

sustainable direction

thinking of the future

Cutting Carbon for Green Beer

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SW-MAS



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Dr John Henry Looney



- Managing Director of SDL
- SDL has so far worked with MAS to help several breweries, including Otter and Keystone



- www.sustainabledirection.com

Everyone Likes Good Beer

The ancient Babylonians were the first to brew.

In fact, they took their beer so seriously, if you brewed a bad batch your punishment was to be drowned in it.



But what about a Good, “Green” beer?



- What makes a green beer?
- How does a beer impact the environment?



Carbon NEGATIVE Beer!
You must drink 200 cases to
offset your flight
Happy Carbon Saving!!

Good Breweries



- Breweries are considered among the less energy consuming and less polluting activities in the industrial sector

Environmental Impacts

Water use and wastewater
production



- Energy use
- Heating
 - Pumping
 - Energy recovery



Raw material
use, including
packaging



Delivery
and transport



Life Cycle of Beer

Barley & Malt growth



Lorry Delivery/ Collection



Brewing Process



Transport of good and storage



Waste/ Recycling



Agricultural phase

Delivery of raw materials

Production

Use

Disposal



Inputs:
Water
Energy
(Chemicals)

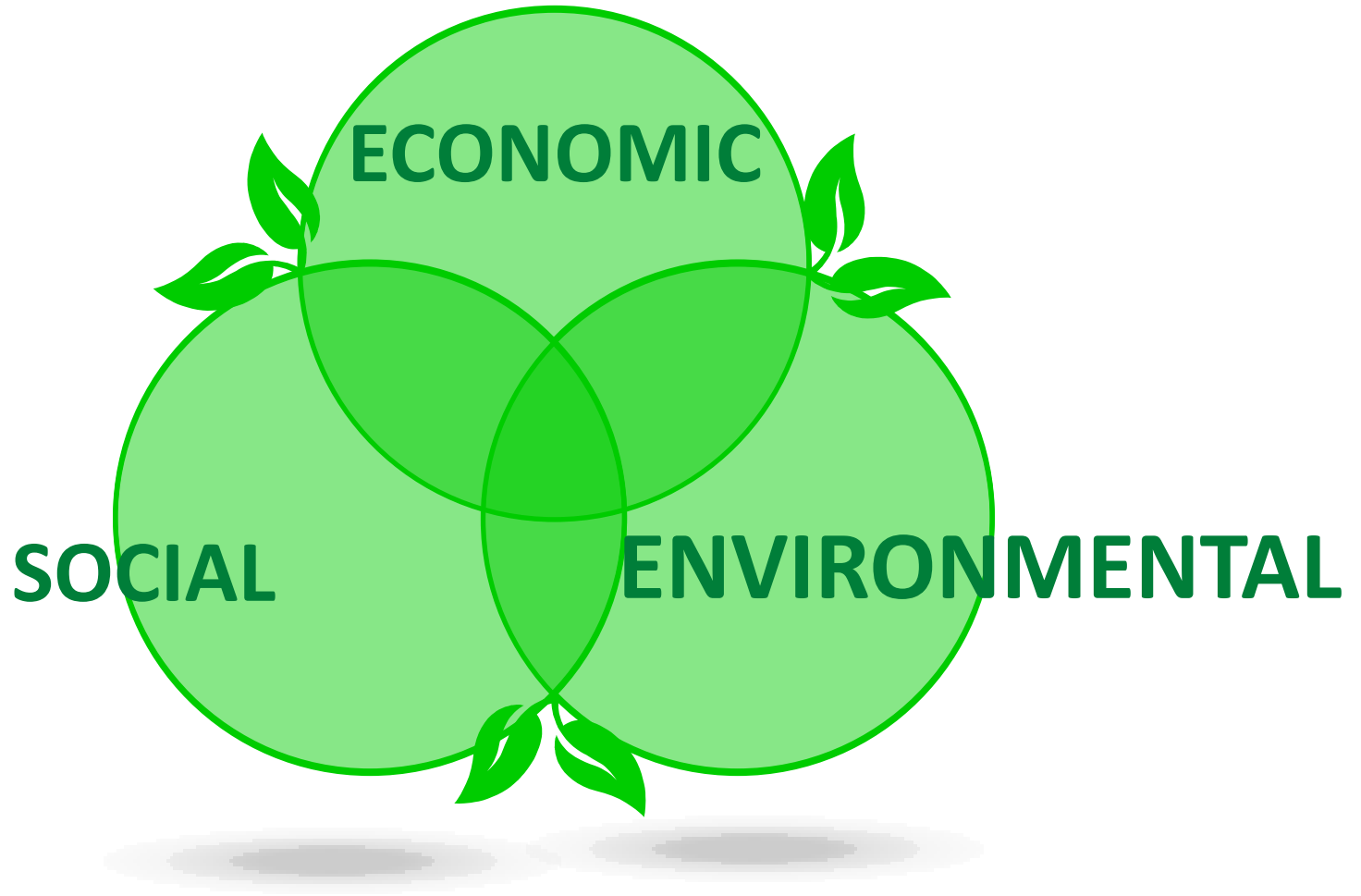
Inputs:
Fuel
Time
Packaging

Inputs:
Water & Materials
Energy
Time, etc

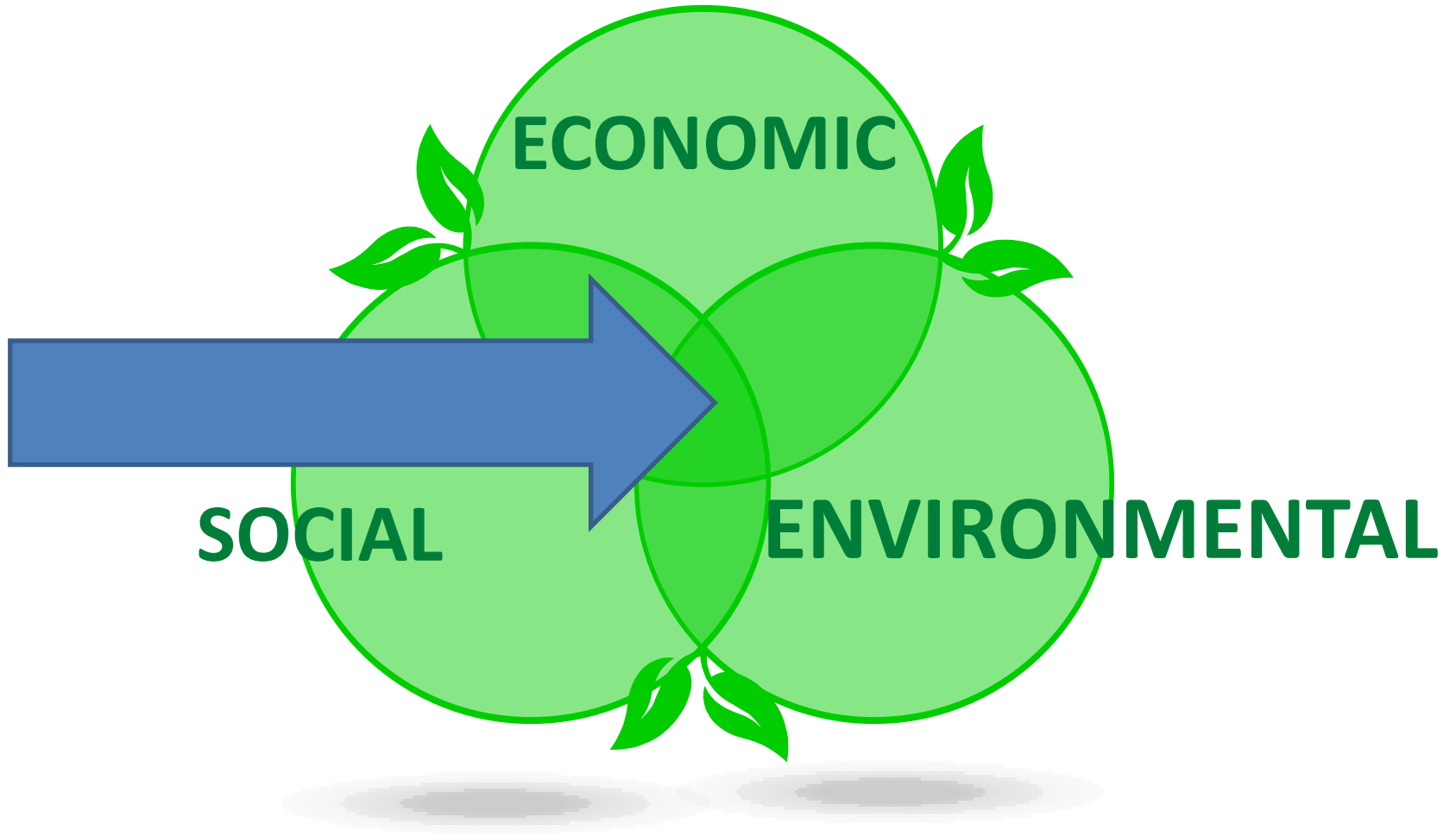
Inputs:
Energy (cooling,
transport)
Fuel

Outputs:
Fuel
Space lost
Materials lost

Sustainability is...



Sustainability is...



-
- Sustainability must make economic and financial sense – or it's not sustainable!
 - Green business cannot survive if it is not economic
 - BUT carbon savings are often associated with financial savings

Examples



- Vapour condenser system –
 - Recovers energy (hot water) from the wort kettle, and can be used to preheat the wort and supply the hot water requirements of the rest of the brewery!
 - So you save money on heating water
- Producing less waste -
 - Don't pay to bring it in AND take it away!
- Using less resources
 - Less overheads per product

Green Breweries?



- Adnams (UK)
- New Belgium Brewery (US)

Adnams Brewery, Southwold



- Anaerobic Digestion (AD) Plant
- It will generate up to 4.8 million kilowatt-hours per year – enough to heat 235 family homes for a year.



Anaerobic Digestion



- Uses brewery and food waste
 - Diverts waste from landfill
- Bacteria digest the wastes in the absence of oxygen (anaerobic) and produce biogas, digestate and wastewater
- Digestate and wastewater must be treated, usually by composting and wastewater treatment.

Biomethane

- Uses the national grid network
 - No need to change infrastructure
- Could account for 20% of national domestic gas consumption by 2020.

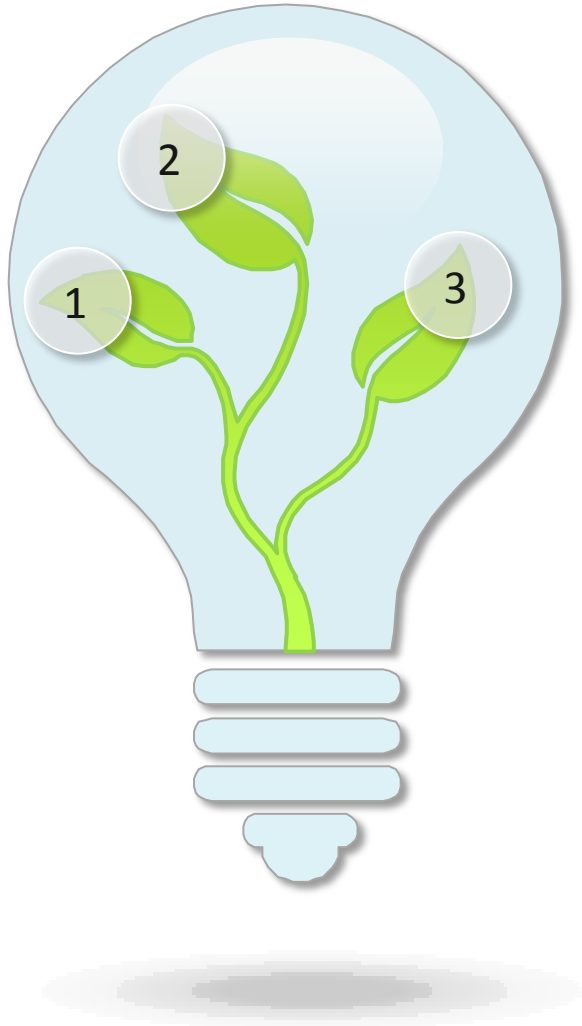


Adnams say...



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- 28m pints of beer a day are consumed across the UK. If all of the associated waste was used to produce biomethane, it would produce enough renewable gas to heat 47,000 homes

What makes a Brewery Green?



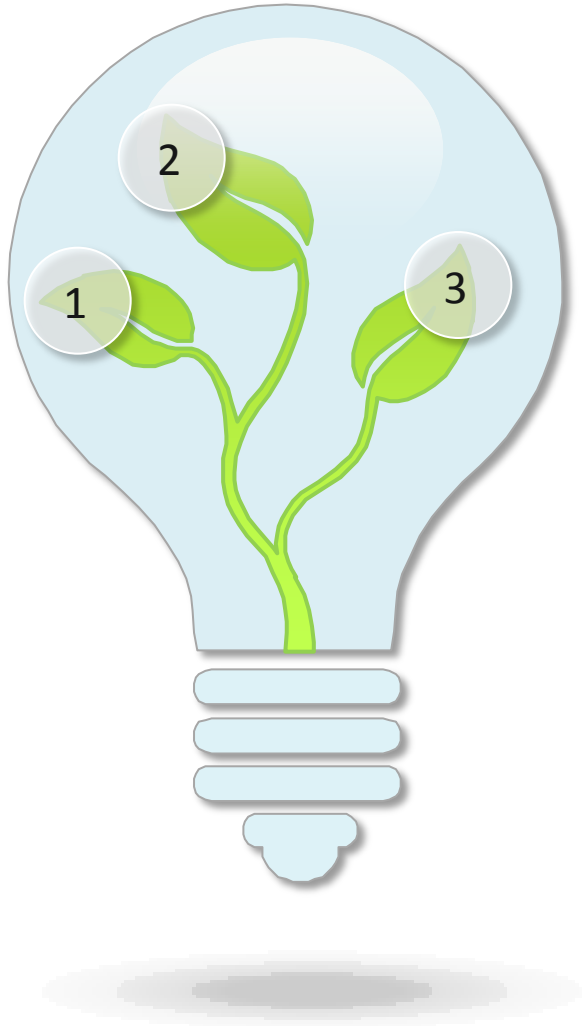
- 1 **Doing more with less**
- 2 **Reducing waste (or making waste work for you!)**
- 3 **Save and reuse energy and insulate**

Sustainable Practices



- New Belgium Brewery Culture
 - “Alternatively Empowered” - means making business decisions based on minimizing environmental impact, encouraging the growth of our employee owners, and being a socially responsible contributor to our community.
- Environmental Stewards – closing the loop between waste and input, considering the impacts seven generations down the line

What makes a Brewery Sustainable?



1

**Not eroding
natural capital**

2

**Closing the loop
between waste
and raw materials**

3

**Reducing
dependence on
energy, then on
fossil fuels**

Where to find us:



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- Thank you.

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