

Voluntary Actions to Address Climate Change:

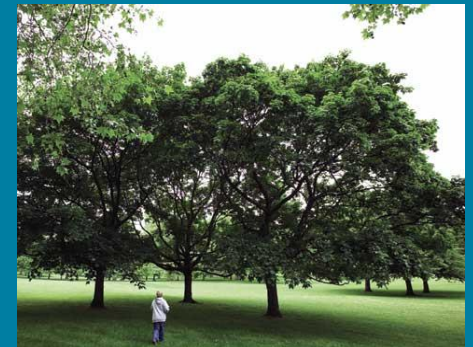
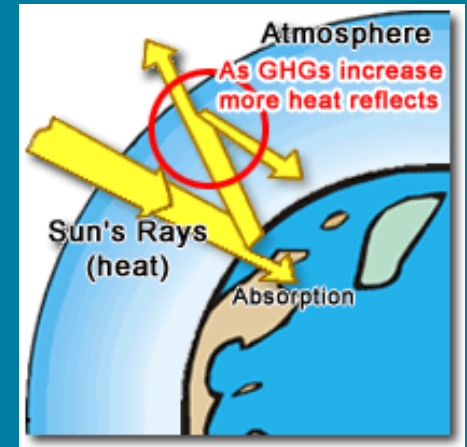
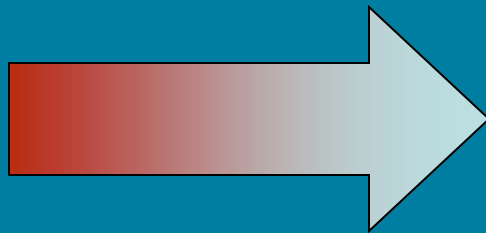
A Survey of Strategies and Activities by US Heavy Industry

Presented to: Rocky Mountain EHS Peer Group – April 19, 2007



Overview

- Why was the study done?
- Methodology
- Results
- Legislative and legal update
- Alternative paths forward



Two Incredibly Contrasting Strategies From the Online Version of the WSJ...

Burning Debate

As Emission Restrictions Loom,
Texas Utility Bets Big on Coal



Planned TXU Plants Raise
Global-Warming Concerns
Rivals Try New Technology

PAGE ONE

Burning Debate As Emission Restrictions Loom, Texas Utility Bets Big on Coal

Planned TXU Plants Raise
Global-Warming Concerns;
Rivals Try New Technology

Mr. Wilder Cites Demand

By REBECCA SMITH
July 21, 2006; Page A1

(See Corrections & Amplifications item below.)

Top executives at many utility companies have reluctantly accepted that coal-fired power plants contribute to global warming, and they have begun planning for a more restrictive future.

Then there is C. John Wilder, chief executive of TXU Corp. The Dallas-based utility company is racing to build 11 big power plants in Texas that will burn pulverized coal. That process releases substantial amounts of carbon dioxide, the most worrisome of several heat-trapping gases widely blamed for global warming.

TXU contends Texas needs a lot more power, and it wants to be the company to provide it. Critics of its \$11 billion construction program see another motivation: The federal government may slap limits on carbon-dioxide emissions. If it does, plants completed sooner may have a distinct advantage. That's because the government may dole out "allowances" to release carbon dioxide, and plants up and running when regulations go into effect may qualify for more of them than those built at a later date.

TXU opposes such regulations, which could force power companies to build more and expensive plants. Other big utility companies, including American Electric Power and Duke Energy, have proposed newer-style plants that would make it easier to control carbon-dioxide



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VS.

NRG Plans Buildup to Increase Power Output, Reduce Emissions



NRG Plans Buildup to Increase Power Output, Reduce Emissions

By REBECCA SMITH
June 21, 2006; Page B2

NRG Energy Inc. is expected to announce a major power-plant construction initiative as early as today in which it would increase its power generating capacity by about 40% at a cost that could approach \$16 billion over the next decade, according to people familiar with the matter.

The plan includes two new nuclear units at NRG's existing South Texas nuclear power plant at a cost of \$5 billion, as well as coal plants in Delaware and either New York or Connecticut. The proposal also calls for a mixture of wind turbines, natural gas- and coal-fired plants and nuclear capacity in California, Texas and the south-central part of the U.S. The plants together would have a generating capacity of about 10,500 megawatts, equivalent to 20 major power plants.

NRG, which exited bankruptcy proceedings in December 2003 after shedding \$6 billion of debt, recently rejected a buyout offer from Mirant Corp., Atlanta, which itself completed bankruptcy reorganization at the beginning of the year.

People with knowledge of the proposed NRG program said Mirant was unaware of the plant-building initiative but that NRG's strong response in rejecting the unsolicited offer was partly based on fear it could upset or impede the building program on which employees had been working for about a year.

One person said plants wouldn't be built without contracts in place to purchase the output. One reason NRG went into bankruptcy was that it purchased expensive gas turbines and pursued projects with customers lined up first. When energy markets stumbled, it was left with enormous flow to service that debt.

The company is expected to emphasize the importance of the program to its customers. One reason NRG's chief executive, says, is that it is a "moral imperative" to do so.

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Why Study Was Done?

- Major industrial association's environmental committee asked
 - What is the current state of membership activities concerning GHG?
- Results will be fed to issues committee
 - What are the policy implications of GHG changes on our industry?
 - What should we be doing about it?
 - As an organization
 - Legislative, regulatory and legal
 - As individual companies



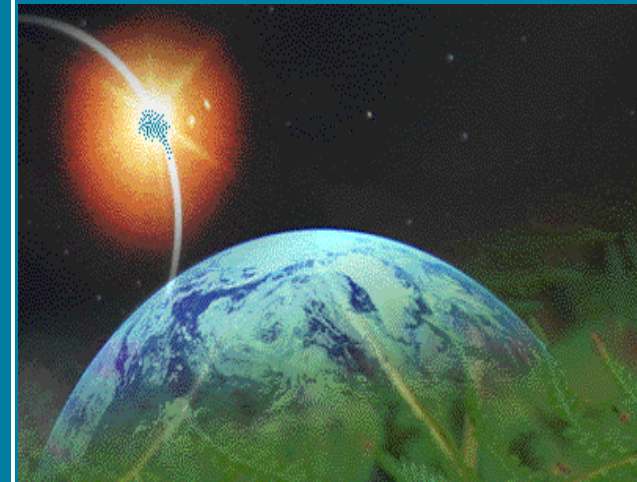
Methodology

- Phone interviews of EHS and business managers of major US industrial corporations
 - Average market cap > \$20 billion
- Focused on energy intensive industries
 - Albeit literature information collected from non-energy intensive firms
- Open-ended interviews



Findings – Current State

- Vast majority of companies are taking some action
 - Measurement
 - Energy conservation programs
 - Public policy statements
- None are currently doing any carbon trading
- None are accounting for carbon credits at the current time

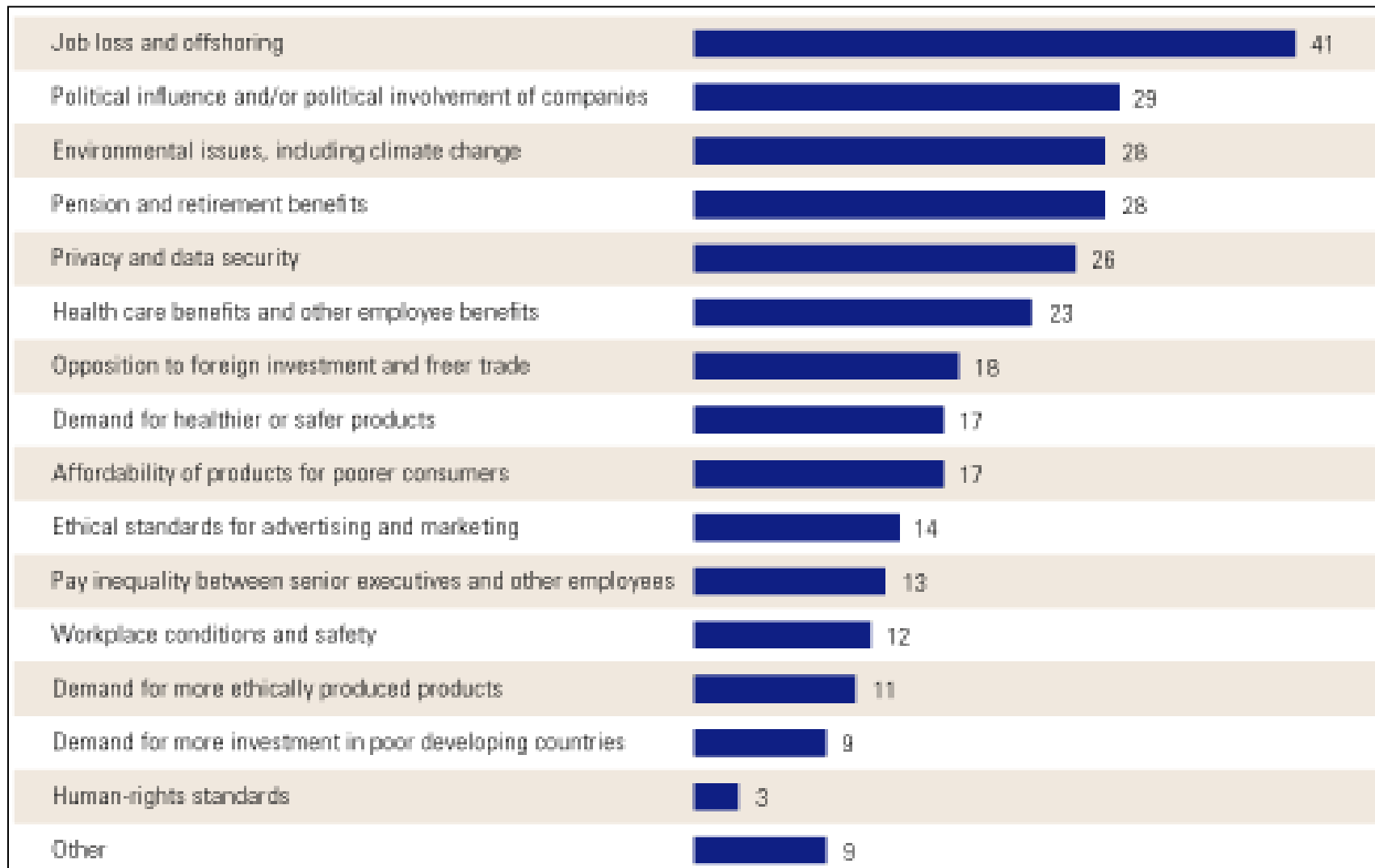


Findings – Key Drivers

- Most common driver:
 - Leadership
 - CEO's and COO's are leading EHS departments!
 - Executives realize a carbon constrained world is in their future
- Foreign business economics
 - GHG cap and trade programs have a major cost impact
- Shareholder resolutions



Which Issues Will Affect Shareholder Value During Next Five Years?



Source: McKinsey & Company

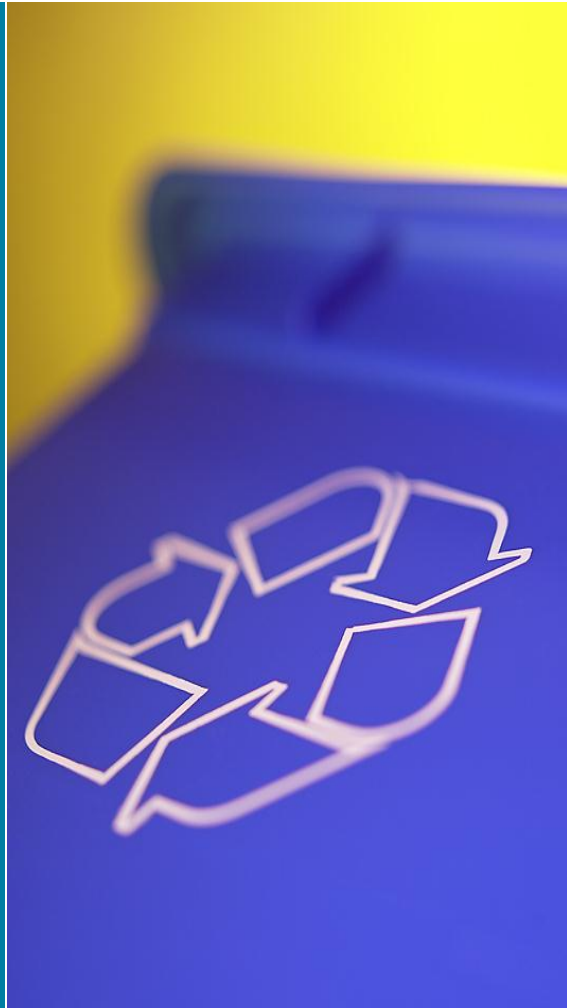
Findings – Energy Conservation

- All companies taking action on GHG issues have energy conservation programs
 - Only makes sense in an era of \$7+/MMBTU natural gas prices
- Few have altered economic criteria for funding capital projects



Findings - You Get What You Measure

- Energy conservation/ GHG metrics critical for success
- Need to normalize
 - GHG per lb of product
 - GHG per \$ of sales
 - GHG per \$ of value added



Findings - Future Trends

- Development of public policy positions
- Incorporation of GHG emissions in project economic analyses
 - Carbon credit/tax on projects



Findings – What Keeps Them Up Nights?

- Patchwork regulation
- Government policy that does not spread impact across all industries
 - Only energy intensive industries required to take action
- Crash program results in unacceptably high economic impact
 - Results in a recession
 - Consumer backlash
- What is the baseline?
 - Adverse impact on early action
- Uncertainty



The Importance of a Broad Regulatory Reach

- Cost of reducing 1 ton of CO₂ :
 - Building insulation
 - -\$200/ton
 - Auto fuel efficiency
 - -\$45/ton
 - Nuclear power
 - +\$5/ton
 - Wind
 - +\$25/ton
 - Biodiesel
 - +50/ton
- If you only focus on heavy industry abatement costs will soar



GHG Management is Coming to Rocky Mountain West

- Southwest Climate Change Initiative: Collaborative effort between NM and AZ to reduce GHG emissions
- Western Governors' Association (19 states):
 - Unanimous call for local, state, regional, and national programs to reduce GHG emissions



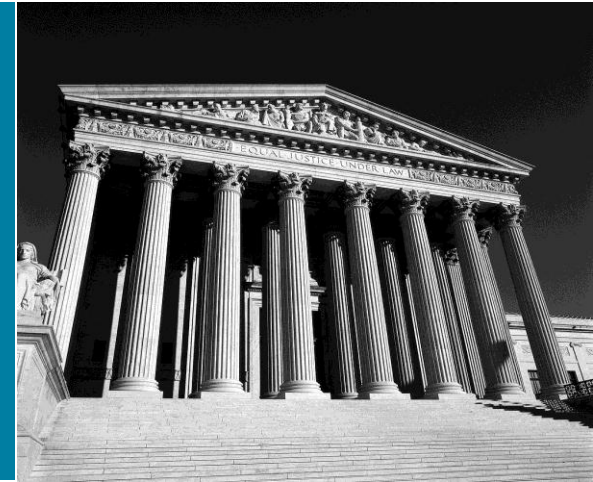
2006 Federal Legislative Action

- Global Warming Pollution Reduction Act (Jeffords S. 3698) July 20.
- Safe Climate Act (Waxman H.R. 5642) June 30.
- Climate Stewardship Act, (Gilchrest H.R. 759).
- Keep America Competitive Global Warming Policy Act of 2006 (Udall, Petri H.R.5049) March 29.
- "The Strong Economy and Climate Protection Act" (Feinstein March 20).



Federal Court Activity

- *Massachusetts v. EPA*, U.S., Supreme Court decides case re: EPA authority to regulate GHGs from mobile sources
 - Originates in a 1999 petition by NE states, Env. Groups.
 - Lawsuit determined that CAA gives EPA the authority to regulate GHGs.



California – AB32

- California Global Warming Solutions Act, AB32
- Calls for reduction in GHG emissions to 1990 levels by 2020.
 - Emission caps effective by 2012
 - Expected 25% reduction in state-wide emissions.
- Targets heavy industry.
 - Reductions will likely exceed what efficiency project may provide



Solutions

Sunoco experience:

- 22.9% decrease in energy per BBL of crude oil refined since 1990
- 19.9 million MMBTU's saved per year
- \$139 million in avoided energy costs
 - Assumed \$7/MMBTU
- Reduced GHG emissions by 1.2 million metric tons
 - 270,000 cars

Johnson and Johnson experience:

- 40 new projects approved for funding
- \$77 million capital cost
- 80,000 metric tons CO₂/yr reduction
 - 17,500 cars
- Average IRR: 17%



Solutions

One DuPont landfill gas project:

- GHG reduction equivalent to removing over 71,600 cars, or;
- Planting 96,800 acres of trees
- Real dollar savings

Pfizer experience:

- Over 900 energy conservation projects
 - Investment of approx. \$70 million
- Recurring savings of \$30 million per year
- GHG emission reductions of 201,000 MT/year
 - 44,000 cars



So Who Made the Right Bet?



April 10, 2007

TXU Sheds Coal Plan, Charts Nuclear Path

**Expansion Efforts Include
Large Plants in Texas;
Rivals Likely to Follow**

Suggested Actions

- **Get out front on this issue**
 - It is likely your CEO may already be there
 - Form a cross-functional team
- What is the impact of a carbon constrained world on your business?
 - Feedstock cost and availability
 - Steel vs. aluminum vs. wood
 - Energy costs
 - Product mix
 - Consumer impact



Suggested Actions

- Track and report financial risks
 - GHG is part of an era of increased transparency
- Drive your energy efficiency group
 - Start applying a “carbon tax” on new projects
- Help shape regulations
- Manage product emissions
 - Look at your product’s life cycle costs



Credits

- Survey was jointly conducted with Ron Crum of URS Baton Rouge
- McKinsey & Co provided results of their CEO Survey and cost of CO₂ abatement
- Matt Hodges of Valero provided legislative and legal summary
- Today's conclusions are solely those of the author





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Imagine the result