An Overview:

1. The Energy Future
2. The Elephant in the Room
   - Climate Legislation
   - Climate Regulation
   - Climate Litigation
3. Limits on Development
Our Energy Future:

Balancing our economic, technology, environmental, energy and security needs

It is a puzzle—how we put the pieces together will make all the difference
Our Energy Future: What is needed

- Our future energy needs will be massive
- The amount of new technology needed will be massive
- The cost of our future energy needs will be massive
Selected Global Energy Facts

Total global energy

Non-OECD countries account for 82% of the increase in global energy use to 2030

Global energy use by type

- Quadrillion Btu
- History
- Projections
- Oil
- Coal
- Natural Gas
- Renewables
- Nuclear

Non-OECD countries account for 82% of the increase in global energy use to 2030.
Climate Change: A Global Issue That Requires a Global Approach

Business-as-usual CO₂ Emission Projections by Region

Data derived from Global Energy Technology Strategy, Addressing Climate Change: Phase 2 Findings from an International Public-Private Sponsored Research Program, Battelle Memorial Institute, 2007.
Global CO₂ Emissions¹—2000, 2050 Reference Case, and 2050 at 50% of 2000: MINICAM

Achieving a 550 ppm outcome by the end of this century requires approximately 30–40 terawatts of carbon-free power—this is roughly equivalent to three to four times as much power as is generated by all the fossil fuels used in the entire world at the present time.

¹ Includes fossil and other industrial CO₂.

Requires Energy Mix Transformation

From Global Energy Technology Strategy, Addressing Climate Change: Phase 2 Findings from an International Public-Private Sponsored Research Program, Battelle Memorial Institute, 2007.
Is There an Elephant?
Environmental groups file over 400 cases annually against the federal government over regulatory matters. Key victories include particulate matter, ozone, CO$_2$, lead, and mercury.

Filed 6 CO$_2$ administrative cases with Environmental Appeals Board, 5 dismissed. The case moving forward deals directly with authority of EPA to regulate CO$_2$ from stationary sources.
Path 1: Legislation
Where is Congress on Climate Change?

The U.S. House of Representatives:

Passed the American Clean Energy and Security Act on June 26, 2009

- 44 Democrats voted against the bill; 8 Republicans voted for it

The U.S. Senate:

- Boxer legislation (dead)

- Graham-Kerry-Lieberman; different framework: a cap-and-trade for utilities; carbon tax on fuels; transition for industrials; preemption of CAA and state regulation

- Murkowski; Congressional Review Act

- Rockefeller; Two-year moratorium
Winners and Losers on Allocations

2016 CO2 Emissions from Energy versus Waxman/Markey Allowance Allocations: As Percent of EIA Reference Case CO2 Emissions

Graphic courtesy of the American Petroleum Institute.

Allocations based on 5/15/09 version of the bill; emissions data from 2009 EIA Annual Energy Outlook
1. PREEMPTION

2. TRADE BARRIERS

3. QUESTIONABLE IMPACT ON JOBS / COSTS

4. TAKES ENERGY OUT, DOESN’T ADEQUATELY REPLACE

5. INEQUITABLE TREATMENT OF THE FUELS SECTOR

6. NOT INTERNATIONAL IN SCOPE

7. MASSIVE NEW BUREAUCRACY (1,500 NEW REGS & MANDATES)
Bureaucracy Expansion Act?
Bureaucracy Expansion Act?
Bureaucracy Expansion Act?
Environmental Law:
More Complicated than the Tax Code
(Pages in Code of Federal Regulations: Tax vs. Environmental)
Economic impact

Impact of ACES on Allowance Prices

Impact of ACES on Electricity Prices

Impact on Annual Household Consumption

- Forging Industry Association Energy Workshop • March 24, 2010 • William L. Kovacs • USCC
Most States Lose Under H.R. 2454

Consumers in red colored states will pay more for electricity to make up for the shortfall in allowances (dollars in millions).

Based on the allowance allocation formula in H.R. 2454 for electricity consumers, the red states will not have enough allowances to cover their emissions from electricity generation. The shortfall in allowances to the red states will lead to higher electricity costs for consumers, the total of which will roughly correlate with the dollar losses noted on the map. For example, Texas electricity consumers will see electricity costs go up by roughly $1 billion. To make up the shortfall, red states will have to seek high-cost, non-CO2 emitting electricity sources, reduce electricity production and consumption, or purchase allowances from the green states, or purchase domestic and international offsets, likely a combination of the three.

Based on Energy Information Administration (EIA) and Congressional Budget Office (CBO) data. Dollars in millions. Approximate cost to customers in 2012 (at CBO estimate of $15/ton).
Path 2: Regulation
Why is regulation under the Clean Air Act happening?

- Massachusetts vs. EPA
- Enormous Agency leverage
- Environmentalists have huge clout with the administration
1. **Endangerment**
   - A judgment by the Administrator of EPA that greenhouse gases cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.
   - **What this means:** if GHGs from cars endanger public health and welfare, then GHGs from [insert source] do as well.

2. **GHGs become “subject to regulation” under the Act**
   - Triggers Prevention of Significant Deterioration (PSD) and Title V permitting
   - To date, GHGs are not subject to regulation
   - **The Problem:** Fringe environmental groups want to use PSD to regulate all sources of GHGs, large and small
   - **What this means:** No more construction!
How the Cascade Works

1. EPA makes endangerment finding for motor vehicles and issues tailpipe regulations

2. PSD and Title V permit provisions apply immediately, even to stationary sources

3. Environmental groups sue to trigger endangerment provisions in Sections 108 (NAAQS) and 111 (NSPS)

What is the impact?
What CAA regulation means for your industry

Short Term (2011-12):

- Downstream impacts (i.e. price increases) from imposition of New Source Performance Standards on energy producers and requirements that they install Best Available Control Technology.
- PSD permits for new/modified facilities; installation of BACT.
- Title V operating permits: administrative fees, citizen suits.

Long Term

- NAAQS for CO2, an absolute disaster.
- PSD and Title V thresholds lowered to cover small sources.
Table 5: Summary of Industrial-Manufacturing Sector CO₂ Emissions: Ranked by Minimum Size of Establishment to Reach 250 TPY CO₂

<table>
<thead>
<tr>
<th>Business type</th>
<th>Size to emit 250 TPY</th>
<th>Average floor space per establishment</th>
<th>Site CO₂ emissions</th>
<th>Estimated # establishments regulated @ 250 TPY</th>
<th>Total # establishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>sq ft</td>
<td>sq ft</td>
<td>lbs/sq ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lime*</td>
<td>14</td>
<td>31,000</td>
<td>15,000</td>
<td>6</td>
<td>65</td>
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<tr>
<td>Cements*</td>
<td>41</td>
<td>110,000</td>
<td>4,900</td>
<td>190</td>
<td>200</td>
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<tr>
<td>Petroleum Refineries*</td>
<td>80</td>
<td>590,000</td>
<td>2,500</td>
<td>210</td>
<td>220</td>
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<tr>
<td>Iron and Steel Mills*</td>
<td>160</td>
<td>330,000</td>
<td>1,200</td>
<td>770</td>
<td>770</td>
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<tr>
<td>Pulp Mills*</td>
<td>330</td>
<td>490,000</td>
<td>610</td>
<td>34</td>
<td>34</td>
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<tr>
<td>Petroleum and Coal Products</td>
<td>360</td>
<td>58,000</td>
<td>1,400</td>
<td>1,900</td>
<td>1,900</td>
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<tr>
<td>Chemicals</td>
<td>940</td>
<td>110,000</td>
<td>530</td>
<td>8,900</td>
<td>8,900</td>
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<tr>
<td>Primary Metals</td>
<td>1,100</td>
<td>170,000</td>
<td>440</td>
<td>4,200</td>
<td>4,200</td>
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<tr>
<td>Nonmetallic Mineral Products</td>
<td>2,100</td>
<td>75,000</td>
<td>240</td>
<td>11,000</td>
<td>12,000</td>
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<tr>
<td>Paper</td>
<td>2,300</td>
<td>180,000</td>
<td>220</td>
<td>4,200</td>
<td>4,300</td>
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<tr>
<td>Primary Aluminum*</td>
<td>2,500</td>
<td>900,000</td>
<td>80</td>
<td>41</td>
<td>41</td>
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<tr>
<td>Food</td>
<td>3,400</td>
<td>100,000</td>
<td>150</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Textile Mills</td>
<td>8,800</td>
<td>200,000</td>
<td>60</td>
<td>2,200</td>
<td>2,200</td>
</tr>
<tr>
<td>Beverage and Tobacco Products</td>
<td>9,000</td>
<td>160,000</td>
<td>60</td>
<td>1,600</td>
<td>1,600</td>
</tr>
<tr>
<td>Semiconductors, Related Devices</td>
<td>19,000</td>
<td>180,000</td>
<td>30</td>
<td>550</td>
<td>580</td>
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<td>Transportation Equipment</td>
<td>22,000</td>
<td>220,000</td>
<td>20</td>
<td>7,300</td>
<td>7,700</td>
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<tr>
<td>Plastics and Rubber Products</td>
<td>24,000</td>
<td>94,000</td>
<td>20</td>
<td>9,200</td>
<td>11,000</td>
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<tr>
<td>Electrical Equip., Appliances</td>
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<td>120,000</td>
<td>20</td>
<td>3,500</td>
<td>3,900</td>
</tr>
<tr>
<td>Fabricated Metal Products</td>
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<td>48,000</td>
<td>20</td>
<td>26,000</td>
<td>35,000</td>
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<tr>
<td>Wood Products</td>
<td>26,000</td>
<td>65,000</td>
<td>20</td>
<td>8,400</td>
<td>10,000</td>
</tr>
<tr>
<td>Apparel</td>
<td>29,000</td>
<td>43,000</td>
<td>20</td>
<td>3,600</td>
<td>5,500</td>
</tr>
<tr>
<td>Textile Product Mills</td>
<td>33,000</td>
<td>100,000</td>
<td>10</td>
<td>2,900</td>
<td>3,500</td>
</tr>
<tr>
<td>Leather and Allied Products</td>
<td>35,000</td>
<td>38,000</td>
<td>10</td>
<td>360</td>
<td>690</td>
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<tr>
<td>Printing and Related Support</td>
<td>40,000</td>
<td>37,000</td>
<td>10</td>
<td>9,300</td>
<td>20,000</td>
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<tr>
<td>Machinery</td>
<td>43,000</td>
<td>72,000</td>
<td>10</td>
<td>12,000</td>
<td>17,000</td>
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<tr>
<td>Computer and Electronic Products</td>
<td>43,000</td>
<td>96,000</td>
<td>10</td>
<td>7,200</td>
<td>9,200</td>
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<tr>
<td>Miscellaneous</td>
<td>54,000</td>
<td>40,000</td>
<td>9</td>
<td>5,100</td>
<td>16,000</td>
</tr>
<tr>
<td>Furniture and Related Products</td>
<td>82,000</td>
<td>61,000</td>
<td>6</td>
<td>3,600</td>
<td>11,000</td>
</tr>
</tbody>
</table>

Total**                        | 190,000              | 202,500                               |                    |                                               |                        |

* Calculations are for 100 TPY
**Total different from column due to rounding

Table 8: Summary of Commercial Sector CO₂ Emissions: Ranked by Minimum Size of Establishment to Reach 250 TPY CO₂

<table>
<thead>
<tr>
<th>Business type</th>
<th>Size to emit 250 TPY</th>
<th>Mean building size</th>
<th>Site CO₂ emissions</th>
<th>Estimated # buildings regulated @ 250 TPY</th>
<th>Total # buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>sq ft</td>
<td>sq ft</td>
<td>lbs/sq ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Service</td>
<td>34,000</td>
<td>5,600</td>
<td>15</td>
<td>58,000</td>
<td>297,000</td>
</tr>
<tr>
<td>Health Care</td>
<td>51,000</td>
<td>25,000</td>
<td>10</td>
<td>92,000</td>
<td>129,000</td>
</tr>
<tr>
<td>Lodging</td>
<td>81,000</td>
<td>36,000</td>
<td>6</td>
<td>71,000</td>
<td>142,000</td>
</tr>
<tr>
<td>Other</td>
<td>83,000</td>
<td>22,000</td>
<td>6</td>
<td>7,900</td>
<td>79,000</td>
</tr>
<tr>
<td>Public Order and Safety</td>
<td>110,000</td>
<td>16,000</td>
<td>4</td>
<td>7,100</td>
<td>71,000</td>
</tr>
<tr>
<td>Public Assembly</td>
<td>120,000</td>
<td>14,000</td>
<td>4</td>
<td>26,000</td>
<td>277,000</td>
</tr>
<tr>
<td>Service</td>
<td>120,000</td>
<td>6,500</td>
<td>4</td>
<td>67,000</td>
<td>622,000</td>
</tr>
<tr>
<td>Education</td>
<td>120,000</td>
<td>26,000</td>
<td>4</td>
<td>100,000</td>
<td>386,000</td>
</tr>
<tr>
<td>Food Sales</td>
<td>130,000</td>
<td>5,600</td>
<td>4</td>
<td>23,000</td>
<td>226,000</td>
</tr>
<tr>
<td>Religious Worship</td>
<td>150,000</td>
<td>10,000</td>
<td>3</td>
<td>37,000</td>
<td>370,000</td>
</tr>
<tr>
<td>Mercantile</td>
<td>160,000</td>
<td>17,000</td>
<td>3</td>
<td>140,000</td>
<td>657,000</td>
</tr>
<tr>
<td>Office</td>
<td>170,000</td>
<td>15,000</td>
<td>3</td>
<td>260,000</td>
<td>824,000</td>
</tr>
<tr>
<td>Warehouse and Storage</td>
<td>290,000</td>
<td>17,000</td>
<td>2</td>
<td>150,000</td>
<td>597,000</td>
</tr>
</tbody>
</table>

Total                           | 1,000,000            | 4,859,000          |                   |                                           |                   |

Table 10: Summary of Agricultural Sector CO₂ Emissions: Ranked by Minimum Size of Farm to Reach 250 TPY CO₂

<table>
<thead>
<tr>
<th>Farm type</th>
<th>Size to emit 250 TPY</th>
<th>Average farm size</th>
<th>Site CO₂ emissions</th>
<th>Estimated # farms regulated @ 250 TPY</th>
<th>Total # Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres</td>
<td>Acres</td>
<td>lbs/acre</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhouse, nursery, floriculture</td>
<td>640</td>
<td>75</td>
<td>780</td>
<td>1,400</td>
<td>64,000</td>
</tr>
<tr>
<td>Poultry and egg</td>
<td>780</td>
<td>140</td>
<td>640</td>
<td>1,100</td>
<td>44,000</td>
</tr>
<tr>
<td>Vegetable, melon</td>
<td>1,600</td>
<td>320</td>
<td>310</td>
<td>1,500</td>
<td>35,000</td>
</tr>
<tr>
<td>Fruit and tree nut</td>
<td>2,000</td>
<td>120</td>
<td>250</td>
<td>880</td>
<td>96,000</td>
</tr>
<tr>
<td>Hog and pig</td>
<td>2,000</td>
<td>250</td>
<td>250</td>
<td>560</td>
<td>35,000</td>
</tr>
<tr>
<td>Dairy cattle, milk production</td>
<td>2,900</td>
<td>380</td>
<td>170</td>
<td>910</td>
<td>73,000</td>
</tr>
<tr>
<td>Cattle feedlots</td>
<td>6,400</td>
<td>470</td>
<td>10</td>
<td>830</td>
<td>55,000</td>
</tr>
<tr>
<td>Other Crop Farming Total</td>
<td>6,300</td>
<td>270</td>
<td>10</td>
<td>2,600</td>
<td>440,000</td>
</tr>
<tr>
<td>Oil seed, grain</td>
<td>6,400</td>
<td>690</td>
<td>10</td>
<td>3,400</td>
<td>350,000</td>
</tr>
<tr>
<td>Animal aquaculture, other</td>
<td>8,700</td>
<td>200</td>
<td>60</td>
<td>420</td>
<td>230,000</td>
</tr>
<tr>
<td>Beef cattle ranching</td>
<td>21,000</td>
<td>630</td>
<td>20</td>
<td>920</td>
<td>660,000</td>
</tr>
<tr>
<td>Sheep and goat</td>
<td>23,000</td>
<td>410</td>
<td>20</td>
<td>50</td>
<td>44,000</td>
</tr>
</tbody>
</table>

Total                           | 17,000              | 2,100,000         |                   |                                        |               |
Path 3: Litigation
Endangerment: For and Against

Court Filings in Support

- 15 states (AZ, CA, CT, DE, IA, IL, ME, MD, NH, NM, NY, OR, RI, VT, WA) and the City of New York
- Coalition of large environmental groups (Natural Resources Defense Council, Environmental Defense Fund, Sierra Club, and National Wildlife Federation)
- Conservation Law Foundation (extreme-left)

Petitions for Reconsideration

- Southeastern Law Foundation
- Pacific Legal Foundation
- Peabody Energy Co.
- Competitive Enterprise Institute
- U.S. Chamber of Commerce

Court Filings in Opposition

- State of Texas
- State of Alabama
- Commonwealth of Virginia
- Coalition for Responsible Regulation
- American Farm Bureau Federation
- NAM, NPRA, API, Corn Refiners, NAHB, NOPA
- National Mining Assn.
- Utility Air Regulatory Group
- U.S. Chamber
- Portland Cement Assn.
- Ohio Coal Assn.
- Competitive Enterprise Institute
- American Iron & Steel Institute
- Gerdau Ameristeel Corp.
- Southeastern Legal Foundation
- Peabody Energy Co.
Will Any Path Actually Work?
More Impediments to Economic Development

1. National Ocean Policy
2. New NEPA Restrictions
3. Endangered Species
4. Restrictions on Drilling
5. Hydraulic Fracturing
6. New Ozone Standards
7. Transboundary Emissions
8. Project No Project
Summary of Current 8-Hour Ozone Non-Attainment Areas and Additional Areas that Exceed Possible 0.060, 0.070, and 0.075 ppm 4th Highest Standard for 2003 - 2005

Ozone NAAQS Reconsideration (2008 NAAQS set at 0.75 ppm)
Opening the Toolchest to the NIMBYs
• There appear to be two clear choices: EPA regulation or legislation.

• Negotiations with Kerry, Lieberman and Graham are proceeding in earnest. No bill text has been produced, and we do not expect to see an actual bill for some time.

• What do you believe is the right policy for your industry?