A Look at How Industry is Responding to Climate Change from a Human Capital Perspective

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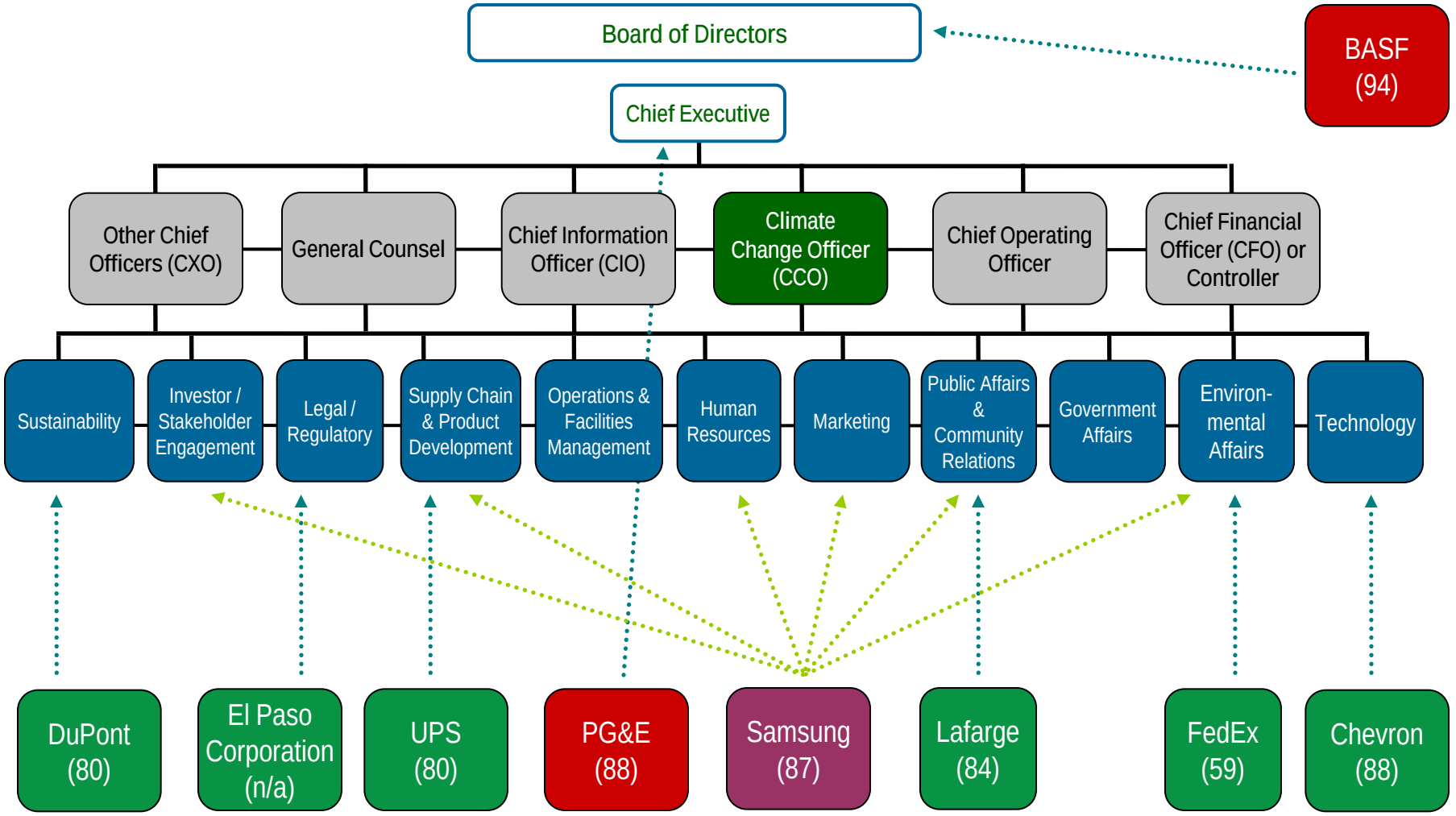
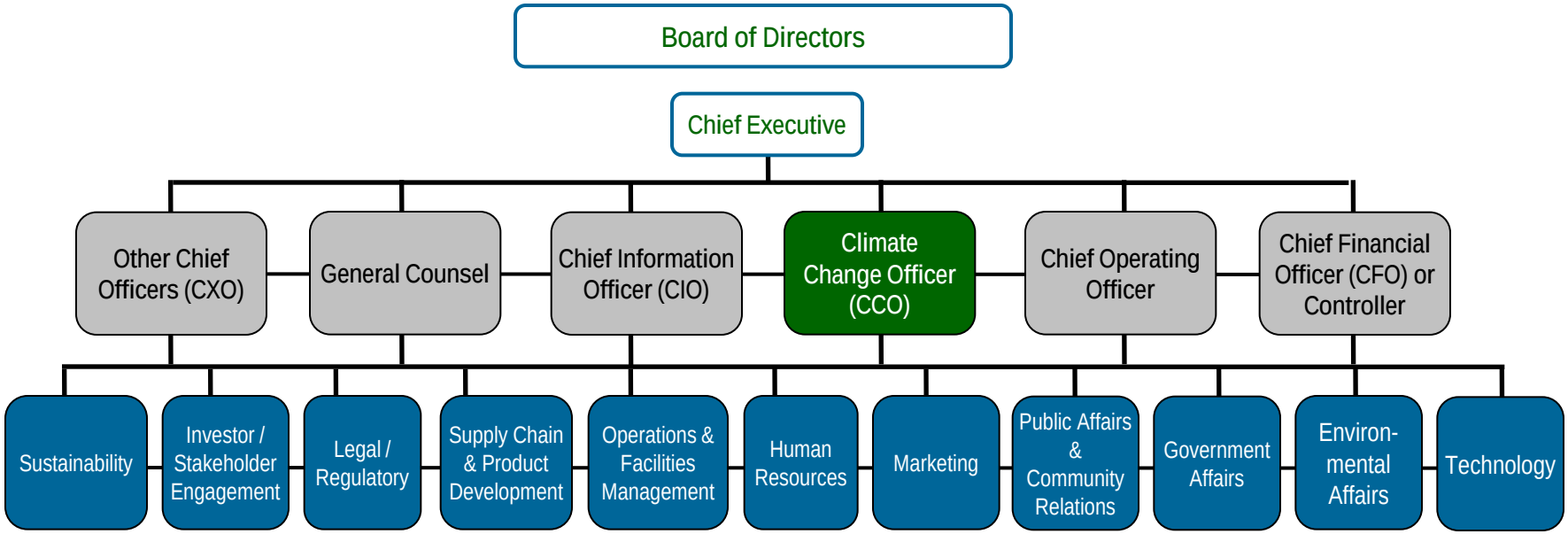
Advancing Climate Change Officers
in the Private and Public Sectors

- S&P 500: 87% of Carbon Disclosure Project respondents in 2011 showed board or senior management oversight (this is up from 68% in 2009)
- Over 700 public and private colleges and universities have become signatories to the American College & University Presidents' Climate Commitment (ACUPCC)
- More than 1,100 cities are participating in the U.S. Conference of Mayors Climate Protection Agreement
- Half of American states are involved in regional pacts (24 states as members, 10 states formally observing) -- 3 regional initiatives/pacts, 1 state cap-and-trade program, and existing/impending legislation in numerous states
- Executive Order 13514 (issued by President Obama in October 2009), requires development of a sustainability plan in all Federal agencies
    - Primary responsibilities detailed in the plan are related mostly to climate change and energy – 2011 GreenGov Symposium (www.GreenGov2011.org)


Board of Directors
BASF (94)
Chief Executive
Other Chief Officers (CXO)
General Counsel
Chief Information Officer (CIO)
Climate Change Officer (CCO)
Chief Operating Officer
Chief Financial Officer (CFO) or Controller
Sustainability
Investor / Stakeholder Engagement
Legal / Regulatory
Supply Chain & Product Development
Operations & Facilities Management
Human Resources
Marketing
Public Affairs & Community Relations
Government Affairs
Environ-mental Affairs
Technology
DuPont (80)
El Paso Corporation (n/a)
UPS (80)
PG&E (88)
Samsung (87)
Lafarge (84)
FedEx (59)
Chevron (88)

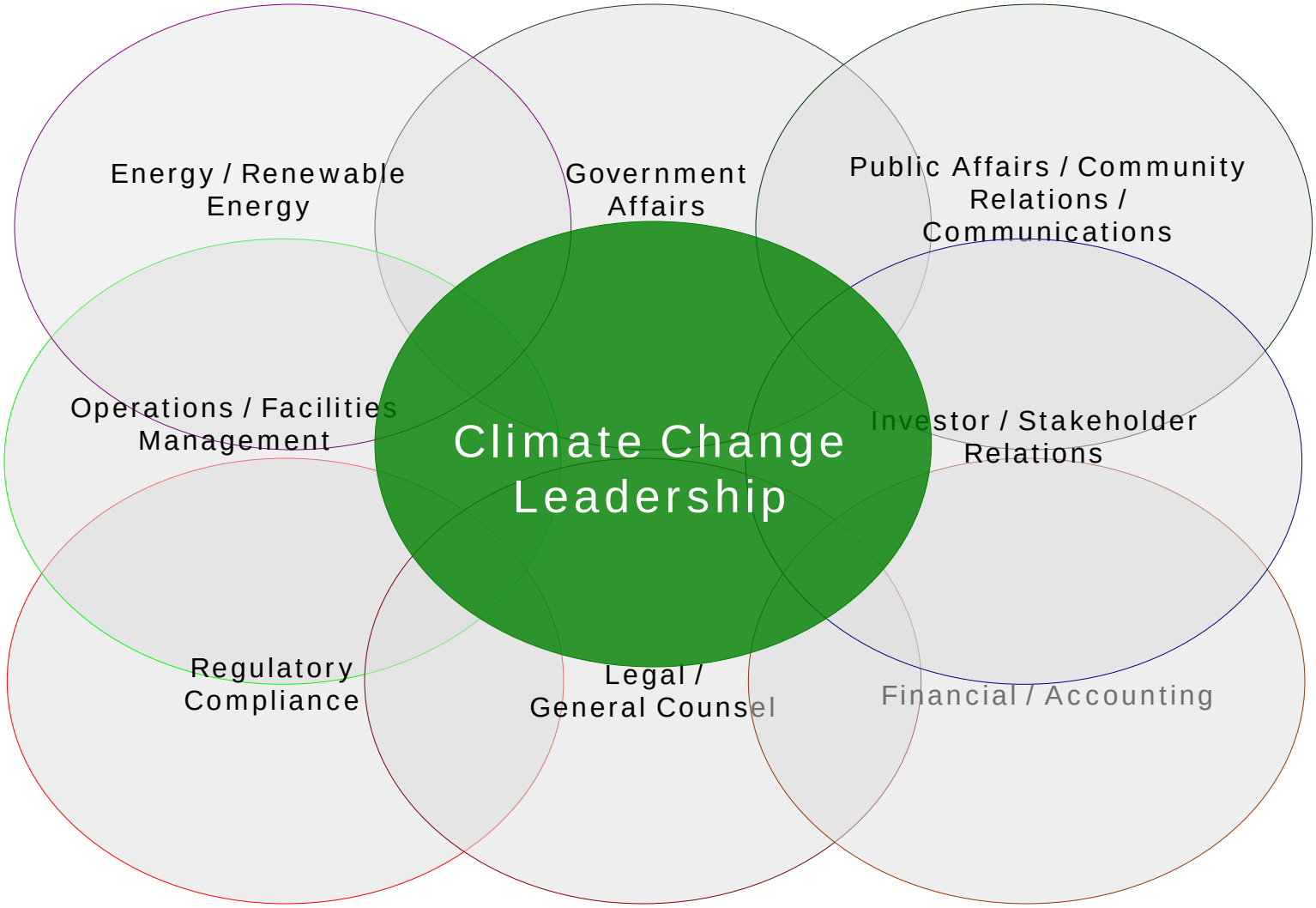
- PG&E – CEO (also specifies CSO)
- ExxonMobil – Management Committee
- Shell – EVP (reporting to CEO) and 25-person group
- Exelon – Vice President of Corporate Strategy and Exelon 2020 group
- NextEra (FPL) – SVP of Strategy, Policy and Business Process Improvement and VP of Environmental Services (2009)
- Edison International – Board Visibility
- ConEdison – Board EH&S Committee
- Duke Energy – SVP of Federal Government and Regulatory Affairs
- Southern Company – Chief Environmental Officer (who is also SVP of Research and Environmental Affairs) reports to COO
- Chevron – VP of EH&S (reports to VP for Technology and Services)
- Kinder Morgan – Did not reply to CDP
- Covanta – Board Public Policy Committee



If you do what you've always done …

you'll get what you've always gotten.

- Regulatory
  - Local, state, regional, Federal, foreign and international
- Legal / liability
- Physical
  - Weather impacts, natural resources, sea-level rise, ecosystems, etc.
- Public health
- National security
- Market & consumer forces
- Investor & stakeholder forces
- Supply chain / procurement
- Unstable energy and natural resource costs
- Investments
- Recruiting
- Efficiencies
- New lines of business
- Competitive advantage
- Emissions markets


Energy / Renewable Energy
Government Affairs
Public Affairs / Community Relations / Communications
Operations / Facilities Management
Climate Change Leadership
Investor / Stakeholder Relations
Regulatory Compliance
Legal / General Counsel
Financial / Accounting

- Who are the people in this role (which has only existed for a few years)?
- To whom do they report?
- Who reports to them?
- What are their backgrounds and experience?
- Did the organization change structures to implement this new function?
- Was this person new to the organization?
- What training/education is required of this person?
- What training/education is provided for this person?
- What other primary responsibilities are bestowed upon this person? (e.g. sustainability, business development, corporate responsibility, EH&S, etc.)
- What is the salary range for this position?

About Dell Home

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Dell Meets Carbon Neutral Goal Ahead of Schedule

Round Rock, Texas, August 6, 2008

- **Green Energy Investment Covers 100 Percent of Global Electricity Use**
- **Partnership with Conservation International Preserving Madagascan Forest**

Dell has met its carbon neutral goal ahead of schedule, achieving a major milestone in its commitment to be the 'greenest' technology company on the planet and fulfilling a pledge to operate efficiently, maximize investment in green power and responsibly offset remaining impacts.

"We're driving 'green' into every aspect of our global business," said Dell Chairman and CEO Michael Dell. "This includes setting new standards for energy efficiency and green power, delivering environmental and cost savings for customers and aligning key growth priorities with our focus on preserving our shared Earth. Every company can join Dell and the ReGeneration in this long-term commitment."

Dell met its goal early by implementing an aggressive global energy-efficiency campaign and increasing purchases of green power, verified emission reductions and renewable energy certificates. Since 2004, the company's annual investment in green electricity from utility providers, including wind, solar and methane-gas capture, has grown from 12 million kWh to 116 million kWh, an increase of nearly 870 percent. Earlier this year, the company announced that its global headquarters campus is powered by 100 percent green energy.

Dell today also announced that it is making additional investments in wind power in the U.S., China and India. Combined with green electricity purchases from utility providers, this equates to 645 million kWh and the avoidance of more than 400,000 metric tons of CO_2e.

The company is already saving more than $3 million annually and avoiding nearly 20,000 tons of CO_2 through facilities improvements and a global power-management initiative.

"I want to thank our employees for working so hard to make this possible," said Mr. Dell. "As always, our work is only getting started and this has never been more true than our focus on green."

Dell is also partnering with Conservation International on a habitat and forest preservation initiative

THE WALL STREET JOURNAL.
WSJ.com

U.S. NEWS | DECEMBER 30, 2008

Green Goal of 'Carbon Neutrality' Hits Limit

By JEFFREY BALL

ROUND ROCK, Texas -- Computer giant Dell Inc. said this summer that it has become "carbon neutral," the latest step in its quest to be "the greenest technology company on the planet."

What that means, and what it doesn't, may surprise Dell customers and other consumers who have been bombarded with bold environmental promises from major corporations.

In the two years since Al Gore's movie, "An Inconvenient Truth," helped make climate change a marquee issue, companies from Timberland Co., the shoe maker, to News Corp., the owner of The Wall Street Journal, have promised to become "carbon neutral."

The term may suggest a company has reengineered itself so that it's no longer adding to the carbon dioxide and other greenhouse gases scientists say are contributing to climate change. The experience of Dell, one of the few multinational corporations to claim it already has achieved carbon neutrality, shows the reality often falls short of that ideal.

The amount of emissions Dell has committed to neutralize is known in the environmental industry as the company's "carbon footprint." But there is no universally accepted standard for what a footprint should include, and so every company calculates its differently. Dell counts the emissions produced by its boilers and company-owned cars, its buildings' electricity use, and its employees' business air travel.

In fact, that's only a small fraction of all the emissions associated with Dell. The footprint doesn't include the oil used by Dell's suppliers to make its computer parts, the diesel and jet fuel used to ship those computers around the world, or the coal-fired electricity used to run them.

Dell's announcement that it had achieved carbon neutrality didn't go into these details. But in an interview, Dell officials estimate that the emissions produced by its suppliers and consumers each amount to about 10 times the footprint Dell has defined for itself. That means the company is only neutralizing about 5% of the greenhouse gases that go into the making and use of its products.

Moreover, while Dell is improving its energy efficiency, it is claiming carbon neutrality mostly by purchasing environmental "credits." These are financial instruments that bankroll environmental improvements made by others, such as running wind turbines or planting forests. Dell reasons that

The Washington Post

House Is Abandoning Carbon Neutral Plan

Move Highlights Congress's Green Struggle

By David A. Fahrenthold
Washington Post Staff Writer
Sunday, March 1, 2009

The U.S. House of Representatives has abandoned a plan to make its offices "carbon neutral," a sign that Congress is wrestling with a pledge to become more green even as it crafts sweeping legislation on climate change.

The promise that the House would effectively reduce its greenhouse gas emissions to zero was a centerpiece of the Green the Capitol program in which the new Democratic leadership sought to use Capitol Hill as a kind of a national demonstration project.

But last week, a spokesman for the House's chief administrative officer said the chamber's leadership had dropped an essential part of the plan, the purchase of "carbon offsets" to cancel out emissions from its buildings. Offsets are a controversial commodity that promises that a certain amount of pollution was captured or avoided elsewhere.

"Right now, there is no plan to purchase more offsets," spokesman Jeff Ventura said. The House paid $89,000 for offsets to cover the last session, in 2007 and 2008.

The decision comes as legislators also struggle with the future of the Capitol Power Plant: Hundreds of demonstrators with Greenpeace, the Rainforest Action Network a against the plant's continued use of coal.

Both issues, the proper use of offsets and the right way to clean up old smokestacks, will probably come up in the national debate over climate change measures expected

Congress is learning that even in its back yard, the weeds get pretty deep.

"It's very easy to make glib promises and a heck of a lot harder to follow through with real action" on climate change, said Frank O'Donnell of the nonprofit group Clean A guess, they're saying, 'Gee, it's not going to happen very easily.' "

In addition, the House aimed to be the "World's First Carbon Neutral Legislative Body." Although the Senate promised to become greener, it not go that far.

The first step in the House's plan was to reduce energy use in its buildings. Workers replaced light bulbs in thousands of office lamps and made vending machines and air conditioners more efficient. And the House has paid Pepco extra for power from wind farms.

Still, planners said, emissions remain. For example, the House gets the steam for its heat from the Capitol Power Plant. In addition to burning coal, the plant uses natural gas.

So the House turned to offsets. In 2007, it paid a market, the Chicago Climate Exchange, for offsets equaling 30,000 metric tons of carbon dioxide.

But The Washington Post reported last year that although the money was funneled to projects that captured greenhouse gases or avoided their emission, many had been completed before the House paid a cent. Experts said those issues make it hard to say that the House's money had caused the environmental benefits the chamber paid for.

"Maybe they're admitting that what we did [in purchasing offsets] was actually nothing," said Rep. Dan Lungren (Calif.), the ranking Republican on the House administration committee, which oversees the office that purchased the offsets.

On Friday, Ventura issued a statement saying that carbon neutrality was no longer the House's goal.

"Although original 'carbon neutrality' targets were achieved [in the last Congress], we recognize a widely accepted standard for 'absolute neutrality' does not exist, nor is there any formal accreditation process to certify an organization is carbon neutral," Ventura said. "Therefore, the second phase of Green the Capitol will focus on the continued reduction of carbon and the saving of energy through operational improvements."

This will come up again. Democratic leaders say they want to have a bill ready for debate this summer that would create a "cap-and-trade" system for greenhouse gases.

In such a system, Congress might give polluters the option of buying offsets. A power plant might pay to plant trees elsewhere in the United States or around the world, for example, because the trees capture carbon dioxide as they grow.

"It is a complicated decision," said Katherine Hamilton of the analysis group Ecosystem Marketplace. "They're going to have to decide: What are the criteria that create a viable offset? [How should they] set out the rules on how people play the game?"

The Capitol Power Plant has also been a sticky issue -- and a more obvious one because its smokestacks are just blocks from the Capitol. After a request from

Climate Change and Shareholder Value In 2004

On 1st November 2003, the Carbon Disclosure Project (CDP) issued a second information request to the FT500 Global Index companies. 95 institutional investors representing assets in excess of $10 trillion are signatories to the request, which asked for disclosure of investment-relevant information relating to the risks and opportunities presented by climate change. Full details of the responses and reports can be found at www.cdproject.net

Significant differences of opinion within FT500 still exist.

It is clear that many companies within the same sector do not agree on the importance of climate change on their business and the competitive conditions in their particular industry. The following examples illustrate the differences in companies' opinions with respect to the relevance of climate change to their business:

Believe climate change not relevant to business	vs.	Believe climate change highly relevant
Chemicals		
Bayer states that "the risks of so-called 'climate change' have neither been proved nor refuted… Results by IPCC have periodically illustrated the possible risks of climate change, but they have also revealed significant uncertainties in the estimates based on the models used". However, the company does think precaution is best and does	vs.	**Air Products and Chemicals** not only recognize the potential impact but that understanding climate change "is critical to managing commercial risks and seizing upon new business opportunities that arise from responses to external climate-change policy drivers".

Climate change is a truly global issue, which cannot be solved exclusively at a national or regional level. To avoid migration of energy- and/or GHG-intensive production processes to countries with low climate-related regulatory standards, Bayer strongly advocates ambitious and consistent international frameworks (e.g., a global emission trading scheme).

Bayer

In the energy management growth cluster, we are developing new

Table 1: The highest scoring companies in CDP 2009

Company	Sector
Bayer	Health Care
BASF	Materials
HSBC Holdings	Financials
Wal-Mart Stores	Consumer Staples
Chevron	Energy
Cisco Systems	Information Technology
PG&E	Utilities
Public Service Enterprise Group	Utilities
Spectra Energy	Energy
Bank of Montreal	Financials
Boeing	Industrials
Carnival	Consumer Discretionary
Rio Tinto	Materials
Samsung Electronics	Information Technology

the CDLI, with four (Australia, Germany, UK and the US) represented by at least five companies – possibly reflecting the increasing driver of carbon reporting regulation in these countries;

- Companies from the US make up 50% of the CDLI; a marked rise in the standard of carbon disclosure over the last year. This demonstrates that US corporations are taking climate change seriously

receiving recognition on this basis; and

- The CDP 2009 methodology rewarding companies more for providing specific information that answers the question and informs investors, rather than for a high level of general detail.

A high score in the CDLI reflects a company's ability to manage and report on carbon and climate change in

Understanding the Workplace

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- Green Jobs
  - Any job whose primary responsibilities are focused on environmental sustainability of the employer organization's operations
    - Sample jobs: Chief Sustainability Officer, Design for the Environment Manager
- Clean Energy Jobs
  - Any job required to produce clean energy or develop clean energy technologies.
    - Researcher, transmission grid, engineering, any clean energy company
  - *Note: A clean energy job is not necessarily green*
- Job Greening
  - A job whose primary responsibilities and expectations incorporate energy and the environment
    - Sample jobs: Chief Financial Officer, Risk Management Professionals, Chief Executives, etc.

- Significant challenges from a human resources and leadership perspective
  - Inducing change in organizational culture by:
    - Incorporating climate change response into employee performance reviews;
    - Developing incentive structures for employees whose innovations result in risk mitigation, cost and emissions reductions, and/or new or increased revenue streams; and
    - Establishing internal communications campaigns.
  - Staffing new positions with qualified professionals.
  - Reviewing and developing new organizational structures to accommodate change in management and operations.

- Understanding the risks that each organization faces in relation to the impact of climate change on the organization's operations, knowing which of those risks can be insured and those that cannot, and how to guide the future of the organization in a way that minimizes the negative impacts of those risks;
- Developing and directing climate change strategies and coordinating implementation efforts across organizational components;
- Engaging stakeholders and investors to establish and direct partnership, supply chain management, and other programs;
- Participating in the development of public and government affairs strategies and directing efforts specific to climate change;
- Quantifying the value of climate change response mechanisms and programs and the return on investment in those efforts; and
- Serving as the public spokesperson on climate change-related issues.

- Is the role assigned to address climate change considerations operating in a silo or vacuum?
- Is the role assigned to address climate change empowered to affect a change in culture across different operating components of the organization?
- Is the person assigned to oversee development and management of climate strategies properly qualified and skilled?
- Does the climate change officer meet regularly with senior management and with leadership and middle-management across organizational components?
- Does the organization have an action plan for each component of the climate change strategy (and for each division)? Have members of each division of the organization provided input into this plan and are they accountable for the areas of the plan that are their responsibility? How involved is the climate change leader(s) in the development (or review) of each of the action plans?
- Do employee reviews across all components of your organization take into account individual contributions to the organization's climate strategies?

Adaptation Activities

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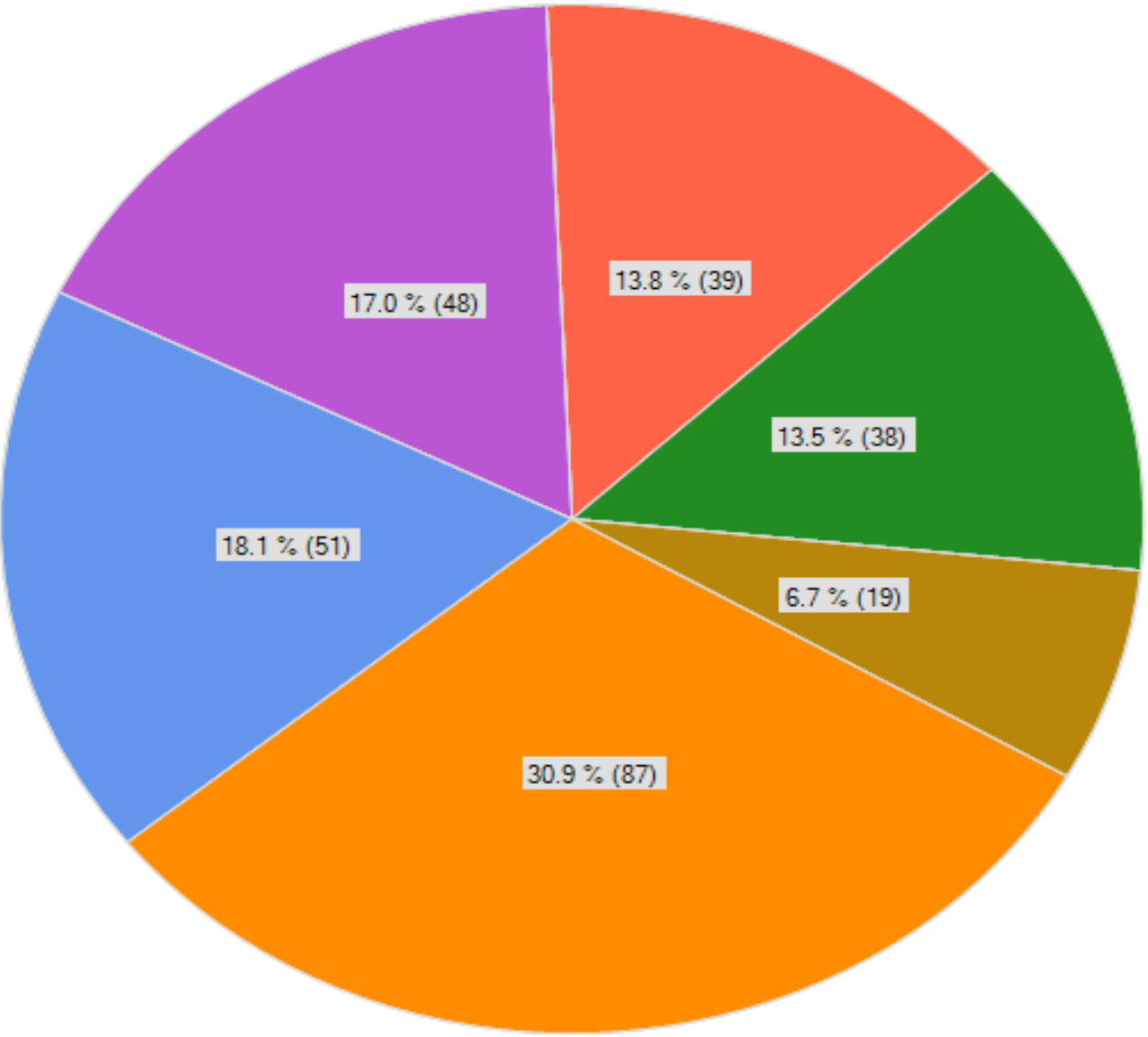
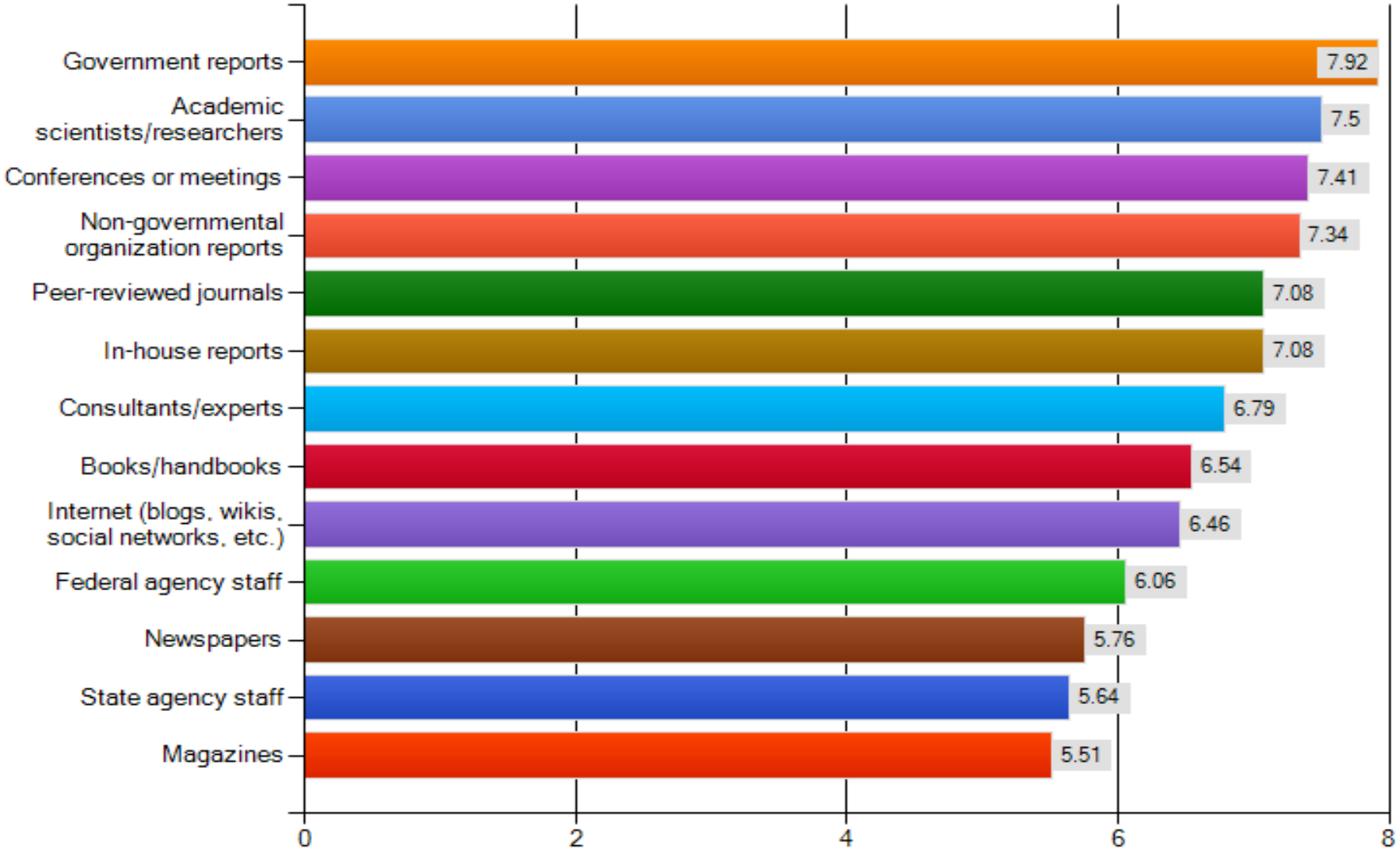
- Formed in May 2011
- During formation meeting, 0 out of 140 participants indicated they were incorporating climate science/research into operational strategies
  - Reflective of substantial gap between climate science experts and decision makers in organizations and policy makers
- Working group is serving as a conduit between the climate science and research communities and operational practitioners

- Survey conducted in August/September 2011 to identify and analyze tools and resources being used by climate practitioners
- 423 respondents across sectors, geographies and levels of seniority
- Questions focused on tools and resources being used
  - Seeking to identify gaps and trends
- Questionnaire developed by ACCO Adaptation Working Group in collaboration with U.S. Global Change Research Program
  - Abstract from final report was published in October 2011

Is climate change incorporated within your organization's policies? (Please read each answer carefully.)



What sources do you consult for climate change information that may influence a decision at your organization? Please rate the frequency of your use of this information.



When asked to indicate whether there were barriers in their organizations to understanding climate, planning response to climate impacts and managing climate response strategies, respondents indicated:

	Yes	No	Other
Understanding	31%	54%	14%
Planning	44%	43%	13%
Managing	49%	40%	11%

Barriers to Understanding

- 122 responses. Themes included:
  - Education
  - Lack of local models
  - Technical expertise at local level
  - Media misinformation/political influence
  - Lack of political support
  - Immediate concerns (economy)
  - How to train staff?
  - Climate change data moving target
  - Questionable ROI with high levels of uncertainty

Barriers to Planning

- 120 Responses. Themes included:
  - Accountability: Who will pay/benefit?
  - Uncertainty of model accuracy
  - Legislation does not require economics
  - Financial and human capacity
  - Lack of national action plan
  - Lack of tech resources/planning models
  - Poor direction/communication from public to private sectors
  - Eco-system services valuation
  - Need to update missions
  - Time
  - Short term focus dominates
  - Integrated reporting vs. EHS reporting
  - COO vs. CFO
  - Accounting
  - Synthesizing GHG reporting data

Barriers to Managing

- 118 Responses. Themes included:
  - Most not at the management stage
  - Unclear how to bridge planning and action
  - Financial support
  - Human capacity to manage
  - Decentralized decision making
  - Financial and human capacity
  - Regulatory (e.g. NEPA) mission appears to be a moving target
  - Cyclical impacts = hard to manage
  - Need to update missions
  - Time
  - Short-term focus dominates

Where is Support Needed?

- Education (return on investment, sources, journal access)
- Increase partnerships
- Translate into other languages
- Distinguishing difference between adaptation and environmental resource management (ERM)
- Planning tools (best management practices, lessons learned)
- Clear industry standards (engineering/infrastructure)
- Training
- Case studies
- Lobbying
- Establishing sectoral best management practices
- Workshops
- Local models

Conclusion

- As the general public, industry, and government come together to build comprehensive solutions to address climate change risks, human capital is the critical component that will enable success in responding to climate change considerations while enhancing the quality of operations/activities and the bottom line of industry, academia and government in all sectors and geographic regions.
- For more information:

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