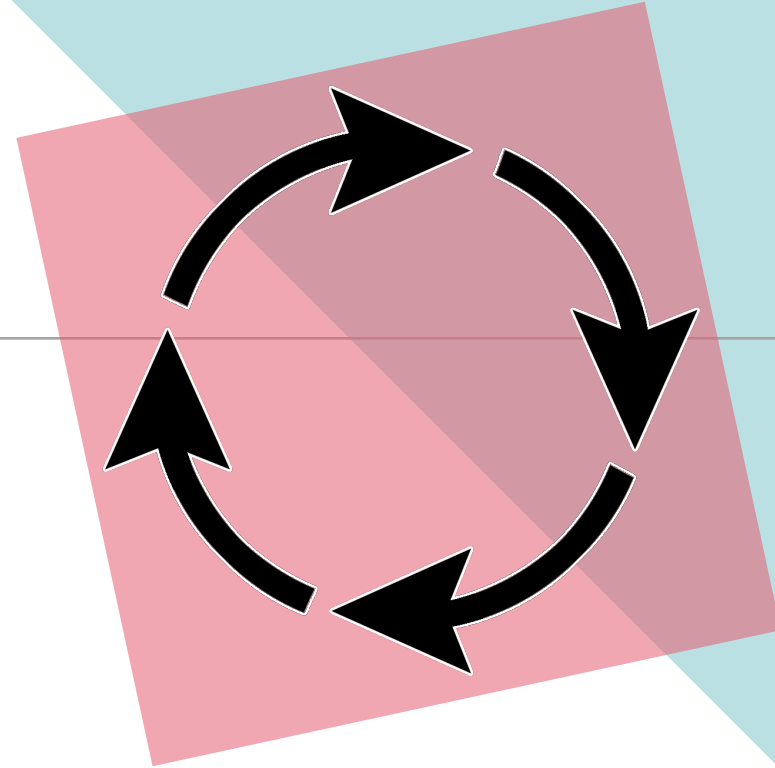


Win-win-win and lose-lose-lose in the circular economy



Kirk Zembal, Co-Founder, Blindman Brewing

- **Win – Environmental Impact**
- **Win – Cost Reduction**
- **Win – Marketing Value**

- **Loss – Increased Impact**
- **Loss – Increased Costs**
- **Loss – Marketing Backlash**



Wins

Climate Change is a crisis and it is critical that businesses and individuals act to reduce GHG emissions.

ESG Impact

By reducing input costs and potentially reducing costs to service waste streams, significant positive financial impact is possible.

Financial Impact

Consumers (in the aggregate) will “reward” businesses that are good corporate citizens.

Marketing Value

Carbon Capture and Reuse

First-in-Canada use of technology

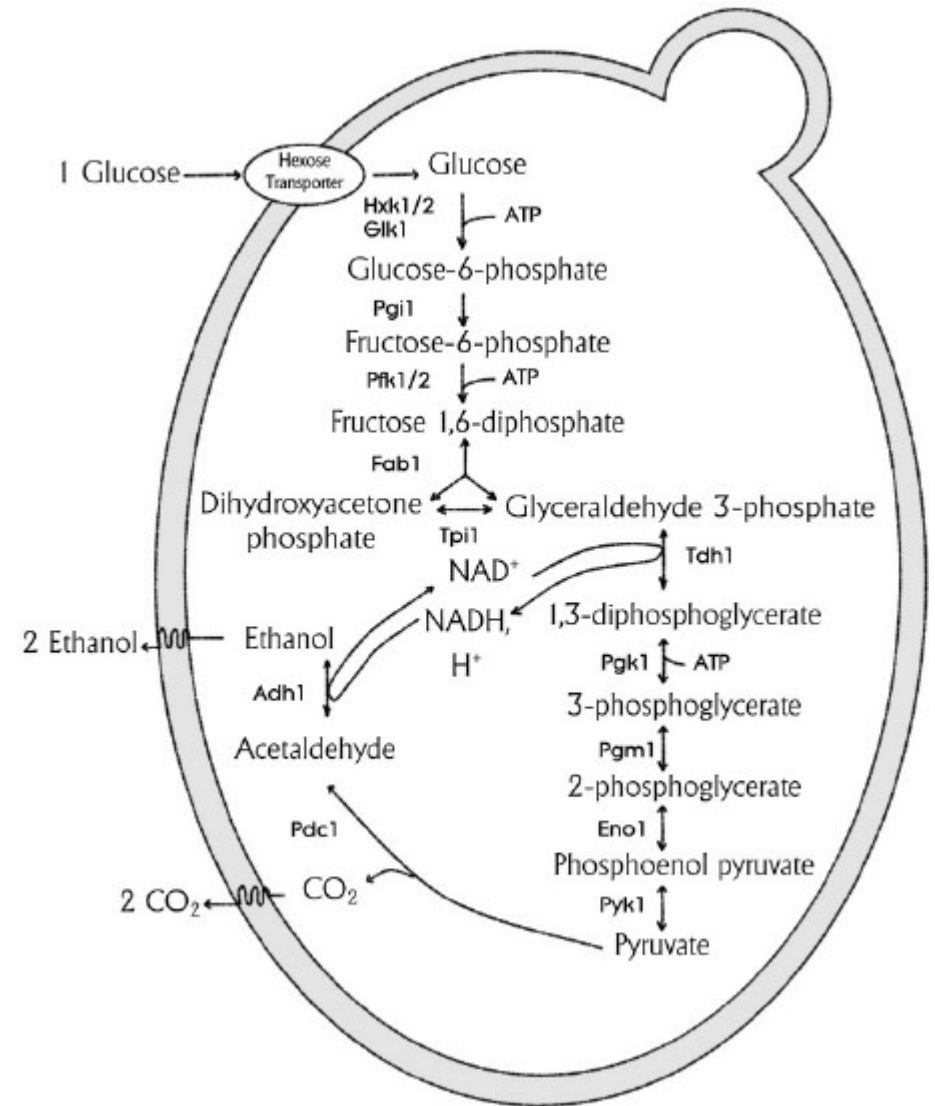


- Project Partners: Olds College, Earthly Labs, Alberta Machine Intelligence Institute
- Supported by Emissions Reduction Alberta
- Budget: \$200,000, \$100,000 from Emissions Reduction Alberta

Carbon Capture and Reuse

In-house Circularity

- Yeast metabolizes sugars to produce ethanol and carbon dioxide.
- This carbon dioxide is normally vented to atmosphere.
- **This CO₂ is nearly pure—with little oxygen or nitrogen entrained in the stream.**
- After removing impurities, CO₂ is compressed and liquified
- CO₂ is reused to purge tanks, carbonate beer, etc.



Faria-Oliveira, Fábio & Puga, Sónia & Ferreira, Célia. (2013). Yeast: World's Finest Chef. 10.5772/53156.

Plastic Packaging Reuse and Recycling

Biggest-in-North America program



- Project Partners: Alberta Small Brewers Association, Merlin Plastics, PakTech
- Supported by participating brewers
- Budget: ?

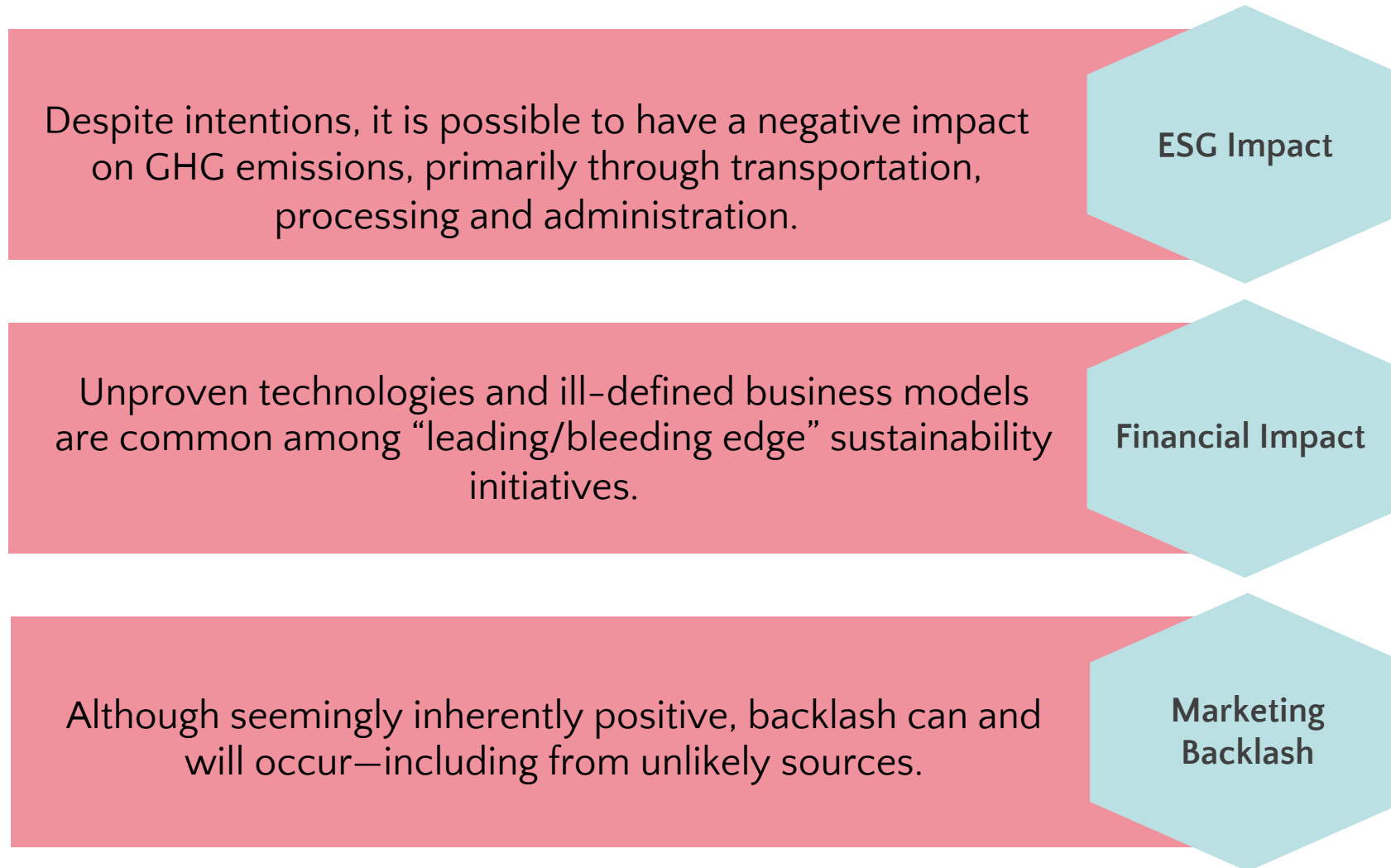
Plastic Packaging Reuse and Recycling

Outside Circularity

- Plastic (high value HDPE) milk jugs are recycled by Albertans.
- Plastic Can Carriers are manufactured using this post-consumer plastic
- Can Carriers are used to package beer
- Can Carriers are returned to retailers by customers
- Brewers reuse as many as possible
- Others are processed in Delta, BC and shipped back to Can Carrier manufacturer
- Pellets are used to create “new” Can Carriers



Losses



Special considerations in working with new technology/business model partners

Financial

- Gains are very frequently overstated
- Costs are by nature indeterminate
- Very real commercialization risks
- Very real risk of business failure

Operational

- “Hassle” factor is very often underestimated
- High degree of “learning-by-doing”.
- Very real risk of solution not working in real-world situation
- Lack of communication & coordination can be costly

Marketing Backlash

← Jason Kenney  43.7K Tweets 

105 51 166

 Jason Kenney  @jkenney · Aug 16 ...

Lacombe's @blindmanbrewing is saving money and reducing emissions by capturing and reusing CO2 instead of buying it. Classic Alberta entrepreneurs!



A lager than life idea: Alberta brewery reuses the carbon it creates in ...
The founders of Blindman Brewing in Lacombe, north of Red Deer, are encouraging other brewers to adopt capture technology and cut down...
theglobeandmail.com

47 27 185

- You cannot control messaging and messengers.
- This is an example of a factual statement made without our input (not that an expectation of input would be reasonable).
- Made us the target of a large amount of negativity by right wing supporters.
- Made us the target of a large amount of negativity by left wing supporters.

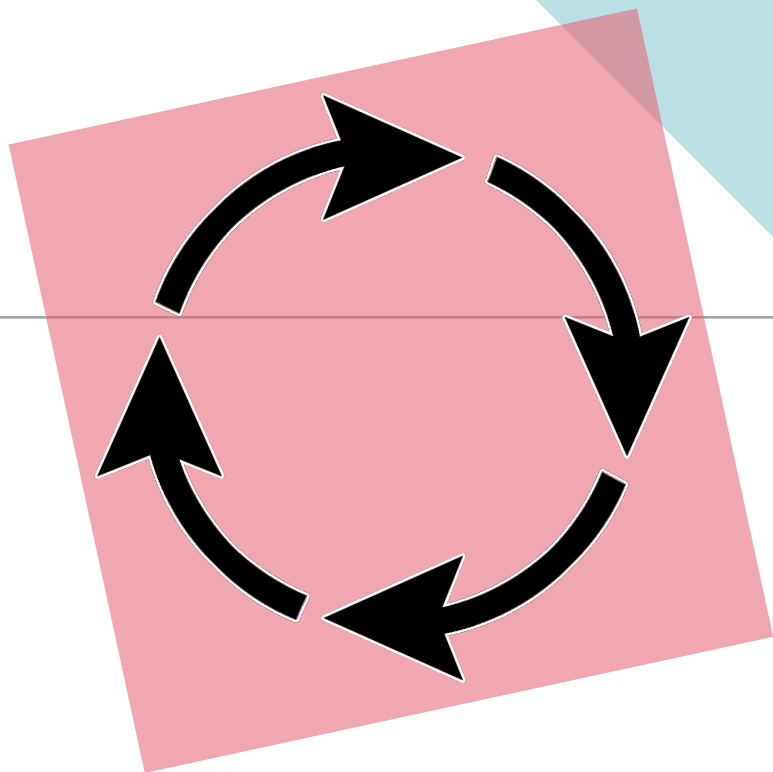
Key Questions

- What is a reasonable IRR?
- How heavily do we discount future cash flows?
- How do we financially quantify risks?
- How do we financially quantify marketing gains?
- How do we account for present, future and implied future regulation?
- How should gains be “shared” between project partners?
- Will this cause us to “take our eye off the ball”?
- What are the full life-cycle costs and revenues/cost offsets?
- What is probability of success?
- How do we define success?

Key to the Key Questions

**What do we
already have
answers to?**

**What do we need
to develop answers
for?**



THANK YOU