SPRING HILL | SOLUTIONS

carbon management • clean energy • business sustainability

SMART PLANNING FOR CLIMATE CHANGE & THE SUSTAINABILITY IMPERATIVE

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•Greg Strong, Spring Hill Solutions, LLC
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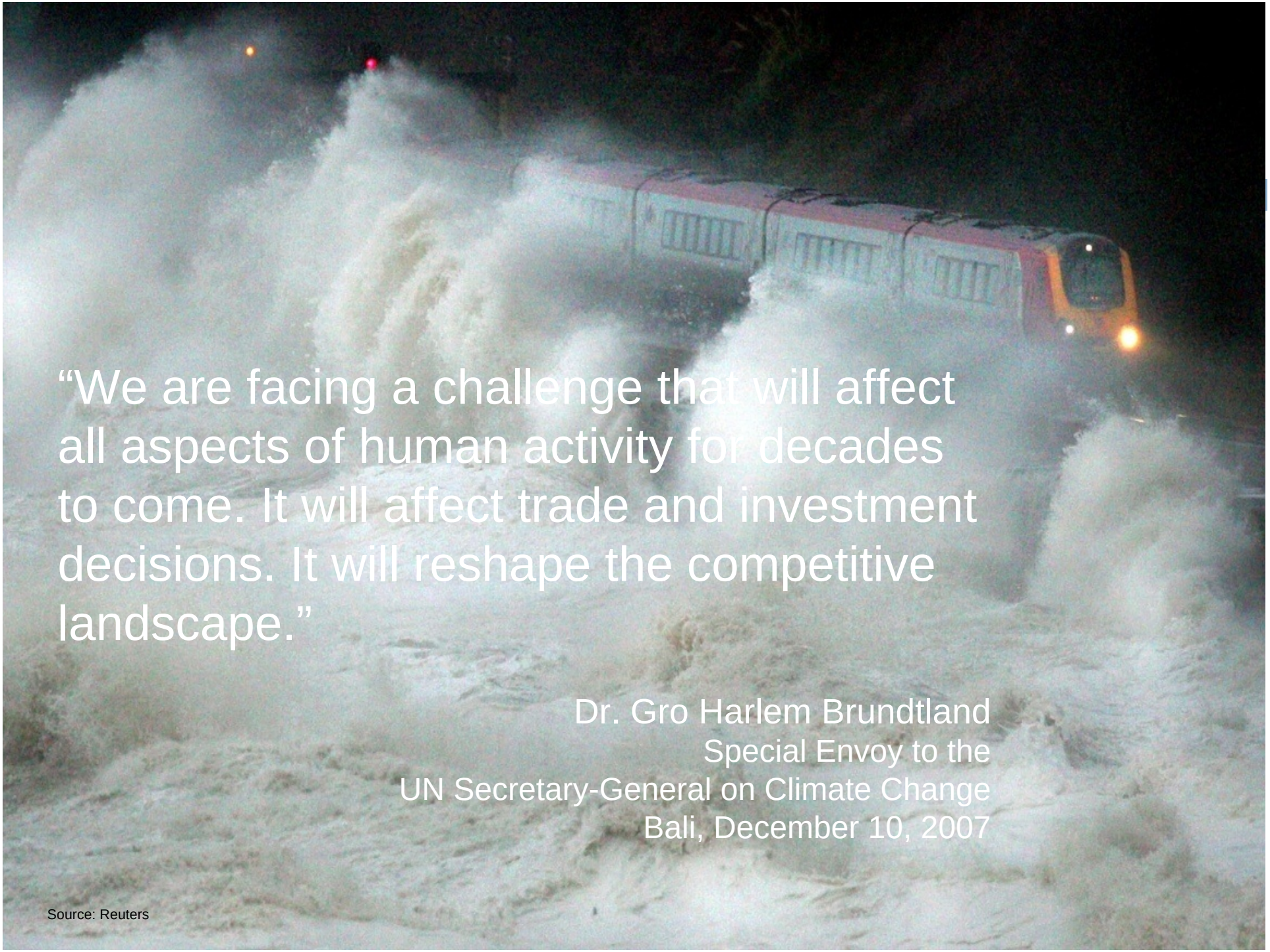
OTTER CREEK BREWING

NativeEnergy
Bringing New Renewables To Market

Craft Brewer's Conference April 24, 2009

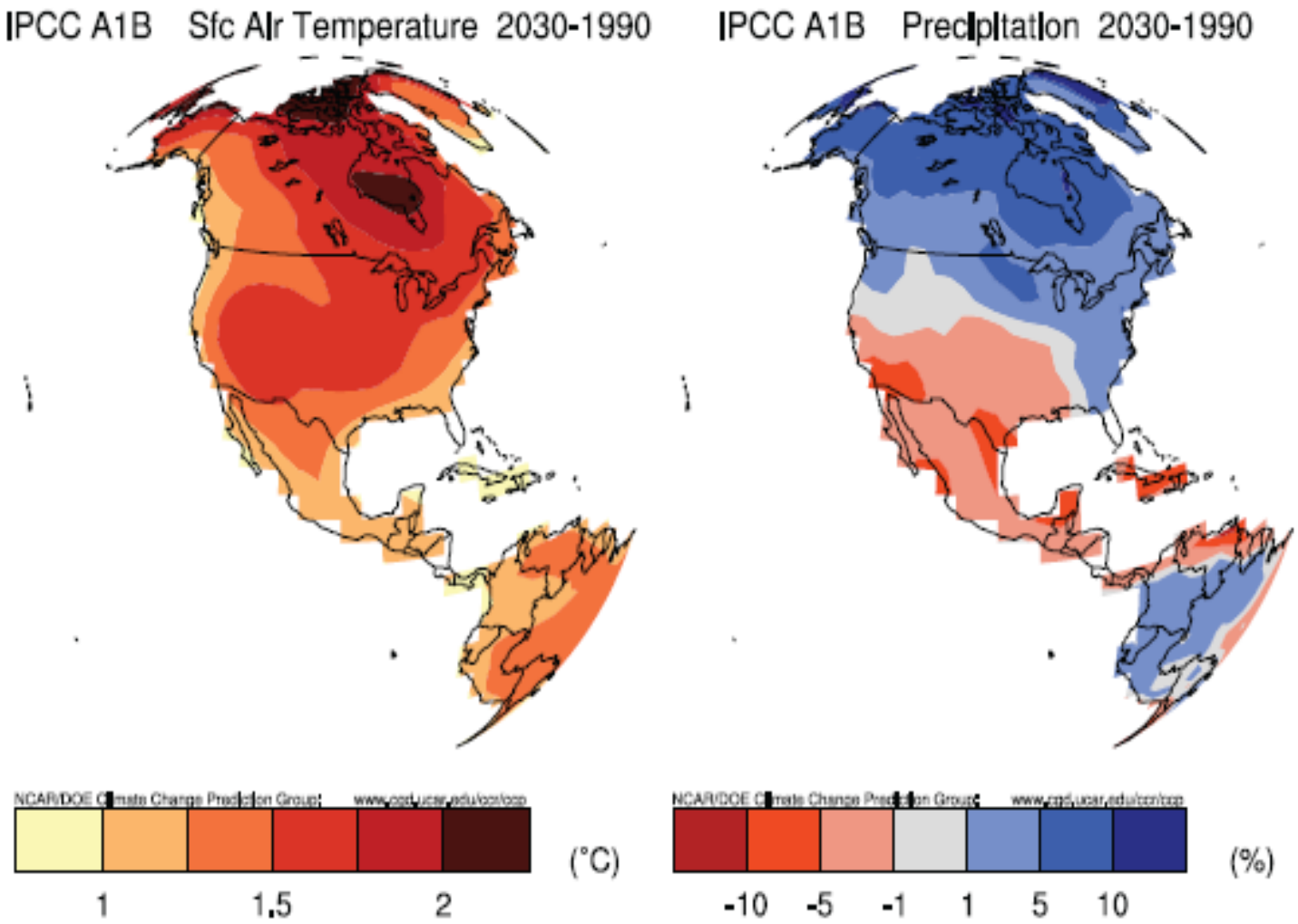
Smart Planning for Climate Change & the Sustainability Imperative

- Why pay attention
  - Control Costs/Energy Security
  - Be Prepared
  - Sell More Beer!
- How to do it
  - Assessing and Mitigating Impact
  - Planning Strategically
- Who's doing it


“We are facing a challenge that will affect all aspects of human activity for decades to come. It will affect trade and investment decisions. It will reshape the competitive landscape.”
Dr. Gro Harlem Brundtland
Special Envoy to the
UN Secretary-General on Climate Change
Bali, December 10, 2007
Source: Reuters

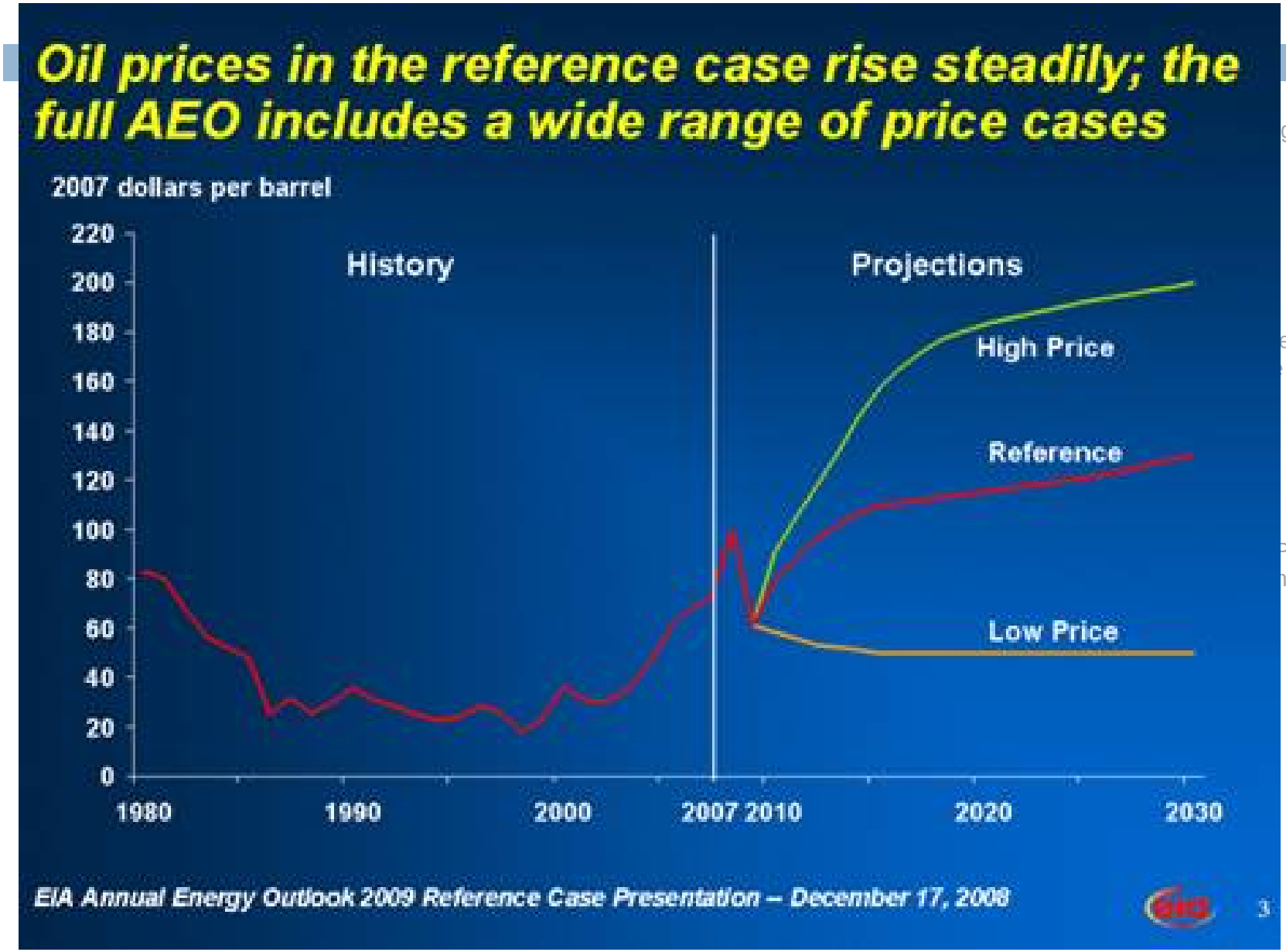

Positive proof of global warming.
I have solid proof that Global Warming is real
18th Century
1900
1950
1970
1980
1990
2006

U.S. Temperature and Precipitation Changes by 2030.



Source: Intergovernmental Panel on Climate Change (IPCC)

Cost Increase: Future Outlook



gy (DOE)

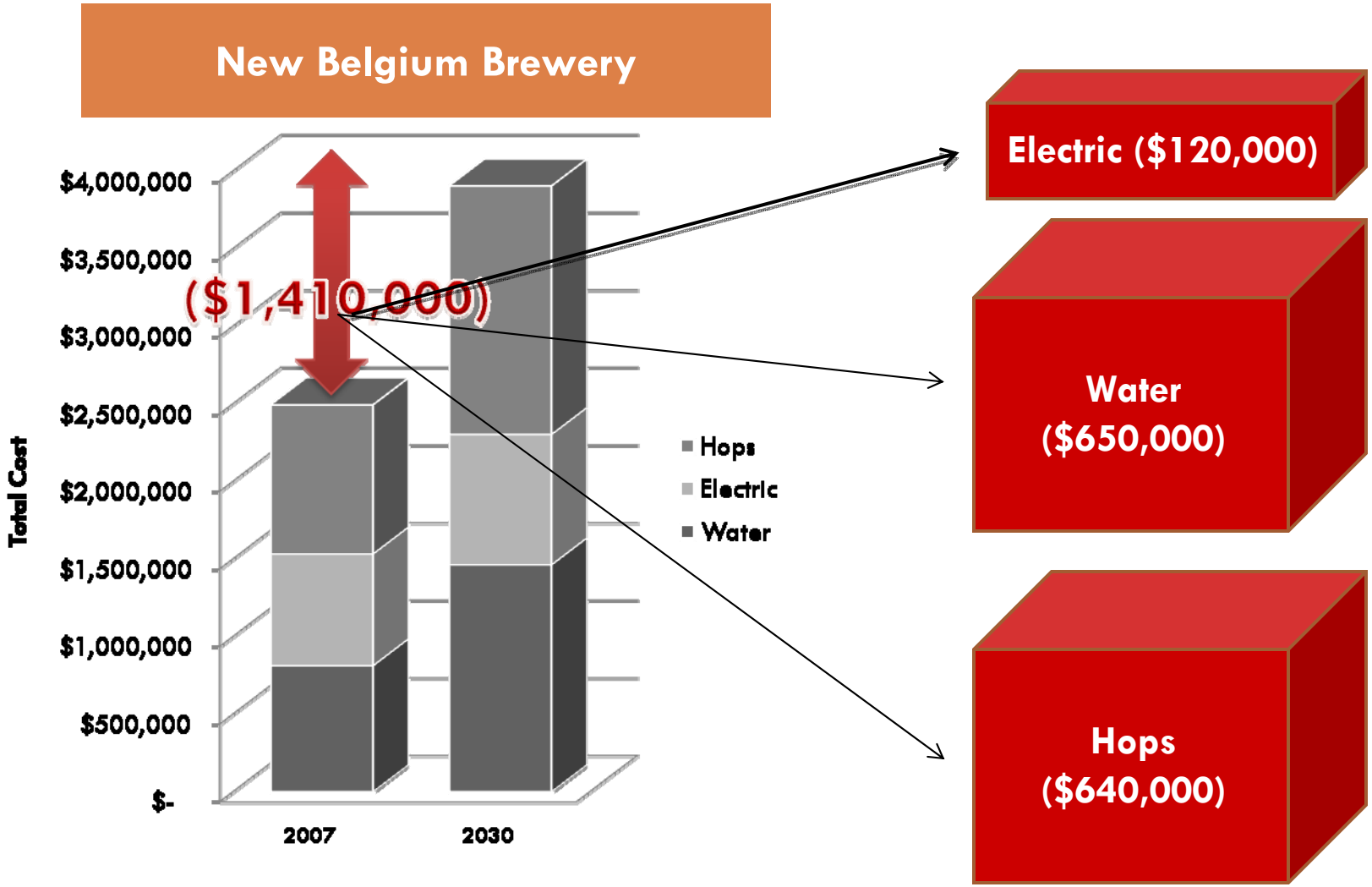
e Change
Program

Protection
ncy (EPA)

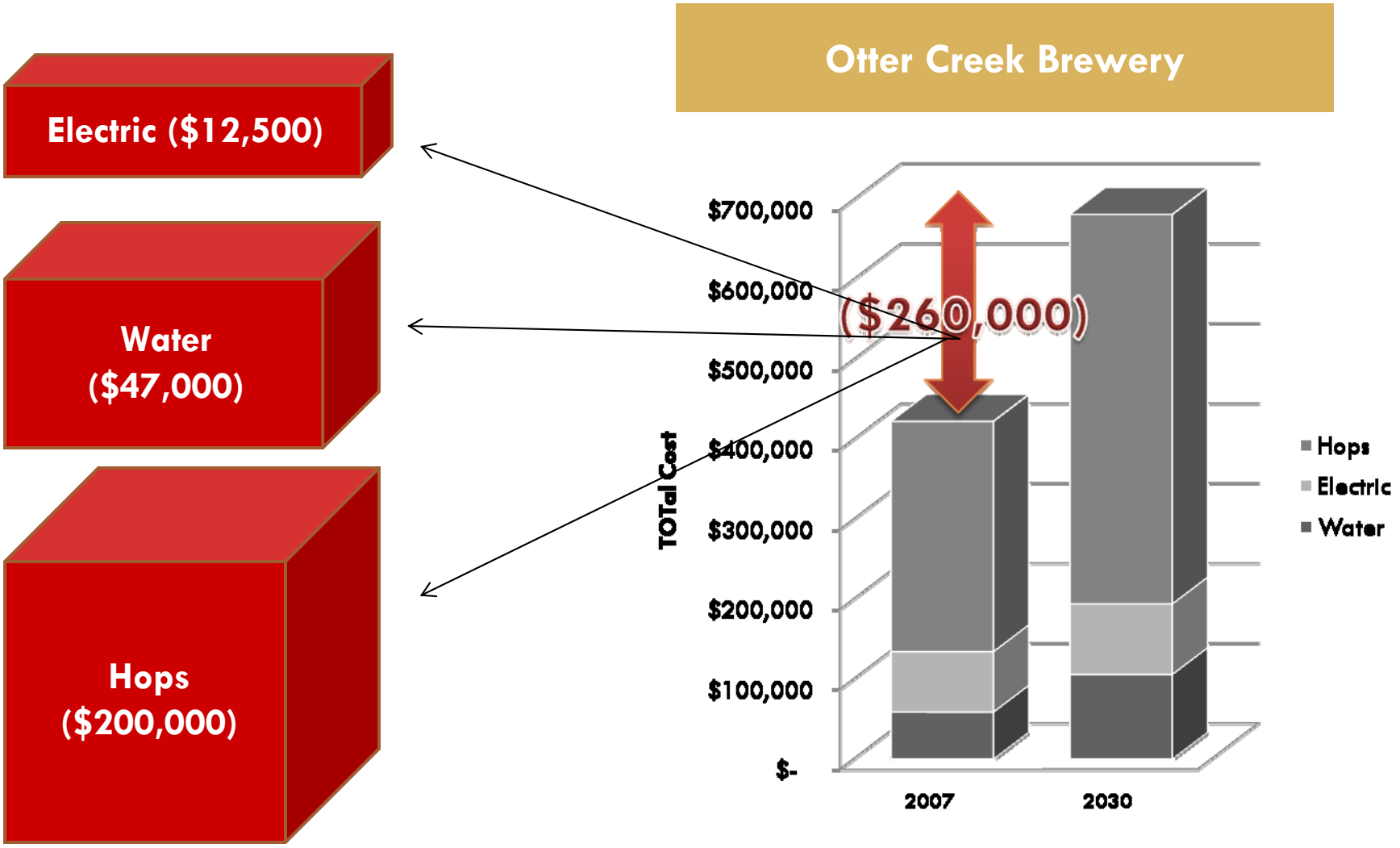
The Guinea Pigs

- New Belgium Brewery
  - 475,000 Barrels of beer produced (2007)
  - Location: Fort Collins, Colorado
  - Category: Regional Craft Brewery
- Otter Creek Brewery
  - 30,000 Barrels of beer produced (2007)
  - Location: Middlebury, Vermont
  - Category: Microbrewery

Balance Sheet: Energy, Climate Change, Water



Balance Sheet: Energy, Climate Change, Water



Sell More Beer

4. 20/80 Becomes 80/20

In the last year, branding executives have transitioned from a focus on the roughly 20% of the market (LOHAS consumer) to more than 80% who are some shade of green.

From actors to politicians to global retailers, *not* talking about sustainability now suggests you're out of touch.

This profoundly increases the business imperative as the 'tipping point' in sustainability has been achieved.

Sell More Beer: Coffee vs. Beer

- Coffee

Source: American Journal for Agricultural Economics

  - Consumers awareness for fair trade/organic logo's on coffee. Growing at 40% per YEAR
  - Willing to pay price premium: $0.20 per pound
  - Actual Premium:
    - Fair trade- $1.50 per pound
    - Organic- $3.00 per pound
  - Demographics: **ages 18-30**

- Beer Demographics

Source: Scarborough Research of NY

  - 51% beer drinkers b/w **ages 21-34**
  - Affluent
  - 48% prefer premium quality beers

Be Prepared: Climate Regulation

Currently in Massachusetts:

- Mandatory Greenhouse Gas Reporting Regulation (310 CMR 7.71)
- Facilities with stationary sources of air emissions that collectively emitted more than 5,000 tons of carbon dioxide equivalents (CO2e) (approximately 450,000 gallons of #2 oil)

Proposed regulations by the U.S. EPA:

- Facilities with stationary sources of air emissions that collectively emit more than 25,000 tons of CO2e
- Equal to emissions from 2,200 homes, 58,000 barrels of oil, or 131 rail cars of coal
- Based on GHG emissions from 2010

NativeEnergy

Bringing New Renewables To Market

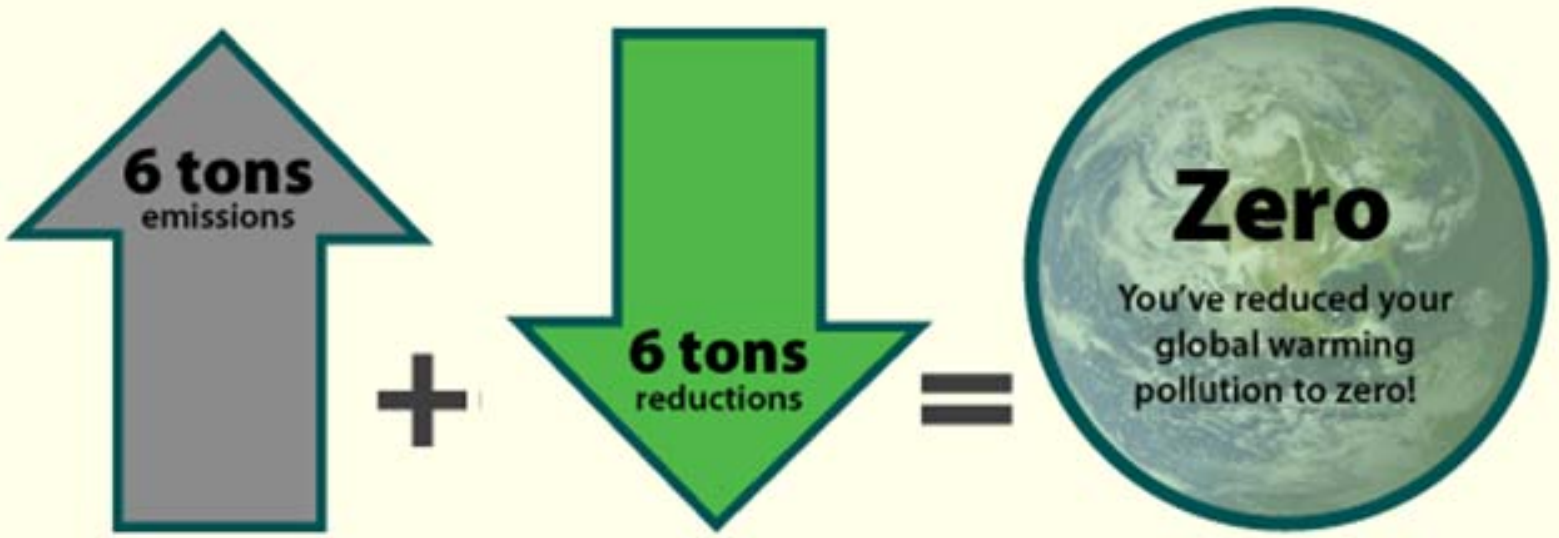
Carbon Offsets ⇧⇩

A Strategic Tool for Engagement

Craft Brewer's Conference (Boston) April 24, 2009

What Is An Offset ?

Offset – *n.* 1. something that counterbalances; a compensating equivalent.



With *Native*Energy, you can help finance and build new clean and renewable energy projects that help Native Americans and Alaska Natives create sustainable economic benefits, and that help America's family farmers compete with agribusiness. These projects will displace electricity from fossil fuels and reduce other greenhouse gas emissions on your behalf, making up for the CO_2 emissions you can't avoid.

Schrack Farm - Manure Digester

Pennsylvania family dairy since 1774

800 Cows generating ~ 1000 MWh/yr

Reducing 2937 tons CO_2-e/year

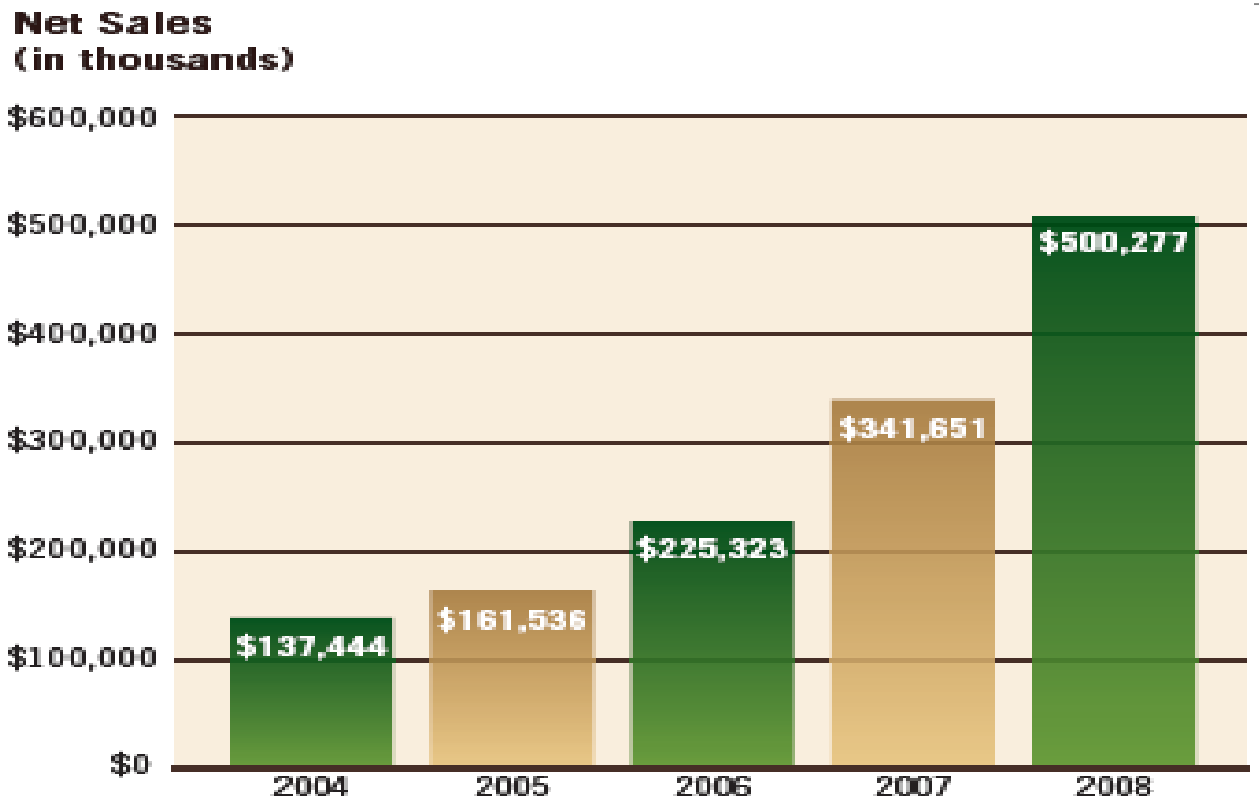
Spent $2MM for new barns in 2001

Couldn't get sufficient financing to secure USDA matching grants

Offset purchases helped with ~13% of project cost. Made it happen.


Why?

A Brewer's Approach



- Inbound Freight
- Outbound Freight
- Travel & Transport
- Natural Gas
- Propane
- Electricity
- Offsets Purchased

How To Get ROI With Offsets

Generally, the process involves the following steps:

1) Measure emissions - 

2) Set offset goals within a climate change strategy – 

?
3) Clarify expectations about the benefits of offsetting versus making reductions internally
4) Explore the range of offset offerings
5) Choose offset providers
6) Communicate your actions

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Offsets in Business - Strategy

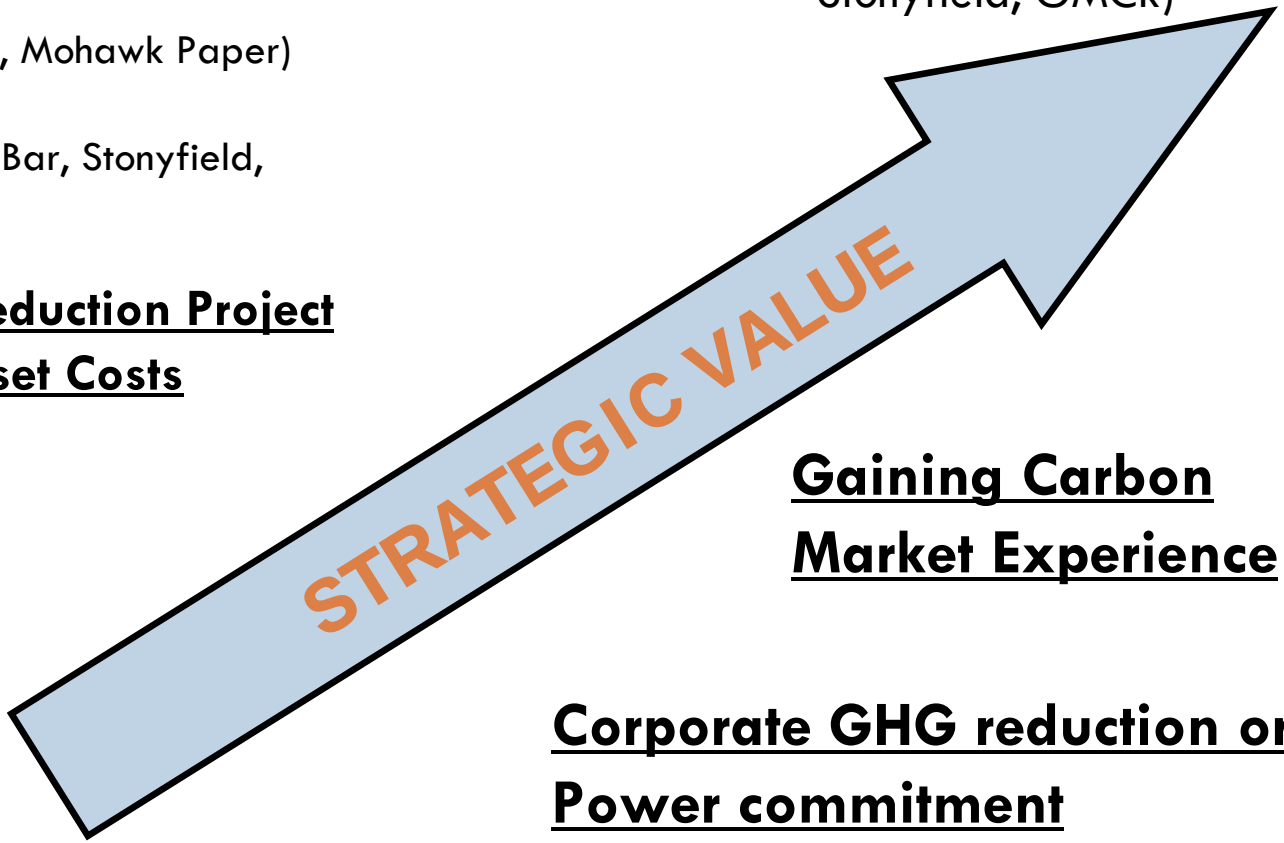
Brand Identity

(Interface, ClifBar, Ben & Jerry's, Stonyfield, GMCR)

Stakeholder Relations

- **Employees**
  (Timberland, Mohawk Paper)
- **Customers**
  ClifBar, Stonyfield,

Enhance Reduction Project ROI vs Offset Costs



Gaining Carbon Market Experience

Regulatory Requirement

- EU/CA/RPS

Corporate GHG reduction or Green Power commitment

- EPA Green Power Partner or Climate Leaders

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Help build + "real time" purchases

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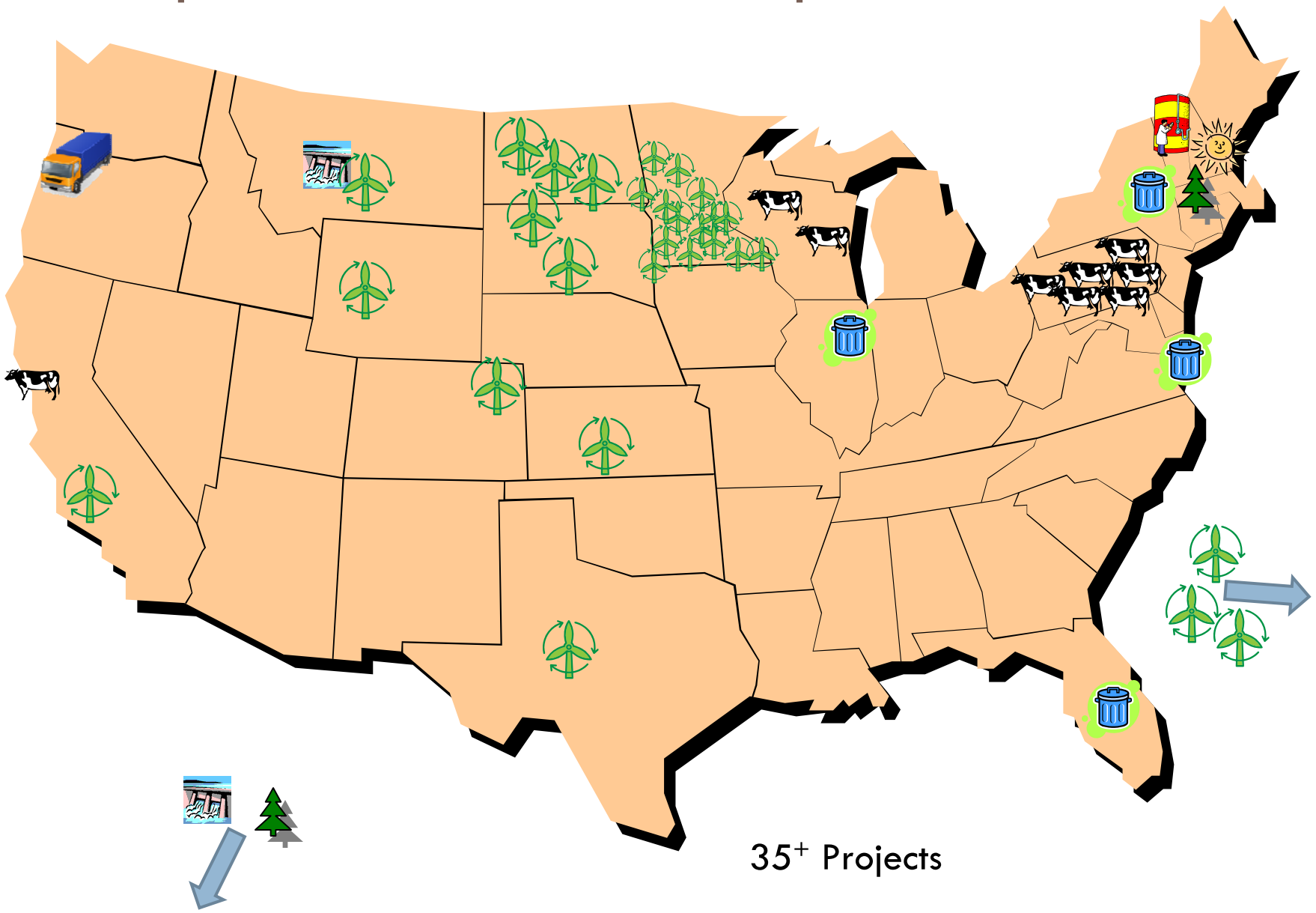

35+ Projects

How To Get ROI With Offsets

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3) Clarify expectations about the benefits of offsetting versus making reductions internally

4) Prioritize offsets' desired attributes

5) Explore the range of offset offerings

6) Choose offset providers

Check The Guides

NativeEnergy
Bringing New Renewables To Market

- **Tufts Climate Initiative**
  -Study of 13 world wide offset providers, *Native*Energy
  Top 4 overall, Top ranked US company

CLEAN AIR COOL PLANET

- **Consumer's Guide to Retail Offset Providers**
  -Top tier rated provider out of 30 reviewed, Top 3 in US

SOCIAL VENTURE NETWORK
BAINBRIDGE GRADUATE INSTITUTE BGI
carbonconcierge

- **Carbon Offset Provider Evaluation Matrix**
  - 92% score and "Most Recommended" #1 Ranking

Pioneer in Climate-Solutions

Founded in 2000
Shelburne, VT

***Native*Energy is a pioneer in the US voluntary carbon market – in terms of early entrance and the development of a unique funding model for new offset projects.**

MOTOROLA

Stonyfield Farm – FOR A HEALTHY PLANET

AVEDA™

GREEN MOUNTAIN COFFEE ROASTERS

Paramount

NATIONAL GEOGRAPHIC

INTERFACE

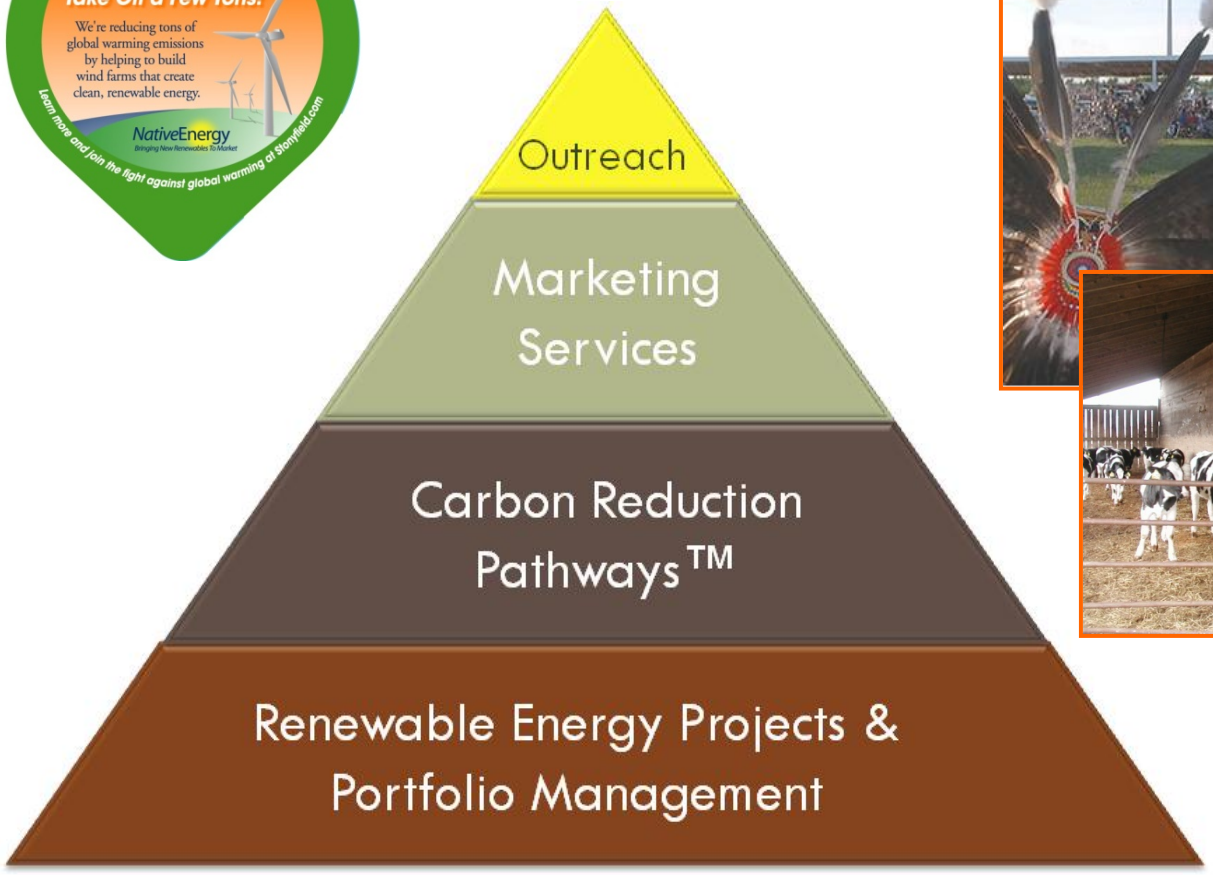
an inconvenient truth

ICROA – INTERNATIONAL CARBON REDUCTION AND OFFSET ALLIANCE

U.S. Founding Member

International Carbon Reduction and Offset Alliance

Conservation, Efficiency & Offsetting



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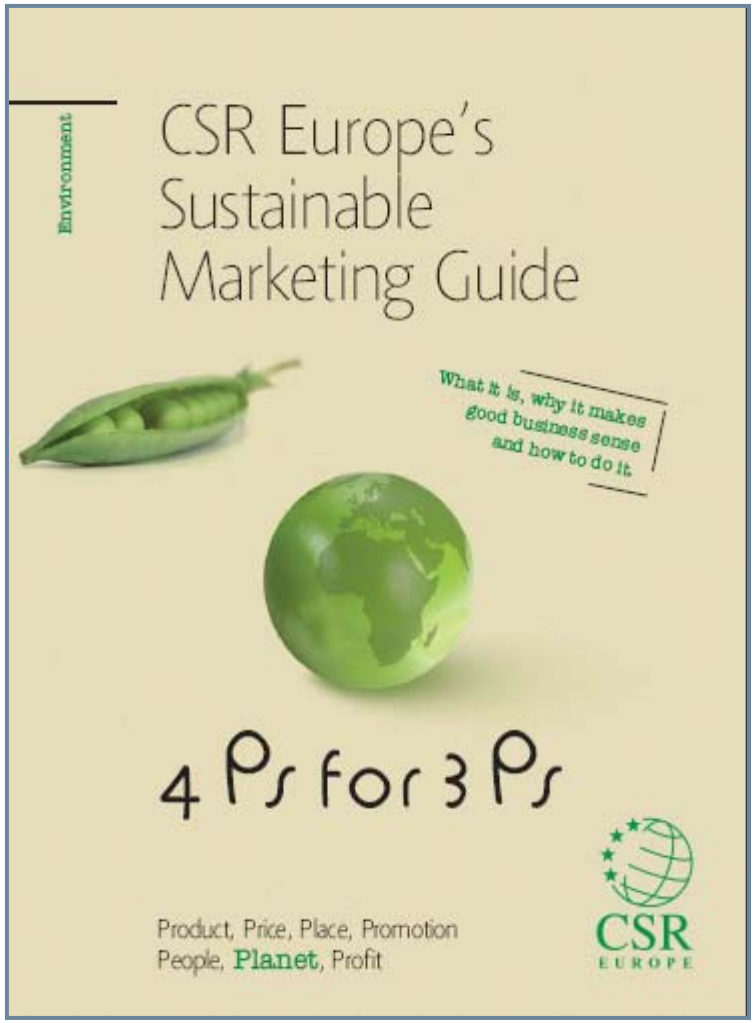
Communicating Your Actions



- Walk the Talk, then Talk the Walk
- Engage Employees. Make sure they understand your objectives and commitment.
- Involve other stakeholders – risk managers, bankers, the Board
- Be explicit – not vague – in all communications particularly to clients OR run the risk of greenwashing.

Otter Creek Brewing Inc.

- REDUCING CARBON FOOTPRINT
- REDUCING OPERATING EXPENSES

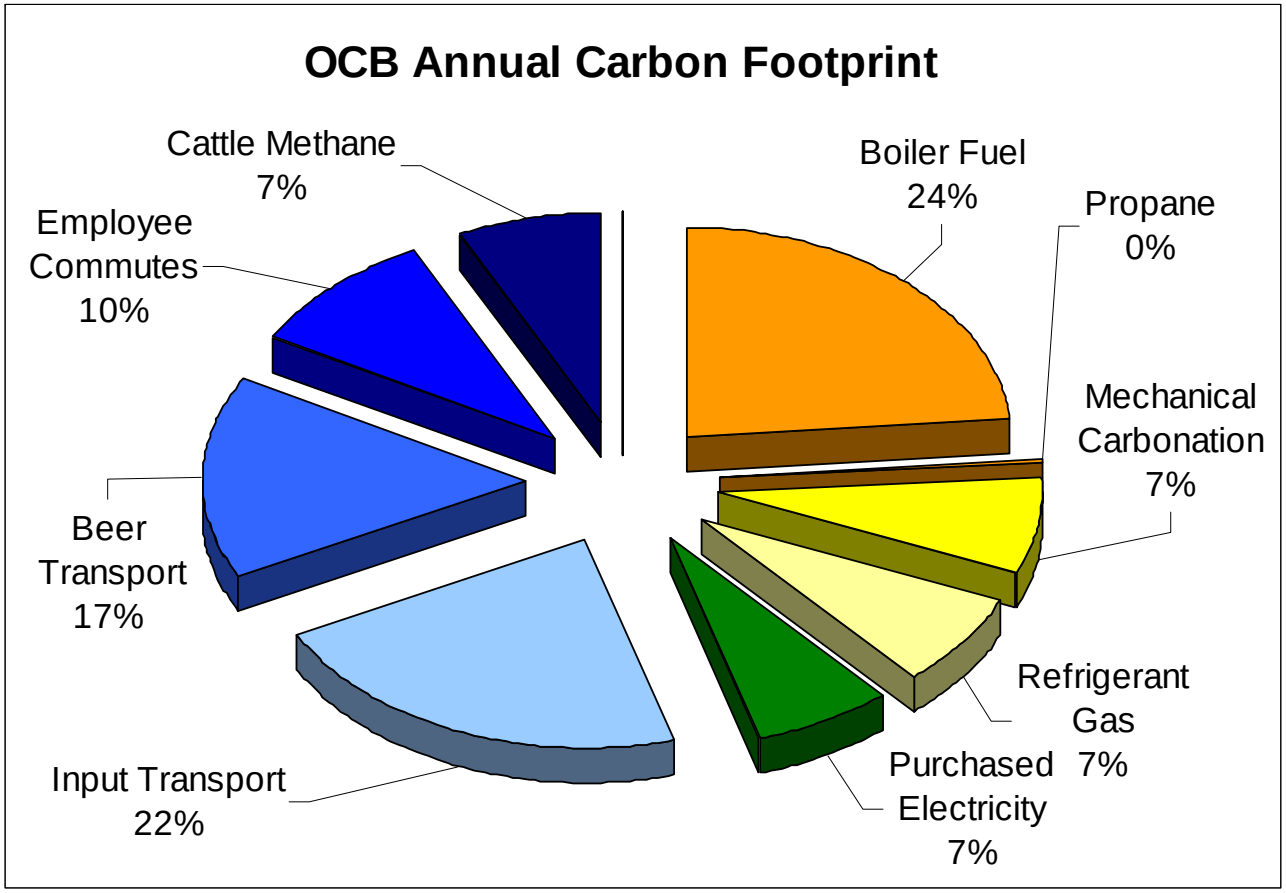
ASSESSMENT AND ACTIONS

- Carbon Footprint Assessment
- Energy Efficiency Upgrades
- Renewable Energy
- Recycling: paper, glass, spent grain
- Waste Reduction
- Local Economy
- Messaging/Marketing
- Providing a Voice on Policy
- Zero Carbon Footprint

CARBON FOOTPRINT ASSESSMENT

- **ON GOING ANALYSIS**
- **METHOD DEPENDS ON BUDGET**
  - **INTERNAL:** Direct CO2 emissions onsite
  - **INTERNAL/EXTERNAL:** Direct & Indirect emissions create through energy use
  - **ENVIRNOMENTAL ACCOUNTING:** Grain to Consumer.

OTTER CREEK ANNUAL CARBON FOOTPRINT (1 of 2)



OTTER CREEK ANNUAL CARBON FOOTPRINT (2 of 2)

ANNUAL EMISSIONS (lbs CO2 equiv.)	2,717,640
SCOPE 1 EMISSIONS	1,051,828
Boiler Fuel	642,842
Propane	8,653
Mechanical Carbonation	202,000
Refrigerant Gas	198,333
SCOPE 2 EMISSIONS	188,411
Purchased Electricity	188,411
SCOPE 3 EMISSIONS	1,477,401
Input Transport	597,335
Beer Transport	421,964
Employee Commutes	261,675
Cattle Methane	196,427
Manufacture of Purchased Materials	
Waste Disposal	

CARBON FOOTPRINT REDUCTIONS	303,666
Biodiesel boiler	118,987
Free-air cooling	43,120
Efficient lighting	8,324
Heat recovery from exchanger	133,235

BEER SERVING FOOTPRINT

35,000	barrels per year
31	gallons per barrel
10.67	beers per gallon
11,573,333	beers per year
2,717,640	lbs CO2 per year
0.23	**lbs CO2 per 12 oz.beer**

number low, missing mfg & waste disposal

not complete

OTTER CREEK CO2 REDUCTIONS ARE EQUIVALENT TO:

25.3 car equivalents removed from road

or

35.4 acres of tress planted

ENERGY EFFICIENCY (1 of 2)

- Pumps – high efficiency
- Coolers – microprocessor controlled units
- Lighting – reduced units, high efficient tubes
- Heat Exchanger - glycol, larger liquor tanks
- Air Compressors – VFD, larger tanks

ENERGY EFFICIENCY (2 of 2)
UPGRADES SAVINGS

UPGRADE	COST	Annual Savings	Annual Savings	Payback (years)	Tons CO2 Reduced
Outside Air	$ 3,418	7.8 mwh	$ 856	4.0	4.9
Fan Motors	$ 818	2.0 mwh	$ 216	3.8	1.2
VFD Compressor	$ 13,050	46 mwh	$ 5,060	2.6	29.0
T5 Lighting	$ 11,988	33.3 mwh	$ 3,626	3.3	21.0
TOTAL	**$ 29,274**	**89.1 mwh**	**$ 9,758**	**3.0**	**56**
Spent grains + other	$ 30,000		$ 82,000	0.4	?
Craftboard			$ 5,000		?

RENEWABLE ENERGY

- Biofuels (diesel, ethanol)
- Biomass (wood, grass, etc.)
- Solar PV
- Wind
- Digester
- Other: algae, hydrogen, solar steam

RENEWABLE ENERGY POTENTIAL OTTER CREEK

SYSTEM	COST	Annual Savings	Annual Savings	Payback (years)	Tons CO2 Reduced
CHP System					
Biomass Pellets	$1.25M ($2.0M)	75%	$ 155,000	8	700
Waste Digestor	$2.75M($3.5M)	90%	$ 205,000	12	850
Biodiesel favorable for CO2 reduction but no cash savings					
Solar or wind are not as favorable options for our location					
Wood Pellets - Creates local $$$ but doesn't eliminate BOD issues/cost					
Digestor - Eliminates BOD loading but more upfront cost					

RECYCLING

- Glass – Separate container, crushed has more value
- Cardboard – Separate container broken down, baled has more value
- Paper & Plastics – Mixed containers. Haulers may provide separate containers.
- Food Waste – Compost employee food if possible for brewery land or for employees to take home
- Spent grains, hops & yeast– Animal feed, commercial compost, blend with pellets for boiler.

WASTE REDUCTION

- Make convenient
- Making part of Company Mission Statement creates Employee ownership.
- Reductions implemented in SOP
- Evaluate monthly as part of Operating Budget
- Share savings with employees

LOCAL PURCHASING
LOCAL ECONOMY

- Spend Locally - $1 spent locally is equal to $3 spent in the community that buys your beer.
- Low Lying Fruit - Pint glass printing, T-shirt printing, rebuilt pallets, brewing ingredients (work with farmers), sell local cheese in retail store
- Reduces transport emissions

MESSAGING/MARKETING

- Sustainability – added value to produce
- Leverage – media
- Mission Statement – message to consumers
- Values Statement – for employees to buy in.
- Participate – Local events (Green-Up Day)

PROVIDING A VOICE ON POLICY

- Communicate - to local and federal legislators.
- Push - to set aside grants, low interest loans
- Demand – reduction in emissions
- Invite – government to your brewery or brewpub
- Your Voice is Your Vote

ZERO CARBON FOOTPRINT

Take – Away's

- Why
  - Costs
  - 80/20
  - Regulation
- How
  - Planning Strategically
  - Conservation, Efficiency, Offsetting

Questions ?

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