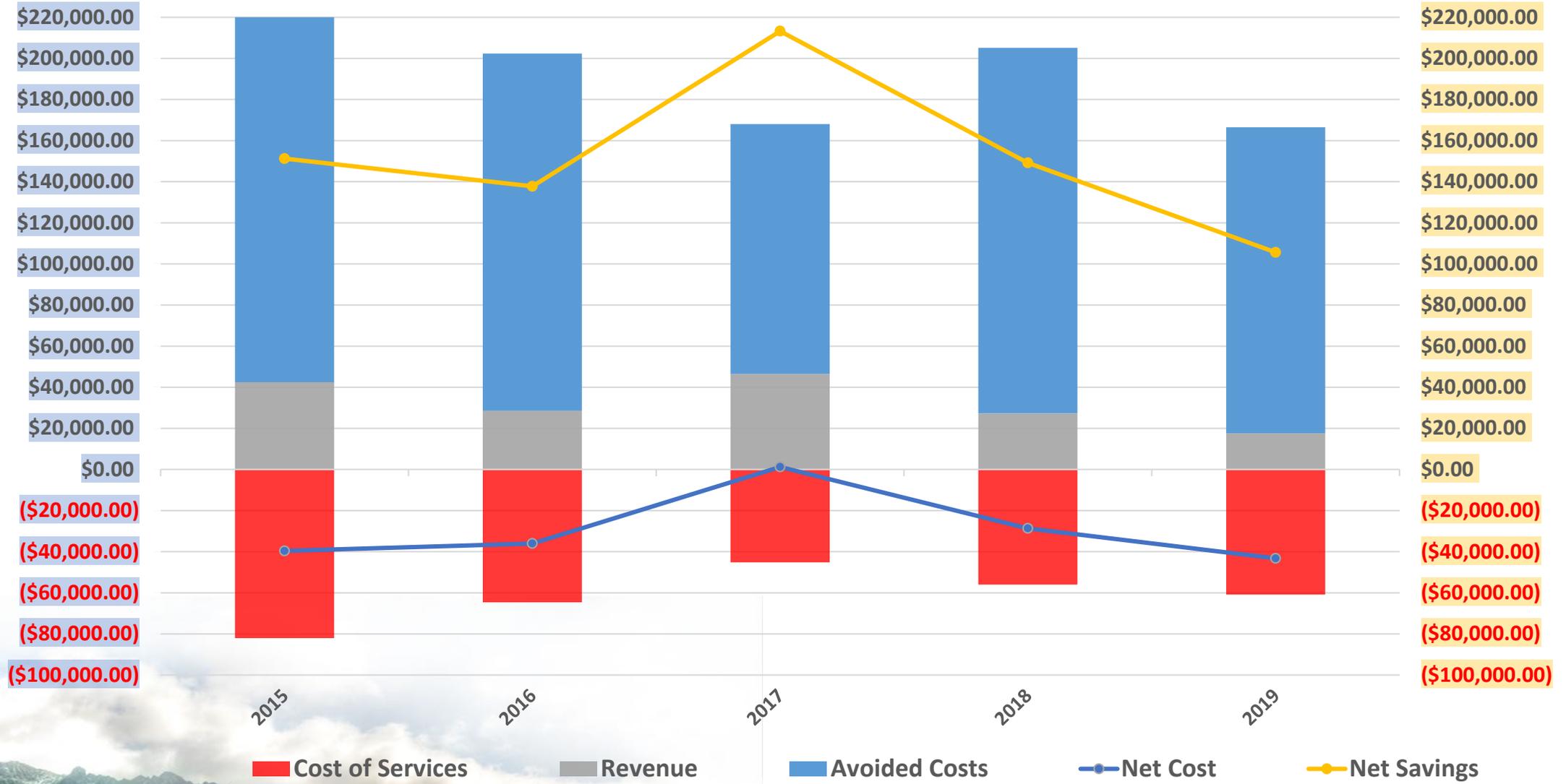


CHOOSING DATA TO DRIVE ACTION





Mills River Brewery Economics of Recycling



PARTNERSHIPS FOR ZERO WASTE



SIERRA NEVADA
GET OFF YOUR GLASS!
AND RECYCLE IT AT
[INSERT LOCATION HERE]

DATE & TIME
BRING YOUR GLASS JARS AND BOTTLES FROM HOME AND RECYCLE THEM AT [INSERT LOCATION] AND ENJOY SOME BEER FROM SIERRA NEVADA PLUS SCORE SOME FREE SIERRA NEVADA SWAG! (WHILE SUPPLIES LAST)

ADD SPONSOR PHOTOS HERE



**GLASS RECYCLING
COALITION**

Brewery Recycling Programs

Mike Greene

Division of Environmental Assistance and Customer Service

North Carolina Department of Environmental Quality



Common Brewery Waste

PP Grain Bag



Foil/Plastic Hops Bag



Stretch Wrap



Cardboard



Recycling Challenges

- Hard to recycle items
- Vendors will not take small quantities - Need Truckload
- Storage
- Communication and Time Challenges
 - Recycling is not your only job
 - Multiple vendors can be time consuming



Recycling Challenges

- Your problem recyclables are most likely not a high value material
 - Markets fluctuate
 - Your problem material is not worth what it may have been in the past
 - It's a "buyers market"
 - China
- Cost avoidance
 - Best case scenario is a cost neutral solution
 - You will likely have to pay to have material recycled
 - The biggest mistake the recycling industry made was promoting recycling as a free or money making option



Market Conditions

- Cardboard prices are up!!
 - In 2017 the Chinese government said that used cardboard exported to China can only have a maximum of 0.5% of contaminants
 - Pandemic toilet paper rush created domestic demand
- Plastics
 - HDPE and PET are about the same
 - No longer shipping 3-7's or Bulky Rigids
 - Shrinking export market for other plastics

How Can We Recycle Common Brewery Waste?

PP Grain Bag



Foil/Plastic Hops Bag



Stretch Wrap



Cardboard



Common Brewery Waste

PP Grain Bag



Foil/Plastic Hops Bag



What about
the
dumpster?

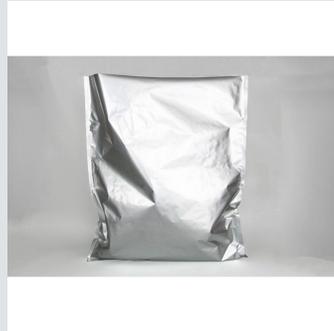
Stretch Wrap



Cardboard



How Can We Recycle Common Brewery Waste?



- NC DEACS met with an industrial recycling company to discuss options
- Result: Regional Consolidation Partnerships

Regional Consolidation Partnerships

- Participating breweries take materials to one central location
 - Delivery trucks make room for recycling on their routes
- All participating breweries participate in labor and share in cost of service



Consolidation Points

- Must have tractor trailer loads of baled material
 - Each truck holds 13 bales
- 15 Gaylord boxes = 1 bale
- 15 Gaylords for grain bags
- 15 Gaylords for hop bags
- 15 Gaylords for stretch wrap
- Need room for 45 Gaylords
- Room for baler
- Room for cardboard bales



What Will This Cost?

- Grain Bags – Can have value
- Plastic Wrap – Can have value
- Cardboard – Can have value
- Hops bags – **NEGATIVE VALUE (.13 PER POUND – Waste to Energy)**
- Baler - Varies
- Trailer Rental – Around \$110 per month
- Shipping Costs – Can fluctuate
 - 80 miles ran \$425

- **Cost avoidance – Trash dumpster**
- **Cost avoidance – Sharing cost**
- **Cost avoidance – Property tax credit for recycling areas**



Need details?

Mike Greene

NC DEACS

• 919.707.8137

• mike.greene@ncdenr.gov



WNC BREWERY RECYCLING CO-OP



Lessons Learned

- One size does not fit all. Develop a co-op with your communities needs and limitations in mind.
- Identify and engage a variety partners early on to collaboratively shape the structure of your co-op and share the workload
- Think outside the box and consider how best to maximize value and reduce burden.
- Keep it simple but leave room to grow

Chico



Mills River





Questions?

Thanks for Attending!

Please complete survey upon exit

Access the www.ncesi.org for the PowerPoint slides, link to the recording and info on future events

Contact esi@ncdenr.gov to inquiry about membership or join marketing list

