

BUSINESS RESILIENCE WORKSHOP MARCH 24, 2015, WASHINGTON, DC

SUMMARY

The Center for Climate and Energy Solutions (C2ES) hosted the Business Resilience Workshop in Washington, DC, on March 24, 2015. This work is an extension of the research captured in our 2013 report [*Weathering the Storm*](#), and builds on the conversations focused on resilience from workshops in [November 2013](#) and [July 2014](#).

The workshop focused on the specific actions that the private sector is pursuing in managing climate risks, the types of information that they require, and the barriers that they face. Participants included representatives from the private sector, government agencies, consultants and experts. Private sector companies included financial institutions, extractive industries, utilities, industrial and manufacturing companies, information technology companies, and automobile manufacturers. The workshop featured presentations from companies actively working to address risks and develop solutions to build resilience; agency representatives looking to partner with private sector companies to pursue resilience; and experts who provide tools, analysis, and other insights on how the business community can assess climate risks and implement resilience activities. Finally, the workshop included a scenario exercise where participants discussed important considerations for business resilience planning.

The workshop discussions led to a number of key insights. Companies are doing risk management, but there are new challenges associated with spatial and timescale considerations. Climate data, tools, and decision-making processes are improving, and companies are learning how to appropriately frame climate resilience for their own business. It will be important for companies to evaluate the potential costs of climate impacts and compare those to the investment costs required for resilience.

Climate Impacts on Businesses

Climate change can have significant impacts on business activities. Many companies have experienced financial losses due to recent extreme events. In addition to affecting businesses directly, extreme events can have economic impacts beyond the region where they occur, posing threats to infrastructure and business continuity on national and international scales. Climate change acts to exacerbate the risks associated with many types of extreme events.

Discussion of Findings from C2ES Business Resilience Research

In 2013, C2ES released [*Weathering the Storm: Building Business Resilience to Climate Change*](#), which provides a detailed snapshot of the state of resilience planning among a cross-section of global companies and outlines steps companies can take to better assess and manage their growing climate risks. C2ES is currently undertaking a second phase of this research, including conducting interviews with companies to get a better understanding of the actions they are undertaking, barriers they face, types of tools they are using, and potential future business resilience opportunities. Preliminary findings indicate that companies are taking various actions to assess climate risk and begin resilience planning, but many challenges remain. These findings will be available in summer of 2015.

Panel Presentations – Industry

Several industry speakers described key climate risks to their businesses, actions taken to address risks and build resilience, and challenges that remain. Industry speakers included representatives of extractive industries and the reinsurance sector but many companies joined in to share their perspective.

One interesting insight was about how the issue was framed and discussed internally. The term “hazard” was used with respect to climate change and it was noted that while hazards are not directly managed, risks are. To this end, any hazard, including climate change, creates risk and this risk is simply applied or “layered” onto the overall internal ongoing enterprise risk management activities. Another perspective was that companies deal with risk daily but the risks must be identified, the type of risk (acute, chronic or cumulative) determined, and a strategy for either short term or long term activity outlined. It was noted that if risks can be better categorized, they can be better managed. The ongoing nature of risk management was also captured when it was described as a journey that required updating with adaptive management as knowledge and science improved with respect to climate risk.

Another insight was the importance of funding for government agencies that monitor, collect and map climate related data. These activities provide critical inputs that companies rely on as they try to understand their potential risks.

Businesses face various challenges to addressing climate risks:

- Getting the right information in the appropriate format to make decisions can be difficult
- Companies not only have to consider direct risks, but also cumulative risks and risk interactions that may impact operations (e.g., impacts to suppliers, customers, energy providers)
- There is no one-size-fits-all solution – risks vary across regions and time scales
- Climate risks often arise as impacts to supply chains where smaller vendors are not well prepared and transportation of product is impacted
- Resilience investments that have low or no cost are often easy to justify; however, it can be more difficult to understand the full costs and benefits of more significant investments, especially when there are multiple, and often interlinked, dimensions of risk and benefit (e.g., risks and benefits to corporate performance, across communities, and to ecosystems). In this light, it can be a challenge to put a value on the risk so that it can be part of the NPV of decision making. The example of cyber risk was used and noted that five years ago it was not a “balance sheet” issue, but now the potential risks have a clear dollar value and they are part of the risk management efforts of most companies. Weather events can and have provided a similar type of “focusing” event.

Federal Agency Examples

Several federal agency representatives described the approach being pursued by their agencies on climate resilience, including current programs/projects, types of tools provided, and their engagement strategies with stakeholders, including businesses.

The National Oceanic and Atmospheric Administration (NOAA) provides a number of products and services relevant to climate risk assessments at various different spatial and time scales. This includes both historic data and projections for future conditions. In addition, NOAA provides decision support tools such as a [sea level rise viewer](#) and [flood exposure risk snapshots](#). Many of these data and tools are available at [toolkit.climate.gov](#) and [climate.data.gov](#).

The U.S. Department of Energy (DOE) is undertaking a number of efforts to support resilience within the energy sector, including providing technical information, assistance, and decision-support tools. DOE is developing energy-focused information and tools that will be available through the [Climate Resilience Toolkit](#), and is conducting modeling and cost and benefit analysis on energy sector resilience actions. DOE is

also convening and partnering with other federal agencies, the private sector, and other stakeholders to deploy innovative technologies and practices to increase energy system climate resilience. One of these efforts, the DOE Partnership for Energy Sector Climate Resilience, will provide a forum for power companies to share best practices and information, identify gaps and needs, and assess the costs and benefits of resilience actions.

An overarching set of goals of these efforts is to make climate-related risks more tangible, easier to identify, and thus easier to manage.

Requirements for the Consideration and Disclosure of Climate Risks under NEPA

In December 2014, the White House Council on Environmental Quality (CEQ) released the [revised draft guidance](#) that describes how considerations of climate change can be included in a National Environmental Policy Act (NEPA) process. This guidance explains how federal actions should consider the implications of climate change for the environmental effects of a proposed action. For example, extreme heat could impact asphalt stability, consideration of which could influence siting or the materials used in the project. Litigation associated with NEPA and other environmental statutes are sometimes conflicting on how future climate should be considered. There are not many cases dealing with climate risks currently, but this is an area that should be closely watched in the future.

Risk Assessment and Management in a Complex Climate System

Lunchtime discussions drew from several American Meteorological Society (AMS) publications on climate risk management. Physical systems, biological resources, and social institutions are all sensitive to climate. Since humans depend on these systems, resources, and institutions, changes in climate have contributed to and will likely contribute to [societal consequences](#).

AMS developed a report on [Climate Information Needs for Financial Decision Making](#), which provides recommendations to improve climate risk management for financial investments. These include increasing spatial resolution of climate projections, creating a user-friendly repository/portal for climate information, and creating opportunities to bring together financial decision makers, scientists, and service providers.

Panel Presentations – Tools and Collaborations Discussion

We heard from federal agencies and private-sector solutions providers about the products and services that can help companies address weather and climate risks, as well as the types of collaborative opportunities that exist.

The [Climate Resilience Toolkit](#) provides scientific tools, information, and expertise to help people manage their climate-related risks and opportunities, and improve their resilience to extreme events. The toolkit includes the Climate Explorer, a visualization tool that offers interactive maps and graphs of exposure and climate data.

[The Weather Company](#), in addition to being the parent company of the Weather Channel, provides scientific information, data products, and services to inform weather-sensitive decisions. For example, [WSI](#), a division of The Weather Company, works with media, aviation, energy, insurance and utility industries to provide decision-support tools, media products, weather data, and other services to help companies communicate with customers, plan for potential disruptions from weather events, and improve trading decisions.

The [U.S. Global Change Research Program](#) (USGCRP) is working with various agencies and other stakeholders on regional preparedness and resilience efforts. These include White House preparedness and resilience exercises, Department of Homeland Security regional resilience assessments, and partnerships with the private sector.

One of the main barriers to corporate resilience efforts is the missing link between collecting climate data and understanding company-specific impacts. In addition, many companies consider climate change only as a sustainability issue and do not incorporate climate change considerations into risk management. [Four Twenty Seven](#) provides tools and analysis services to business to help incorporate climate resilience into corporate planning.

All of these tools, efforts and programs are trying to make climate science, impacts and risk easier to understand and act on. One presenter called it “actionable science”.

Scenario Exercise: Planning for Current and Future Extreme Weather Events

Participants worked through a hypothetical scenario in which an imaginary company is facing an imminent weather threat (e.g., hurricane making landfall within a few days). They discussed the ways in which this business might be affected by the event, and steps that they might take minimize these risks. They considered different strategies for addressing longer term risks, including the types of information would they need, investments might be prudent or risky, and how they might convince colleagues or upper management.

Please see the Appendix for more information on this session.

Roles for the Private Sector in Building Resilience

It is clear that engineering standards and building codes need to be updated to reflect changing climate conditions. These standards and codes can facilitate business decisions, and send a signal to the private sector that reinforces the need to take action to adapt to climate impacts. Various federal agencies are working on improving standards, guidance, and policies in collaboration with the private sector.

Businesses are working on evaluating the potential costs of climate change impacts, and comparing those to resilience costs and the potential benefits provided by resilience actions. These types of metrics are essential for business planning and investments.

APPENDIX

Scenario Exercise

The exercise was designed for participants to discuss emergency preparation and response, longer-term risk management, options for building resilience, and if time allowed, communicating a resilience strategy. To set the context for the discussion, participants were asked to consider short-term responses to and potential impacts from a major hurricane on a hypothetical widget manufacturer in the Baltimore, Maryland region. After this initial discussion, participants were asked to discuss implications for longer-term management of extreme weather and climate risks, and to consider the advantages, disadvantages, and limitation of various options for reducing risk.

Key Takeaways

The nature of the “widgets” is important

If the widgets were perishable or could not be moved easily, then more importance was placed on protecting the facility. However, if widgets could be stored and moved easily, then that created more flexibility for planning, both as part of emergency response and in longer-term risk management.

A single facility must be considered in the context of the corporation’s other facilities

If production could be ramped up in other locations to offset the losses or temporary closure of the affected facility, and those other facilities were unlikely to be affected by the storm, the company would have more options for coping with impacts.

Regional impacts are important to consider

The participants were interested in how key infrastructures might be linked. For example, would the surface roads be affected before the widget facility, preventing employees from getting to work? How and where might the electricity system experience disruption? Coordination with the company’s supply chain is also critical.

Non-climate risks may influence decisions

Participants were interested in knowing about other types of risks that the company or facility may be facing. These risks may be important to consider in the process of making decisions on resilience. Is the facility or the equipment old or in need of upgrading? What is the company’s situation regarding other competitors within the broader widget marketplace? What other issues of concern exist regarding its employees, or with its relationship with Baltimore?

Employee considerations are a high priority

Discussion often focused on the challenges faced by employees and their ability to report to work following the storm (e.g., would they have heat and power at their houses? Would they be evacuated? How can we confirm or assist with employee safety?). This was an interesting contrast to many vulnerability assessments that focus narrowly on physical assets and services.

Identifying relevant planning horizons is valuable

While many considered timescales to be critical, determining the correct timeframes for decision-making was a challenge. In the normal business context, a five-year horizon can seem like long-term planning. However, in a climate context, five years is typically considered as a near-term window.

Participants seemed to agree that working across multiple time frames would be most effective (e.g., a separate set of goals and decisions for this year, for five years in the future, and for several decades in the future), and that trying to explicitly choose these timeframes would be advantageous for “real world” planning.

Funding long-term resilience is challenging

Participants agreed that investing significant capital in actions to increase longer-term resilience can be difficult to justify, particularly if money is tight. Many resilience investments come down to the choice of investing significant resources in the near term in order to prevent future losses versus paying the costs of business interruption, repairs, and recovery following an event. Companies have to weigh the costs and benefits of potential climate resilience investments, which can be difficult to evaluate given the level of uncertainty and lack of information.

The relationship between the company and the city matters

If there is a special connection between the company and the city, then participants were more willing to invest and protect the facility than to consider relocation. Such a connection might include access to a specialized workforce, corporate reputation, unique access to supply/distribution networks, or a beneficial business environment. In addition, the city's commitment to resilience was also discussed – it was seen as a benefit if the city was also willing to invest in reducing climate risk. By the same rationale, if the city was not pursuing some sort of resilience effort, then it was perceived as an incentive to leave the region.

Companies can learn from their peers and other stakeholders

The participants noted that it is important to look at what other companies, organizations, and government agencies are doing to plan for climate risks. Sharing lessons learned, tools, data, and other information can help to leverage efforts and provide opportunities to learn from what others have already done. Benchmarking may be helpful, particularly regionally/sectorally.

Resilience Options

The participants were in favor of pursuing some sort of a local assessment of regional impacts, and wider assessment across the enterprise (i.e., beyond Baltimore and the facility).

Initially, the group discussed pursuing a local assessment, then trying to scale it up to address risks at other facilities, or in other aspects of the business (e.g., supply chains). However, after further consideration, many group members made a case for understanding corporate-wide climate risks and adaptation options as a pre-requisite for investment decisions at the Baltimore facility. For example, participants considered the potential feasibility of ramping up production at different facilities, as well as the climate risks at those facilities. It's possible that other facilities would be unable to handle additional production, or that other facilities would be more or less climate sensitive than the Baltimore location.

Another interesting concept that emerged was the “velocity of change.” While technically difficult, it would be compelling to communicate to senior managers a relative sense of how fast or how soon future impacts may arrive. A common understanding of the velocity of change would be important in establishing a commitment level for building resilience.