Portland Cement Sustainable Manufacturing Program

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Presentation Overview

- Key PCA Initiatives 2009-2010
- Recent U.S. Cement Consumption Trend
- Background on Sustainable Manufacturing (SM) Program
- Environment and Energy Focus
- Health and Safety Focus
### Key PCA Initiatives in 2009

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Action</th>
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<tbody>
<tr>
<td>Strategic Planning</td>
<td>Finalized and began implementation of new strategic plan focused on three areas: Market Promotion, Business Continuity (“Sustainable Profitability”) and Sustainable Development.</td>
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<td>Renewed Focus on Pavement Promotion</td>
<td>Consolidated concrete pavement promotion efforts of various concrete associations under PCA</td>
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<td>Aggressive Issue Advocacy</td>
<td>Addressed significant climate change, air emission and infrastructure investment opportunities and challenges</td>
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<td>Integration of Regional Promotion Resources</td>
<td>Merged previously quasi-independent regional market promotion organizations into PCA to facilitate coordinated efforts</td>
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<td>Creation of Imaging and Branding Campaign</td>
<td>Initiated a program to convey to various audiences the superior (sustainable) qualities of cement and concrete products; Launched alongside Federal advocacy efforts</td>
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## Cement Consumption Trends

<table>
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<tr>
<th>Year</th>
<th>U.S. Cement Consumption (Thousands of metric tons)</th>
<th>U.S. Imports (thousand of metric tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>113,494</td>
<td>23,801</td>
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<tr>
<td>2004</td>
<td>121,272</td>
<td>27,305</td>
</tr>
<tr>
<td>2005</td>
<td>128,035</td>
<td>33,652</td>
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<tr>
<td>2006</td>
<td>127,251</td>
<td>35,896</td>
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<tr>
<td>2007</td>
<td>114,622</td>
<td>22,729</td>
</tr>
<tr>
<td>2008</td>
<td>96,546</td>
<td>11,518</td>
</tr>
<tr>
<td>2009</td>
<td>70,000 est.</td>
<td>7,000 est.</td>
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SM Program Background

- Conceived in 2000

- **Objective**: Continuous improvement in environmental, energy and health and safety performance

- **Tools**: Voluntary targets for enhancing performance; programs to award outstanding performance; advisories to showcase successful strategies

- **Reporting**: Prepare annual report to track progress
Environment and Energy Focus

Program Components:

1. Voluntary targets for improving environmental and energy performance
2. Creation of annual Environment and Energy Awards Program
3. Report on progress annually
Environment and Energy Focus

1. PCA voluntary targets include:
   - Carbon dioxide emission reduction goal
   - Energy efficiency improvement
   - Utilization of environmental management systems
   - Reduction in the disposal of cement kiln dust – material collected in air pollution control equipment
Environment and Energy Focus

Goal Number 1:

- Carbon Dioxide (CO$_2$) Emission Reduction —10% reduction in CO$_2$ emissions per ton of product produced from 1990 by 2020
Carbon Dioxide Goal

CO₂ Goal—10% reduction in CO₂ emissions per ton of cementitious product produced from 1990 by 2020
Environment and Energy Focus

Goal Number 2:

- Energy Efficiency Improvement—20% improvement in cement manufacturing energy efficiency from 1990 by 2020—by total Btu-equivalent per unit of product.
Energy Efficiency Goal

Year 2020 Voluntary Target: 20% improvement in energy efficiency from 1990 baseline

Energy Consumption, million Btu per equivalent metric ton of cementitious product

Year


No Data Available for 1986-1987
Goal Number 3:

Employ Environmental Management Systems (EMS)—Successive implementation of EMS:

- 40% of U.S. plants by 2006 (54% of U.S. plants had EMS as of 2008)
- 75% of U.S. plants by end of 2010
- 90% of U.S. plants by 2020.
Environment and Energy Focus

Goal Number 4:

- Cement Kiln Dust (CKD)—60% reduction in the amount of CKD landfilled per ton of product produced from 1990 by the year 2020.
Cement Kiln Dust Goal

Cement Kiln Dust (CKD) Disposal Rates with Current Reduction Goal

Goal: 24 kg CKD / metric ton of clinker - 60% reduction from 1990
Environment and Energy Focus

2. Creation of annual Environment and Energy Awards Program

- Six award categories:
  - Environmental Performance
  - Land Stewardship
  - Outreach
  - Innovation
  - Energy Efficiency
  - Overall Excellence
Environment and Energy Focus

PCA’s commitment to performance improvement demonstrated by participation in:

- EPA Energy Star Program
- EPA Climate Leaders
- Asia Pacific Partnership Program
- World Business Council on Sustainable Development Cement Sustainability Initiative
Health and Safety Focus

Program Components:

1. Creation of annual Innovations in Safety Awards Programs
2. Creation of PCA Chairman’s Safety Performance Awards Program
3. Development of Safety Information Advisories
Health and Safety Focus

1. Innovations in Safety Awards Program
   - Objective: Showcase innovative industry ideas
   - Focus on four areas:
     - Quarry
     - Milling and Grinding
     - Pyroprocessing
     - General Facility
Health and Safety Focus

2. Chairman’s Safety Performance Awards Program

- Objective: Reward those plant’s with best safety performance record
- Performance rated using MSHA’s safety record information
Health and Safety Focus

3. Safety Information Advisories

- Objective: Tools that may be used to enhance PCA member health and safety performance

- Advisories have been developed for:
  - Contractor Safety
  - Lockout/Tagout
  - Machine Guarding
  - Rail Car Safety
  - Coal Mill Safety
Health and Safety Focus

PCA – Mine Safety and Health Administration (MSHA) Alliance

- Objective: Voluntary partnership with MSHA to improve performance
- Initiated in November 2008
- Focus: Development of educational materials and workplace risk and hazard awareness.
PCA Sustainable Manufacturing Report

http://www.cement.org/smreport09/
Thank You!

Building Better Outcomes with Concrete