



# **Sustainability Programs Applications to Sugar Beet Processing Facilities**

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ASSBT Meeting Albuquerque, NM  
March 4, 2011**



# Overview

- **Sustainability concepts & programs**
- **Customer questionnaires**
- **Coal utilization**





# Sustainability

## Definitions

- Capacity to endure (Wikipedia, [en.wikipedia.org](http://en.wikipedia.org))
- Maintain human life on the planet (The Natural Step, [www.naturalstep.org](http://www.naturalstep.org))
- Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (1987 World Commission on Environment and Development).



# Sustainability Categories

- **Environmental**
- **Economic**
- **Social**

From: Global Reporting Initiative [www.globalreporting.org](http://www.globalreporting.org)



# Environmental Sustainability

## Ideal Goals

- **Eliminate systematic increases in concentrations from the earth's crust**
- **Eliminate increases of concentrations of unnatural compounds**
- **Eliminate physical degradation of nature through overharvesting and depletion**

From: [www.naturalstep.org](http://www.naturalstep.org)



# **Environmental Sustainability**

## **Major Areas**

- **Energy type and use**
- **Greenhouse gases**
- **Water consumption**
- **Wastewater treatment & discharges**
- **Solid waste**
- **Agricultural programs**
- **Environmental management systems**



# Customer Questionnaires

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# Customer Questionnaires

## Sustainability

- **Several questionnaires completed over the past couple of years**
- **Questions focus on improvements and goals for reducing environmental impacts**
- **Development and implementation of long-term plans**



# Improvement Goals

## Customer Questionnaires

PARAMETER	% REDUCTION
Energy	0 to > 15
Greenhouse Gases	0 to > 15
Freshwater Consumption	0 to > 25
Water Quality Improvements	0 to > 10
Solids Waste	0 > 60



# Air & Water Quality Potential Improvements

Area	Improvement
Energy, Fuels & Greenhouse Gases	Improve energy efficiency Recover waste heat Switch to clean fuels Renewable energy, wind, solar
Water Conservation, Treatment & Reuse	Eliminate use of freshwater Improved treatment Increase facility reuse Land application to crops



# Solids & Waste Recycling

## Potential Improvements

Area	Improvement
Solids Byproducts	<p>Reduce/eliminate onsite accumulation.</p> <ul style="list-style-type: none"><li>•Dirt – Return to farms</li><li>•PCC – Soil amendment</li><li>•Ash – Concrete additive, reburn</li></ul>
Other Wastes	<p>Minimize/eliminate waste to landfills</p> <p>Compostable packaging materials</p> <p>Recycling programs (used oil, fluorescent light bulbs, batteries)</p>



# Sustainability Programs

- **Many companies have developed programs to reduce environmental impacts**
- **Environmental performance and measurements included in annual reports**
- **Campbell Soup Company – Corporate Social Responsibility Report**



# Campbell Soup Company

## Corporate Social Responsibility Report

<u>Economic (\$ million)</u>	2008	2009
Sales	8,000	7,600
Earnings	1,100	1,200
<u>Environmental</u>		
Water Use (Cu. Meter/ton food)	10.33	9.35
Energy (MMBtu/ton food)	3.57	3.60
Greenhouse Gas Emissions (mmt CO <sub>2</sub> )	900,000	880,000
Solid Waste Recycled (%)	64%	84.5%
<u>Social</u>		
Donations (\$ million)	18.4	21.5
Health Care (\$million)	102	101





# **Coal Utilization Sustainability**

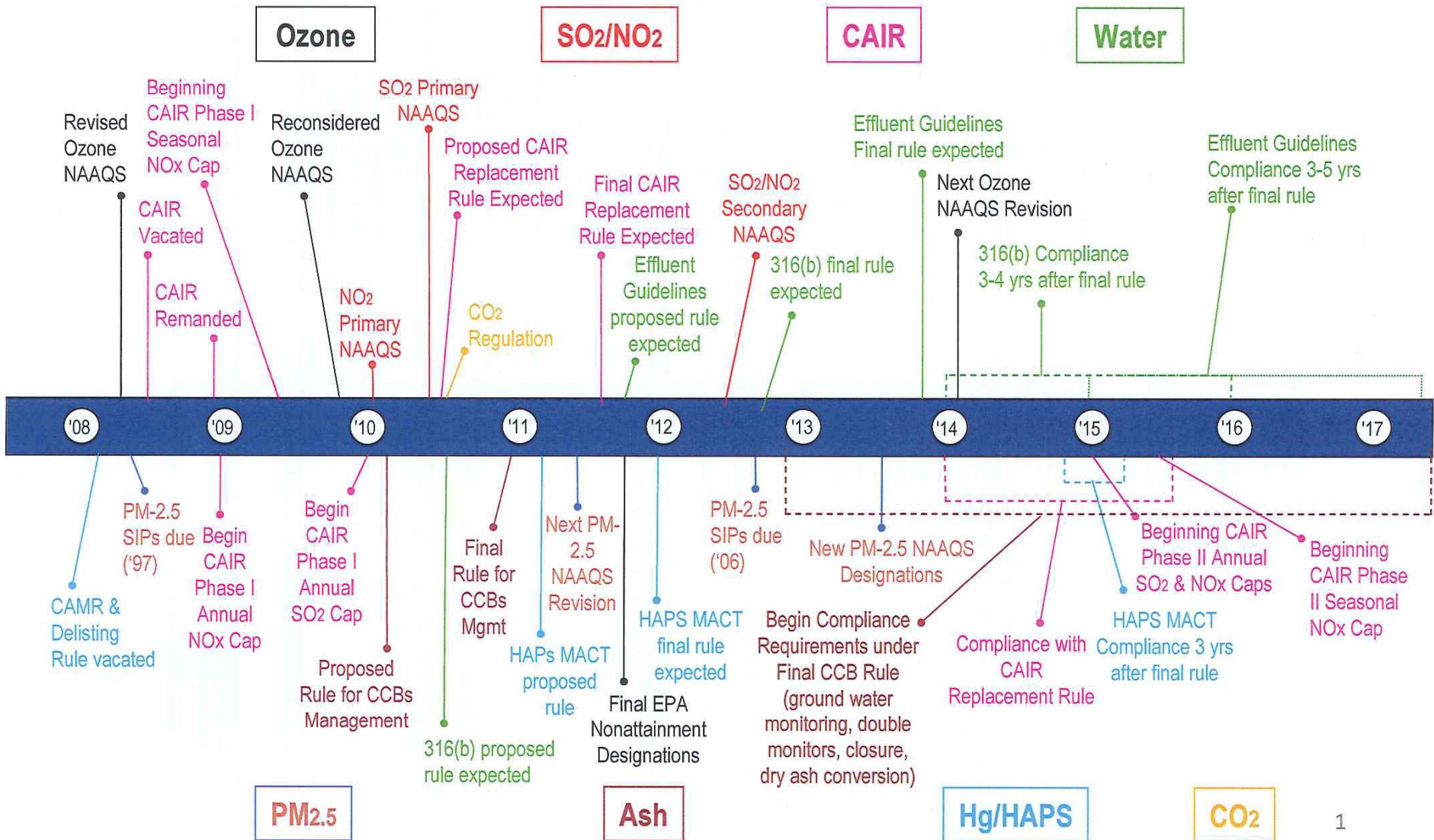


# Coal Utilization

- Over the past several years, both federal (EPA) and state environmental regulations have become significantly more to utilize coal
- Coal generated power plants are subject to 35 new air quality, water quality and solids management regulations



# Environmental Regulatory Timeline for Coal Units





# Coal Utilization

- **Cumulative impact of these regulations can be overwhelming**
- **Coal burning could be effectively regulated out of business for both power plants and industry**



# Portland General Electric Power Plant

## Boardman, Oregon

- 600 MW power plant located in eastern Oregon
- Compliance with air quality regulations require \$500 million in capital expenditures (SO<sub>2</sub> & NO<sub>x</sub> controls)
- The power plant is choosing to shutdown in 2020. However, over the next 9 years the plant will be required to install over \$80 million in improvements.



# **Environmental Regulations vs. Economic Sustainability**

- **Many other federal (EPA) and state environmental regulations have become significantly more stringent**
- **Many of these regulations are affecting the “Economic Sustainability” and long-term viability of many US manufacturing companies**



# **Environmental Regulations vs. Economic Sustainability (Cont.)**

- **Congress has begun to scrutinize these regulations and impacts to the manufacturers including greenhouse gas regulations**
  - **Assessing Regulatory Impediments to Job Creation: Preliminary Staff Report (U.S. House of Representative Darrell Issa – CA, Feb 2011)**
  - **EPA's Anti-Industrial Policy: Threatening Jobs and America's Manufacturing Base (U.S. Senate, September 2010)**



# Conclusions

- **Sustainability programs and reporting are voluntary**
- **Many customers are requesting sustainability information focusing on environmental impacts**
- **It's critical that sugar beet processors report sustainability in economic, environmental and social performance terms**



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**Questions?**